INTERNATIONAL SEISMOLOGICAL CENTRE (ISC)

2017

Annual Director's Report



The year 2017 was a very productive year for the ISC thanks to the support of 65 Members and 11 Project Sponsors. The Visual Bulletin Analysis System (VBAS) was finally put into operation, completely phasing out the routine use of paper and bar codes and making the ISC fit to cope with the ever increasing number of station reports. Bulletin data for earthquakes and other seismic events during recent (2014-2017) and historical (1904-1919) periods were added to the ISC database. The ISC Bulletin has been rebuilt for the period 1964-1979. The ISC-EHB has been extended to the overall period 2000-2014. We ran the 1st British Seismology Meeting that turned out to be rather international and maintained the ISC conference booth at the AGU. The ISC web download statistics and the large number of scientific articles published by researchers in 2017 confirm an extensive worldwide use of the ISC data.

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EXECUTIVE SUMMARY

- The ISC gratefully acknowledges generous support received from 65 Member-Institutions in 48 countries and additional project grants (26% of the total income) from CTBTO, USGS, BGR, FM Global, Lighthill Risk Network, US NSF, OYO as well as sponsorships from Reftek, GeoSIG, Guralp and SRC.
- □ Two new Member-Institutions joined the ISC in 2017.
- □ The 2017 annual income has exceeded the ISC expenditure by approximately £43,500, on the understanding that ~83,000 is still owed to the ISC for 2017 alone, most notably by the three national Member-Institutions in India, Italy and France.
- □ A record total of ~£125,000 is owed to the ISC at the end of 2017; we strongly encourage the ISC membership fees to be promptly paid when invoiced to avoid the ISC having cash flow problems.
- □ 18-19 staff members, three contractors and one member of the Earth Science Department of Oxford University worked at the ISC during the year.
- □ 1,407 seismic stations were registered or modified in the International Seismograph Station Registry.
- □ Within hours and days after an event occurring, the ISC collected and grouped preliminary data from 30 networks and made the **Preliminary ISC Bulletin** available to all users.
- □ The routine process of collection of revised bulletins from ~150 institutions stood at 12 months behind real time; a number of agencies were not able to comply with this deadline and inadvertently hindered the ISC Bulletin analysis.
- □ The Visual Bulletin Analysis System is now fully in operation and the use of paper has been finally discontinued.
- □ 12 full data months were added to the Reviewed **ISC Bulletin** with ~53,000 events and ~6.1 million arrivals; one further data month was in an advanced stage of review; the entire Bulletin was enlarged by ~434,000 seismic events and ~13.7 million associated seismic arrivals.
- □ The ISC Bulletin remains more complete than the bulletins of either NEIC or IDC.
- □ We completed the ISC Bulletin **Rebuild** for 1964-1979.
- □ We released one further issue of the printed **Summary of the ISC Bulletin**, which included several invited network related articles.
- □ The ISC-GEM Global Instrumental Earthquake Catalogue has been extended to include many earthquakes during 1904-1919 and 2014.

- □ References to 577 scientific articles related to ~1,003 seismic events have been added to the ISC Event Bibliography.
- □ We continued operating and improving the **CTBTO Link to the ISC database** which experienced a steady stream of data requests from NDC and IDC personnel; the IDC REB is now contributed to the ISC on a daily basis with an appropriate delay.
- □ The ISC database and the website mirrors at IRIS DMC in Seattle, ERI in Tokyo and LLNL in Livermore guaranteed improved speed of access to ISC data; another set of mirrors in Beijing and Xian have been built by China Earthquake Administration.
- □ We continued updating and distributing the IASPEI Reference (GT) Event List and the List of International Contacts in Seismology.
- □ We released the **ISC-EHB** dataset for 2000-2014 complete with a collection of regional seismicity cross-sections.
- □ We initiated and conducted the 1st British Seismology Meeting (BSM2017) and maintained the ISC conference booth at the AGU Fall Meeting.
- □ The ISC staff published several scientific articles and participated in a number of international and regional scientific and industry conferences.
- □ The ISC has contributed to the work of **IASPEI** by maintaining the IASPEI website, leading several working groups and working at the IASPEI ExecCom.
- □ Impressive ISC data download statistics and a large number of published scientific articles using ISC data indicate a very wide and extensive use of the ISC products by many researchers worldwide.

Signed, June 19, 2017

Dr. Dmitry A. Storchak Director

STAFF and CONSULTANTS

As many as 18-19 members of staff and 3 consultants worked at the ISC during 2017, thanks to the regular Member's support and a number of additional grants given to the ISC by international and public institutions and commercial companies to work on the ISC-GEM Catalogue, CTBTO Link, Station Registry and ISC Event Bibliography.

Among the ISC staff members, there are 8 Ph.D., 4 M.Sc. or equivalent, and 3 B.Sc. or equivalent degrees. The ISC staff represents 11 different countries from 4 continents. Several members of staff took part in professional meetings, travelled to international conferences and participated in professional training programmes.

ISC staff often organise sessions at scientific conferences. Several ISC staff are members of professional organizations such as IASPEI, EGU, AGU and SSA. ISC staff members are engaged in the IASPEI's Executive Committee, commissions and working groups.

MANAGEMENT and ADMINISTRATION



Dmitry Storchak, Ph.D. Director/Seismologist *Russia/UK*



Lynn Elms Administration Officer *UK*

DATA and COMPUTER SYSTEMS



James Harris Senior System & Database Administrator, UK



Alfie Barber Systems Administrator, UK, joined in March



Gergely Csontos Web Developer, Hungary, joined in March

BULLETIN DATA COLLECTION

The data collection team has an Officer communicating with agencies and doing routine data processing. In addition, there is a seismologist who initiates collection of bulletins from newly established permanent networks, identifies, collects and parses bulletins from past and present temporary seismic deployments and experiments around the globe.



John Eve, B.Sc. Data Collection Officer UK



Edith Korger, Ph.D. Data Collection Seismologist, *Austria*

BULLETIN ANALYSIS and BULLETIN REBUILD

Six analysts are engaged in reviewing the current ISC Bulletin. Each member of this team has an additional task either in development projects or in data collection. Two further analysts specialise in the Rebuild of the ISC Bulletin for 1964-2010 period.



Rosemary Hulin, M.Phys.Geog., Analyst/ Administrator, *UK*



Elizabeth Entwistle, Ph.D. Seismologist / Analyst UK



Blessing Shumba, M.Sc. Seismologist / Analyst Zimbabwe



Jennifer Weston, Ph.D. Seismologist / Analyst UK



Rebecca Verney, B.Sc., Analyst, *UK*



Elizabeth Ayres, B.Sc. Geog., Analyst / Historical Data Officer, *UK*



Lonn Brown, M.Sc. Analyst / Administrator of Bulletin Rebuild project *Canada*



Kathrin Lieser, Ph.D. Seismologist / Rebuild Analyst, Editor of the Summary *Germany*

DEVELOPMENT PROJECTS



Domenico Di Giacomo Ph.D. Senior Seismologist *Italy*



Kostas Lentas Ph.D. Seismologist/Developer *Greece*



Daniela Olaru M.Sc.Admin. Historical Data Entry Officer *Romania*

VISUAL BULLETIN ANALYSIS SYSTEM (VBAS) PROJECT



Saiful Khan, Ph.D. in Computer Science, left in February *India*

CONTRACTORS

During the year, the following persons also contributed to the ISC as contractors either working remotely, at the ISC or both:

- **E.R. Engdahl**, Ph.D., *Boulder*, *USA*; taking part in the projects of extending the ISC-GEM Global Instrumental Earthquake Catalogue and ISC-EHB bulletin;
- **Emily Delahaye**, M.Sc., *Reading*, *UK*; summarising the VBAS testing results and training the ISC analysts;
- Maureen Aspinwall, *Newbury*, *UK*; typesetting of the ISC Newsletter.

OPERATIONS

INTERNATIONAL SEISMOGRAPH STATION REGISTRY (IR) as part of the ADSL DATABASE

The International Seismograph Station Registry (IR) allocates globally unique codes to seismic stations worldwide.



Figure 1. 25,202 stations, open or closed, were fully registered in the International Seismographic Station Registry at the end of 2017; parameters of 1,407 of those (in red) were either registered or modified during 2017.

At the end of 2017, the IR contained information on 25,202 stations. During the year, the IR has been particularly improved and extended in Europe, the Mediterranean, Sub-Saharan Africa, South-East Asia, Oceania, Alaska and Central America (Fig. 1) as part of:

- regular ISC Bulletin work,
- inclusion of additional or missing datasets into the ISC Rebuilt Bulletin,
- update of the IASPEI Reference Event (GT) List and
- participation in the CTBTO initiative on the Regional Seismic Travel Times (RSTT).

Notably, the stations of the US Array in Alaska have been registered.

The ISC runs a popular web page giving an account of already registered stations as well as inviting the submission of parameters required to register a new station. Figure 2 gives account of the IR related web searches, per country.

In fact, the IR has become part of the ADSL database (Agency.Deployment.Station.Location) that we designed and continue maintaining jointly with the NEIC. The ISC maintains the agency.deployment "ISC.IR" as a subset of ADSL. In order to use all waveform data available on-line, NEIC routinely updates the ADSL database with stations under the

deployment codes equal to corresponding FDSN two-character network codes, based on dataless mini-SEED files available at IRIS DMC. The ADSL database is housed at the ISC and the changes are copied to NEIC once a week.

Now and in the future, the globally unique ISC.IR station codes will remain an exclusive source of station position information for the historical period of time. Also, the ISC.IR will continue to cover a large number of stations whose waveform data are not available to the international waveform data centres.



At present, for the majority of its standard operational activities, the ISC uses just the IR (almost equivalent to ISC.IR element of the ADSL database). In order to be able to deal with a multitude of additional stations becoming available for data years 2015-2016, largerly from NEIC, the ISC will need to switch to working with the entire ADSL. To make this happen, a very large effort is required to update, test and validate almost the entire operational and web distribution computer code at the ISC.

COLLECTING PRELIMINARY NETWORK BULLETINS

The ISC continues to collect preliminary bulletin data from a large number of networks and data centres. These data are expected to undergo at least a minimal review by local analysts. Typically the incoming data include a preliminary hypocentre location, magnitude estimates, moment tensor solution and station arrival data, though variations are large from agency to agency. 30 agencies reported preliminary data to the ISC during year 2017 (Table 1).

Country	Reporting Agency
Armenia	National Survey of Seismic Protection
Australia	Geoscience Australia
Austria	Zentralanstalt fur Meteorologie und Geodynamik (ZAMG)
Canada	Canadian Hazards Information Service, Natural Resources Canada

Table 1. 30 agencies reported *preliminary* hypocentre determinations and corresponding arrival time data to the ISC in 2017.

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Cyprus	Cyprus Geological Survey Department
Czech Republic	Geophysical Institute, Academy of Sciences of the Czech Republic
Egypt	National Research Institute of Astronomy and Geophysics
France	Institut de Physique du Globe de Paris
France	Centre Sismologique Euro-Mediterranean (CSEM/EMSC)
Germany	Helmholtz Centre Potsdam, GFZ Research Centre for Geosciences
Germany	Landeserdbebendienst Baden-Wurttemberg
Hungary	Geodetic and Geophysical Research Institute
India	National Geophysical Research Institute
India	National Centre for Seismology, Ministry of Earth Sciences
Indonesia	Badan Meteorologi, Klimatologi dan Geofisika
Israel	Geophysical Institute of Israel
Italy	Istituto Nazionale di Geofisica e Vulcanologia
Japan	Japan Meteorological Agency
Kazakhstan	Seismological Experimental Methodological Expedition (SOME)
Kyrgyzstan	Institute of Seismology, Academy of Sciences of Kyrgyz Republic
Norway	University of Bergen
Norway	Stiftelsen NORSAR
Romania	National Institute for Earth Physics
Russia	Baykal Regional Seismological Centre, GS RAS
Russia	Geophysical Survey of Russian Academy of Sciences (GS RAS)
Russia	Kamchatka Branch, GS RAS
Slovenia	Slovenian Environment Agency
Spain	Instituto Geografico Nacional

In addition, there are 18 agencies that produce bulletins soon after an event occurrence and never return to event re-analysis unless there is a special need (Table 2). These agencies can be considered as reporting both preliminary and final bulletins at the same time.

Country	Reporting Agency
Austria	International Data Centre, CTBTO
Chinese Taipei	Institute of Earth Sciences, Academia Sinica
France	Laboratoire de Detection et de Geophysique/CEA
French Polynesia	Laboratoire de Geophysique/CEA
Germany	Alfred Wegener Institute for Polar and Marine Research
Germany	Seismological Observatory Berggieshübel, TU Bergakademie Freiberg
Greece	National Observatory of Athens
Greece	University of Patras, Department of Geology
Ivory Coast	Station Geophysique de Lamto
Mexico	Centro de Investigacion Cientifica y de Educacion Superior de Ensenada
Moldova	Institute of Geophysics and Geology
New Caledonia	IRD Centre de Noumea
New Zealand	Institute of Geological and Nuclear Sciences

Table 2. Agencies reporting final analysis results within a month of event occurrence.

Norway	Stiftelsen NORSAR
Poland	Institute of Geophysics, Polish Academy of Sciences
Portugal	Instituto Geofisico do Infante Dom Luiz
Puerto Rico	Red Sismica de Puerto Rico
Switzerland	Swiss Seismological Service

BUILDING the PRELIMINARY ISC BULLETIN

Preliminary hypocentre solutions and station arrivals are grouped in the ISC database with corresponding solutions from other agencies and made available through the standard ISC Bulletin search procedure within a few hours of receipt. For each event an output includes several hypocentre solutions reported by various agencies, all reported source mechanisms and magnitude estimates as well as corresponding station arrival data. Earthquake headers include logo images of each reporting agency and, by clicking on the logo, Preliminary ISC Bulletin users can get further information from each agency directly.

Almost all events with magnitude 5 and above and many of smaller magnitudes are reported within the first week. Further reports beyond one week add information to already reported large and moderate events and also inform about smaller events.

This process is there to fill the gap between the event occurrence and the time when the final Reviewed ISC Bulletin becomes available. It presents an attempt to consolidate the effort of many data centres and networks to make their data available internationally in good time. At this stage the ISC does not compute or publish its own event solutions. This service is not intended for use by the media or civil protection agencies. It is designed to be used by seismologists to receive as much information as possible in one single format from one single place and then to get access to details using provided links to the original data reporters.

No later than one year after each seismic event occurrence, the preliminary data from agencies are substituted with their final, revised versions; this is well before the ISC analysts make their final review of the ISC Bulletin. The ISC hypocentre solutions are still based only on the revised set of bulletin parametric data given by each reporting institution.

COLLECTING REVISED NETWORK BULLETINS

The standard ISC data collection is the collection of revised bulletin data from many agencies (network data centres and single observatories) around the world up to 12 months behind real time. This delay gives the majority of data contributors enough time for reviewing and finalising their bulletin data before submission to the ISC.

Appendix 1 lists 146 agencies that contributed revised seismic bulletins to the ISC during the calendar year 2017. It is important to note here that among them there are **two regional data concentrators** that in fact represent a number of networks. The East and South Africa Regional Seismological Working Group (**ESARSWG**) contributes a coordinated collection of local bulletins from 9 countries: *Ethiopia, Eritrea, Kenya, Malawi, Mozambique,*

Tanzania, Uganda, Zambia and Zimbabwe. US National Earthquake Information Center (**NEIC**) also covers a multitude of regional seismic networks in the US.

The ISC no longer receives seismic bulletins from the European-Mediterranean Seismological Centre (EMSC). All available bulletin contributions from this region arrive to the ISC directly from individual institutions.

Figure 3 shows countries and agencies that contributed revised bulletins for various months and years, directly or indirectly (via other agencies), during 2017. There is currently ~24 months gap between the data collection deadline and the Bulletin production start date. Figure 4 shows those agencies that reported data for the data months that the ISC have reviewed during 2017. This collection is generally more complete (see Algeria, Cuba, Iceland, Morocco, Namibia) due to extra effort made by the Data Collection Officer and the Director to bring all missing agency data before the Analysis begins.



Figure 3. Agencies (black dots) and corresponding countries (in colour) that reported revised bulletins during 2017; red/grey colours indicate direct/indirect contributions.

Figure 4. Agencies and corresponding countries that reported revised bulletins for the data months reviewed by the ISC in 2017: February 2014 – February 2015.

The ISC Bulletin is progressively updated with each network report coming in. Preliminary network contributions are substituted with final reviews. New events are built, merged or split with every new report coming to the ISC by e-mail and processed either automatically or manually by the ISC Data Entry Officer, who is working remotely from his home office in Scotland. The Analyst Administrator and the Data Entry Officer regularly review the status of data collection and contact various agencies to avoid reporting gaps.

VBAS-based BULLETIN REVIEW

When the time comes, one month's worth of data is pulled into a separate database and a set of automatic procedures are run to produce the first automatic ISC event locations and magnitude determinations for those events that are large enough to be reviewed by the ISC seismologists. It would be impossible for the ISC to sustain a review of every reported event, so from data year 1999 the data collection thresholds were removed and review thresholds introduced. Following various recent improvements, this system continues to serve its purpose by limiting the number of seismic events to be reviewed by ISC analysts. The threshold criteria are complex yet almost all events of magnitude ~3.5 and larger are reviewed.

The ISC seismologists/analysts review approximately 10-20% of all events formed in the ISC database by the automatic procedures. Although this review misses smaller events, it makes the most used part of the ISC Bulletin accurate and trustworthy. The accuracy of *ak135*-based ISC solutions and magnitude estimates, and proper grouping of reported information between the events in the Bulletin is under constant scrutiny. The ISC analysts also review the correctness of automatic association of reported station arrivals to events, reported arrival's phase identification and travel-time residuals.

In the first part of 2017, the Analyst still used the conventional paper and bar code based analysis system whilst Version 1 of the on-screen Visual Bulletin Analysis System (VBAS) was undergoing the last stages of testing and debugging and partially used in operations. By August 2017, all analysis work was moved to VBAS and paper-based analysis was discontinued for good.

All analyst computers have been upgraded with two or three large high-resolution monitors and more powerful graphic cards. Figure 5 shows a typical view of an analyst computer screen. Individual windows can be moved around and adjusted by analysts.



Figure 5. Graphical windows of the Visual Bulletin Analysis System (VBAS) can be arranged in line with the individual analyst's taste.

Throughout 2017, the Analysis Team included six members, each involved in the review process for a certain proportion of their time:

- Mrs Rosemary Hulin, Analyst/Administrator;
- Mr Blessing Shumba, Seismologist/Analyst;
- *Ms Rebecca Verney*, Analyst;
- *Ms Elizabeth Ayres*, Analyst;
- Dr Jennifer Weston, Seismologist/Analyst;
- Dr Elizabeth Entwistle, Seismologist/Analyst.

Mrs Emily Delahaye, former Lead Analyst, contractor, helped the Team with the final stages of VBAS implementation and associated staff training.

In addition to the standard Bulletin analysis, members of the team were involved in other projects such as the Rebuild of the ISC Bulletin, ISC-EHB, Event Bibliography, ISC-GEM catalogue and automatic amplitude measurements from waveforms. On average, this amounted to 25-30% of the team's time.

During 2017, the Analysis Team fully reviewed 12 new data months of the ISC Bulletin (February 2014 - January 2015). A fair amount of work was also done for the data month of February 2015. The analysts were working with a lower number of seismic events compared to the average number during the previous 6 years (Fig. 6). Nevertheless the number of associated phases reviewed by analysts was on the increase (see numbers below) as new stations and networks are set up and corresponding data reported to the ISC. By design, VBAS helped to alleviate this problem.



Figure 6. Monthly number of seismic events in the Reviewed ISC Bulletin analysed during 2017; the solid colour represents those data months that have been fully completed; the dashed line shows the average monthly number during the preceding 6 years.

The result of the ISC work can be seen when comparing Figures 7 and 8. A fuzzy picture of the originally reported seismicity sharpened up by the Reviewed ISC Bulletin.

During the calendar year 2017 (2016), ~53,000 (~48,000) reviewed events with ~6.1 (~5.0) million associated phases were added to the reviewed part of the Bulletin by the ISC analysts. Overall, the Bulletin (both reviewed and un-reviewed) was enlarged with ~434,000 (~357,000) events and ~13.7 (~12) million associated phases.



Figure 7. All hypocentres reported by individual networks (February 2014 – February 2015).

Figure 8. Primary hypocentres in the ISC Bulletin (black) in the period (Feb 2014 – Feb 2015); in red are the reviewed events.

Figure 9 demonstrates the diversity of seismic phases included in the ISC Bulletin.



Figure 9. The *travel-time* graph and associated table show the statistics of various seismic phases generated by large shallow events reviewed by the ISC analysts during 2017; 233 events with depth $\leq =35$ *km and magnitude* above 5.5 are shown.

GENERAL STATISTICS of the ISC BULLETIN

The ISC Bulletin and the ISC database grow by the day in both seismic event (earthquake or explosion) numbers (Fig. 10) and reported seismic wave arrival times and amplitudes of seismic waves recorded at stations registered in IR (Fig. 11).







Figure 11. Timeline of the annual number of seismic arrivals associated with both reviewed (red) and un-reviewed (black) events in the ISC Bulletin, as well as those arrivals in the ISC database that are not associated to any known event (grey); the total height of each column represents the annual number of all seismic arrivals in the ISC database; note different scales used for events before and after 1964; "Reviewed" events beyond February 2015 are those intended for review.

Figure 12 demonstrates the comparative magnitude completeness of the ISC Bulletin and bulletins of the NEIC/USGS and IDC/CTBTO. The ISC Bulletin appears to be more complete globally than NEIC or IDC by at least half a unit of magnitude. The NEIC's current global operational magnitude cut-off threshold is 4.5. Smaller events are routinely included only for US territories. Thus, the ISC Bulletin is more complete by definition. The IDC is unlikely to use many more seismic sites/arrays than they use at present because the exact IMS network station positions are written into the Comprehensive Test Ban Treaty. Hence, the Bulletin of the ISC is likely to stay more complete than either of NEIC or IDC.



Figure 12. Number of seismic events in the ISC, NEIC/USGS and IDC/CTBTO bulletins during the 2011-2013 period; vertical arrows indicate an approximate magnitude of completeness.

The ISC Bulletin is used by a large number of researchers worldwide. The number of bulletin web searches in 2017 has increased by 17% compared to 2016; it is in the order of 3 searches per minute (Fig. 13). The above number doesn't even include searches through the ISC mirror databases at ERI, CTBTO, LLNL or CEA. Neither does it include individual user searches based on flat bulletin files downloaded by some users from the ftp-site.



Figure 14 shows the multinational character of the ISC Bulletin search users.



Figure 14. Distribution of the ISC Bulletin searches, per country, made by ISC website users during 2017.

The above statistics include the use of the ISC mirror website at IRIS DMC, yet it does not include bulletin searches made from mirror-sites at ERI in Tokyo and LLNL in Livermore. Where reliably known, we have removed the numbers related to web crawlers.

Currently, the website searches give output in three major formats: ISF1.0 (International Seismic Format), QML (QuakeML) and CSV (comma separated variables). Figure 15 shows that the total number of searches in QML exceeds those of ISF or CSV. The QuakeML searches, though, are performed by fewer users who tend to run automated queries that request larger volumes of data. Thus, all three formats are popular and need to be maintained in the future.



Figure 15. Distributions of the number of ISC Bulletin searches, distinct users and overall volume of data taken per output format.

PRINTED SUMMARY of the BULLETIN of the ISC

Each volume of the printed *Summary of the Bulletin of the ISC* covers six months of data. The Summary is prepared at the ISC, published by *Cambrian Printers* in Wales and posted within approximately two months after the relevant period of data becomes available to ISC web users. Since the previous volume of the Summary was arranged just at the end of 2016, this year we published only one issue covering the period from January to June 2014 (Fig. 16). The following topics were covered:

- The ISC (Mandate, History, Evolution of the Bulletin, Member Institutions, Sponsors, Data Contributors, Staff)
- Operational Procedures (data collection, grouping, association, thresholds, location, magnitude determination, review, history of operational changes)

- Availability of the ISC Bulletin
- Citing the ISC
- IASPEI Standards
- Summary of Seismicity (6 months)
- Two invited articles on the history, status and procedures used at the long-term observatories in Germany: *Collm* and *Berggießhübel*
- Statistics of Collected Data
- Overview of the ISC Bulletin
- Leading Data Contributors
- Glossary
- Advertisements of the instrument producers Sponsors of the ISC



Figure 16. One issue of the printed Summary was published during 2017.

The invited articles from the Summary are also used on the ISC website. Articles on notable events contribute to the ISC Event Bibliography. Network description articles become associated with general information available for each agency contributing to the ISC Bulletin.

As a book publisher, the ISC charges no Value Added Tax (VAT) on its printed products yet VAT on all goods and services that it buys from other suppliers can be reclaimed.

IASPEI REFERENCE EVENT LIST (GT)

The International Seismological Centre maintains the IASPEI database of Reference Events (earthquakes and explosions, including nuclear) for which epicentre information is known with high confidence (to 5km or better, GT5) with seismic signals recorded at regional and/or teleseismic distances (Fig.17a,b). It should be noted that the depth of these events is not known to the same level of accuracy as the epicentre.

The global effort of collecting and validating GT events is coordinated by the CoSOI/IASPEI working group on Reference Events for Improved Location that includes Bob Engdahl, Eric Bergman, István Bondár and Kostas Lentas.

The GT database of 9,415 reference events (1959-2017) and approximately 1,055,000 station arrival times facilitates better visualization of the Earth structure, better modelling of velocities of seismic waves, more accurate travel time determinations and increased accuracy of event locations.

The ISC users are able to search this database at the ISC website and receive GT locations and corresponding ISC locations along with station arrival data available for each event. A cross-link to the ISC Bulletin is provided for users to go between ISC and GT databases.



natural(8118) - chemical(260) + nuclear(1037)

Figure 17a. The IASPEI List contains seismic events during 1959-2017 for which epicentre information is known with high confidence (to 5km or better (GT5))

Figure 17b. The IASPEI List contains natural earthquakes as well as chemical and nuclear explosions.

At the end of analysis of each ISC Bulletin data year, we add new events to the Reference Event List. During 2017, 188 events were added or updated (Fig. 18).



Figure 18. During 2017, 188 events (red) were either updated or added to the IASPEI list of Reference earthquakes and explosions

ISC EVENT BIBLIOGRAPHY

The ISC Event Bibliography (first released in April 2013) facilitates an interactive web search for references to scientific publications linked to both natural and anthropogenic events that have occurred in the geographical region of their choice based on earthquake (location, time, magnitude, etc.) and/or publication parameters (author name, journal, year of publication, etc.). The output is presented in a format accepted by major scientific journals. For most recent publications the results include the DOI that allows direct access to scientific articles from corresponding journal websites.

References are collected and linked to events in the ISC database based on the titles and abstracts of scientific publications that could be found in the ISC Bibliography of Seismology, electronic indexes provided by scientific journals as well as references collected during work on the ISC-GEM Catalogue.

References to publications are not limited to Seismology. They cover a broad range of



Figure 19. Annual numbers and the map of 577 seismic events related to 1,003 scientific articles added to the ISC Event Bibliography during 2017.

disciplines including. but not limited to earthquake engineering, tectonics. structural geology. geodesy, remote sensing, nuclear monitoring, test tsunami, landslides, environmental studies, coastal science, natural disasters, hydrology, geochemistry, atmospheric sciences and geomagnetism. This feature makes the Event Bibliography an attractive tool for multidisciplinary studies and useful for researchers and students from different fields.

At the end of 2017, the Event Bibliography included 19,742 articles from ~500 journal titles related to 15,407 seismic events. Seismic events cover the period from 1904 till present; publications covered the period from 1904 till present. Figure 19 illustrates 1,003 articles related to 577 events that were added to Event Bibliography during 2017.

SEISMOLOGICAL CONTACTS

The objective of this project is to update and maintain up-to-date information on the network of scientific institutions, seismologists and geophysicists in each country willing to serve as scientific points of contact to:

- Seismologists and Geophysicists in other countries;
- Governments;
- Charitable, Response and Relief organizations;
- Media.

Particular care is given to establishing and maintaining contacts in developing countries.

The service benefitted from support in terms of staff time from the Institute of Geophysics and the China Earthquake Networks Center of the China Earthquake Administration.

The registry in its current form is readily available for scientific & research institutions, governmental bodies, charitable and relief organizations and media at www.isc.ac.uk/projects/seismocontacts (Fig.20).



Figure 20. Seismological Contacts webpage; in **red** are countries in which institutes and individual staff members are willing to share information and serve as a local point of contact; in **blue** are countries for which we have information about operating geophysical organisation(s); in **black** are countries for which we do not hold any information.

ISC WEB and FTP SITES

In 2017, the ISC website experienced ~9 million hits which is 70% higher than in year 2016. The majority of the ISC web data are distributed through the main ISC website and the mirror at IRIS DMC in Seattle. In the past users could choose the IRIS website to get the most quick and efficient service. In early 2015 we installed the load balancer that automatically directs users queries to the least busy server. It substantially improved ISC user web experience, efficiency and speed of queries. At the same time, due to the new enhanced software now

used to track robots, web crawlers and other non-human interaction, we are not able to compare meaningfully the numbers of the ISC website hits in the past and during 2015-2017.

The use of the ISC ftp site almost doubled in 2017 compared to 2016. The ftp-site is used for downloading the pdf copies of the printed ISC Bulletins and Summaries, the ISC Bulletin in FFB and ISF formats, the EHB bulletins and the text version of the IR station list.

Per country usage of the ISC web (Fig. 21) and ftp services (Fig. 22) demonstrate worldwide interest to the ISC data.



ISC DATABASE and WEBSITE BACKUP and MIRRORS

The ISC continued maintaining one of it's servers at the IRIS DMC in Seattle in order to hold a mirror of the ISC database and the ISC website. This was done with assistance from the DMC and US NSF in order to achieve a general ISC data back-up and fall-over facility in case of a breakdown of services at the ISC itself as well as to spread the load on the ISC Internet line and give ISC users faster access to data.

The mirror has been operational since 2011. The database in Seattle is updated with approximately an hour time lag. The Load Balancer evenly distributes the load on the ISC website, including the user searches, between the server at the ISC in Thatcham and the server at DMC in Seattle. Users no longer need to know the exact web address in Seattle and are generally no longer aware which server is addressing their request.

In addition, the IRIS DMC is able to use the database on a daily basis to serve the DMC archive users with event-based selection of waveform data.

Other mirrors of the ISC database are maintained by the Earthquake Research Institution (ERI) of University of Tokyo to serve the research community in Japanese universities and by the Lawrence Livermore National Laboratory (LLNL) to serve users from nuclear test monitoring laboratories in the US.

A new database mirror has been installed in Beijing and Xian by the China Earthquake Administration. This ISC website will help numerous Mandarin speaking seismologists to obtain more intuitive access to the ISC data. We are currently discussing ways of keeping the main ISC and Chinese mirror website as concurrent as possible.

DEVELOPMENT PROJECTS

ISC-EHB: RECONSTRUCTING the EHB

The EHB dataset is a groomed version of the ISC Bulletin. It is a valuable tool for global and regional seismicity studies and tomographic inversions. Teleseismically well-constrained events are selected from the ISC Bulletin and are relocated using the EHB location algorithms (Engdahl *et al.*, 1998) to minimise errors in location (particularly depth) due to assumed 3D Earth structure. The EHB algorithm incorporates a specific phase identification algorithm for teleseismic depth phases (pP, pwP, sP, PcP) as well as using PKiKP, PKPdf, PKPbc and PKPab.

The original **EHB** stopped in 2008, and since then the volume and quality of bulletin data at the ISC has significantly improved. We have used these enlarged and improved data, updated the event selection, data preparation and processing, and relocation procedures to produce a cleaner and more robust **ISC-EHB** dataset, using the advantages of both the ISC (Bondar & Storchak, 2011) and EHB location techniques.

During 2016-2017, together with E.R. Engdahl of Colorado University in Boulder, we applied the ISC-EHB approach to events in the 2000-2014 period. This dataset has replaced the equivalent years in EHB (Fig. 23). The 1960-1999 period follows the old EHB approach.

The entire EHB/ISC-EHB dataset contains 164,267 seismic events from 1960 to 2014. Over the next few years we shall replace the EHB with ISC-EHB for years 1964-1999. This will considerably increase the total number of events and improve visualization of seismicity in each geographical area, and give enough data for studies of inner structure of the Earth. The regional cross-section plots, available from the ISC website, will be updated accordingly.

We shall then incrementally extend this dataset forward in time as part of routine operations, based on the progress in production of its original source of data - the Reviewed ISC Bulletin.



Figure 23. The annual numbers of events in the original EHB and reconstructed ISC-EHB; there is a total of 88,964 events during 1960-1999 and 75,303 during 2000-2014 period.

The ISC-EHB dataset has great potential to reveal complicated structures (Fig. 24). It is available from the ISC website along with **cross-section plots** for a large number of seismic regions.



Figure 24. 333 km wide North-South cross-section of the Northern Sulawesi region shows the intersection of two slabs; the upright triangle is a volcano; the inverted triangles are trench points.

EXTENSION of the ISC-GEM CATALOGUE

The ISC-GEM Global Instrumental Catalogue was originally requested and funded by the GEM Foundation. It is now widely used for modelling seismic hazard on a regional and global scale. The catalogue is also used as an authoritative reference and a starting point in regional studies in South America, Africa and Asia. The Catalogue has a multidisciplinary use in a wide range of other areas such as studies of global seismicity, tectonics, earthquake hazard forecasting, rapid determination of hazard etc. In addition, the basic station observation data digitised by the ISC for use in the catalogue production are now used by individual researchers for historical earthquake studies.

The ISC-GEM catalogue forms the basis of the USGS ComCat catalogue before 1970.



Figure 25. During the last 29 months, the ISC-GEM catalogue has, on average, been downloaded 12 times per day.

The catalogue is very popular with an average of 12 downloads per day recorded in the last 29 months (Fig. 25). Six scientific publications explaining details of the project were

published by the team in a special volume of the Physics of the Earth and Planetary Interior and Seismological Research Letters. References to the ISC-GEM catalogue are becoming progressively more common, both in publications and conference presentations.

In Version 1 of the original ISC-GEM catalogue (Storchak et al., 2013), (Storchak et al., 2015), the magnitude cut-off thresholds were as follows:

- 1900-1917: $M_{S} \ge 7.5$ worldwide + smaller shallow events in stable continental areas
- 1918-1959: *M*_S≥6.25
- 1960-2009: *M*_S≥5.5

Since November 2013, we have been working on extending the ISC-GEM catalogue by decreasing the magnitude cut-off thresholds in the early instrumental period before 1960 as well as adding recent years beyond 2009. This work was supported by the GEM Foundation (the first two years), United States Geological Survey (USGS), Germany's BGR, United States National Science Foundation (NSF), FM Global, Lighthill Risk Network (Aon Benfield, Catlin, Guy Carpenter and Lloyd's) in UK, Aspen Re in Switzerland and OYO Corporation in Japan.

The team that worked on this project during 2017 included several members of the ISC staff and E.R. Engdahl from University of Colorado, Boulder. Several institutions internationally have also helped by providing copies of vital historical data.



Figure 26. Annual number of earthquakes above a certain magnitude level in the main *ISC-GEM* catalogue in the original version (left) and at the end of the 4th year of the *Extension project (December 2017).*

Year 4 of the project (2017) has seen the earthquake data years 1904-1919 and 2014 extended and added to the catalogue. As a result, the catalogue now has \sim 28,000 moderate to large earthquakes with locations and magnitudes computed using the same technique described by Bondar et al. (2015), Di Giacomo et al. (2015b) and Lee and Engdahl (2015). In order to

apply these techniques, a large amount of basic observational data has been collected from ISS, BAAS, ISA and many individual network and station bulletins, in line with the principles laid out by Di Giacomo et al., 2015a. During 2017, we relocated 1,110 earthquakes that occurred between 1904 and 1919 and 521 large global earthquakes in 2014. For 246 of them we assigned poor location quality (i.e., those events are listed in the Supplementary catalogue). We were not able to re-compute reliable magnitudes of 184 earthquakes. Figure 26 compares the state of the ISC-GEM catalogue at the start and finish of the Extension project. Approximately 9,000 earthquakes have been added. Magnitude determinations of many earthquakes have been improved. Many of the magnitudes have never been reliably determined in the past.

The next 4-year programme of advancement work on the ISC-GEM catalogue is scheduled to begin in 2018.

CTBTO LINK to the ISC DATABASE

Back in 2008, the UK Foreign and Commonwealth Office (FCO) awarded the ISC with a three-year grant to set up a dedicated and secure link to the ISC database for the CTBTO PTS and National Data Centres. The UK FCO provided 90% of the total funding with GEUS (Denmark), NORSAR (Norway), FOI (Sweden) and University of Helsinki (Finland) complementing it with 2.5% each. From April 2011, the funding of the project was taken over by CTBTO. From April 2015, a new annual contract was signed with four possible annual extensions. The contract has now been extended to run until the end of March 2018.

During 2017, we maintained a dedicated server at the ISC that held a mirror version of the ISC database. The dedicated web-based software package designed, maintained and upgraded by the ISC for this service allowed users from the Provisional Technical Secretariat and National Data Centres for CTBTO to query the ISC database in ways specific to the nuclear test monitoring community. The software package includes four types of bulletin searches: area based, REB event based, GT event based and IMS station based search through the wealth of the parametric information in the ISC database.

The objective of the project is to provide the capacity for NDCs to perform various types of analysis such as:

- assessing the historical seismicity in a specific region;
- putting an event of interest into context with the seismicity of the surrounding region;
- examination of observations reported by non-IMS stations;
- comparison of hypocentre solutions provided by various agencies;
- relocating an REB event based on user selected arrival times available in the ISC database using the ak135 1-D model with optional RSTT regional velocity model;
- investigation of station histories and residual patterns of IMS or IMS surrogate stations.

We also developed an interface for selecting waveforms of non-IMS stations for REB events from the IRIS DMC, EIDA and GeoNet archives. For each recent REB and GT event, this interface:

- allows selection of stations by distance / azimuth to the REB epicentre;
- shows the number of stations, for which waveforms are available at all three archives;
- exhibits pre-prepared images of selected waveforms, filtered and un-filtered with theoretical first arrivals indicated on top of the waveform images;
- offers a form to request part of waveform, based on absolute or relative theoretical arrival times of required seismic phases or on group velocity of surface waves;
- triggers a request to waveform archives; as a result, users receive required waveforms by e-mail in the SEED format.

Figure 27 shows user activity on the Link by both PTS/CTBTO and NDCs.



Figure 27. The Link to the ISC database mirror is provided to the NDCs through the IDC secure website. The figure shows the healthy stream of user activity.

This project also benefits the ISC and the ISC users.

- The ISC development staff acquired important skills and experience during this project. The advances made under this project are gradually implemented to improve the traditional open ISC web services.
- In particular, experience of downloading, checking quality and processing waveforms on an industrial scale helps the ISC's efforts towards making its own automatic waveform measurements to further improve the quality of the ISC Bulletin.
- During 2017, the ISC and its Bulletin users gained much speedier access to the REB Bulletin which is now available in **daily batches within 10-20 days after an event occurrence** as opposed to half a year in the past (Fig. 28).
- Many National Data Centres for CTBTO are run by institutions that are either Members of the ISC or reporters of data to the ISC.
- Several NDC's either became ISC Members or increased their financial contributions, based on the added value of the ISC service.



Figure 28. The availability of the IDC REB data to general ISC Bulletin users (days behind real time) has considerably improved with the routine operation of the CTBTO Link.

It also has to be noted that although the software created under this project is open only to the monitoring community, the actual data used by them are exactly the same as used by all ISC users: the ISC Bulletin, GT List, ISC-EHB and International Seismograph Station Registry.

ISC BULLETIN REBUILD

The value of the ISC Bulletin is subject to adhering to uniform procedures over a long period of time. Nevertheless, essential changes in the ISC procedures have occurred (Fig. 29):



Figure 29. The overall plan of the ISC Bulletin Rebuild project. (Courtesy Geoscience Lett, 2017)

- The *ak135* velocity model (Kennett et al., 1995) has been used since 2006 superseding the *JB* travel times (Jeffreys and Bullen, 1940).
- A new event Locator based on a different approach was introduced from data year 2009 (Bondar and Storchak, 2011).
- Throughout the ISC history different sets of seismic phases were used for location: P & (from 2001) S with other *ak135* phases from 2009.
- Latitude & longitude error estimates were computed before Oct 2002, followed by full error ellipses later on.
- Procedures that determine which reported events require relocation by the ISC were also changed in 1999, 2005 and 2006.

We are currently rebuilding the ISC Bulletin using current ISC procedures to guarantee homogeneity throughout its entire period by:

- Renaming the ISC phase identifications in line with the IASPEI standard (Storchak et al. 2013, 2011);
- re-computing all ISC hypocentres and event magnitudes with uncertainties;
- soliciting, obtaining and integrating essential additional datasets that were not available at the time of the original ISC Bulletin production;
- performing essential integrity and consistency checks, quality control and correction.

The ISC Rebuild Analyst Team (an equivalent of 2.4 full time analysts) review events with considerable departures of main hypocentre parameters from the original ISC solutions as well as events with unacceptable travel time residuals at individual stations. They also review those events where the only hypocentre is that of the ISC and events where there was no ISC hypocentre in the past.

During 2016-2017, we completed the review of seismic events within the period 1964-1979. The main ISC database available to users will be updated for this period in early 2018.

The outcomes of the Bulletin Rebuild of 1964-1979 are discussed in Storchak et al. (2017). Here we show the major achievements.



Figure 30. Poorly located or phantom events discarded from the ISC Bulletin (1964-1979).

Figure 31. New events added to the ISC Bulletin (1964-1979). Geoscience Lett, 2017

We performed the overall review of events in the Bulletin by removing poorly constrained and phantom events (Fig. 30) as well as adding new events from previously unavailable datasets (Fig.31). New stations are shown on Figure 32. A large number of seismic arrival times have been added to the Bulletin (Fig. 33).





Figure 32. The existing and new (red) stations in the Rebuilt Bulletin during 1964-1979 period. Geoscience Lett, 2017

Figure 33. Comparative numbers of original and new seismic arrivals and the growth of the station numbers through 1964-1979 period.





Figure 34. The existing and new (red) stations in the Rebuilt Bulletin during 1964-1979.

Many one or two station based ISC *mb* magnitudes have been deleted whilst the rest of the magnitudes were recomputed using a much more robust technique that is used by the ISC today. ISC *MS* almost were not existent during that period in the original Bulletin, whilst the surface wave amplitudes have been available in the ISC database. A very large number of station surface wave measurements have been added to the Bulletin from the ISC-GEM dataset. Collectively, these data allowed us to produce many more ISC *MS* magnitudes that weren't available in the past.

Figure 35 gives a chance to judge the changes in event location of seismic events that have taken place with the introduction of the Rebuilt ISC Bulletin.



Figure 35. Before / after maps that demonstrate the changes in the Rebuilt ISC Bulletin during the 1964-1979 period. (Courtesy Geoscience Letters, 2017)

The speed of the analyst's review was highly variable for different data months, which makes estimates of the likely end of the project highly uncertain. We are trying to speed up the review aiming to complete the project whilst we have the analyst resources available.

Our plan for 2018 is to reinvent the ISC Bulletin during the 1904-1963 period, based on the data available in the ISC-GEM database account. At the same time, we shall continue rebuilding the 1980-2010 period, releasing to users 5-year batches per year or faster, if the ISC funding allows more analyst's time.

As a result, within a few years time, the entire extended ISC Bulletin (1904-present) will be relocated based on the same location procedure, ak135 velocity model and magnitude computation techniques that are used in the ISC Bulletin production today.

SOURCE TIME FUNCTIONS and DEPTHS

In September, Dr Tom Garth joined the ISC and Department of Earth Sciences in Oxford University of which he is a formal employee (PDRA). Tom's appointment at Oxford is jointly funded by the ISC $(\frac{2}{3})$ and Prof. Karin Sigloch's ERC grant $(\frac{1}{3})$. Tom has a desk at both the ISC and Oxford University where he works under the guidance of Karin.

With this project, we are exploring additional resolution to earthquake depths that can be gained by using openly available seismic waveforms. Based on established techniques, we intend to develop automatic procedures to build source time functions for moderate to large earthquakes in the ISC Bulletin.

It is expected that at the end of the 3-year PDRA post, Tom will be able to join the ISC as a full member of staff responsible for earthquake location and other developments.

FOCAL MECHANISMS

We are also working towards computing fully automatic earthquake focal mechanisms, combining directions of first motions reported to the ISC with auto-picked first motions from waveforms available at IRIS, EIDA, etc. We focus on moderate to large earthquakes in the reviewed ISC bulletin and especially on earthquakes with no previously reported source mechanisms.

It is our plan to produce a scientific publication describing the method. We also aim to produce mechanisms for the historical ISC Bulletin, based solely on reported first motion polarities in order to include those in the Rebuilt ISC Bulletin.

FINANCE

The detailed financial statements of the ISC for 2017 were audited by Wilkins Kennedy (previously known as Griffins) Chartered Accountants (Newbury UK) and approved by Prof. John Woodhouse of the ISC Executive Committee. These statements present the state of the ISC's financial affairs as at 31st December 2017.

INCOME

In 2017, the ISC had a total income of £910,256 from 65 Membership contributions, grants for special projects and general sponsorship. We were pleased to welcome two new Member-Institutions: the Royal Scientific Society of Jordan (RSS) and Mexico's Center for Scientific Research and Higher Education in Ensenada (CICESE). The grants and sponsorships amounted to ~26% of the total income, which helped to ease the burden on Members. The ISC also received £1,935 of interest on its bank accounts.

The exchange rate between the weakened post-Brexit UK £ and US \$ was volatile throughout the year with $\pounds 1=\$1.237$ at the beginning of January and $\pounds 1=\$1.328$ at the end of December. The exchange rate between the UK £ and \notin varied throughout the year starting at $\pounds 1=\pounds1.186$ at the beginning of January and finishing at $\pounds 1=\pounds1.127$ at the end of December. Taking into account the timings of individual incoming and outgoing transactions, the ISC lost $\pounds20,612$ on foreign exchange in 2017, having gained £4,509 in 2016.

The total of £3,925 have been treated as bad debt. This amount is a sum of 2016 membership fee from the Department of Geophysics of the University of Chile (membership was taken over by the CSN of the same University with a gap of one year) and 2015 fee from KOERI in Turkey (lost in the international banking system with no trace).

At the end of the year 2017, £133,541 had yet to be paid by Members. At the time of writing this report £8,180 had been received, leaving £125,361 outstanding, with £121,251 of that being due from just three members: INSU/CNRS in France, INGV in Italy and NCS in India.

EXPENDITURE

81.5% of ISC expenditure was committed to personnel costs, an increase from 77% in 2016, predominantly due to the rise in pension costs. During the year we saw the departure of one and arrival of two new members of staff. The staff costs include salaries, pension contributions, and recruitment of new staff. The ISC salaries continue to follow the scales adopted in 2015 and approved by the Executive Committee.

Building maintenance costs dropped by approximately two thirds as compared to 2016 as no building work took place this year. Staff travel increased but computer costs decreased. As in previous years, staff travelled to several countries to attend meetings and increase the profile of the ISC, take part in project meetings and also to seek new data and future funding.
Community Awareness represented the cost of running the British Seismology Meeting, ISC exhibition booth at AGU, printing and producing the ISC brochure, mugs, coasters as well as giving ISC prizes to students at Oxford University and at TIDES training school.

RESERVES

In understanding that all missing contributions will be repaid, the ISC's income during 2017 has exceeded its expenditure by £43,553. As a result the total reserves, comprising cash in the bank, value of building and land, money owed to the ISC (debtors) minus money the ISC owes (creditors) have increased to £850,841; this includes money ear-marked for on-going projects. The Contingency Fund stands at £30,000 in accordance with the wish of the ISC Governing Council. The ISC General Reserve of £820,841 is within British guidelines for charitable organizations.

CASH FLOW

The cash flow in Fig. 36 shows receipts and expenditure using dates when transactions were recorded at the bank and the bank balances where US Dollars and Euros are converted to Sterling using the exchange rate at the end of each month.



Figure 36. Income/Expenditure and running cash balance during 2017

In 2017, due to the size of its General Reserve serving as a safety cushion, the ISC was fortunate not to experience problems with its cash flow but this may change in the future if Members and Sponsors do not provide funds in time. In particular, the General Reserve is subject to $\pounds 125,361$ still owed to the ISC at the end of 2017.

Here we would like to thank once again those member-Institutions that make their annual fee payment promptly and accurately when invoices are sent at the beginning of each year.

SCIENTIFIC LIAISONS and COMMUNITY AWARENESS

BSM2017



During April 5-7, seismologists from the UK and abroad met in Reading for the first stand alone conference organised by the International Seismological Centre (ISC) in its 50+ year history (Fig. 37). There was great support from the seismology community, with 112 attendees, 44 talks, 43 posters and exhibits from Güralp, Optics11, AWE, the British Geological Survey and the ISC. Topics covered at the meeting include:

induced seismicity, earthquake physics, seismic hazard, networks and catalogues, tomography and forensic, passive, laboratory and computational seismology.

Thanks to BGA sponsorship, BSM2017 hosted seven invited speakers; Professor Torsten Dahm (GFZ, Potsdam), Dr Steven Gibbons (NORSAR, Norway), Dr Tom Mitchell (University College London), Dr Tarje Nissen-Meyer (University of Oxford), Dr Andy Nowacki (University of Leeds), Dr Eleonore Stutzmann (IPGP, France), and Dr Roger Musson (BGS and University of Edinburgh).



Fig. 37. The ISC team near Reading Museum and Town Hall where BSM2017 took place.

On behalf of AWE, eight student conference grants were awarded to current Masters and Ph.D. students, who presented research helping to update current understanding in their fields of seismology. AWE also awarded two best poster prizes for early career researchers.

Overall, the meeting celebrated the fantastic and diverse research going on in the UK and internationally. The positive feedback and enthusiasm from BSM2017 attendees has highlighted the benefit of a UK-based seismology meeting every two to three years.

A scientific paper describing the programme and presentations made at the meeting has been submitted to Astronomy & Geophysics.

ISC BOOTH at AGU



Fig. 38. ISC booth at AGU exhibition.

In December, three members of the ISC staff flew to New Orleans, where they set up an ISC exhibition booth at the AGU Fall meeting (Fig. 38). Compared to Reftek and Nanometrics, the booth was not as spectacular, though it attracted hundreds of visitors over five days, bravely competing with the next-door jewellery shop. The booth had posters on the ISC Members and Sponsors as well as major products. The specially published ISC brochure as well as the traditional red ISC coffee mugs and coasters were a

great success with the visiting researchers and students.

VISITORS to the ISC

The following geophysicists visited ISC premises in Thatcham during the year:

- Tamara Jesenko, ARSO, *Slovenia*
- Irina Gabsatarova, Geophysical Survey RAS, Russia
- Abdelaziz Kherroubi, CRAAG, Algeria
- Laura Ermert, ETH, *Switzerland*
- Sarah Brazier, OnLap Consulting Ltd, Reading, UK
- Nato Jorjiashvili, Ilia State University, Georgia
- Kasra Hosseini, University of Oxford, UK
- Yuzo Ishikawa, AIST, Japan
- Gina-Maria Geffers, University of Edinburgh / BGS, UK
- Elodie Kendall, University College London, UK
- Maria Tsekhmistrenko, University of Oxford, UK
- Natalia Poiata, National Institute for Earth Physics, *Romania*
- Paula Koelemeijer, University of Oxford, UK
- Benjamin Schwarz, University of Oxford, UK

- Tanja Fromm, AWI, *Germany*
- Ghizlane Bouskri, Scientific Institute Morocco, Morocco
- Marline Brax, National Centre for Geophysical Research, CNRS, Lebanon
- Tom Garth, University of Liverpool, UK
- Yao Yan, China Earthquake Administration, China
- Huang Fuqiong, China Earthquake Networks Centre, CEA, China
- Gao Kai, China Earthquake Network Centre, CEA, China
- Kim Hyok, Korea Earthquake Administration, **DPRK**
- Jianping Wu, Institute of Geophysics, China Earthquake Administration, China
- Jiandong Xu, Institute of Geophysics, China Earthquake Administration, China
- Kim Yon Ho, Faculty of Geology, Kim Li Sung university, DPRK
- Ryn Kum Ran, Environmental Coordinator, DPRK
- Jo Son Hyung, Faculty of Geology Kim Il Sung university, DPRK
- Kim Kang Sop, Professor Kim Chaek University of Technology, DPRK
- Ri Sung Su, State Academy of Sciences, DPRK
- Kim Ju Song, Korea Earthquake Administration, DPRK
- James Hammond, Birkbeck, University of London, UK
- Galina Kulikova, University of Potsdam, *Germany*
- Gisela Domej, IFSTTAR / Seismes et vibrations, *France*

CONFERENCES, MEETINGS, WORKSHOPS, TRAINING COURSES

Members of the ISC staff presented at the following conferences, meetings and workshops:

- CTBTO Science & Technology Conference, Vienna, Austria
- CTBTO WGB-48 meeting, Vienna, Austria
- 16th World Conference on Earthquake Engineering, Santiago, Chile
- Nordic Seismology Seminar, Helsinki, Finland
- EDF Sigma-2 Symposium, Paris-Saclay, France
- 5th International Colloquium on Historical Earthquakes, Paleoseismology, Neotectonics and Seismic Hazard, Hannover, *Germany*
- German Geophysical Union, Potsdam, Germany
- Indian Geophysical Union, 54th Annual Convention, Hyderabad, India
- IASPEI General Assembly, Kobe, Japan
- JpGU-AGU, Makuhari, Japan
- International Seismology School, GS RAS, Almaty, Kazakhstan
- CTBTO RSTT and NDC workshop, Windhoek, Namibia
- New Advances in Geophysics (NAG), Liverpool, UK
- Impact Forecasting Revealed, Aon Benfield, London, UK
- Willis Research Network Seismic Risk Seminar, London, UK
- TIDES Training School: Seismic tomography and uncertainties, Oxford, UK
- British Seismology Meeting, Reading, UK
- SSA, Denver, USA
- AGU, New Orleans, USA

ISC STAFF VISITING OTHER INSTITUTIONS

Often with the help of the hosting institution, members of the ISC staff visited and, where appropriate, gave a presentation to the staff of:

- IDC/CTBTO, Vienna, Austria
- China Earthquake Administration, Beijing, China
- China Earthquake Networks Centre, Beijing, China
- Yunnan Provincial Earthquake Administration, Kunming, China
- Federal Institute for Geosciences and Natural Resources (BGR), Hannover, Germany
- GFZ Helmholtz Centre Potsdam, Germany
- Seismological Experimental and Methodological Expedition, Almaty, Kazakhstan
- Geological Survey of Namibia, Ministry of Mines and Energy, Windhoek, Namibia
- Geophysical Survey of Russian Academy of Sciences, Obninsk, Russia
- Oxford University, Earth Science Department, Oxford, UK
- UNAVCO Inc. global geodetic facility, Boulder, USA
- NOAA, Boulder, USA
- NEIC/USGS, Golden, USA

ISC PRIZES: OXFORD UNIVERSITY and TIDES

Several years ago the ISC established a small annual Prize in Mathematics and Geophysics (£200 and traditional ISC coffee mug) for the best first year student at the Earth Science Department of its home institution – the University of Oxford.

In 2017, the prize was given to Mr Noam Vogt-Vincent, the student with the best exam results in Mathematics and Geophysics. By awarding this prize the ISC hopes to attract Oxford University students to take note of the ISC services right from their first year, support the ISC in the future and perhaps even help the ISC in fulfilling its mission.



Fig. 39. TIDES training school in Oxford; two presentations and three prizes for best posters are given by the ISC during this school

The TIDES (**TI**me **DE**pendent Seismology) is a Europe-wide initiative that aims at structuring the EU seismological community to enable development of data-intensive, time-dependent techniques for monitoring Earth active processes (e.g., earthquakes, volcanic eruptions, landslides, glacial earthquakes) and oil/gas reservoirs. During July 10-14, Wolfson College of Oxford University hosted the 3rd TIDES training school "Seismic tomography and uncertainties" (Fig. 39). Apart from giving two presentations on the "ISC Datasets and Services" and "ISC-EHB: Reconstructing the EHB dataset", the ISC has also sponsored three £75 Prizes for best student posters.

SCIENTIFIC PUBLICATIONS BY ISC STAFF

Storchak, D.A., Di Giacomo, D., Engdahl, E.R. and J. Harris (2017). Extension of the ISC-GEM Global Instrumental Earthquake Catalogue. In: Proceedings of the 16th World Conference on Earthquake Engineering, Jan 9-13, Santiago, Chile, Paper Number 67, Registration Code S-R1462555012.

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Di Giacomo, D., I. Bondár, D.A. Storchak, E.R. Engdahl, P. Bormann and J. Harris, 2015b. ISC-GEM: Global Instrumental Earthquake Catalogue (1900-2009): III. Re-computed MS and mb, proxy MW, final magnitude composition and completeness assessment, *Phys. Earth Planet. Int.*, 239, 33-47, doi: 10.1016/j.pepi.2014.06.005.

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Storchak, D.A., Harris, J., Brown, L., Lieser, K., Shumba, B., Verney, R., Di Giacomo, D., Korger, E. I. M. (2017). Rebuild of the Bulletin of the International Seismological Centre (ISC), part 1: 1964–1979. Geosci. Lett. (2017) 4: 32. doi: <u>10.1186/s40562-017-0098-z</u>

APPENDIX 1: STANDARD BULLETIN REPORTERS

Country	Reporting Agency
Albania	The Institute of Seismology, Academy of Sciences
Argentina	Universidad Nacional de La Plata
Argentina	Instituto Nacional de Prevencion Sismica
Armenia	National Survey of Seismic Protection
Australia	Primary Industries and Resources SA
Australia	Geoscience Australia
Australia	Curtin University
Austria	International Data Centre, CTBTO
Austria	Zentralanstalt fur Meteorologie und Geodynamik (ZAMG)
Belgium	Royal Observatory of Belgium
Bolivia	Observatorio San Calixto
Bosnia-Herzegovina	Republic Hydrometeorological Service, Seismological Observatory Banja Luka
Brazil	Instituto Astronomico e Geofisico
Bulgaria	Geophysical Institute, Bulgarian Academy of Sciences
Cameroon	Seismological Observatory of Mount Cameroon
Canada	Canadian Hazards Information Service, Natural Resources Canada
Chile	Centro Sismologico Nacional, Universidad de Chile
China	China Earthquake Networks Center
China	Key Laboratory of Ocean and Marginal Sea Geology, South China Sea
Chinese Taipei	Institute of Earth Sciences, Academia Sinica
Colombia	Red Sismologica Nacional de Colombia
Costa Rica	Seccion de Sismologia, Vulcanologia y Exploracion Geofisica
Croatia	Seismological Survey of the Republic of Croatia
Cyprus	Cyprus Geological Survey Department
Czech Republic	The Institute of Physics of the Earth (IPEC)
Czech Republic	Geophysical Institute, Academy of Sciences of the Czech Republic
Czech Republic	West Bohemia Seismic Network
DPRK	Korea Earthquake Administration
Denmark	Geological Survey of Denmark and Greenland
Dominican Republic	Observatorio Sismologico Politecnico Loyola
Ecuador	Servicio Nacional de Sismologia y Vulcanologia
Egypt	National Research Institute of Astronomy and Geophysics
Ethiopia	University of Addis Ababa
Finland	Institute of Seismology, University of Helsinki
France	Institut de Physique du Globe de Paris
France	Laboratoire de Detection et de Geophysique/CEA
French Polynesia	Laboratoire de Geophysique/CEA
FYR Macedonia	Seismological Observatory Skopje
Georgia	Institute of Earth Sciences/ National Seismic Monitoring Center
Germany	Alfred Wegener Institute for Polar and Marine Research

146 agencies reported revised bulletin data to the ISC in 2017.

Germany	Bundesanstalt fur Geowissenschaften und Rohstoffe
Germany	Seismological Observatory Berggiesshübel, TU Bergakademie Freiberg
Germany	Geophysikalisches Observatorium Collm
Germany	GEOMAR
Germany	Helmholtz Centre Potsdam GFZ German Research Centre For Geosciences
Germany	Landeserdbebendienst Baden-Wurttemberg
Greece	National Observatory of Athens
Greece	Department of Geophysics, Aristotle University of Thessaloniki
Greece	University of Patras, Department of Geology
Greece	University of Athens
Guatemala	INSIVUMEH
Hong Kong, China	Hong Kong Observatory
Hungary	Geodetic and Geophysical Reasearch Institute, Academy of Sciences
India	National Geophysical Research Institute
India	National Centre for Seismology, Ministry of Earth Sciences
Indonesia	Badan Meteorologi, Klimatologi dan Geofisika
Iran	Tehran University
Iraq	Iraqi Meteorological and Seismology Organisation
Israel	Geophysical Institute of Israel
Italy	Istituto Nazionale di Geofisica e Vulcanologia
Italy	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS)
Ivory Coast	Station Geophysique de Lamto
Jamaica	Jamaica Seismic Network
Japan	Japan Meteorological Agency
Japan	The Matsushiro Seismological Observatory
Japan	National Research Institute for Earth Science and Disaster Prevention
Japan	National Institute of Polar Research
Jordan	Jordan Seismological Observatory
Kazakhstan	National Nuclear Center
Kazakhstan	Seismological Experimental Methodological Expedition
Kyrgyzstan	Kyrgyz Seismic Network
Kyrgyzstan	Institute of Seismology, Academy of Sciences of Kyrgyz Republic
Lebanon	National Council for Scientific Research
Lithuania	Geological Survey of Lithuania
Luxembourg	European Center for Geodynamics and Seismology
Macao, China	Macao Meteorological and Geophysical Bureau
Malawi	Geological Survey Department Malawi
Malaysia	Malaysian Meteorological Service
Mexico	Centro de Investigacion Cientifica y de Educacion Superior de Ensenada
Mexico	Instituto de Geofisica de la UNAM
Moldova	Institute of Geophysics and Geology
Montenegro	Seismological Institute of Montenegro
New Caledonia	IRD Centre de Noumea
New Zealand	Institute of Geological and Nuclear Sciences

Norway	University of Bergen
Norway	Stiftelsen NORSAR
Oman	Sultan Qaboos University
Pakistan	Micro Seismic Studies Programme, PINSTECH
Philippines	Philippine Institute of Volcanology and Seismology
Philippines	Manila Observatory
Poland	Institute of Geophysics, Polish Academy of Sciences
Portugal	Instituto Geofisico do Infante Dom Luiz
Portugal	Instituto Portugues do Mar e da Atmosfera
Portugal	Sistema de Vigilancia Sismologica dos Azores
Republic of Belarus	Centre of Geophysical Monitoring of the National Academy of Sciences
Republic of Crimea	Inst. of Seismology and Geodynamics, V.I. Vernadsky Crimean Federal University
Republic of Korea	Korea Meteorological Administration
Romania	National Institute for Earth Physics
Russia	Baykal Regional Seismological Centre, GS RAS
Russia	Institute of Environmental Problems of the North, Russian Academy of Sciences
Russia	Kola Regional Seismic Centre, GS RAS
Russia	Kamchatka Branch, GS RAS
Russia	Geophysical Survey of Russian Academy of Sciences (GS RAS)
Russia	Sakhalin Experimental and Methodological Seismological Expedition, GS RAS
Russia	Yakutiya Regional Seismological Center, GS RAS
Serbia	Seismological Survey of Serbia
Slovenia	Slovenian Environment Agency
Solomon Islands	Ministry of Mines, Energy and Rural Electrification
South Africa	Council for Geoscience
Spain	Instituto Geografico Nacional
Spain	Institut Cartografic i Geologic de Catalunya
Spain	Real Instituto y Observatorio de la Armada
Sweden	University of Uppsala
Switzerland	Swiss Seismological Service (SED)
Trinidad and Tobago	The Seismic Research Centre
Turkey	Kandilli Observatory and Research Institute
Turkey	Faculty of Mines, Department of Geophysical Engineering
USA	University of Alabama
USA	Earth & Environment
USA	The Global CMT Project
USA	Himalayan Nepal Tibet Experiment
USA	IRIS Data Management Center
USA	National Earthquake Information Center
USA	Pacific Northwest Seismic Network
Puerto Rico, USA	Red Sismica de Puerto Rico
USA	Earth & Planetary Sciences
USA	Department of Earth and Environmental Science
USA	United States Geological Survey

USA	Washington University Earth and Planentary Sciences
Ukraine	Subbotin Institute of Geophysics, National Academy of Sciences
UK	British Geological Survey
UK	International Seismological Centre
UK	Department of Earth Sciences
UK	School of Geosciences
UK	University of Leeds
Uzbekistan	Institute of Seismology, Academy of Sciences
Venezuela	Fundacion Venezolana de Investigaciones Sismologicas
Venezuela	Red Sismologica de Los Andes Venezolanos
Vietnam	National Center for Scientific Research
Zambia	Geological Survey Department of Zambia
Zimbabwe	Goetz Observatory
Britain, historical	British Association for the Advancement of Science
Countries of East Africa	East African Network (ESARSWG)
USA, historical	Gutenberg and Richter, Seismicity of the Earth
Germany, historical	International Seismological Association
Britain, historical	Shide Circulars

APPENDIX 2: SCIENTIFIC PAPERS in 2017 that used the ISC DATA

This list is a result of a special effort to put together a collection of scientific papers that used ISC data and published in 2017. The list is by no means exhaustive. The ISC has become such a familiar name that many researchers unfortunately fail to reference the ISC when using the ISC data.

We have searched Google Scholar for scientific papers that refer to the ISC data. We used the exact phrases "International Seismological Centre", "International Seismological Center", "ISC-GEM", "ISC-EHB" and "EHB"+"seismic" for papers appearing in 2017. No doubt many more references can be found by using different search phrases.

Development of NGA-Subduction database T Kishida, Y Bozorgnia, NA Abrahamson, SK Ahdi... - 2017 cloudfront.escholarship.org ... The data distribution services provided by Cento Sismologico Nacional in University of Chile (CSN), Incorporated Research Institutions for Seismology (IRIS), Institute of Earth Sciences, Academia Sinica in Taiwan (IES), International Seismological Centre (ISC), Japan ... Variation of singularity of earthquake-size distribution with respect to tectonic regime Q Cheng, H Sun - Geoscience Frontiers, 2017 - Elsevier ... regimes. 3. Data analysis and results. In this paper we use the global database of earthquake records from 1964 to 2015 that are freely available on the website of theInternational Seismological Centre (ISC) (http://www.isc.ac.uk) ...

Coseismic Slip in the 2016 Mw 7.8 Ecuador

Earthquake Imaged from Sentinel-1A

Radar Interferometry

<u>P He, EA Hetland</u>, Q Wang, K Ding... - Seismological ..., 2017 - pubs.geoscienceworld.org

... During the first two months, the mainshock was followed by a total of 138 aftershocks with M w \geq 3 (the largest M w 6.7) within a nearly north–south-trending zone of 150 km by 200 km (**International Seismological Centre**; see Data and Resources; Fig ...

Probabilistic seismic hazard assessment in

the Black Sea area

IA Moldovan, M Diaconescu, R Partheniu... - Romanian Journal of ..., 2017 - nipne.ro

... scale covering historical and modern instrumental seismicity until present days (ANSS – Advanced National Seismic System-USA, NEIC – National Earthquake Information Centre, World Data

forSeismology Denver-USA, ISC – International Seismological Centre-UK) and the ...

Mantle transition zone, stagnant slab and

intraplate volcanism in Northeast Asia

<u>C Chen, D Zhao, Y Tian, S Wu...</u> - Geophysical Journal ..., 2017 - academic.oup.com

Rosetta, a tool for linking accelerometric

recordings and macroseismic observations:

description and applications

<u>M Locati, AAG Capera, R Puglia, M Santulin</u> - Bulletin of Earthquake ..., 2017 - Springer

... 3b). Around twenty instrumental earthquake catalogs were selected for compiling CPTI11, among which the most important in terms of contributed data are ISC Bulletin (ISC, International Seismological Centre), CSI 1.1 (Castello et al ...

The 24th January 2016 Hawassa

earthquake: Implications for seismic hazard

in the Main Ethiopian Rift

M Wilks, <u>A Ayele, JM Kendall</u>, <u>J Wookey</u> - Journal of African Earth Sciences, 2017 - Elsevier

... The PGA is contoured in 0.25 m/s 2 increments. Earthquakes since 1900 of M > 4are white circles and sized by magnitude (**International Seismological Centre**, 2016). The six listed significant earthquakes in the MER are grey ...

The New Zealand strong motion database

<u>C Van Houtte, S Bannister</u>, C Holden... - Bull. New Zeal. Soc ..., 2017 - researchgate.net

... There are three existing catalogues from which earthquake locations are determined: special studies, the standard GeoNet catalogue [19], a relocated New Zealand catalogue between 2001 and 2012 [20], and the **International Seismological Centre** (ISC) catalogue [21] ...

The travel times of regional P and S for

spreading ridges in the European Arctic

AN Morozov, NV Vaganova - Journal of Volcanology and Seismology, 2017 - Springer

... MOROZOV,

VAGANOVA International Seismological Centre (ISC) Bulletin occurring in the Arctic between 2002 and 2012 ... The hypocenter parameters are taken from the International Seismological Centre (ISC) Bulletin Date Time Hypocenter parameters Magnitude (mb) ...

Fault geometry of 2015, Mw7. 2 Murghab,

Tajikistan earthquake controls rupture

propagation: Insights from InSAR and

seismological data

S Sangha, G Peltzer, A Zhang, <u>L Meng</u>, C Liang... - Earth and Planetary ..., 2017 - Elsevier

... yellow star), two Mw5.4 aftershocks (magenta stars) plotted with accompanying focal mechanisms from the Incorporated Research Institutions for Seismology (IRIS) (IRIS, 2016), and background seismicity (open dots) data from

the International Seismological Centre $(\ensuremath{\mathsf{ISC}})$ (

Rupture evolution of the 2006 Java tsunami

earthquake and the possible role of splay

faults

<u>W Fan, D Bassett, J Jiang, PM Shearer, C Ji</u> - Tectonophysics, 2017 - Elsevier

... The July 17, 2006 Java earthquake was a classic tsunami earthquake with body-wave magnitude mb = 6.1, surface-wave magnitude Ms = 7.1, and moment magnitude Mw =7.7 (Ekström et al., 2012; International Seismological Centre, 2013) ...

Single Station Sigma in Chile

<u>G Montalva</u>, N Bastías... - 16th World Conference ..., 2017 - researchgate.net

... a public flatfile. This flatfile contains the magnitudes and locations reported by the

International Seismological Centre ([3]), Harvard Centroid Moment Tensor (CMT,[4]), and Centro Sismológico Nacional (CSN). The moment ...

Minoan Earthquakes: Breaking the Myth

Through Interdisciplinarity

S Jusseret, M Sintubin - 2017 - books.google.com

... Epicenters Bulletin (https://earthquake.usgs.gov/data/pde. php) or by the **International Seismological Centre** (http://www. isc. ac. uk/), based on 'the first 5sec of short-period P waves'(Utsu 2002: 733). See also surface-wave ...

Double-difference relocation of the 29

January 2011 ML 4.5 Oroszlány

earthquake and its aftershocks and its

relevance to the rheology of the lithosphere

and ...

E Békési, B Süle, L Lenkey, Á Lenkey-Bőgér... - Acta Geodaetica et ..., 2017 - Springer

... We used the

extended **International Seismological Centre** location algorithm, iLoc to determine the initial single event locations for the aftershock sequence and applied multiple event location algorithm on the new hypocenters ...

A comprehensive earthquake catalog for

Irag in terms of moment magnitude

T Onur, R Gök, <u>W Abdulnaby</u>... - Seismological ..., 2017 - pubs.geoscienceworld.org

... Hence, events were collected from various sources, including the ISN when available, **International Seismological Centre** (ISC), European-Mediterranean

Seismological Centre, US Geological Survey Centennial Catalog, Global Centroid Moment Tensor solutions, and ...

Source parameters of the Taimyr

earthquake of June 9, 1990

Al Seredkina, BM Kozmin - Doklady Earth Sciences, 2017 - Springer

... ACKNOWLEDGMENTS This work was supported by the Russian Science Foundation, project no. 15–17–20000. REFERENCES 1. International Seismological Centre. On-Line Bulletin. Thatcham, 2013. http://www.isc.ac.uk ...

Satellite observation of CH4 and CO

anomalies associated with the Wenchuan

MS 8.0 and Lushan MS 7.0 earthquakes in

China

Y Cui, <u>D Ouzounov</u>, N Hatzopoulos, K Sun, Z Zou... - Chemical Geology, 2017 - Elsevier

... 2008/08/01, 32.1, 104.7, 12.7, 6.1, 2008/08/05, 32.8, 105.5, 10, 6.1, Note: the depth of the main shock and aftershocks of

Wenchuan earthquake are from

the **International Seismological Centre** and others are from the China Seismic Information. 2. Data and method. 2.1. Data ...

An -Based Historical Earthquake Catalog

for Mainland China

<u>J Cheng</u>, Y Rong, H Magistrale... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

... 1). The recently

published **International Seismological Centre**-Global Earthquake Model (ISC-GEM) global catalog includes M w \ge 5.5 earthquakes since 1900 with well-determined epicenters and magnitudes (Storchak et al., 2013); it has about 1400 earthquakes

in and ...

Rebuilding the Bulletin of the International

Seismological Centre (ISC)

LN Brown, K Lieser, J Harris, B Shumba... - AGU Fall Meeting ..., 2017 - adsabs.harvard.edu

Abstract Currently, the published International Seismological

Centre (ISC) locations represent a mixture of algorithms (Reviser, ISCloc), velocity models (Jeffreys-Bullen, ak135), and phases (P-wave only, P&S, and finally all available ak135 phases starting in 2009) ...

Rebuild of the Bulletin of the International

Seismological Centre (ISC), part 1: 1964-

1979

DA Storchak, J Harris, L Brown, K Lieser, B Shumba... -Geoscience Letters, 2017 - Springer

The data from the Bulletin of the **International Seismological Centre** (ISC) have always been and still remain in demand for a wide range of studies in Geosciences. The unique features of the Bulletin include long-term coverage (1904-present), the most comprehensive set of

Constraint on the magma sources in Luzon

Island Philippines by using P and S wave

local seismic tomography

NC Nghia, BS Huang, PF Chen - AGU Fall Meeting Abstracts, 2017 - adsabs.harvard.edu

... To constrain the validity of slab tearing induced by ridge subduction and their effect, we performeda P and S wave seismic tomography travel time inversion using LOTOS code. The dataset hasbeen retrieved from **International Seismological Centre** from 1960 to 2008 ...

Seismic response of the outer-rise region

within a seismic cycle

A Sladen, J Trévisan - AGU Fall Meeting Abstracts, 2017 - adsabs.harvard.edu

... To investigate this variability and whether it might reflect different stages of stressaccumulation along subduction zones, we analyze 23 years (1990-2013) of globalouter-rise seismicity using the **International Seismological Centre** Bulletin ...

Shallow earthquake swarms in southern

Ryukyu area: manifestation of dynamics of

fluid and/or magma plumbing system

revealed by teleseismic and regional ...

A Špičák, J Vaněk - International Journal of Earth Sciences, 2017 - Springer

... In addition to the factual results, this study documents the high accuracy of hypocenterparameter determinations published by the **International Seismological Centre** and

the usefulness of the EHB relocation procedure. Keywords \ldots

On the accuracy of initial seismological

data in the problem of seismic hazard

assessment

RE Tatevossian, NG Mokrushina - Seismic Instruments, 2017 - Springer

... Akad. Nauk SSSR. Fiz. Zemli, 1981, no. 2, pp. 21 36. International Seismological Centre: EHB Bulletin, Thatcham, UK: Int. Seismol. Centre, 2013a. http://www.isc.ac.uk. International

Seismological Centre: On-line Bulletin, Thatcham, UK, 2013b. http://www.isc.ac.uk ...

Relocation of hypocenter using Jacobian's

matrix and Jeffreys-Bullen's velocity model

F Muhlis, R Listyaningrum, IR Palupi - UNEJ e-Proceeding, 2017 - jurnal.unej.ac.id

... International Seismological Centre (ISC) is an institution that record arrival time of earthquake then report the position of the hypocenter ... [1] 1982. Analysis procedures at the international seismological centre, Phys. Earth Planet. Inier., 30, 85-93 Grandis, Hendra, 2009 ...

Subduction initiation with vertical

lithospheric heterogeneities and new fault

formation

X Mao, <u>M Gurnis, DA May</u> - Geophysical Research Letters, 2017 - Wiley Online Library

... Fault. (c) Filled circles are earthquakes with magnitude between 2 and 5 from theISC Bulletin

(International Seismological Centre, 2014), and the focal mechanism solutions are from CMT catalog (Dziewonski et al., 1981).

The February 1, 2011 Mw 4.7 earthquake:

Evidence of local extension in western

Transbaikalia (Eastern Siberia)

VI Melnikova, AI Seredkina, YB Radziminovich... - Journal of Asian Earth ..., 2017 - Elsevier

... During the instrumental observation period (1951–2016), it became the second-most importantseismic event after the October 2, 1980 mb 5.0 earthquake located near the Orongoi basins(Golenetskii et al., 1982,

1983; International Seismological Centre, 2016) ...

Engineering Strong-Motion database: a

gateway to access European strong motion

data

L Luzi, R Puglia, E Russo, <u>M D'Amico...</u> - ... World Conference on ..., 2017 - earth-prints.org

... seismic events. For moderate to small events the sources of information are regional catalogues (eg the INGV Bulletin) or the Bulletin of the **International Seismological Centre**, ISC, in case regional catalogues are unavailable. The ...

Volcanism and hydrothermalism on a hotspot-influenced ridge: Comparing Reykjanes Peninsula and Reykjanes Ridge, Iceland

$\underline{D \ Pałgan}, CW \ Devey, \underline{IA \ Yeo}$ - Journal of Volcanology and Geothermal ..., 2017 - Elsevier

... Events with magnitudes higher than 4 are detectable teleseismically with high precisiondue to the relocation procedure introduced by Engdahl et al. (1998) and are listed, alongwith epicenter locations, by

the International Seismological Centre ...

THE INTENSITY ASSESSMENT OF THE

APRIL 25, 2009, VRANCEA SUBCRUSTAL

EARTHQUAKE FROM MACROSEISMIC

DATA

AP CONSTANTIN, R PARTHENIU, <u>IA MOLDOVAN</u>... - rrp.infim.ro ... EMSC 45.70 26.63 96 5.3 4.2 5.2 USGS 45.67 26.52 100.7 5.3 5.2 ISC 45.70 26.53 102.4 5.3NIEP National Institute for Earth Physics; EMSC European-Mediterranean Seismological Centre, USGS United States Geological Survey; ISC International Seismological Centre ...

Subduction zone in Java Island using

primary wave tomography from Jacobian

relocation method based on ak135 velocity

model

R Listyaningrum, F Muhlis, <u>J Soesilo</u>... - AIP Conference ..., 2017 - aip.scitation.org

- alp.scitation.org
... 1974. 5. Katili, JA Volcanism and Plate Tectonics in the Indonesian Island Arcs, Tectonophysics,
26, 1975, p. 165-188. 6. Adams, RD, AA Hughes, and DM McGregor, Analysis procedures at the international seismological centre, Phys. Earth Planet. Inier., 30, 1982, p. 85-93 ...

Seismic hazard analysis for central-western

Argentina

SD Gregori, R Christiansen - Geodesy and Geodynamics, 2017 - Elsevier

... 1982–2016, USGS. GR: Gutenberg and Richter; ISS: International Seismological Summary;USCGS: United States Coast and Geodetic Survey; BCI: Bureau Central International deSeismologie; ISC: **International Seismological Centre**; USGS: US Geological Survey - NEIC ...

Earthquake ground motion simulation at

Zoser pyramid using the stochastic method:

A step toward the preservation of an

ancient Egyptian heritage

<u>AE Khalil, HEA Hafiez</u>, M Girgis, MA Taha - NRIAG Journal of Astronomy ..., 2017 - Elsevier

... Figure 1. Location map of Zoser pyramid and the earthquake activities in its vicinity (data obtained

from International Seismological Centre (2013)) ... GEOFIZIKA, 25 (1) (2008), pp. 1-26. International Seismological Centre, 2013 International Seismological Centre, 2013 ...

The earthquake of July 22, 2011 (M_w = 4.5)

in a low-seismicity area of the Argun region

YB Radziminovich, Al Seredkina, VI Melnikova... - Seismic ..., 2017 - Springer

... 0 150 300 km Table 1. Main parameters of the earthquake of July 22, 2011, from data of different seismological agencies (International Seismological Centre...,2011) ... International S eismological Centre, Berkshire, Bulletin of the International Seismological Centre for 2011

An event database for rotational

seismology

J Salvermoser, <u>C Hadziioannou</u>... - Seismological ..., 2017 - pubs.geoscienceworld.org

 \ldots 4.5. In addition to that, we provide smaller (M w <4.5) local and close events (<10°epicentral distance; compare with Table 1) using solutions of the **InternationalSeismological Centre** (ISC, 2016; Di Giacomo et al., 2014). After \ldots

Detailed seismotectonic analysis of

Sumatra subduction zone revealed by high

precision earthquake location

RA Sagala, PJP Harjadi, N Heryandoko... - AIP Conference ..., 2017 - aip.scitation.org

... in this study is a 35-years period data. The data is a catalog of reviewed P-wavearrival time

from International Seismological Centre (ISC) from January 1981 to March 2009. This data is combined with catalog of arrival time ...

Threats from submarine landslides around

Atlantic volcanic islands and implications

for sediment and carbon transfer

O Kiel, R Quartau - sees.manchester.ac.uk ... 2015). Earthquake data from

the **International Seismological Centre** can be used to work out the distribution of peak ground acceleration represented by historical seismicity also to compare with the landslide occurrences.

Evolution of Precursory Seismic

Quiescence of the Mw-6.8 Nam Ma

Earthquake, Thailand-Myanmar Borders

P Puangjaktha, S Pailoplee - researchgate.net

... We analyzed the evolution of the seismicity pattern related with the Nam Ma earthquake (Mw = 6.8) by using the statistical seismology method RTL (Region–Time–Length) algorithm to the seismicity data of the **International Seismological Centre** (ISC), recorded during 1969 ...

Deaggregation of probabilistic ground

motions in the Kota Kinabalu and Lahad

Datu towns of Sabah, Malaysia

HNS Herayani, A Azlan... - MATEC Web of ..., 2017 - matecconferences.org

... The international agencies included the United States Geological Survey/National EarthquakeInformation Centre (USGS/NEIC), Advanced National Seismic System (ANSS), **International Seismological Centre** (ISC), National Geophysical Data Centre (NGDC), Harvard Centroid ...

Constraints on Inner Core Anisotropy Using

Array Observations of P' P'

DA Frost, B Romanowicz - Geophysical Research Letters, 2017 - Wiley Online Library

... information). Origin times and event locations are taken from the Reviewed EventBulletin

(REB, International Seismological Centre, 2014). The two P'P'df legs pass

through the inner core at different angles to the rotation axis ...

Low-Frequency Seismic Amplification in the

Quito Basin (Ecuador) Revealed by

Accelerometric Recordings of the RENAC

NetworkAmplification in the Quito Basin ...

A Laurendeau, F Courboulex... - Bulletin of the ..., 2017 -

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Seismic and infrasound observations at

Syowa Station and surrounding region of

Antarctica-Sciece targets and data

management for long-term monitoring

ISC: Annual 2017 Director's Report

M Kanao, S Tsuboi, M Yamamoto, T Murayama... nipr.repo.nii.ac.jp CMS,Netcommons,Maple.

Source and causes of 2015 great pluvial

flood of Chennai, Tamil Nadu and its

surroundings

<u>A Akilan, S Balaji, KKA Azeez</u>... - Journal of the Geological ..., 2017 - Springer

... An attempt has been made in the present study to integrate the numerical weather modeling(NWM) parameters such as Temperature and zenith total delay (ZTD)

with **Internationalseismological centre** (ISC) derived earthquake catalogue and relate them with rainfall to ...

Applicability of ground-motion prediction

equations to a Greek within-slab

earthquake dataset

AA Skarlatoudis - Bulletin of Earthquake Engineering, 2017 - Springer

 \dots (2013) work. For earthquakes 6–8 and 1d and 2d, I use the magnitudes reported by the

International Seismological Centre (ISC 2013). Table 1 Earthquakes considered in the present study. ID. Origin time (yyyy/mm/dd hh:mm:ss.ss). Latitude (°). Longitude (°). Depth (km) ...

Increase in earthquake swarm activity in

the southern Red Sea, Afar and Gulf of

Aden

<u>J Ruch</u>, D Keir, G Ogubazghi... - EGU General ..., 2017 - adsabs.harvard.edu

... Affiliation: AA(King Abdullah University of Science and Technology (KAUST), Saudi Arabia), AB(Southampton University), AC(Department of Earth Sciences, Eritrea Institute of Technology, Asmara, Eritrea), AD(International Seismological Centre), AE(King Abdullah University

Travel time source-specific station

corrections related to lithospheric structures

in the Mediterranean region

A Giuntini, V Materni, R Console, S Chiappini... - Journal of ..., 2017 - Springer

We compare the locations obtained from arrival times collected by the

International Seismological Centre from a network of regional and

teleseismic stations for a cluster of Italian earthquakes with ...

Neotectonic activity and parameters of

seismotectonic deformations of seismic

belts in Northeast Asia

L Imaeva, G Gusev, V Imaev, V Mel'nikova - Journal of Asian Earth ..., 2017 - Elsevier

... Calculations and analyses of the STD parameters were based on the focal mechanism solutionsfor 248 earthquakes ($M \ge 3.5$) that occurred in the study area from 1927 to 2014 (Fujita et al.,2009; **International Seismological Centre**; Department of Earth and Planetary ...

Reply to "Comment on 'Unbiased

Estimation of Moment Magnitude from

Body-and Surface-Wave Magnitudes' by R.

Das, HR Wason, and ML Sharma and ' ...

P Gasperini, B Lolli... - Bulletin of the ..., 2017 -

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 \dots We recomputed such estimators from the same dataset used in Gasperini et al. (2015):mb from

the **International Seismological Centre** online bulletin and M w from the Global Centroid Moment Tensor catalog (see Data and Resources) ...

Stress modeling to determine the through-

going active fault geometry of the Western

North Anatolian Fault, Turkey

B Karimi - Geotectonics, 2017 - Springer

... the NAF in the Marmara region. A compiled record of earthquakes from a 100-year record [41], the World Stress Map (WSM) [28], and the **International Seismological Centre** (ISC) [35] (Fig. 2a) depicts limited seismicity in the ...

Present-day tectonics of the western part of

the Dzhugdzhur-Stanovoi Terrane of the

southeastern frame of the North Asian

Craton

VS Zhizherin, MA Serov - Geotectonics, 2017 - SpringerBulletin of the International Seismological Centre, International Seismolo gical Centre, Thatcham, United Kingdom. http://www.isc.ac.uk. Accessed December 31, 2012. Reviewers: VG Trifonov, KE Degtyarev Translated by I. Melekestseva

Earthquake triggering in southeast Africa

following the 2012 Indian Ocean

earthquake

M Neves, S Custódio, Z Peng... - Geophysical Journal ..., 2017 - academic.oup.com

Summary. In this paper we present evidence of earthquake dynamic triggering in southeast Africa. We analysed seismic waveforms recorded at 53 broad-band and sh.

Analyses of seismic activities and hazards

in Laos: A seismicity approach.

S Pailoplee, <u>P Charusiri</u> - Terrestrial, Atmospheric & Oceanic ..., 2017 - search.ebscohost.com

... In the vicinity of Laos (latitude 10.8 - 25.7°N and longitude 96.7 - 111.0°E), 7540 earthquakes with a magnitude range of 1.0 - 7.7 have been reported during 1964 - 2015 by (1) the **International Seismological Centre** and (2) the US National Earthquake Information ...

Probabilistic Seismic Hazard

Deaggregation for Selected Egyptian Cities

<u>R Sawires</u>, JA Peláez, RE Fat-Helbary... - Pure and Applied ..., 2017 - Springer

A probabilistic seismic hazard analysis in terms of peak ground acceleration

(PGA) and spectral acceleration (SA) values has been performed for the

Egyptian territory. Eighty-eight potential seismic s.

Grandes terremotos en Azores

B Caldeira, J Fontiela, JF Borges, M Bezzeghoud -

researchgate.net

... The catalogue of

the International Seismological Centre (ISC) in the strip containing the Azores Islands (35°<LAT<42°; -35°<LONG<-22°) shows that the num- ber of seismic

events recorded between 1926 and 2017 with M>3 is 9420 ...

Velocity structure of the subducted Yakutat

Terrane, Alaska: insights from guided

waves

<u>S Coulson</u>, T Garth, <u>A Rietbrock</u> - Geophysical Research ..., 2017 - Wiley Online Library

... RL (2012). Slab1. 0: A three-dimensional model of global subduction zone geometries. Journal of Geophysical Research: Solid Earth (1978–2012), 117(B1). International- Seismological-Centre. (2014). On-line Bulletin. Kim, Y ...

Uppermost Inner Core Heterogeneity from

Differential Travel Times of PKIKP vs. PKP-

Bdiff and PKP-Cdiff Phases

M Ivan, X He - Pure and Applied Geophysics, 2017 - Springer

... Use of a high speed computer for the preliminary determination of earthquake hypocenters.Bulletin of the Seismological Society of America, 56, 325–336.Google Scholar. International Seismological Centre. On-line Bulletin ...

Thatcham: International Seismological Centre (2013) ...

Improved Tools for Disaster Risk Mitigation

in Algeria ITERATE

B Deliverable - 2017 - iterate-eu.org

... The Algerian catalogue contains events from Spanish National Geographic Institute (NGI) network, the Algerian CRAAG, **International Seismological Centre** (ISC), National Earthquake Information Center (NEIC) Preliminary Determination of Epicentres catalog (USGS) and the ...

Estimation of 'b'Value and Maximum

Earthquake for Gujarat, India

K Pallav, SK Duggal - 2017 - academicscience.co.in

... study. The earthquake data has been taken from the catalogues prepared from various sources like **International Seismological Centre**, Indian Metrological

Department, and United State Geological Survey Department etc. In ...

This study analyzes and compares the P-

and S-wave displacement spectra from

local earthquakes and explosions of similar

magnitudes. We propose a new ...

G Suárez, G Ataeva, <u>Y Gitterman</u>, A Shapira - Journal of Seismology, 2017 - infona.pl

... We compare the locations obtained from arrival times collected by the International Seismological

Centre from a network of regional and teleseismic stations for a cluster of Italian earthquakes with the locations of the same events obtained by the dense

national seismic network ...

Seismicity and major geologic structures of

Tiran and Sanafir islands and their

surroundings in the Red Sea

HA Aboulela, <u>E Aboud</u>, RA Bantan - Environmental Earth Sciences, 2017 - Springer ... Seismic data were obtained from the **International Seismological Centre** (www.isc.ac.uk), National

Earthquake Information Centre

(https://earthquake.usgs.gov/contactus/golden/neic.php), the Egyptian National Seismic Network (www.nriag.sci.eg), and the Egyptian Geological ...

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territory

T Belinić, <u>S Markušić</u> - Geofizika, 2017 - pdfs.semanticscholar.org ... Husen, S. and Smith, R. (2004): Probabilistic earthquake location in three-dimensional velocity mod- els for the Yellowstone National Park region, Wyoming, Bull. Seism. Soc. Am., 94, 880– 896. **International Seismological Centre**, Reference Event Bulletin,

From Relative to Absolute Teleseismic

Travel Times: The Absolute Arrival-Time

Recovery Method (AARM)

<u>A Boyce, ID Bastow, S Rondenay</u>... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

... When compared with the available equivalent earthquake– station pairs on the **International Seismological Centre** (ISC) database, ~ 83 % of AARM picks agree to within \pm 0.5 s . Tests using synthetic P-wave data indicate that AARM produces absolute arrival-time picks to ...

New Evidences Of Compressional Tectonic

Regime At The Southern Part Of The

Western Black Sea Basin Along Turkish

Margin (Between Akcakoca And Cide)

<u>KM Onal</u>, E Demirbag - 9th Congress of the Balkan Geophysical ..., 2017 - earthdoc.org

... Dubey, AK [2014] Thrust Fault. In: Understanding an Orogenic Belt: Structural Evolution of the Himalaya, Springer, 101-142. ISC [2017] **International Seismological Centre**, On-line Bulletin, http://www.isc.ac.uk, Internatl. Seismol. Cent., Thatcham, United Kingdom ...

Investigation of a Holocene marine

sedimentary record from Pond Inlet,

northern Baffin Island, Nunavut

LM Broom, DC Campbell, JC Gosse - 2017 - cngo.ca

... Summary of Activities 2017 103 Page

12. International Seismological Centre 2017: Bulletin of the Interna- tional Seismological Centre; International Seismological Centre, online bulletin, URL http://www.isc.ac.uk [Octo- ber 2017] ...

Seismic Character of Moho Beneath the

NW Himalaya and Ladakh Inferred from

Regional Earthquakes Travel Time Data

<u>N Kanna, KS Prakasam, S Gupta</u> - Pure and Applied Geophysics, 2017 - Springer

... Tibet. Nature, 307, 23–25.CrossRefGoogle Scholar. International Seismological Centre, On-line Event Bibliography, http://www.isc.ac.uk/event_bibliography, International

Seismological Centre, Thatcham, United Kingdom, 2006 ...

Long-Term Interactions Between

Intermediate Depth and Shallow Seismicity

in North Chile Subduction Zone

<u>J Jara, A Socquet, D Marsan</u>... - Geophysical Research ..., 2017 - Wiley Online Library

... earthquake in 2014 (Duputel et al., 2015). The 1990–2016 seismicity (M≥4.0) from

the International Seismological Centre (ISC) (2017) is color

coded by depth and scaled by magnitude. The black line indicates the

Warning Time Analysis for Emergency

Response in Sumbawanga City for the

Repeat of Magnitude 7.2 Earthquakes of

1919 Using Proposed Community

Earthquake ... A Manyele - International Journal Of Engineering And Computer ..., 2017 - ijecs.in ... Earthquake", Bulletin of the Seismological Society of America,

Vol. 104, No. 1, pp. 184–192, February 2014, doi: 10.1785/0120120196, 2014. [8] International

Seismological Centre

http://www.isc.ac.uk/ehbbulletin/search/arrivals/ Last ...

The 2005 and 2010 Earthquakes on the

Sumatra-Andaman Trench: Evidence for

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Rejuvenation

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Seismoacoustic effects of the Hovsgol

earthquake (M_w = 4.9) of December 5,

2014

AA Dobrynina, VA Sankov, VV Chechelnitsky... - Doklady Earth ..., 2017 - Springer

... 7. Weather in the World. http://www.rp5.ru/. 8. Baikal Branch Federal Research Center

Geophysical Survey Russ. Acad. Sci. http://seis-bykl.ru/. 9. International Seismological Centre,

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Considerations on the seismotectonics and

seismogenesis of the Tiberina-Gubbio

Valley extensional system (central Italy)

P Balocchi, G Riga - researchgate.net ... Database aggiornato al 2015, web:http://cnt. rm.ingv.it/tdmt. ISC, 1984 – International Seismological Centre Bulletin: event catalogue search. International Seismological Centre, United Kingdom. website: http://www.isc.ac.uk/iscbulletin/search/catalogue ...

Precursory seismic quiescence along the

Sumatra-Andaman subduction zone: past

and present

S Sukrungsri, S Pailoplee - Journal of Seismology, 2017 - Springer ... study. 2 Dataset and completeness. The primary dataset used

in this study was taken from the instrumental earthquake catalogues provided by the (i) Global Centroid

Moment Tensor and (ii) International Seismological Centre ...

Longer aftershocks duration in extensional

tectonic settings

<u>E Valerio, P Tizzani, E Carminati, C Doglioni</u> - Scientific reports, 2017 - nature.com

 \ldots the 1995 Kozani-Grevena and the 1999 Athens sequences). We compared these data with those from the ISC 25

(International Seismological Centre) catalogue.

Specifically, in case of the 2003 Zemmouri sequence (Algeria ...

Reappraisal of the Seismicity of the

Southern Edge of the Mitidja Basin (Blida

Region, North-Central Algeria)

A Harbi, A Sebaï, Y Rouchiche... - Seismological ..., 2017 - pubs.geoscienceworld.org

Long-Term Seismic Quiescences and

Great Earthquakes in and Around the

Japan Subduction Zone Between 1975 and

2012

K Katsumata - Pure and applied geophysics, 2017 - Springer ... 1; Table 1). The ISC earthquake catalog

(International Seismological Centre 2013) was analyzed between 1 January 1964 and 30 June 2012 for the Kurile Trench area and the Ryukyu Trench area and between 1 January 1964 and 28 February 2011 for the Japan Trench area ...

Constraining the hydration of the

subducting Nazca plate beneath Northern

Chile using subduction zone guided waves

T Garth, <u>A Rietbrock</u> - Earth and Planetary Science Letters, 2017 - Elsevier

... 1. Summary map and profile. a) The study area of Northern Chile. Well located background

seismicity from the ISC earthquake bulletin from 2010–2014 (International Seismological Centre.

2014) is shown in red, and slab contours are shown from slab1.0 (Hayes et al., 2012) ...

Identifying and Correcting Timing Errors at

Seismic Stations in and around Iran

EM Syracuse, WS Phillips... - Seismological ..., 2017 - pubs.geoscienceworld.org

... Because shared data repositories are a fundamental data source for the seismic community (eg, the Bulletin of the **International Seismological Centre** [ISC], the Data Management Center at the Incorporated Research Institutions for Seismology [IRIS], the European Integrated ...

Probabilistic seismic hazard analysis

(PSHA) for Ethiopia and the neighboring

region

<u>A Ayele</u> - Journal of African Earth Sciences, 2017 - Elsevier ... duplicates. Ayele (1995) covers the period 1960 to 1993. The data recorded from 1994 to 2012 are compiled for this study from national and ISC (**International Seismological Centre**) catalogues. 3.2. Magnitude homogenization. For ...

SOURCE MECHANISM AND SIZE OF

THE 24 APRIL 2002 ML 5.2 GNJILANE

(KOSOVO) EARTHQUAKE

V Čejkovska, L Pekevski... - Contributions, Section of ..., 2017 - csnmbs.manu.edu.mk

Раде 1. Прилози, Одд. мат. тех. науки, МАНУ, XXXII, 45–66 (2011), с. 45–66 Contributions, Sec. Math. Tech. Sci., MANU, XXXII, 45–66 (2011), р. 45–66 ISSN 0351–3246 UDC: 550.348.013(497.115)"2002" SOURCE MECHANISM ...

Homogenization in Terms of of Local

Magnitudes of Italian Earthquakes That

Occurred before 1981

B Lolli, <u>P Gasperini</u>, A Rebez - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

... In this work, we integrate a genuine copy of PFG, with additional locations from the bulletins of the Istituto Nazionale di Geofisica (ING, now known as INGV) and of the **International Seismological Centre** (ISC) and with local magnitudes from two couples of Wood–Anderson ...

Is the Okavango Delta the terminus of the

East African Rift System? Towards a new

geodynamic model: geodetic study and

geophysical review

AM Pastier, <u>O Dauteuil</u>, <u>M Murray-Hudson</u>, F Moreau... -Tectonophysics, 2017 - Elsevier

... The black star shows location of the recent M6.5 earthquake. B: Number of events per year inBotswana and the OG (International Seismological Centre, 2016) ... Fig. 6. Recorded earthquakes from 2004 to 2016, with magnitude over 3 (International Seismological Centre, 2016) ...

The intraplate Maranhão earthquake of

2017 Jan 03, northern Brazil: evidence for

uniform regional stresses along the

Brazilian equatorial margin.

FL Dias, <u>M Assumpção</u>, <u>MB Bianchi</u>... - Geophysical Journal ..., 2017 - academic.oup.com

... The Brazilian Seismographic Network: Historical overview and current status. Summary of the Bulletin of

the International Seismological Centre, v. 49(1-6), p. 70- 90, http://www.isc.ac.uk/ iscbulletin/summary/. Bobrov, DI, Kitov, IO, Rozhkov, MV, & Friberg, P., 2016 ...

Electronic Supplement to The 1904 M s 7.3

Earthquake in Central Alaska

C Tape, A Lomax, V Silwal, JD Agnew... - giseis.alaska.edu ... 92–94, US Department of Commerce and Labor, Coast and Geodetic Survey, Washington,

DC International Seismological Centre (2013), On-line Bulletin, http://www.isc.ac.uk, Internatl.

Seis. Cent., Thatcham, United Kingdom (accessed 2016-10-05) ...

Active tectonics in the Gulf of California and

seismicity (M> 3.0) for the period 2002-

2014

<u>RR Castro</u>, JM Stock, <u>E Hauksson</u>, <u>RW Clayton</u> - Tectonophysics, 2017 - Elsevier

... The mean horizontal location errors, estimated from a bootstrap error analysis, are on the order

of ~ 2 km. 4. The international seismological Centre (ISC) catalog. We searched in the ISC Bulletin for earthquakes located in the GoC region between 2002-04-01 and 2014-12-31 ...

SEISMIC HAZARD ASSESMENT AT

ESFARAEN-BOJNURD RAILWAY,

NORTH-EAST OF IRAN

SH Fard, H Jarahi, M Pourkermani, M Almasian - researchgate.net ... Committee for Earthquake Preparedness, Report No.

522/474/09, 2009, p. 36. 50. ICS International Seismological Centre, On-line Bulletin, http://www.isc.ac.uk, Internatl. Seismol. Cent.,

Thatcham, United Kingdom, 2014. Reviewer: VSImaev Page 11. 11 Table ... Simulation of Strong Ground Motion of the

2009 Bhutan Earthquake Using Modified

Semi-Empirical Technique

A Joshi, <u>S Lal</u>, <u>P Kumar</u>, SK Sah - Pure and Applied Geophysics, 2017 - Springer

... According to the International Seismological Centre (ISC; http://www.isc.ac.uk) catalogue, during the last century the seismicity of the Bhutan Himalaya was low compared to its adjoining Himalayan segments. Gahalaut et al ... Related articles All 2 versions

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... determinations). From

the International Seismological Centre (www.isc.ac.uk) on-line catalogue

we ... 4a; see also Table S5 in the Supporting material section). The **International Seismological**

Centre (ISC) routinely produce catalogues of earthquake hypocenter ...

Lomonosov ridge and the Eastern Arctic

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lithospheric plate: Comparative analysis of

wrench faults

EV Artyushkov, PA Chekhovich - Doklady Earth Sciences, 2017 - Springer

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Depth to the bottom of magnetic layer in

South America and its relationship to Curie

isotherm, Moho depth and seismicity

behavior

<u>J Idárraga-García</u>, CA Vargas - Geodesy and Geodynamics, 2017 - Elsevier

... flow values reported for the study zone. Seismicity data were taken from the **International Seismological Centre**-ISC database [60], between 1964 and 2015 for

events of depths <80 km. Bouguer gravity anomalies are from the \ldots

Shallow and intermediate depth

earthquakes in the Hindu Kush region

across the Afghan-Pakistan border

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... The homogeneous earthquake catalogue is the primary input in the study of seismicity variation (Habermann, 1987; Burton, 1990; Katsumata, 2011). Rehman et al. (2014) purified various existing earthquake catalogues

(eg, International Seismological Centre (ISC), EHB ...

Probabilistic Models For Earthquakes With

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C Chaudhary, <u>ML Sharma</u> - Pure and Applied Geophysics, 2017 - Springer

... The instrumental data for 1964–2015 have been collected from the website of **International Seismological Centre** (ISC) http://www.isc.ac.uk/of UK, National Earthquake Information Centre

(NEIC) of USGS

http://earthquake.usgs.gov/earthquake/search/and additional data have ...

Geodesy and Geodynamics

<u>J Idárraga-García</u>, CA Vargas - 2017 - researchgate.net ... the analysis additional datasets such as seismicity, gravity anoma- lies and heat flow values reported for the study zone. Seismicity data were taken from the **International Seismological Centre**-ISC database [60], between 1964 and 2015 for events of depths <80 km ...

Instrumental magnitude constraints for the

11 July 1889, Chilik earthquake

F Krüger, G Kulikova... - Geological Society, London ..., 2017 - sp.lyellcollection.org

Probabilistic Seismic-Hazard Assessment

for EritreaProbabilistic Seismic-Hazard

Assessment for Eritrea B Goitom, <u>MJ Werner</u>, <u>K Goda</u>... - Bulletin of the ..., 2017 pubs.geoscienceworld.org

Slab temperature controls on the Tonga

double seismic zone and slab mantle

dehydration

<u>SS Wei</u>, <u>DA Wiens</u>, PE van Keken... - Science ..., 2017 - advances.sciencemag.org

Misattributed tsunami 5: the Namie, Japan

(Mw 6.9) 2016.11. 21 earthquake

C Vita-Finzi - Proceedings of the Geologists' Association, 2017 - Elsevier

... 234-243. ISC, 2016 ISC,

2016. International Seismological Centre, Thatcham, UK. Matsumoto et al., 2008 Y. Matsumoto, et al. Weak interplate coupling beneath the subduction zone off Fukushima, NE Japan, inferred from GPS/acoustic geodetic observation ...

Passive seismic monitoring of an active

CO2-EOR operation in Farnsworth, Texas

<u>A Kumar</u>, E Zorn, R Hammack, <u>W Harbert</u>... - SEG Technical ..., 2017 - library.seg.org

... events reported in four different earthquake catalogs (Advanced National Seismic System [ANSS] composite catalog, USGS's National Earthquake Information Center [USGS-NEIC] catalog, New Madrid earthquake catalog,

and International Seismological Centre [ISC] catalog) ...

Mapping of -Value Anomalies Along the

Strike-Slip Fault System on the Thailand-

Myanmar Border: Implications for

Upcoming Earthquakes

S Pailoplee - Journal of Earthquake and Tsunami, 2017 - World Scientific

... 2. Data and Completeness The main database employed in this study was the earthquake catalogue recorded instrumentally and compiled by the **International Seismological Centre**.

Within the 300 km extent of the SSFS (latitude 9.33-25.96 ...

The discovery of a conjugate system of

faults in the Wharton Basin intraplate

deformation zone

SC Singh, <u>N Hananto</u>, Y Qin, <u>F Leclerc</u>... - Science ..., 2017 - advances.sciencemag.org

... F6a and F7b, reactivated fracture zones. Different symbols are defined in the right-hand upper corner. NEIC, National Earthquake Information Center; ISC, **International Seismological Centre**. (C) Simplified interpreted bathymetry showing main features ...

3D seismic analysis of the AK Fault,

Orange Basin, South Africa: Implications for

hydrocarbon leakage and offshore

neotectonics

Al Isiaka, RJ Durrheim, MSD Manzi, MAG Andreoli -

Tectonophysics, 2017 - Elsevier ... (2005) and De Beer (2012) respectively. The overlaid seismicity

data downloaded from the International Seismological Centre (2017) covers the region around southern Namibia and Northern Cape, and shows the evidence of seismic activity within the vicinity of the AK Fault ...

Depths of Earthquakes in South Africa

A Mangongolo, FO Strasser... - Seismological ..., 2017 - pubs.geoscienceworld.org

... There are a few instances of such events listed in the early part of the **International Seismological Centre** (ISC) bulletin for which the depth had not been fixed, resulting in large listed values of depth (eg, an event that occurred on 11 August 1971 at 14:17 located at – 26.4070 ° S ...

PSHA Study Using EZ-Frisk Software Case

Study Baychebaq Dam Site

H Jarahi - 2017 - researchgate.net

... the other authors have read and approved the manuscript and there are no ethical issues involved. Data and Resources Data retrieved from the **International Seismological Centre** (ISC), On-line Bulletin, http://www.isc.ac.uk, Internatl. Seismol ...

Reconstructing subducted oceanic

lithosphere by "reverse-engineering" slab

geometries: The northern Philippine Sea

Plate

<u>JM Pownall, GS Lister</u>, <u>W Spakman</u> - Tectonics, 2017 - Wiley Online Library

... Colored dots show the locations of earthquake hypocenters (projected to surface level) catalogued by

the **International Seismological Centre** [2016] for earthquakes of magnitude 4 and greater that occurred between 1 January 2000 and 1 January 2016 ...

Probabilistic seismic hazard assessment in

the Constantine region, Northeast of

Algeria

H Mouloud, <u>S Badreddine</u> - Arabian Journal of Geosciences, 2017 - Springer

... The **International Seismological Centre** (ISC) catalogue (2014): includes seismicity data that span the northeast region of Algeria over the period from 1850 to 2014 and were used as a basis for this study. Open image in new window. Fig. 6 ...

Systematic fluctuations in the global

seismic moment release

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... 2004. Analysis of the global seismic moment release during 1918–2014 inferred from the

International Seismological Centre (ISC) catalog rejects a null hypothesis of independence between earthquake seismic moments and occurrence times. Our results suggest the existence ...

Monitoring remote ocean waves using P-

wave microseisms

J Neale, <u>N Harmon</u>, M Srokosz - Journal of Geophysical ..., 2017 - Wiley Online Library

... algorithm. Earthquake events were identified using the ISC bulletin [International Seismological Centre, 2014] and removed by setting 1 h of the waveform to zero if the RMS of that window was over 3 times the daily RMS. Daily ...

Precise relative earthquake depth

determination using array processing

techniques

MA Florez, <u>GA Prieto</u> - Journal of Geophysical Research: Solid ..., 2017 - Wiley Online Library

... depth are the largest ones. Bondár and Storchak [2011] describe ongoing efforts at

the International Seismological Centre to include depth phases into routine

earthquake location workflows. Indeed, by improving the precision \ldots

Controlling factors for slope instability in a

seismically active region: The NW-Svalbard

continental margin

G Osti, P Franek, <u>M Forwick</u>, <u>JS Laberg</u> - Marine Geology, 2017 - Elsevier

 \ldots 2. 3D bathymetric map of the northwestern Svalbard margin and mid-ocean ridge, modified from Jakobsson et al., 2012, showing the location and the magnitude of natural seismic events of M >4 recorded between 1915 and 2013

 $(International \ Seismological \ Centre, \ http://www \ \dots$

Arup NSHM-Australian National Seismic

Hazard Model

TI Mote, ML So, JW Pappin - 2017 - aees.org.au

... 3 SEISMICITY/EARTHQUAKE CATALOGUE The instrumental records were compiled from

International Seismological Centre (ISC), EHB Bulletin in ISC and ISC-GEM Global

Instrumental Earthquake Catalogue (ISC-GEM; Storchak et al., 2012) ...

Rapid determination of P wave-based

energy magnitude: Insights on source

parameter scaling of the 2016 Central Italy

earthquake sequence

<u>M Picozzi, D Bindi</u>, P Brondi... - Geophysical ..., 2017 - Wiley Online Library

... Department of Physics, Università di Napoli Federico II, Naples, Italy. Search for more papers by this author. Domenico Di Giacomo,. ORCID:orcid.org/0000-0001-8472-8979. International

Seismological Centre, Thatcham, UK. Search for more papers by this author. Stefano Parolai ...

Local earthquake tomography of Izmir

geothermal area, Aegean region of Turkey.

C Ozer, P Polat - Bollettino di Geofisica Teorica ed Applicata, 2017 - search.ebscohost.com

... We have also added the data

from International Seismological Centre (ISC, 2003), around the study area ... Abbreviations; AFAD: Earthquake Department of the Disaster and Emergency Management Presidency in Ankara-Turkey, ISC: International Seismological Centre. Page 7 ...

The use of waveform cross correlation to

recover the aftershock sequence of the

August 14, 2016 earthquake within

Sakhalin Island

I Kitov - arXiv preprint arXiv:1712.08627, 2017 - arxiv.org

... The earthquake coordinates were estimated using near-

regional stations: 50.351° N, 142.395°

E. This location is close to that estimated by the International Data Centre (IDC), which is also available at

the International Seismological Centre: 50.424° N, 142.381° E. The IDC ...

Depth-varying seismogenesis on an

oceanic detachment fault at 13° 20' N on

the Mid-Atlantic Ridge

<u>TJ Craig, R Parnell-Turner</u> - Earth and Planetary Science Letters, 2017 - Elsevier

... 3. Constraints on earthquake location. Earthquake locations based on globally-observed travel times for these earthquakes indicate that they all occurred within 10 km of the active 13°20'N detachment (Fig. 1, Table

S2; International Seismological Centre 2014) ...

Discrimination of the DPRK underground

explosions and their aftershocks using the

P/S spectral amplitude ratio

<u>I Kitov</u>, <u>M Rozhkov</u> - arXiv preprint arXiv:1712.01819, 2017 - arXiv.org

... Page 3. International seismological centre (ISC) with a twomonth delay. These three aftershocks

were saved in the IDC database as seismic events with only 2 (the minimum number for the REB

is 3) primary IMS stations associated. Table 2. Parameters of five aftershocks ...

Seismicityof the Novaya Zemlya

archipelago: relocated event catalog from

1974 to 2014

AN Morozov, VE Asming, NV Vaganova... - Journal of ..., 2017 - Springer

... A catalog of seismic events was created for the Novaya Zemlya Archipelago using the data of

International Seismological Centre (ISC; International Seismol ogical Centre 2013), NORSAR (NOA network), Institute of Seismology (University of Helsinki) (ISUH, HEL network), Kola ...

Crustal Structure beneath the Kashmir

Basin Adjoining the Western Himalayan

Syntaxis

RR Mir, <u>IA Parvez</u>, VK Gaur... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

... Relocated seismicity from

the **International Seismological Centre** (ISC, 2013) catalog (1964–2013), together with a small number of local earthquakes recorded by our network, is apparently confined south of the NE edge of the valley, suggesting that the transition of the Indian ...

ISC: Annual 2017 Director's Report

Seismicity associated with magmatism,

faulting and hydrothermal circulation at

Aluto Volcano, Main Ethiopian Rift

M Wilks, <u>JM Kendall</u>, <u>A Nowacki</u>, <u>J Biggs</u>... - Journal of Volcanology ..., 2017 - Elsevier

... ISC reviewed earthquakes since 1960 (International Seismological Centre, 2016) and seismicity

recorded by the EAGLE project from October 2001 to January 2003 (Keir et al., 2006a) are white and blue circles with the MW5.3. Upper Left Inset: The study area's context within ...

Homogeneous earthquake catalogue for

Northeast region of India using robust

statistical approaches

AK Pandey, P Chingtham, <u>PNS Roy</u> - Geomatics, Natural Hazards ..., 2017 - Taylor & Francis

... Here, we have compiled the earthquake data for Northeast region of India in a chronological order

from International Seismological Centre and Global Centroid Moment

Tensor databases during the period 1 January 1900 to 31 April 2016 \ldots

Assessment of maximum earthquake

potential of the Kopili fault zone in northeast

India and strong ground motion simulation

AK Sutar, M Verma, <u>AP Pandey</u>, BK Bansal... - Journal of Asian Earth ..., 2017 - Elsevier

... In this study, we have used EHB (Engdahl et al., 1998) relocated events from **International Seismological Centre** (ISC) Bulletin

(http://www.isc.ac.uk, **International Seismological Centre**, United Kingdom, 2009) within an area of 400 × 300 sq km covering the Kopili fault zone ...

Updated Tsunami Catalog for the Jalisco-

Colima Coast, Mexico, Using Data from

Historical Archives R Castillo-Aja... - Seismological ..., 2017 -

pubs.geoscienceworld.org

Pn wave tomography in Greece

A Μπαντούνα - 2017 - nemertes.lis.upatras.gr ... retrieved from

the International Seismological Centre (http://www.isc.ac.uk/isc bulletin/) ... Η βάση δεδομένων μας αποτελείται από 452220 αφίξεις που καλύπτουν μία περίοδο από το 1974 έως το 2013 και τις λάβαμε από το International Seismological Centre (ISC) ...

10 International Seismological Centre (186)

Intraplate seismicity recorded by a local

network in the Neuquén Basin, Argentina

S Correa-Otto, S Nacif, A Pesce, A Nacif... - Journal of South ..., 2017 - Elsevier

...Fig. 1. Digital elevation model with the location of intraplate seismicity (green circles) between 0 and 50 km depth corresponding to a period of time of 48 years

(International Seismological Centre, EHB Bulletin) ...

Earthquake activities along the Indonesian

Sunda Margin: a seismicity approach

S Pailoplee - Geosciences Journal, 2017 - Springer ... The earthquake catalogue utilized for this seismic activity investigation was the composite catalogue derived from merging the three reliable sources of i) the **International Seismological Centre**, ii) the US National Earthquake Information Center, and iii) the Global Centroid ...

An algorithm for computing synthetic body

waves due to underside conversion on an

undulating interface and application to the

410 km discontinuity H Zhang, <u>S Ni</u>, <u>R Chu</u>... - Geophysical Journal ..., 2017 academic.oup.com

Categorical colormap optimization with

visualization case studies

<u>H Fang, S Walton, E Delahaye, J Harris...</u> - IEEE transactions on ..., 2017 - ieeexplore.ieee.org

... There is a general consensus that • Hui Fang was with University of Oxford and International

Seismological Centre, and is now with Edge Hill University, UK ... Emily Delahaye, James Harrisand Dmitry A. Storchak are with International Seismological Centre, UK ...

P-wave tomography of subduction zones

around the central Philippines and its

geodynamic implications

J Fan, <u>D Zhao</u>, D Dong, G Zhang - Journal of Asian Earth Sciences, 2017 - Elsevier

... 2. Data and method. We conducted tomographic inversions using two sets of P-wave arrival-time data, which are selected from the updated **International Seismological Centre** (ISC) Bulletins from 1964 to 2011 (see Engdahl, 2006 for details) ...

A unified earthquake catalogue for South

Asia covering the period 1900-2014

<u>SK Nath</u>, S Mandal, <u>MD Adhikari</u>, <u>SK Maiti</u> - Natural Hazards, 2017 - Springer

... We considered three major data sources, namely the International Seismological Centre (ISC, http://www.isc.ac.uk, last accessed September, 2014), US Geological Survey/National Earthquake Information Center (USGS/NEIC, http://neic.usgs.gov.us, last accessed September ...

Atmospheric Storm Triggered and

Intensified by Geodynamics: Case Studies

from Andaman Sea and Bay of Bengal

Region in the Indian Ocean

<u>A Akilan, KKA Azeez</u>, H Schuh - Pure and Applied Geophysics, 2017 - Springer

... 2014). Table 1 Earthquakes (since four days before the storm is declared) prepared from the

International Seismological Centre (ISC) database (http://www.isc.ac.uk/) and volcanic activities

Observation of core sensitive phases:

constraints on the velocity and attenuation

profile in the vicinity of the inner-core

boundary

<u>JMC Adam</u>, A Ibourichène, B Romanowicz - Physics of the Earth and ..., 2017 - Elsevier

We measured more than three thousand differential travel-times and amplitude ratios of PKPBC, PKPBC-diff, PKPAB and PKPDF phases in the epicentral distance rang.

Testing the sensitivity of seismic hazard in

Australia to new empirical magnitude

conversion equations

H Ghasemi, T Allen - 2017 - aees.org.au

... Such corrections are required to ensure that, for an earthquake of a given size, ML estimates are approximately consistent over time. For other magnitude scales, ie MS, and mb, preferred estimates provided by

the International Seismological Centre (ISC) were used ...

Evaluation of Peak Ground Acceleration for

the City of Kerman through Seismic Hazard

Analysis

M Saafizaadeh - scientiairanica.sharif.edu

... To improve the quality and accuracy of these earthquake data the new Earthquake Catalogue

of Iran was compiled by Berberian in 1994 [(14)]. For the present century, the IIEES catalogue

based on reports from International Seismological Centre (ISC) has been used [(14)] ...

Assessing the short-term clock drift of early

broadband stations with burst events of the

26 s persistent and localized microseism

<u>J Xie, S Ni, R Chu, Y Xia</u> - Geophysical Journal International, 2017 - academic.oup.com

Abstract. Accurate seismometer clock plays an important role in seismological studies including

earthquake location and tomography. However, some seismic stati.

Large and primarily updip afterslip following

the 2012 Mw 7.6 Nicoya, Costa Rica,

earthquake

<u>TE Hobbs</u>, C Kyriakopoulos... - Journal of ..., 2017 - Wiley Online Library

 \ldots black stars, respectively. The 1990 M w 7.0 Gulf of Nicoya earthquake [Protti et al.,

1995] shown in green, and 1978 M w 7.0 Samara earthquake [International

Seismological Centre, 2014] shown in blue. Global centroidmoment ...

Joint maximum-likelihood magnitudes of

presumed underground nuclear test

explosions

S Peacock, A Douglas, D Bowers - Geophysical Journal ..., 2017 - academic.oup.com

... Body-wave magnitudes (m b) of 606 seismic disturbances caused by presumed underground nuclear test explosions at specific test sites between 1964 and 1996 have been derived from station amplitudes collected by

the International Seismological Centre (ISC), by a joint \ldots

Estimation of the Frequency-Magnitude

Gutenberg-Richter b-Value without Making

Assumptions on Levels of Completeness

<u>A Kijko, A Smit</u> - Seismological Research Letters, 2017 - pubs.geoscienceworld.org

Earthquake seismology 2016/2017: BGS

Seismic Monitoring and Information

Service: Twenty-eighth Annual Report

B Baptie - 2017 - nora.nerc.ac.uk

... parameters. Phase data for global earthquakes are sent to both the National Earthquake Information Centre (NEIC) at the USGS and the **International Seismological**

 $\ensuremath{\textbf{Centre}}$ (ISC). This year, data from 452 seismic events were sent \ldots

Long-Term Probabilistic Forecast

for $M \ge 5.0$ Earthquakes in Iran

M Talebi, <u>M Zare</u>, A Peresan, <u>A Ansari</u> - Pure and Applied Geophysics, 2017 - Springer

... by the Iranian Seismological Center (IGUT) and the International Institute of Earthquake Engineering and Seismology (IIEES), as well as two global catalogs collected by the National Earthquake Information Center (NEIC) and the International Seismological Centre (ISC) ...

Principles of seismology

A Udias, E Buforn - 2017 - books.google.com Page 1. PRINCIPLES OF SEISMOLOGY SECOND EDITION Agustin Udias and Elisa Buforn Page 2. Principles of Seismology Second Edition The second editionof Principles of Seismology has been extensively revised

Studies on earthquake precursors in China:

A review for recent 50 years

F Huang, M Li, Y Ma, Y Han, L Tian, W Yan... - Geodesy and ..., 2017 - Elsevier

... Data from the **International Seismological Centre** (ISC, for 1900–2003) and the China Earthquake Networks Center (CENC, 2003 to present). 1.1. Earthquake prediction studies prior to the 1966 Xingtai earthquake. According ...

Towards routine determination of focal

mechanisms obtained from first motion P-

wave arrivals

K Lentas - Geophysical Journal International, 2017 academic.oup.com Summary. The Bulletin of the **International Seismological Centre** (ISC) contains information on earthquake mechanisms collected from many different sources inclu.

The 1904 7.3 Earthquake in Central Alaska

C Tape, A Lomax, V Silwal... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

Absence of remote earthquake triggering

within the Coso and Salton Sea geothermal

production fields Q Zhang, <u>G Lin, Z Zhan</u>, <u>X Chen</u>, Y Qin... - Geophysical ..., 2017 -Wiley Online Library

Magma plumbing system and seismicity of

an active mid-ocean ridge volcano

F Schmid, <u>V Schlindwein</u>, <u>I Koulakov</u>, A Plötz... - Scientific reports, 2017 - nature.com

... 3a and triangles are stations deployed for the microearthquake study in 2012–2013. (c) Cumulative teleseismic earthquake numbers of the more comprehensive international seismological centre ISC bulletin

(http://www.isc.ac.uk/iscbulletin) for the map b area ...

Long-period, long-duration seismicity

observed during hydraulic fracturing of the

Marcellus Shale in Greene County,

Pennsylvania

<u>A Kumar</u>, E Zorn, R Hammack... - The Leading ..., 2017 - pubs.geoscienceworld.org

... and international earthquake catalogs (US Geological Survey's [USGS] National Earthquake Information Center earthquake catalog, Advanced National Seismic System composite catalog, New Madrid earthquake catalog,

and International Seismological Centre catalog) for the ...

Seismicity of the Andaman-Nicobar Islands

and Andaman Sea

<u>A Carter</u>, PC Bandopadhyay - Geological Society, London ..., 2017 - mem.lyellcollection.org

Precursory seismicity rate changes prior to

the large and major earthquakes along the

Sagaing fault zone, Central Myanmar

S Pailoplee, S Panyatip, <u>P Charusiri</u> - Arabian Journal of Geosciences, 2017 - Springer

... 1). The initial dataset was derived from three available earthquake catalogs, namely (i) Global Centroid Moment Tensor, (ii) the **International Seismological Centre**, and (iii) US National Earthquake Information Center. Since ...

Assessing the activity of faults in

continental interiors: Palaeoseismic insights

from SE Kazakhstan

<u>C Grützner</u>, E Carson, RT Walker, <u>EJ Rhodes</u>... - Earth and Planetary ..., 2017 - Elsevier

Causes and consequences of flat-slab

<u>subduction in southern Peru</u> BT Bishop, <u>SL Beck</u>, G Zandt, <u>L Wagner</u>... - ..., 2017 pubs.geoscienceworld.org

Crustal structure of the high Andes in the

North Pampean flat slab segment from

magnetic and gravity data

MA Sánchez, D Winocur, <u>O Álvarez</u>, A Folguera... - Journal of South ..., 2017 - Elsevier

... segment. Black dots correspond to the relocation of seismic events obtained from

International Seismological Centre (EHB Bulletin, http://www.isc.ac.uk).

Morphostructural systems mentioned in the text are shown as a reference \ldots

Recent developments in the detection of

seismicity patterns for the Italian region

A Peresan - Pre-Earthquake Processes: A Multidisciplinary ..., 2017 - books.google.com

... is a compilation of different local Italian catalogs from 1900 to 1986, and since 1986 has been updated using global data from NEIC-USGS (National Earthquake Information Centre, United States Geological Survey) and ISC

(International Seismological Centre), as described by ...

Evidence for distributed clockwise rotation

of the crust in the northwestern United

States from fault geometries and focal

mechanisms

<u>TM Brocher</u>, <u>RE Wells</u>, AP Lamb, CS Weaver - Tectonics, 2017 - Wiley Online Library

A probabilistic seismic hazard assessment

of the Trans-Mexican Volcanic Belt, Mexico

based on historical and instrumentally

recorded seismicity

JA Bayona Viveros, G Suárez Reynoso... - Geofísica ..., 2017 - redalyc.org

... Thus. the data were culled from the catalogs of the. **International Seismological Centre** (. ISC.), the US. Geological Survey (. USGS.), the Global Centroid. Moment Tensor Catalog (. CMT.), and of the Servicio. Sismológico Nacional (. SSN.) were

Postcollisional tectonics and seismicity of

Georgia

S Adamia, <u>V Alania</u>, <u>N Tsereteli</u>... - Geological Society of ..., 2017 - researchgate.net

Page 1. spe 525-17 2nd pgs page 1 1 The Geological Society of America Special Paper 525 Postcollisional tectonics and seismicity of Georgia Shota Adamia V. Alania N. Tsereteli O. Varazanashvili N. Sadradze M. Nodia Institute ...

Analysis of the Illapel Mw= 8.3 Thrust

Earthquake Rupture Zone Using GOCE-

Derived Gradients

<u>O Álvarez</u>, A Pesce, M Gimenez, A Folguera... - Pure and Applied ..., 2017 - Springer

... b Residual between R5 and R4 superimposed to the foreshock sequence (ISC-International Seismological Centre) in the region of the 2014 Mw = 8.2 Pisagua and Mw = 7.7 Iquique earthquakes. Black dashed line indicates the profile of Fig ...

Crustal intrinsic and scattering attenuation

of high-frequency shear waves in the

contiguous United States

<u>T Eulenfeld</u>, U Wegler - Journal of Geophysical Research: Solid ..., 2017 - Wiley Online Library

Detailed analysis of the far-regional seismic

coda in Kazakhstan using array processing

C Labonne, O Sèbe, A Smirnov... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

Insights into the great Mw 7.9 Nepal

earthquake of 25 April 2015

<u>PK Khan</u>, MA Ansari, <u>D Singh</u> - CURRENT SCIENCE, 2017 - researchgate.net

... belt2. The epicentral parameters of these 611 events were compiled from the catalogue of the Indian Society of Earthquake Technology (ISET)41, **International Seismological Centre** (ISC) and US Geological Survey (USGS) ...

Observations of remotely triggered

seismicity in Salton Sea and Coso

geothermal regions, Southern California,

USA, after big (MW> 7.8) teleseismic ...

<u>RR Castro, R Clayton, E Hauksson</u>, J Stock - Geofísica Internacional, 2017 - redalyc.org

Artículo en PDF. How to cite. Complete issue. More information about this article. Journal's homepage in redalyc.org. Sistema de Información Científica. Red de Revistas

Científicas de América Latina y el Caribe, España y Portugal ...

INVENTORY, DETECTION, AND

CATALOG OF OKLAHOMA

EARTHQUAKES

CJ Mankin - nrc.gov

... The Observatory became one of about 50 agen- cies throughout the world that report epicenters directly to the **International Seismological Centre** in Newbury, England,

for publication in its monthly bulletin and semiannual catalog ...

Earthquake hazard assessment in the

Zagros Orogenic Belt of Iran using a fuzzy

rule-based model

SFG Aboonasr, A Zamani, F Razavipour, <u>R Boostani</u> - Acta Geophysica, 2017 - Springer

Producing accurate seismic hazard map and predicting hazardous areas

is necessary for risk mitigation strategies. In this paper, a fuzzy logic

inference system is utilized to estimate the earthquake p.

The 2008 and 2012 Moosiyan Earthquake

Sequences: Rare Insights into the Role of

Strike Slip and Thrust Faulting within the

Simply Folded Belt (Iran)

SEJ Nippress, R Heyburn... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

Historical seismogram reproductions for the

source parameters determination of the

1902, Atushi (Kashgar) earthquake

G Kulikova, F Krüger - Journal of Seismology, 2017 - Springer The majority of original seismograms recorded at the very beginning of

instrumental seismology (the early 1900s) did not survive till present.

However, a number of books, bulletins, and catalogs were.

Crustal structure of the Eurasia-Africa plate

boundary across the Gloria Fault, North

Atlantic Ocean

<u>L Batista, C Hübscher, P Terrinha</u>... - Geophysical Journal ..., 2017 - academic.oup.com

Shallow and deep lithosphere slabs

beneath the Dinarides from teleseismic

tomography as the result of the Adriatic

lithosphere downwelling

<u>F Šumanovac</u>, <u>S Markušić</u>, T Engelsfeld, K Jurković... -Tectonophysics, 2017 - Elsevier

... The data about teleseismic events were collected from

the International Seismological Centre

(ISC) Bulletin for a period of 24 months (2014–2015). The ISC Bulletin can be accessed using

the online web searches, which provides access to all ISC Bulletin data \ldots

Subduction and vertical coastal motions in

the eastern Mediterranean

A Howell, <u>J Jackson</u>, <u>A Copley</u>... - Geophysical Journal ..., 2017 - academic.oup.com

Summary. Convergence in the eastern Mediterranean of oceanic Nubia with Anatolia and the

Aegean is complex and poorly understood. Large volumes of sediment obs.

The rheological structure of the lithosphere

in the Eastern Marmara region, Turkey <u>B Oruç</u>, T Sönmez - Journal of Asian Earth Sciences, 2017 -

Elsevier

Seamounts and oceanic igneous features

in the NE Atlantic: a link between plate

motions and mantle dynamics

<u>C Gaina</u>, <u>A Blischke</u>, WH Geissler... - Geological Society ..., 2017 - sp.lyellcollection.org

Do weak global stresses synchronize

earthquakes?

<u>R Bendick</u>, <u>R Bilham</u> - Geophysical Research Letters, 2017 - Wiley Online Library

... 1900–2017 (Table S1).

The International Seismological Centre (ISC)/Global Earthquake Model (GEM) [DiGiacomo et al., 2015] is not used

since it is acknowledged by ISC to be currently incomplete prior to 1917. We test

Locating seismicity on the Arctic plate

boundary using multiple-event techniques

and empirical signal processing

<u>SJ Gibbons</u>, DB Harris, T Dahl-Jensen... - Geophysical Journal ..., 2017 - academic.oup.com

Summary. The oceanic boundary separating the Eurasian and North American plates between 70° and 84° north hosts large earthquakes which are well

recorded teles.

Absolute reconstruction of the closing of the

Mongol-Okhotsk Ocean in the Mesozoic

elucidates the genesis of the slab geometry

underneath Eurasia

 $\underline{L~Wu}, \underline{VA~Kravchinsky}, YJ~Gu...$ - Journal of Geophysical ..., 2017 - Wiley Online Library

... et al., 2013], because 1) P-velocity models based on

automatically determined travel

time data (eg, data from the Bulletin of

the International Seismological Centre) are resistant to phase picking errors [Yoshio Fukao, personal ...

Evaluating of the earthquake hazard

parameters with Bayesian method for the

different seismic source regions of the

North Anatolian Fault Zone

Y Bayrak, <u>T Türker</u> - Natural Hazards, 2017 - Springer ... 39.17. 6.8. 26.07.1967. 40.38. 39.54. 6.0. 27.01.2003. 39.77. 39.48. 6.0. 3 Data and seismogenic source regions. "The database used in this study was compiled using the **International Seismological Centre** (ISC) and Kandilli Observatory and Earthquake Research Institute (KOERI ...

Factors constraining the geographic

distribution of earthquake geochemical and

fluid-related precursors

G Martinelli, A Dadomo - Chemical Geology, 2017 - Elsevier

... al. (2003). To describe shallower seismicity, the most updated and reviewed worldwide catalogue of instrumental seismicity compiled by the **International Seismological Centre** (Storchak et al., 2013) was considered. The determination ...

BSHAP seismic source characterization

models for the Western Balkan region

J Mihaljević, P Zupančič, N Kuka, N Kaluđerović... - Bulletin of Earthquake ..., 2017 - Springer

... database of the United States Geological Survey National Earthquake Information Centre (USGS/NEIC, 12 events), National Observatory of Athens (NOA, 11 events), Zurich Moment Tensors Database (ZUR_RMT, 8 events),

The International Seismological Centre (ISC, 4 events ...

Earthquake prediction using the fields

estimated by an adaptive algorithm

VG Gitis, AB Derendyaev, SA Pirogov... - Proceedings of the 7th ..., 2017 - dl.acm.org

... Japan region is selected for testing. Modeling performed using the tools of GIS GeoTime 3 http://geo.iitp.ru/GT3/ tools [2]. Initial data taken from the site of the **International Seismological Centre** (ISC) http://www.isc.ac.uk for 01.01.1990 - 01.04.2017 years ...

Hybrid broadband simulation of strong-

motion records from the September 16,

1978, Tabas, Iran, earthquake (M w 7.4)

<u>H Vahidifard, H Zafarani</u>, <u>SR Sabbagh-Yazdi</u> - Natural Hazards, 2017 - Springer

 \dots on regional networks [eg, Atomic Energy Organization of Iran (AEOI) and Bulletin of the

Seismographic Network of Mashhad University (BSNMU)] and teleseismic recordings [eg, National

Earthquake Information Center (NEIC)

and International Seismological Centre (ISC)], are \ldots

Assessing seismic hazard of the East

African Rift: a pilot study from GEM and

AfricaArray

<u>V Poggi, R Durrheim, GM Tuluka, G Weatherill</u>... - Bulletin of Earthquake 2017 - Springer

... procedures. 4.1 Source data. 4.1.1 ISC reviewed bulletin. The manually reviewed bulletin from

the **International Seismological Centre** (ISC 2013) was used as one of the primary sources of information for the earthquake catalogue ...

The Spanish national earthquake

catalogue: evolution, precision and

completeness

Á González - Journal of Seismology, 2017 - Springer ... et al. 2007; Hamdache et al. 2010; Ayadi and Bezzeghoud 2015; Harbi et al. 2015), Euro-Mediterranean region (Grünthal and Wahlström 2012), and the Bulletin of

the International Seismological Centre (ISC 2016b). IGN is ...

Ground-motion prediction equation for the

Chilean subduction zone

<u>GA Montalva</u>, N Bastías... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

... using average shear-wave velocity in the upper 30 m (V S 30), topographic slope, and the site's natural frequency (f 0). The event metadata are gathered from public seismic catalogs (eg, Global

Centroid Moment Tensor [CMT]; International Seismological Centre [ISC]; CSN) ...

Active tectonics of Myanmar and the

Andaman Sea

RA Sloan, JR Elliott, MP Searle... - Geological Society ..., 2017 - mem.lyellcollection.org

British University Observatories 1772–1939

R Hutchins - 2017 - taylorfrancis.com

... 337 6.4 HH Turner at the Oxford Observatory, with the seismology globe Photo: courtesy International Seismological Centre, Thatcham. 342 6.5 Ethel FB Bellamy (1881–1960) on receiving her Honorary MA in 1934 Photo: courtesy Mr Roger Bellamy of Plymouth. 347 ...

Probabilities of Earthquake Occurrences

along the Sumatra-Andaman Subduction

Zone

S Pailoplee - Open Geosciences, 2017 - degruyter.com ... the magnitude range 4.6-9.0 during 1976-2014, (ii) the Engdahl, van der Hilst and Buland Bulletin reported the earthquake data with the magnitude range 3.0-9.0 during 1960-2009 (EHB; http://www.isc.ac.uk/ehbbulletin), (iii) the International Seismological Centre reported the ...

Pn tomography of South China Sea,

Taiwan Island, Philippine archipelago, and

adjacent regions

X Li, <u>X Song</u>, <u>J Li</u> - Journal of Geophysical Research: Solid ..., 2017 - Wiley Online Library

... Xu et al. [2007] performed a Pn tomography of the used Pn arrival time picks from the Chinese bulletins and

the **International Seismological Centre** (ISC) bulletins. Their study area is similar but slightly smaller than that of our current study. Chen et al ...

Worldwide earthquake forecasts

YY Kagan - Stochastic Environmental Research and Risk ..., 2017 - Springer

... Open image in new window. Fig. 8 Global earthquake activity rate (GEAR) model, version 1.0

(colors), compared to the catalog from the

independent International Seismological

Centre-Global Earthquake Model (ISC-GEM) earthquakes (Di Giacomo et al ...

Pleistocene slip rates on the Boconó Fault

along the North Andean Block plate

boundary, Venezuela

L Pousse-Beltran, <u>R Vassallo</u>, <u>F Audemard</u>... - ..., 2017 - Wiley Online Library

Page 1. This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may

lead to differences between this version and the Version of Record \ldots

Probabilistic seismic hazard model of West

Bengal, India

<u>SK Maiti, SK Nath, MD Adhikari</u>... - Journal of Earthquake ..., 2017 - Taylor & Francis

Поля напряжений по афтершокам

сильнейших землетрясений Тянь-Шаня

ОА Кучай, ЗА Кальметьева, МЕ Козина... - Геодинамика и ..., 2017 - cyberleninka.ru

... 4). Мы в данной работе остановились на механизме очага, построенном одним из авторов статьи по данным первых вступлений продольных волн на основе материалов сейсмических

станций мировой [International Seismological Centre, 2017] и региональной ...

Особенности скоростного строения

верхней мантии Забайкалья на участке

Монголо-Охотского орогенного пояса

ВМ Соловьев, ВВ Чечельницкий... - Геодинамика и ..., 2017 cvberleninka.ru

... филиала ФИЦ ЕГС РАН за период с 2002 по 2014 г. [Masalsky et al., 2007; **International Seismological Centre**, 2017]. Эти данные отличаются высокойточностью, поскольку были получены на цифровой регистрирующей ...

Sismicité de l'Algérie Nord Occidentale

entre 1790 et 2016: catalogue sismique

I Belayedi, <u>M Bezzeghoud</u>, A Nadji, <u>J Fontiela</u> - 2017 - Ineg.pt ... Le catalogue de l'**International Seismological Centre** (ISC) est basé sur une compilation de données, pour la période 1926-2013, de plusieurs institutions internationales tels que l'IGN (Espagne), USGS (USA) et le CRAAG (Algérie). 5) Le catalogue

ОЧАГОВЫЕ ПАРАМЕТРЫ

de Hamdache et al ...

ЗЕМЛЕТРЯСЕНИЙ СЕВЕРНОГО

ВЕРХОЯНЬЯ И ШЕЛЬФА МОРЯ

ЛАПТЕВЫХ ПО ТЕЛЕСЕЙСМИЧЕСКИМ

НАБЛЮДЕНИЯМ

АИ Середкина - СОВРЕМЕННАЯ ТЕКТОНОФИЗИКА. МЕТОДЫ И ..., 2017 - ifz.ru

... 8. Franke D., Krüger F., Klinge K. Tectonics of the Laptev Sea – Moma 'Rift' region: investigation with seismologic broadband data // J. Seismology. 2000. V. 4. P. 99-116. 9. International Seismological Centre, 2014. On-line Bulletin, http://www.isc.ac.uk, Internatl. Seis ...

Empirijski kriterij za određivanje točnosti

lokacije epicentra potresa na području

Hrvatske

T Belinić, <u>S Markušić</u> - Geofizika, 2017 - hrcak.srce.hr ... Husen, S. and Smith, R. (2004): Probabilistic earthquake location in three-dimensional velocity mod- els for the Yellowstone National Park region, Wyoming, Bull. Seism. Soc. Am., 94, 880 896. **International Seismological Centre**, Reference Event Bulletin, Internatl. Seis ...

ESKİŞEHİR ve CİVARININ

DEPREMSELLİĞİ

E BAYRAK, Ş YILMAZ, Y BAYRAK - tdmd.org.tr

... Bu kataloğu hazırlayabilmek için Boğaziçi Üniversitesi Kandilli Rasathanesi Deprem Araştırma

Enstitüsü (BÜKRDAE), Ulusal Deprem İzleme Merkezi (UDİM), TUBİTAK (2006), TURKNET

(2006), **International Seismological Centre** (ISC);(2006), Incorporated Research ...

Скорости Р-волн в подкоровой мантии

Украины

ВВ Гордиенко, ЛЯ Гордиенко - Доповіді НАН України, 2017 - dspace.nbuv.gov.ua

... 192. P. 310—325. 14. Bulletin of the International Seismological Centre. 2014. URL: http://www.isc.ac.uk Поступило в редакцию 04.07.2017 ... Geophys. J. Int., 192, pp. 310-325. 14. Bulletin of the International Seismological Centre. (2014). Retrieved from http://www.isc.ac.uk ...

ÇANAKKALE-AYVACIK DEPREM

FIRTINASININ (14 OCAK-20 MART 2017)

SİSMİK KAYNAKLARI

H Sözbilir, <u>B Uzel</u>, <u>Ö Sümer</u>, S Eski, M Softa, Ç Tepe... - 2017 - tdmd.org.tr

... Tectonophysics, 193, 335-345. ISC

2017. International Seismological Centre. On-line Bulletin, http://www.isc.ac.uk/Bull, International Seismological Centre, Thatcham, United Kingdom. Kalafat,

D., Kekovalı, K., Güneş, Y., Yılmazer, M., Kara, M., Deniz, P. & Berberoğlu, M. (2009) ...

MUĞLA İLİ VE ÇEVRESİ İÇİN

DEPREMSELLİK VE SİSMİK TEHLİKE

<u>ANALİZİ</u>

NCA KILIÇ, ÜY KALYONCUOĞLU - Mühendislik Bilimleri ve ..., 2017 - dergipark.gov.tr

... belirlenmiştir. Çalışmanın ilk aşamasında uluslararası veri merkezlerinden

(International Seismological Centre ve National Earthquake International Centre)

elde edilen veriler kullanılarak homojen bir katalog oluşturulmuştur ...

О предварительных результатах

анализа каталогов землетрясений для

территории Бишкекского

геодинамического полигона

ВА Мухамадеева, НА Сычева - Вестник ..., 2017 - ... Кыргызско-Российский Славянский ...

Model Update May 2016: Upper-Mantle

Heterogeneity beneath North America from

Travel-Time Tomography with Global and

USArray Data

<u>S Burdick, FL Vernon</u>, V Martynov... - Seismological ..., 2017 - pubs.geoscienceworld.org

... (2008). The dataset comprises over 10 million P travel times from the International Seismological

Centre and the National Earthquake Information Center (hereafter, Engdahl–van der Hilst–Buland [EHB] dataset) processed using the algorithms developed by Engdahl et al ...

Full-waveform detection of non-impulsive

seismic events based on time-reversal

methods

EA Solano, V Hjörleifsdóttir, <u>Q Liu</u> - Geophysical Journal ..., 2017 - academic.oup.com

Summary. We present a full-waveform detection method for nonimpulsive seismic events,

based on time-reversal principles. We use the strain Green's tensor as a.

More statistical tools for maximum possible

earthquake magnitude estimation

P Vermeulen, A Kijko - Acta Geophysica, 2017 - Springer

... Data from the ISC-GEM

(International Seismological Centre's Global Earthquake Model) and

GHEC (Global Historic Earthquake Catalogue) world catalogs were used to compile a catalog, ranging from circa AD 1000 to 2009. The magnitude of completeness was chosen at 7.1 ...

Landforms along transverse faults parallel

to axial zone of folded mountain front,

north-eastern Kumaun Sub-Himalaya, India

K Luirei, SS Bhakuni, <u>SS Negi</u> - Journal of Earth System Science, 2017 - Springer

 \ldots The International Seismological Centre (ICS) earthquake catalogue was used to review the

seismicity pattern around the Kumaun region. 4 Aggradational landforms. The depositional

landforms have been grouped into (i) the alluvial fans and (ii) the fluvial deposits \ldots

Estimación de la amenaza sísmica

causada por el proceso de subducción y su

impacto sobre los asentamientos humanos

para la región de América ...

M Triviño Abella - Universidad Nacional de Colombia ...

Comparison of seismic and geodetic strain

rates at the margins of the Ordos Plateau,

northern China

TA Middleton, B Parsons... - Geophysical Journal ..., 2017 - academic.oup.com

Summary. Differences between seismic and geodetic strain rates can highlight regions of

potential seismic hazard. In China, many of the most devastating histor.

Automatic analysis of the Gorkha

earthquake aftershock sequence:

evidences of structurally segmented

seismicity

<u>C Baillard</u>, <u>H Lyon-Caen</u>, <u>L Bollinger</u>... - Geophysical Journal ..., 2017 - academic.oup.com

Earthquake tendency of the Himalayan

seismic belt

X Lei, Q Si-Qing, Y Bai-Cun, W Xiao-Wa, Z Ke... - arXiv preprint arXiv ..., 2017 - arxiv.org

Page 1. 1 Earthquake tendency of the Himalayan seismic belt Xue Lei1, Qin Si-Qing1,2*, Yang

Bai-Cun1,2, Wu Xiao-Wa1,2, Zhang Ke1,2, Chen Hong-Ran1,2 1 Key Laboratory of Shale Gas

and Geoengineering, Institute of Geology and Geophysics, Chinese Academy of \ldots

The deforming Nazca slab in the mantle

transition zone and lower mantle:

Constraints from teleseismic tomography

on the deeply subducted slab between 6° S

and ... A Scire, G Zandt, <u>S Beck, M Long</u>... - Geosphere, 2017 pubs.geoscienceworld.org

Ground motion prediction equations for the

Chilean subduction zone

B Idini, F Rojas, <u>S Ruiz, C Pastén</u> - Bulletin of Earthquake Engineering, 2017 - Springer

... Few strong motion records of \(m_b < 6\) earthquakes were excluded since the \(M_w\) is not available. Hypocenter coordinates were taken from the CSN online catalog and from the **International Seismological Centre** (ISC) Bulletin ...

İzmir ve çevresinin 3-B kabuk hız yapısı

Ö Çağlar, O Polat - Gazi Üniversitesi Mühendislik-Mimarlık ..., 2017 - mmfdergi.gazi.edu.tr

... işletilen ve ISC (International Seismological Center) [35] tarafında katalog verileri yayınlanan CMG- 3ESP ve Boğaziçi Üniversitesi Kandilli Rasathanesi ve Deprem Araştırma Enstitüsü (KRDAE) [36] tarafından işletilen ve ISC (International Seismological Centre) [35] tarafından ...

Effects of shallow-layer reverberation on

measurement of teleseismic P-wave travel

times for ocean bottom seismograph data

M Obayashi, Y Ishihara, D Suetsugu - Earth, Planets and Space, 2017 - Springer

... (2016) using data from the Tomographic Investigation by seafloor Array Experiment for the Society hot spot (TIARES) BBOBS network (Suetsugu et al. 2012) as the part of global data set including the arrival time data from

the International Seismological Centre ...

Geology of the Yap Trench: new

observations from a transect near 10° N

from manned submersible Jiaolong

Y Yang, S Wu, J Gao, L Tian, J Yang... - International Geology ..., 2017 - Taylor & Francis

Seismotectonics of the Horseshoe Abyssal

Plain and Gorringe Bank, eastern Atlantic

Ocean: Constraints from ocean bottom

seismometer data

<u>I Grevemeyer, D Lange,</u> H Villinger... - Journal of ..., 2017 - Wiley Online Library

Seismic wave attenuation in the lithosphere

of the North Tanzanian divergence zone

(East African rift system)

AA Dobrynina, J Albaric, A Deschamps, J Perrot... - Russian Geology and ..., 2017 - Elsevier

Page 1. www.elsevier.com/locate/rgg Seismic wave attenuation in the lithosphere of the

North Tanzanian divergence zone (East African rift system) AA Dobrynina a,*, J. Albaric

b , A. Deschamps c , J. Perrot d , RW Ferdinand e , J. Déverchère d \ldots

Early signs of geodynamic activity before

the 2011–2012 El Hierro eruption

C López, <u>J Martí</u>, <u>ID Cerdeña</u> - Journal of Geodynamics, 2017 – Elsevier

Using a process-based model of pre-

eruptive seismic patterns to forecast

evolving eruptive styles at Sinabung

Volcano, Indonesia

ISC: Annual 2017 Director's Report

WA McCausland, H Gunawan, RA White ... - Journal of Volcanology ..., 2017 - Elsevier ... saturated. Magnitudes in this paper are either local magnitudes from the International Seismological Centre (ISC) catalog, M Lv , from CVGHM analog paper records, M L, or duration magnitudes, Md, from this formula, as marked ... Sequence of deep-focus earthquakes beneath the Bonin Islands identified by the NIED nationwide dense seismic networks Hi-net and F-net S Takemura, T Saito, K Shiomi - Earth, Planets and Space, 2017 -Springer ... focus earthquakes (eg, Obayashi et al. 2017; Zhan 2017). Because the combined catalogs of the International Seismological Centre-Global

Earthquake Model (ISC-GEM) (Storchak et al. 2013) and the USGS-NEIC include only ...

Upper plate deformation as marker for the

Northern STEP fault of the Ionian slab

(Tyrrhenian Sea, central Mediterranean)

<u>A Milia</u>, P Iannace, M Tesauro, MM Torrente - Tectonophysics, 2017 - Elsevier

Enhanced stress and changes to regional

seismicity due to the 2015 Mw 7.8 Gorkha,

Nepal, earthquake on the neighbouring

segments of the Main ... CH Chan, Y Wang, R Almeida, <u>RBS Yadav</u> - Journal of Asian Earth ..., 2017 - Elsevier

Evidence of recent plutonic magmatism

beneath Northeast Peloponnesus (Greece)

and its relationship to regional tectonics

<u>A Tzanis</u>, A Efstathiou, <u>S Chailas</u>... - Geophysical Journal ..., 2017 - academic.oup.com Summary. This work reports evidence of recent tectonically controlled plutonic magmatism related

to Neogene volcanism in a broad area of Northeast Peloponnesus.

Multiobjective Optimization of Regional and

Teleseismic Data to Constrain the Source

of the 12 September 2016 5.4 Earthquake

in South Korea <u>J Letort</u>, AG Trilla, SR Ford... - Bulletin of the ..., 2017 pubs.geoscienceworld.org Page 1. Multiobjective Optimization of Regional and Teleseismic Data to Constrain the Source of the 12 September 2016 Mw 5.4 Earthquake in South Korea by Jean Letort, Aurélie Guilhem Trilla, Sean R. Ford, and Stephen C. Myers ...

Геодинамическая активность новейших

структур и поля тектонических

напряжений северо-востока Азии

ЛП Имаева, ГС Гусев, ВС Имаев... - Геодинамика и ..., 2017 cvberleninka.ru

... Основой для расчета и анализа параметров СТД служили решения механизмов очагов

248 землетрясений (M>3.5) за период 1927-2016 гг., заимствованные из международных

сейсмологических центров [International Seismological Centre, 2017; Department ...

Probabilistic seismic hazard assessment of

southern part of Ghana

ST Ahulu, <u>SK Danuor</u>, <u>DK Asiedu</u> - Journal of Seismology, 2017 - Springer

... Data sources: USG—United States Geo- logical Survey, AKO— Akoto and Anum (1992),

BER—Bertil (1991), BGS—British Geological Survey, GSD— Geological Sur- vey Department,

ISC—International Seismological Centre, NNA—Ambraseys and Adams (1986) J Seismol ...

Comparison of Manual and Automated

Ground Motion Processing for Small-to-

Moderate-Magnitude Earthquakes in Japan

<u>T Kishida, D Di Giacinto</u>, G Iaccarino - Earthquake Spectra, 2017 - earthquakespectra.org

A laboratory nanoseismological study on

deep-focus earthquake micromechanics

Y Wang, <u>L Zhu, F Shi, A Schubnel</u>... - Science ..., 2017 - advances.sciencemag.org

... Deep earthquakes, that is, those with hypocenter depths greater than ~70 km, constitute about

a quarter of all recorded events, with moment magnitudes greater than 5 in the International

Seismological Centre catalog (1). They occur in association with convergent margins ...

Seismic source zoning and maximum

credible earthquake prognosis of the

Greater Kashmir Territory, NW Himalaya

<u>H Sana, SK Nath</u> - Journal of Seismology, 2017 - Springer ... The instrumental earthquake database for the present study

from 1914 to 2012 is compiled from the earthquake catalogue

of International Seismological Centre (http://www.isc.ac.uk) with additions

from the US Geological Survey (http://www.neic.usgs.gov./), Global Centroid ...

Seizmički reziduali određeni iz

teleseizmičkih podataka na području

Dinarida i jugozapadnog dijela Panonskog

bazena: diplomski rad

K Jurković - 2017 - zir.nsk.hr ... The data about teleseismic events were collected from

the International Seismological Centre

(ISC) Bulletin for a period from year 2014 to 2015 ... centra (International Seismological Centre –

ISC Bulletin) za razdoblje od 24 mjeseca, od 2014. do 2015. godine ...

Change in the pattern of crustal seismicity

at the Southern Central Andes from a local

seismic network

S Nacif, M Lupari, EG Triep, A Nacif, <u>O Álvarez</u>... -Tectonophysics, 2017 - Elsevier

... Fig. 1. Seismicity (depth: 0–50 km) corresponding to a period of time of \sim 48 years

(International Seismological Centre, EHB Bulletin,

http://www.isc.ac.uk, Internatl. Seis. Cent., Thatcham, United Kingdom, 2009). The EHB is ...

DESARROLLO DE UNA RED GEOFÍSICA

Y GEODÉSICA NACIONAL EN URUGUAY

DEVELOPMENT OF GEOPHYSICAL AND

GEODETIC NETWORK IN ...

L Sánchez Bettucci, N Suárez, N Campal... - Revista SUG ..., 2017 - sugeologia.org

 \ldots La red de monitoreo sísmico nacional es denominada UY y está registrada en la

Incorporated Research Institute for Seismology (IRIS), además todas las estaciones se

encuentran registradas en

el International Seismological Centre ($\mathsf{ISC})\dots$

Active tectonics around Almaty and along

the Zailisky Alatau rangefront

<u>C Grützner</u>, RT Walker, KE Abdrakhmatov... - ..., 2017 - Wiley Online Library

Relocation of two earthquakes in the

Southwest Indian Ridge area combining

land seismic stations' with OBSs' data

W Luo, M Zhao, J Zhang, C Tao, X Qiu... - Marine

Geophysical ..., 2017 - Springer ... transform fault (Ga TF) on the SWIR (Fig. 1) were reported by the **International**

Seismological Centre (ISC) during past 20 years. These events were only recorded

by the land seismic networks. It is difficult to observe the seismicity ...

Megathrust and accretionary wedge

properties and behaviour in the Makran

subduction zone <u>C Penney</u>, F Tavakoli, A Saadat... - Geophysical Journal ..., 2017 - academic.oup.com

Geographic Variations in Lowermost Mantle

Structure from the Ray Parameter and

Decay Constant of Core-Diffracted Waves

GG Euler, ME Wysession - Journal of Geophysical Research ..., 2017 - Wiley Online Library

 \ldots source-side velocity structure. Sylvander et al. [1997] attempted to overcome this limitation by

utilizing the entire International Seismological Centre database of Pdiff travel-times. Their resulting map allowed them to study variations in the 1Hz Pdiff ray

parameter for most of the ...

Pn tomography with Moho depth correction

from eastern Europe to western China Y Lü, <u>S Ni</u>, L Chen, <u>QF Chen</u> - Journal of Geophysical ..., 2017 -Wiley Online Library

High-Resolution 2D Lg and Pg Attenuation

Models in the Basin and Range Region with

Implications for Frequency-Dependent

QHigh-Resolution 2D Lg and Pg ... ML Pyle, <u>WR Walter</u>... - Bulletin of the ..., 2017 pubs.geoscienceworld.org

Seismicity Pattern, Reference Velocity

Model, and Earthquake Mechanics of South India

<u>U Saikia, SS Rai</u> - Bulletin of the Seismological Society of ..., 2017 - pubs.geoscienceworld.org

... Figure S1 (available in the elec- tronic supplement to this article) shows the general pattern of historical seismicity from 1830 to 2013, extracted from dif- ferent sources, such as the Amateur Seismic Centre catalog, the International Seismological Centre (ISC) catalog, and the ...

IDC Re-Engineering Phase 2 Data Model

JM Harris, CJ Young, B Hamlet, D Carr, H Knox - 2017 prod.sandia.gov Page 1. IDC RE-ENGINEERING REPORT SAND2017-XXXX R April 2017 IDC Re-Engineering Phase 2 Data Model Version 2.0 J. Mark Harris, Christopher Young, Benjamin Hamlet, Dorthe Carr, Hunter Knox Prepared by Sandia ...

Anomalous Pn Amplitudes through the

Southeastern Tarim Basin and Western

Tien Shan along Two Profiles:

Observations and Interpretations

H Wang, <u>S Ni</u>, P Jin, W Liu, X Xu... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

... velocity heterogeneity. The Pn waves finally propagated into the stable Kazakh shield.

The source parameters of the earthquake are retrieved from the **International**

Seismological Centre (ISC) bulletin. The earthquake occurred ...

ساختار دوبعدی سرعت امواج برشی در پوسته و

گوشتهٔ بالایی البرز شرقی

دراستگو, رحیمی, حبیب, حمزه لو فیزیک زمین و فضا, 2017 jesphys.ut.ac.ir

Page 1 هرود ،اضفو نيمز كنيزيف 43 هرامش، 2 ناتسباذ، 1396 تحفصد ، 302 322 راتخاسويدعبود ت عرس رد يشربه جاوما و متسويه تشوگه تم مؤرشزريلا ييلاابر وكتسار ي ديمه 1

يميحر بيبد، 2* نيسد و فرمد ولله 1 . يرتكد يوجشناد ، كيزيف هورگانيمز ، ناريا ،نارية ماگشناد كيزيفونژ محسوم 2 . ،رايداتسا ...

Nature of the Ambient Noise, Site

Response, and Orientation of Ocean-

Bottom Seismometers (OBSs): Scientific

Results of a Passive Seismic Experiment in

the ...

<u>P Dewangan</u>, R Reddy, KAK Raju... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

Utilizing a 3D Global P-Wave Tomography

Model to Improve Backprojection Imaging:

A Case Study of the 2015 Nepal

Earthquake

Z Liu, C Song, <u>L Meng</u>, <u>Z Ge</u>... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

A first-order seismotectonic regionalization

of Mexico for seismic hazard and risk

estimation

<u>FR Zúñiga</u>, G Suárez, <u>Á Figueroa-Soto</u>... - Journal of ..., 2017 - Springer

... Data from worldwide catalogs, routinely produced by various agencies, were also incorporated,

ie, the International Seismological Centre (ISC), the Preliminary Determination of Epicenters (PDE) reported by the US National Earthquake Information Center (NEIC, USGS), and ... The source process of Greek earthquakes

D Křížová - 2017 - dspace.cuni.cz

... For more information about stations you can use registry

at International Seismological Centre

(ISC) web pages (http://www.isc.ac.uk/registries/search/). From records, we use only components without disturbances and with good signal to noise ratio ...

Temporal and spatial variations of

Gutenberg-Richter parameter and fractal

dimension in Western Anatolia, Turkey

E Bayrak, S Yılmaz, Y Bayrak - Journal of Asian Earth Sciences, 2017 - Elsevier

Mass-wasting effects induced by the 2015

Gorkha (Nepal) M_w 7.8 earthquake within a

large paleo-landslide site adjacent to the

Tatopani Border Station, Nepal ...

G Wu, D Cunningham, R Yuan, Q Zhou, X Zeng... - Landslides, 2017 - Springer

... 1 Distribution of the Gorkha earthquake sequence and location of the Tatopani Border Station

in Nepal

(http://www.isc.ac.uk, International Seismological Centre, ISC). MFT main frontal thrust, MBT main boundary thrust, MCT main central thrust, STD south tibet detachment ...

Seismotectonic deformation from focal

mechanisms of earthquakes in the Valle del

Cauca, southwestern Colombia

EJ Salcedo, JL Pérez - Revista Geológica de América Central, 2017 - scielo.sa.cr

... Physical characteristics of subduction interface type seismogenic zones revisited. Geochemestry, Geophysics, Geosystems, 12(1), Q01004. doi:10.1029/2010GC003230 [Links]. International Seismological Centre (ISC). (sf). Recuperado de http://www.isc.ac.uk. [Links] ...

Seismic hazard assessment of the Kivu rift

segment based on a new seismotectonic

zonation model (Western Branch, East

African Rift system) D Delvaux, JL Mulumba, MNS Sebagenzi... - Journal of African Earth ..., 2017 - Elsevier

İzmir ve çevresinin 1-B (Bir-Boyutlu) sismik

hız yapısının belirlenmesi

Ç ÖZER, O POLAT - Journal of Science and Engineering, 2017 deu edu tr

Page 1. 147 Dokuz Eylül Üniversitesi-Mühendislik Fakültesi Fen ve Mühendislik Dergisi

Cilt 19, Sayı 55 No:1-Ocak/ 2017 Dokuz Eylul University-Faculty of **Engineering Journal**

of Science and Engineering Volume 19, Issue 55 No:1-January/2017 ...

Aftershocks properties of the 2013 Shonbe

Mw 6.3 earthquake, central Zagros, Iran S Ansari - Journal of Asian Earth Sciences. 2017 - Elsevier

Morphotectonic study of the Greater

Antilles

MOC Rodríguez, DC Barba, DN Escribano - Geotectonics, 2017 -Springer

Page 1. 89 ISSN 0016-8521, Geotectonics, 2017, Vol. 51, No. 1, pp. 89–104. © Pleiades Publishing, Inc., 2017. Morphotectonic Study of the Greater Antilles1 MOC Rodríguez*, DC Barba, and DN Escribano Departamento de ...

Geología para el estudio de microzonación

sísmica en Santiago de los Caballeros,

República Dominicana

ML Isidro, M Belvaux, E Bernárdez... - ... : Ciencias Sociais e ..., 2017 - researchgate.net

Page 1. Llorente Isidro, M., et al., 2017. Geología para el estudio de microzonación sísmica en Santiago de los Caballeros, República Dominicana. Boletín Geológico y Minero, 128 (3): 715-736 ISSN: 0366-0176 DOI: 10.21701/bolgeomin.128.3.010

CREATING AN EARTHQUAKE

CATALOGUE FOR 1911; LOCAL,

NATIONAL AND WORLD.

K McCue - 2017 - aees.org.au

Page 1. Australian Earthquake Engineering Society 2017 Conference, Nov 24-26, Canberra, ACT CREATING AN EARTHQUAKE CATALOGUE FOR 1911; LOCAL, NATIONAL AND WORLD. Kevin McCue Central Queensland University, Rockhampton,

Факторы, влияющие на затухание

сейсмических волн в литосфере в зонах

континентального рифтогенеза

АА Добрынина, ВА Саньков, Ж Девершер... - Геодинамика и..., 2017 - cyberleninka.ru

... western Cordilleras, North America (left), showing the main geotectonic provinces and modern plate boundaries (from [Lee et al., 2009]), and the map of seismicity of the region studied (right) for the period from 1915 to 2016, according to the International Seismological Centre

The topographic state of fluvially

conditioned mountain ranges

J Robl, S Hergarten, G Prasicek - Earth-Science Reviews, 2017 -Elsevier

Slab Geometry and Stress State of the

Southwestern Colombia Subduction Zone

Y Chang - 2017 - search.proguest.com

... Earthquakes (circles colorcoded. by earthquake depth) are from ISC data from January 2010

to December 2014. [International Seismological Centre, 2013]. Rectangle marks the Cauca cluster.

Dashed lines are country boundaries. A solid line labeled Caldas tear marks the ...

Технология мониторинга и анализа

гидрометеорологической обстановки в

Арктике1

ВГ Гитис, АБ Дерендяев, КН Петров... - Информационные ..., 2017 - jip.ru ... 6. Прогнозные данные моделирования разлива углеводородов (ФГБУ

"Государственный Оке- анографический институт"). 7.

Каталоги землетрясений

(International Seismological Centre, ISC). 8. Тайловые карты GoogleMaps ...

Lower crustal hydrothermal circulation at

slow-spreading ridges: evidence from

chlorine in Arctic and South Atlantic basalt

glasses and melt inclusions

FM van der Zwan, CW Devey, TH Hansteen... - ... to Mineralogy and ..., 2017 - Springer

Hydrothermal circulation at slow-spreading ridges is important for cooling the newly formed lithosphere, but the depth to which it occurs is uncertain. Magmas which stagnate and partially crystallize.

探索地球内部结构和地震震源机制一

—地震学家 Adam M. Dziewonski 教授的

学术成就简介

刘沁雅, 谷宇, 姚_{华建} - SCIENTIA SINICA Terrae, 2017 - engine.scichina.com

... 从1993年起,他一直是致力于推进海底观测台网发展

的国际海洋网络(International Ocean

Network)的执行委员会成员.此外,他还担任过国际地震中

心(International Seismological

Centre)执行委员会主席(1994~1997)及管理委员会主席 (1997~2005)...

Deformación sismotectónica a partir de mecanismos focales de terremotos en el Valle del Cauca, suroccidente de Colombia

EJ Salcedo, <u>JL Pérez</u> - Revista Geológica de América Central, 2017 - researchgate.net

Page 1. Revista Geológica de América Central, 57, 23-43, 2017 doi: 10.15517/rgac.v0i57.30043 ISSN: 0256-7024 DEFORMACIÓN SISMOTECTÓNICA A PARTIR DE MECANISMOS FOCALES DE TERREMOTOS EN EL VALLE DEL CAUCA, SUROCCIDENTE DE COLOMBIA ...

Region-specific deterministic and

probabilistic seismic hazard analysis of

Kanpur city

<u>P Anbazhagan</u>, K Bajaj, N Dutta, <u>SSR Moustafa</u>... - Journal of Earth System ..., 2017 - Springer

... Data of all the past earthquake events around a 500-km radial distance of Kanpur city center were collected from different sources such as the National Earthquake Information Centre,

International Seismological Centre, Indian Meteorological Department. United State ...

Three-dimensional lithospheric S wave

velocity model of the NE Tibetan Plateau

and western North China Craton

X Wang, Y Li, Z Ding, <u>L Zhu</u>, C Wang... - ... Research: Solid Earth, 2017 - Wiley Online Library

3-D crustal velocity structure of western

Turkey: Constraints from full-waveform

tomography

Y Çubuk-Sabuncu, <u>T Taymaz</u>, <u>A Fichtner</u> - Physics of the Earth and ..., 2017 - Elsevier

... Our dataset consists of moderate-size earthquakes $(3.7 \le M \text{ w} \le 5.9)$, allowing us to neglect finite-source effects. We principally obtained earthquake locations from the

International Seismological Centre (ISC) database. Earthquake ...

Doğu Marmara Bölgesinin Moho

Derinliklerinin Gravimetrik ve İzostazik

Yöntemlerle Kestirimi ve Kabuk Denge

Analizleri Estimation of Moho Depths of

<u>the ...</u>

T SÖNMEZ, <u>B ORUÇ</u> - yerbilimleri.hacettepe.edu.tr Page 1. Yerbilimleri, 2017, 38 (2), 115-128 Hacettepe Üniversitesi

Yerbilimleri Uygulama ve Araştırma Merkezi Bülteni Bulletin of the Earth Sciences Application and Research

Centre of Hacettepe University Doğu Marmara Bölgesinin ...

AMENAZA SÍSMICA,

MICROZONIFICACIÓN SÍSMICA Y

ESPECTROS DE DISEÑO DE LA CIUDAD

DE PEDERNALES, MANABÍ, ECUADOR

JA Martínez-González, <u>JA León-Torres</u>... - researchgate.net ... corresponde a la compilación de la información obtenida del Instituto de Geofísica de la Escuela Politécnica Nacional (IG-EPN), La red Nacional de Acelerógrafos de Ecuador (RENSIG), National Earthquake Information

Center, International Seismological Centre (ISC), Global ...

Use of video on social media for seismic

risk communication: an explorative study

G Massolino - 2017 - iris.sissa.it

Page 1. International School for Advanced Studies Master's course in Science Communication MCS "Franco Prattico" Academic Year 2015/2016 Use of video on social media for seismic risk communication: an explorative study Candidate: Giulia Massolino ...

Statistics of Earthquake Activity: models

and methods for earthquake predictability

studies

Y Ogata - Annual Review of Earth and Planetary Sciences, 2017 - annualreviews.org

A Ground-Motion Prediction Equation for

Vertical Spectra of the Strong-Motion

Records from the Subduction Slab Events

in Japan Using Site Class as the Site Term

F Jiang, JX Zhao - Bulletin of the Seismological Society of ..., 2017 - pubs.geoscienceworld.org

... et al. (2015), in which the best event locations before the end of 2004 were those

published in the Engdahl–van der Hilst–Buland group from the International

Seismological Centre catalog (Engdahl et al., 1998). For earthquakes ...

Fault systems of the eastern Indonesian

triple junction: evaluation of Quaternary

activity and implications for seismic hazards

IM Watkinson, <u>R Hall</u> - Geological Society, London, Special ..., 2017 - sp.lyellcollection.org

Antarctica: The Frozen Continent's

Environment, Changing Logistics and

Relevance to India

J Khadilkar - 2017 - books.google.com ... SCAR SPRI UNFCCC International Institute of Sustainable Development Indian Institute of Tropical Meteorology Indian Meteorological Department Intergovernmental Panel on Climate Change International Polar Year International Seismological Centre International Terrestrial ...

An investigation into ocean wave sources

of ambient seismic noise

JFW Neale - 2017 - eprints.soton.ac.uk

Page 1. UNIVERSITY OF SOUTHAMPTON An Investigation into Ocean Wave Sources of Ambient Seismic Noise. by Jennifer F. Ward Neale A thesis submitted in partial fulfillment for the degree of Doctor of Philosophy in the Faculty of Natural and Environmental Sciences ...

A GPS Modeling Study of Earthquakes and

Deformation in Northern Central America

and along the Middle America Trench: 1999

to 2017

AP Ellis - 2017 - search.proquest.com A GPS Modeling Study of Earthquakes and Deformation in Northern Central America and along the Middle America Trench: 1999 to 2017. Abstract. Northern Central America

is a tectonically complicated region prone to hazardous \ldots

A study of the Coulomb stress and

seismicity rate changes induced by the

2008 Mw 7.9 Wenchuan earthquake, SW

China

J Hu, LY Fu, W Sun, Y Zhang - Journal of Asian Earth Sciences, 2017 - Elsevier

Forecasting seismicity rate in the north-

west Himalaya using rate and state

dependent friction law

P Chingtham, <u>SK Prajapati</u>, <u>VK Gahalaut</u>... - ... , Natural Hazards and ..., 2017 - Taylor & Francis

Gene Transfer in Crop Improvement

D Stevenson - execdeanagriculture.rutgers.edu ... Research described here was made possible by the bulletin data compiled 6y the **International Seismological Centre** and digital recordings from two networks: Global Digital Seismographic Network operated by the US Geological Survey and the International Deploy ment of ...

Strike-slip tectonics within the northernmost

Philippine Sea plate in an arc-continent

<u>collisional setting</u> W Gong, X Jiang, Y Guo, J Xing, C Li, Y Sun - Journal of Asian Earth ..., 2017 – Elsevier

Homogeniziranje i analiza kataloga potresa

na području Hrvatske

L Ivanković - 2017 - zir.nsk.hr Page 1. SVEUČILIŠTE U ZAGREBU PRIRODOSLOVNO-MATEMATIČKI FAKULTET GEOFIZIČKI ODSJEK Ljiljana Ivanković HOMOGENIZIRANJE I ANALIZA KATALOGA POTRESA NA PODRUČJU HRVATSKE Diplomski rad Zagreb, 2017. Page 2. SVEUČILIŠTE U ZAGREBU ...

Topography of the 410 km and 660 km

discontinuities beneath the Japan Sea and

adjacent regions by analysis of multiple-

ScS waves

X Wang, J Li, <u>QF Chen</u> - Journal of Geophysical Research ..., 2017 - Wiley Online Library

Anisotropic Horizontal Thermal Contraction

of Young Oceanic Lithosphere Inferred

From Stress Release Due To Oceanic

Intraplate Earthquakes

R Sasajima, T Ito - Tectonics, 2017 - Wiley Online Library ... We used the hypocenter locations of OCEQs prior to 31

December 2008 from the EHB Bulletin

earthquake catalog from the **International Seismological Centre** (ISC), which is a relocated

earthquake catalog using the algorithm of Engdahl et al. (1998) ...

Plume-ridge interaction via melt

channelization at Galápagos and other

near-ridge hotspot provinces

T Mittal, MA Richards - Geochemistry, Geophysics, Geosystems, 2017 - Wiley Online Library

Complex inner core of the Earth

constrained by differential travel times and

differential ray parameters

2017 - s-space.snu.ac.kr

... waveforms. Event information was taken from the reviewed Bulletin of the **International**

Seismological Centre (ISC), which is manually checked by ISC analysts and relocated. The targeted events have the body wave magnitudes (mb) between 5.0 and 6.7 ...

Tehran: An earthquake time bomb

M Berberian, RS Yeats - ... , and Seismicity of Southwest Asia: In ..., 2017 - books.google.com

Page 93. The Geological Society of America Special Paper 525 Tehran: An

earthquake time bomb Manuel Berberian* Fellow, School of Mathematics, Science, and Technology, Department of Science, Ocean County

College ...

Caracterización de las fuentes sísmicas de

subducción inter-placa del centro-sur de

Chile a través de un sistema de

información geográfica

PI Poblete Acuña - 2017 - repositorio.udec.cl Page 1. CARACTERIZACIÓN DE LAS FUENTES SÍSMICAS DE SUBDUCCIÓN INTER-PLACA DEL CENTRO-SUR DE CHILE A TRAVÉS DE UN SISTEMA DE INFORMACIÓN GEOGRÁFICA Patricio Ignacio Poblete Acuña Proyecto de Título presentado al ...

Tectonic and Magmatic Controls on

Extension and Crustalaccretion in Backarc

Basins, Insights from the Lau Basin and

Southern Mariana Trough

JD Sleeper - 2017 - search.proquest.com

... surface-towed magnetometer. and an aeromagnetic survey, and seismicity data

obtained from the Global Centroid Moment. Tensor database and the International

Seismological Centre reviewed event catalogue. The. geologic and \ldots

Development of a Chilean Ground Motion

Database for the NGA-Subduction Project

<u>V Contreras</u> - 2017 - search.proquest.com ... 2012), the National Earthquake. Information Center (NEIC) at the United States Geological Survey,

the International. Seismological Centre (ISC, 2014), and the Chilean National Seismological

Center (CSN). We. prefer magnitudes from the CMT catalog when available \ldots

بر أورد جنبایی گسل های فعال در جنوب و باختر

بلوک لوت بر پایه گشتاور های زمینشناختی،

لرزهای و ژئودتیک

رشیدی, خطیب, موسوی, سیدمرتضی, جمور فصلنامه علمی پژوهشی 2017 - علوم زمین, 2017 - علوم زمین, 2017 هزرل نیمز یاه گولاتاک هیاپ رب یا هزرل رواتشگ خرن ،هزرل

.. مرزن نیمز یاه خودات میاب رب یا مرزن روانست خرن مرزن نیمز یسدنیم و یسانش هزرل هدکشهوژب تیاس

(سرتسد لباق يهاكتسد يللملا نيب يراكن هزرل زكرم و) (دراوراه هاكشنادMoment Tensor

زا هدافتسا اب فلتخم یاه هزرل نیمز یارب

((International Seismological Centre ... دمآ تسد.) <u>When Galleries Shake: Earthquake Damage Mitigation for</u> <u>Museum Collections</u>

J Podany - 2017 - books.google.com

Page 1. When Galleries Shake Earthquake Damage Mitigation for Museum Collections Jerry Podany Page 2. When Galleries Shake Page 3. Page 4. When Galleries Shake Earthquake Damage Mitigation for Museum Collections ...

Caractérisation de milieux multiplement

diffusants à l'aide de corrélations dans la

coda

V Clerc - 2017 - theses.fr

... tableau. 18 Page 19. INTRODUCTION Figure 1.2: D'apr`es l'international

Seismological Centre. Carte illustrant la répartition des séismes (points rouges) de

magnitude supérieure `a 5 sur une période allant de 1960 `a 2008. On \ldots

Apparent polar wandering and its

implications for past plate motions

LWu - 2017 - era.library.ualberta.ca

Page 1. Apparent polar wandering and its implications for past plate motions by Lei Wu A thesis

submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in

Geophysics Department of Physics University of Alberta $\ensuremath{\mathbb{C}}$ Lei Wu, 2017 Page 2. Abstract \ldots

Applications of high resolution topography

in active tectonics KL Johnson - dspace.library.colostate.edu ... HRT Interferometric Synthetic Aperture Radar InSAR International Seismological Centre/Global Earthquake Model ISC-GEM Iterative Closest Point ICP ...

From Mental Models to Curricular Models

through Model-Based Learning: A study

with Graduation Students about Natural

Hazards

<u>SBG Moutinho</u> - 2017 - search.proquest.com From Mental Models to Curricular Models through Model-Based Learning: A study with Graduation Students about Natural Hazards. Full Text. D From Mental Models. to Curricular Models. through Model-Based. Learning: A study. with Graduation. Students about. Natural Hazards ...

Applications of High Resolution

Topography in Tectonic Geomorphology

KL Johnson - 2017 - search.proquest.com

... HRT. Interferometric Synthetic Aperture Radar InSAR. International Seismological Centre/Global Earthquake Model ISC-GEM. Iterative Closest Point ICP ...

Contemporary State of the Elbrus Volcanic

Center (The Northern Caucasus)

V Milyukov, E Rogozhin, A Gorbatikov... - Pure and Applied ..., 2017 - Springer

... seismic waves incoming to BLI. Coordinates, time, and magnitude of earthquakes from catalog

(International Seismological Centre 2014) Contemporary State of the Elbrus Volcanic Center Page 6. The assessment of the regional ...

The geologic, geomorphic, and hydrologic

context underlying options for long-term

management of the Spirit Lake outlet near

Mount St. Helens, Washington

<u>GE Grant, JJ Major, SL Lewis</u> - Gen. Tech. Rep. PNW-GTR-954 ..., 2017 - fs.usda.gov

Page 1. United States Department of Agriculture Forest Service Pacific Northwest Research

Station General Technical Report PNW-GTR-954 June 2017 The Geologic, Geomorphic, and

Hydrologic Context Underlying Options for Long-Term Management ...

Tomografía sísmica local, comportamiento

sismotectónico y estructura termal de la

litósfera por debajo de la Cordillera Oriental

de Colombia

E Gómez Hurtado - Universidad Nacional de Colombia ...

A review of the rupture characteristics of

the 2011 Tohoku-oki Mw 9.1 earthquake

T Lay - Tectonophysics, 2017 - Elsevier

wos_raw. csv

<u>AL Whitmire, S Van Tuyl</u> - 2017 - ir.library.oregonstate.edu ... 2006, NATURE, V441, P494, DOI 10.1038/nature04762; Fox CG, 2001, J GEOPHYS RES-SOL EA, V106, P4183, DOI 10.1029/2000JB900404; Heeszel DS, 2008, GEOCHEM GEOPHY GEOSY, V9, International Seismological Centre, 2011, ON ...

Estimación de la Peligrosidad Sismica en

Ecuador Continental

HA Parra Cárdenas, B Oterino, M Belén... - 2017 - repositorio.espe.edu.ec

Page 1. Publicaciones científicas Universidad de las Fuerzas Armadas ESPEPELIGROSIDAD SÍSMICA Estimación de la en Ecuador continental Humberto Aníbal Parra Cárdenas, María Belén Benito Oterino, Jorge Miguel Gaspar Escribano ... Seismicity

RM Kebeasy - The geology of Egypt, 2017 - taylorfrancis.com ... This is the largest instrumentally located earthquake in the southwestern region of Egypt.The epicenter as located by the **International Seismological Center** and National Oceanic and Atmospheric Administra tion lies in the Gilf el-Kebir area ...

Tomography of the subducting Pacific slab

and the 2015 Bonin deepest earthquake

(Mw 7.9)

<u>D Zhao</u>, M Fujisawa, G Toyokuni - Scientific reports, 2017 - nature.com

... We used arrival-time data of earthquakes which are selected from the repressed ISC (International

 $\mbox{Seismological Center})$ data base 7 , the JMA Unified Earthquake Catalogue 1 , and the Annual

Bulletin of Chinese Earthquakes 8 . For selecting a best set of earthquakes, the ...

Mapping seismic moment and b-value

within the continental-collision orogenic-belt

region of the Iranian Plateau

SM Mousavi - Journal of Geodynamics, 2017 - Elsevier

Age of the subducting Pacific slab beneath

East Asia and its geodynamic implications

X Liu, <u>D Zhao, S Li</u>, W Wei - Earth and Planetary Science Letters, 2017 - Elsevier

… The magenta stars denote epicenters of large earthquakes (M ≥7.0) during 1975–2016 derived

from the Bulletin of the International Seismological Center. The hypocenters of these large

earthquakes are shown in Fig. 6. The other labeling is the same as that in Fig ...

Illuminating the seismicity pattern of the

October 8, 2005, M= 7.6 Kashmir

earthquake aftershocks

<u>SJ Gibbons</u>, T Kværna - Physics of the Earth and Planetary Interiors, 2017 - Elsevier

... Fig. 1 displays the aftershock distributions taken from two different bulletins: the Reviewed

Event Bulletin (REB) of the International Data Center for the Comprehensive Nuclear-Test-

Ban Treaty (CTBT), and the International Seismological Center (ISC)

Earthquakes and Multi-hazards around the

Pacific Rim, Vol. 1: Introduction

<u>YX Zhang</u>, <u>T Goebel</u>, Z Peng, <u>C Williams</u>... - Pure and Applied ..., 2017 - Springer

... forecasting efficacy. K. Katsumata analyzes earthquake catalogues provided by the

International Seismological Center (ISC) to detect earthquake quiescence in and near Japan by using a simple scanning technique (ZMAP). They de ...

Results of seismological data processing

for the territory of Armenia

VY Burmin, IB Shemeleva, LD Fleyfel, AM Avetisyan... -Seismic ..., 2017 - Springer

... OBN is Geophysical Service of Russian Academy of Sciences, Obninsk; ISC is **International Seismological Center**, Great Britain; NEIC is National Earthquake Information Center of US Geological Survey; ESE is Catalog of Epicentral Expedition of Institute of Physics of Earth ...

Seismic risk assessment at the proposed

site of Gemsa wind power station,

southwestern coast of Gulf of Suez, Egypt

<u>K Abdelrahman</u>, A Al-Amri, N Al-Arifi... - Journal of the ..., 2017 - Springer

... These data were then merged, reviewed and refined from duplicated events using the **International**

Seismological Center (ISC); the National Earthquake Information Centre (NEIC) of United States Geological Survey and the European Mediterranean Seismological Centre ...

Calculation of Confidence Intervals for the

Maximum Magnitude of Earthquakes in

Different Seismotectonic Zones of Iran

M Salamat, <u>M Zare</u>, M Holschneider... - Pure and Applied ..., 2017 - Springer

... The Institute of the Iranian Geophysics (IGUT 2015) and the International Institute of Earthquake Engineering and Seismology (IIEES 2015) are used as national data banks and the **International**

the internationa

Seismological Center UK (ISC 2015b), The National Earthquake Information Center ...

S Afzal, J Aziz, M Noman - 2017 - Bahria University Islamabad ...

Anomalously deep earthquakes related to

the Ojo de Agua Lineament and its tectonic

significance, Sierras Pampeanas of

Córdoba, Central Argentina

AC Montero, RD Martino, AB Guereschi - Geodesy and Geodynamics, 2017 - Elsevier

... Database (originally projected on WGS 1984 geographic coordinates) was re-projected on Argentina POSGAR07 planar projection, zone 3. Focal mechanisms published by the **International Seismological Center** (ISC) were also included in order to characterize the structures ...

Compiling an earthquake catalogue for the

Arabian Plate, Western Asia

A Deif, Y Al-Shijbi, I El-Hussain, <u>M Ezzelarab</u>... - Journal of Asian Earth ..., 2017 - Elsevier

... Center (IRSC), which appeared online since 2006 (Karimiparidari et al., 2013), ISC-GEM global seismological catalogue, the EHB catalogue (Engdahl et al., 1998) updated to consider events up to 2008, data retrieved from the ISC (International Seismological Center) web site ...

Source parameters of the 27th of June

2015 Gulf of Aqaba earthquake

S Almadani - Journal of Seismology, 2017 - Springer ... Mohamed et al. (2012): \$\$

{M}_{\mathrm{w}}=1.16{m}_{\mathrm{b}}-0.9 \$\$. (1). The seismicity in the Gulf of Aqaba from the period of 1964 to 2015, as reported by the **International Seismological Center** (ISC), is shown in Fig. 2. It is ...

Internal deformation of lithosphere beneath

central Tibet

H Zhang, <u>D Zhao</u>, J Zhao, Z Hu - Journal of Geophysical ..., 2017 - Wiley Online Library

... The initial hypocentral parameters of the local and regional earthquakes used in this study are those determined by Huang et al. (2014) using the data recorded by the China Seismic Network (CSN) and the **International Seismological Center** (ISC) without the Hi-CLIMB stations ...

What Is Better Than Coulomb Failure

Stress? A Ranking of Scalar Static Stress

Triggering Mechanisms from 105

Mainshock-Aftershock Pairs

<u>BJ Meade</u>, PMR DeVries, J Faller... - Geophysical ..., 2017 - Wiley Online Library

... Black dotted line is a 1:1 line for reference. (e–h) Analogous to Figures 1a–1d for a different static stress field, $\Delta \tau \max (\sigma)$. Aftershocks within 1 year of the mainshocks (116,814 aftershocks in total were compiled from

the International Seismological Center (ISC) event catalogue ...

Local Magnitude Conversion to Unified

Moment Magnitude in the Croatian

Earthquake Catalogue (CEC)

L Ivanković, <u>S Markušić</u>, <u>I Ivančić</u> - International Advanced Research ..., 2017 - iarjset.com

... Terra Nova, 8, 86-94. 14. ISC

(International Seismological Center) Earthquke Catalogue: http://www.isc.ac.uk/iscbulletin/search/catalogue 15. Ivančić, I., Herak, D., Markušić, S., Sović,

I., Herak, M. (2002): Seismicity of Croatia in the period 1997– 2001. Geofizika, 18–19, 17–29 ...

Lateral structure variations and transient

swarm revealed by seismicity along the

Main Himalayan Thrust north of Kathmandu

R Hoste-Colomer, L Bollinger, H Lyon-Caen, A Burtin ... -

Tectonophysics, 2017 - Elsevier ... 97. Gudelhongu, 30/12/1996, 11:18:19, 86.91°E, 27.22°N, 25 33(f), 5.8, 4.8, -, (a) National

Seismological Center of Nepal (NSC).

(b) International Seismological Center, UK (ISC).

(c) Centroid Moment Tensor (in this article). (d) Geophysical ...

Earthquake source characterization,

moment tensor solutions, and stress field of

small-moderate earthquakes occurred in

the northern Red Sea Triple Junction

<u>AK Abdel-aal, Y Yagi</u> - Geosciences Journal, 2017 - Springer ... www.nriag.sci.eg), Mamoun et al. (1984), **International Seismological Center** (ISC) bulletin (http://www.isc.ac.uk/), European Mediterranean

Seismological Center (EMSC) bulletin (http://www.emsc-csem.org), and online bulletin ...

Probabilistic seismic hazard assessments

of Sabah, east Malaysia: accounting for

local earthquake activity near Ranau

AE Khalil, IA Abir, H Ginsos, HEA Hafiez... - Journal of

Geophysics ..., 2017 - iopscience.iop.org

 \ldots The seismicity record of Ranau begins in 1991, according to the international seismicity

bulletins (eg United States Geological Survey and the **International Seismological Center**), and this short record is not sufficient for seismic source characterization ...

Forecasting of Global Earthquake Energy

Time Series

STG Raghukanth, B Kavitha... - Advances in Data Science ..., 2017 - World Scientific

... quakes. Recently, **International Seismological Center** (http://www.isc.ac. uk/) has

released the ISC-GEM Global Instrumental Reference Earthquake Catalogue span-

ning from 1900-2012 (http://www.isc.ac.uk/iscgem/index.php) ...

Methodology of natural risk assessment in

Russia

VI Osipov, VI Larionov, VN Burova, NI Frolova... - Natural Hazards, 2017 - Springer

... 2012). Joint study on seismic risk assessment for Dushanbe City, Tajikistan, was undertaken

by NGO "PMP International," Seismological Center of IGE RAS, Geological Institute of Tajik Acad.of Science and Extreme Situation Research Center, Moscow (Negmatullaev et al ...

Estimation of Seismic Hazard Using PSHA

in and around National Capital Region

(NCR) of India

S Sarkar, D Shanker - Geosciences, 2017 - article.sapub.org

... Earthquake data for the study area has been extracted from several agencies like United State Geological Survey

(USGS), **International Seismological Center** (ISC), India Meteorological

Department (IMD) New Delhi and also several publications like IYENGAR et al., 1999 ...

Crustal Thickness and Velocity Structure of

Southern Peninsular Malaysia (Corrected)

AHA Latiff, <u>AE Khalil</u> - researchgate.net

Page 1. 1 Abdul Halim Abdul Latiff, 2 Amin Esmail Khalil Abstract – The tectonic setting of Peninsular Malaysia can be described by three distinctive stratigraphic belts, known as western, central and eastern belts. The western and ...

Dynamical characterization of the 1982-

2015 seismicity of Aswan region (Egypt)

L Telesca, R Fat-Elbary, TA Stabile, M Haggag... -Tectonophysics, 2017 - Elsevier

... depth from 18 to 20 km. Prior November 14, 1981, no earthquakes had been reported in the Aswan area in the catalog of the **International Seismological Center** (ISC) since the ISC's inception in 1920. Because of the lack of ...

The instrumental seismicity of the Jordan

Dead Sea transform

<u>ZH EI-Isa</u> - Arabian Journal of Geosciences, 2017 - Springer ... These include catalogues from the Jordan University Seismological Station (UNJ), the Jordan Seismological Observatory (JSO).

the **International Seismological Center** (ISC), and the National Earthquake Information Center (NEIC) of the USGS and the American Incorporated ...

Experimental Investigation on Pre-stressed

Polypropylene-band

<u>A Sugijopranoto, A Triwiyono, H Priyosulistyo</u> - Procedia engineering, 2017 - Elsevier

... Indonesia: Snapshot on Earthquake (Jan 2000-Oct 2010), New YorN: OCHA. [2] ISC, 2016.

International Seismological Center Earthquake Catalog. [Online] Available at: <u>http://wwweic.eri</u>. uYtoNyo.ac.jp/db/isc/index.html [Accessed 05 May 2016]. [3] Boen, T., 2001 ...

Seismicity assessment in and around Syria

based on instrumental data: application of

Gumbel distributions and Gutenberg-

Richter relationship

J Asfahani, R Darawcheh - Arabian Journal of Geosciences, 2017 - Springer

... The earthquake data were collected from three main sources of information including compilations of both Plassard and Kogoj (1981) and Elnashai and El-Khoury (2004) and the online bulletin of **International Seismological Center** (ISC 2016) ...

Update and sensitivity analysis of the neo-

deterministic seismic hazard assessment

for Egypt

<u>HM Hassan</u>, <u>F Romanelli, GF Panza</u>, <u>MN ElGabry</u>... -Engineering ..., 2017 - Elsevier

... Abou Elenean, 2009; Badawy et al., 2010; National Research Institute of Astronomy and Geophysics (NRIAG)) and international sources (eg European Mediterranean Seismological Center (EMSC) http://www.emsc-

csem.org/; International Seismological Center (ISC) bulletins ...

Demonstration of pb-PSHA with Ras-

Elhekma earthquake, Egypt

E Fergany, L Hutchings - NRIAG Journal of Astronomy and Geophysics, 2017 - Elsevier

... 1), 50 km toward south of the epicenter, and V–VI MM at Alexandria City. ISC (**International Seismological Center**) reported that the event was felt as far as 450 km in Nicosia, Cyprus with intensity II-MM. It is one of the good recorded events along north offshore area of Egypt ...

On the seismotectonic setting in the ocean

side of deep trenches

MY Andreeva, MV Rodkin - Russian Journal of Pacific Geology, 2017 - search.proquest.com

... 7. MI Rudik and LN Poplavskaya, Catalogue of the Focal Mechanisms of the Kuril-Okhotsk Earthquakes. 18. (IMGiG DVO RAN, Yuzhno-Sakhalinsk, 1988) [in Russian]. 8. **International Seismological Center**. http://www.isc.uk. Cited July 5, 2015 ...

Civil Engineering Journal

A Ghorbani, A Izadi - Civil Engineering, 2017 - researchgate.net Page 1. Available online at www.CivileJournal.org Civil

Engineering Journal Vol. 3, No. 4, April, 2017 237 Comprehensive Earthquake Catalogs and Seismicity Parameters from Incomplete Earthquake Catalogs of Guilan Region, Iran Ali Ghorbani a , Ardavan Izadi b ...

Regional Pn Body-Wave Magnitude Scale

mb (Pn) for Earthquakes Along the

Northern Mid-Atlantic Ridge

WY Kim, <u>L Ottemöller</u> - Journal of Geophysical Research: Solid ..., 2017 - Wiley Online Library

Page 1. This article has been accepted for publication and undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process which may lead to differences between this version and the Version of Record \ldots

P-wave anisotropic tomography of the Alps

<u>Y Hua, D Zhao, Y Xu</u> - Journal of Geophysical Research: Solid ..., 2017 - Wiley Online Library

... These data are collected from

the International Seismological Center (ISC, http://www.isc.ac. uk) bulletins ... All rights reserved. Acknowledgements We thank the International Seismological Center for providing the highquality arrival-time data used in this study ...

Remote Sensing Applications: Society and

Environment

RA Ahmad, RP Singh, A Adris - researchgate.net

... 4. Seismicity of Syria The Syrian earthquake data is based on data available by various agencies. The instrumentally recorded seismological data were collected

from International Seismological Center (ISC), US Geological ...

Seismic hazard assessment of Syria using

seismicity, DEM, slope, active faults and

GIS

RA Ahmad, <u>RP Singh</u>, A Adris - Remote Sensing Applications: Society and ..., 2017 - Elsevier

... The instrumentally recorded seismological data were collected from **International Seismological Center** (ISC), US Geological Survey (USGS), World Data Center (WDC), European-MediterraneanSeismological Center (EMSC) and Syrian National Earthquake Center (NEC, 1995 ...

Site-specific probabilistic seismic hazard

analysis for northern part of the Qeshm

Island, Iran

<u>A Kavand, H Alielahi</u> - Natural Hazards, 2017 - Springer ... (1994). There are also other earthquake catalogs available for Iran such as those provided by International Institute of Earthquake Engineering and Seismology (IIEES), **International Seismological Center** (ISC) and the National Earthquake

Information Center (NEIC) ...

Relation of Mean Time Interval with

Magnitude for Earthquakes in Northeast

India and Its Surrounding Region

SK Nath, AK Yadav - Annals of Geophysics, 2017 - annalsofgeophysics.eu

... USGS), Global Centroid Page 10. YADAV AND NATH 10 Moment Tensor (GCMT),

International Seismological Center (ISC) and India Meteorological Department (IMD). Link: http://www.earthghaz.net/sacat/ 8. Appendix Weibull's ...

Seismic hazard estimation of northern Iran

using smoothed seismicity

<u>N Khoshnevis, R Taborda, S Azizzadeh-Roodpish</u>... - Journal of ..., 2017 - Springer

... Instrumental datasets included information from international, regional, and local agencies and networks, such as the US Geological Survey's National Earthquake Information Center (NEIC), the **International Seismological Center** (ISC) bulletins, the International Institute of ...

Tree-ring width reveals the preparation of

the 1974 Mt. Etna eruption

R Seiler, <u>N Houlié</u>, P Cherubini - Scientific Reports, 2017 - nature.com
\ldots Etna and its surroundings between the summer 1973 and the summer 1974.

International Seismological Center (ISC) data is shown with green bars, daily rates of seismicity measured at different stations are grey and purple

Seismicity characterization of the

Maravatio-Acambay and Actopan regions,

central Mexico

Q Rodríguez-Pérez, FR Zúñiga - Journal of South American Earth Sciences, 2017 - Elsevier

... 3. Data and methods. 3.1. Data. We studied the seismicity from 1912 to 2016 in the Maravatío-Acambay and Actopan regions. We used the earthquake catalogues of the Mexican National Seismological Service (SSN) and

the International Seismological Center (ISC)

Lithospheric flexural strength and effective

elastic thicknesses of the Eastern Anatolia

(Turkey) and surrounding region

<u>B Oruç</u>, D Gomez-Ortiz, <u>C Petit</u> - Journal of Asian Earth Sciences, 2017 - Elsevier

Probabilistic seismic hazard assessment in

the northeastern part of Algeria

M Hamlaoui, K Vanneste, K Baddari, L Louail... - Arabian Journal of ..., 2017 - Springer

... NEIC data files (1992). Data from

the **International Seismological Center** (ISC) from the period 1950–2015 were also used to improve instrumental seismicity and complete

the catalog of magnitude estimates. To compile a catalog ...

TOMOGRAFI WAKTU TEMPUH

GELOMBANG SEISMIK UNTUK

MENGETAHUI STRUKTUR DI DAERAH

SULAWESI UTARA DAN SEKITARNYA

MENGGUNKAN ...

S Egi - 2017 - eprints.upnyk.ac.id

... Utara dan sekitarnya berdasarkan anomali gelombang P . Penelitian ini menggunakan data gempa yang terekam sejak tahun 1950 hingga tahun 2013 sejumlah 10793, yang terekam oleh 13 stasiun penerima dari

website international seismological center(ISC) Metode geiger ...

Distribusi Coulomb Stress Akibat

Gempabumi Tektonik Selatan Pulau Jawa

berdasarkan Data Gempa Tektonik 1977-

2000

F Puspasari, W Wahyudi - Jurnal Fisika dan Aplikasinya, 2017 - iptek.its.ac.id

... Data penelitian diambil dari katalog ISC

(International Seismological Center) dan Global CMT (Global Centroid Moment Tensor) ... The data is taken from the catalog of ISC (International Seismological Center) and Global CMT (Global Centroid Moment Tensor) ...

Crustal seismic velocity models of Texas

TM Borgfeldt - 2017 - repositories.lib.utexas.edu

Page 1. Copyright by Taylor Marie Borgfeldt 2017 Page 2. The Thesis Committee for Taylor Marie Borgfeldt Certifies that this is the approved version of the following thesis: Crustal seismic velocity models of Texas APPROVED BY SUPERVISING COMMITTEE: Cliff Frohlich ... Lithospheric structure of Southeast Anatolia

from joint inversion of local and teleseismic

data

MK Salah - Studia Geophysica et Geodaetica, 2017 - Springer ... system. In addition, 55 events during two previous years (2005 and 2006) were also selected from the on-line published ISC (International Seismological Center) bulletins

(http://www.isc.ac.uk/iscbulletin/search/arrivals). Figure ...

基于密集流动地震台阵的青藏高原

东北缘及邻区 Rayleigh 波相速度层析

成像

ESTIMASI NILAI PERCEPATAN TANAH

MAKSIMUM WILAYAH SUMATERA

BARAT BERDASARKAN SKENARIO

GEMPABUMI M 8.8 SR

MENGGUNAKAN ...

M Leviana, <u>S Syafriani</u>, A Sabarani - PILLAR OF PHYSICS, 2017 - ejournal.unp.ac.id

... Mentawai tahun 1797 sampai 2016. Episenter berada pada koordinat 1,00oLS dan 99,00oBT (zona subduksi). Data ini dilihat dari bulletin **International Seismological Center** (ISC). Hiposenter berada di zona subduksi dengan ...

Big mantle wedge, anisotropy, slabs and

earthquakes beneath the Japan Sea

<u>D Zhao</u> - Physics of the Earth and Planetary Interiors, 2017 - Elsevier

... Fig. 2. Distribution of large earthquakes ($M \ge 6.0$) that occurred from January 1900 to September 2009 compiled by the **International Seismological Center**. The

earthquake magnitude scale is shown at the bottom. The color ...

Velocity structure of the mantle transition

zone beneath the southeastern margin of

the Tibetan Plateau

G Li, L Bai, <u>Y Zhou</u>, X Wang, <u>Q Cui</u> - Tectonophysics, 2017 - Elsevier

... Three focal depths for each earthquake (column at the extreme right) are obtained from teleseismic waveform modeling in this study (the left), and listed in

the **International Seismological Center** (ISC) catalog (the middle) and the global Centroid Moment Tensor (gCMT) catalog ...

Seismotectonics of the Trans-Himalaya,

Eastern Ladakh, India: Constraints from

moment tensor solutions of local

earthquake data

<u>D Hazarika</u>, A Paul, <u>M Wadhawan</u>, <u>N Kumar</u>, <u>K Sen</u>... -Tectonophysics, 2017 - Elsevier

... one of the most powerful tools to study the source mechanisms of smaller earthquakes on a regional scale as such information is usually not reported by global seismological networks (eg United States Geological Survey (USGS)

and International Seismological Center (ISC) etc ...

3-D seismic tomography of the lithosphere

and its geodynamic implications beneath

the northeast India region

<u>J Raoof, S Mukhopadhyay, I Koulakov</u>, JR Kayal - Tectonics, 2017 - Wiley Online Library

Numéro spécial

GB GANZA, GTM Damien DELVAUX - Geo-Eco-Trop, 2017 - geoecotrop.be

... (2016) sur base du catalogue révisé de

l'International Seismological Center (ISC) et complété par les données de l'IRSAC (Lwiro) et de données macrosismiques. Il contient 1054 séismes entre 1931 et 2015 et de magnitude équivalente Mw allant Page 6. 174 jusque 6.3 ...

Trends in Nuclear Explosion Monitoring

Research & Development-A Physics

Perspective

M Maceira, PS Blom, JK MacCarthy, OE Marcillo... - 2017 - osti.gov

Page 1. LA-UR-17-21274 Approved for public release; distribution is unlimited. Title:

Trends in Nuclear Explosion Monitoring Research & Development - A Physics

Perspective - Author(s): Maceira, Monica; Blom, Philip Stephen ...

Probabilistic seismic hazard assessment for

Saudi Arabia using spatially smoothed

seismicity and analysis of hazard

uncertainty

V Sokolov, HM Zahran, SEH Youssef... - Bulletin of Earthquake ..., 2017 - Springer

... The catalog includes data from

the **International Seismological Center** (ISC) online bulletin (http://www.isc.ac.uk/), the data collected from regional centers, namely the Seismic Studies Center at King Saud University (KSU), King Abdulaziz City for Science and Technology ...

P-wave anisotropy, mantle wedge flow and

olivine fabrics beneath Japan

X Liu, <u>D Zhao</u> - Geophysical Journal International, 2017 - academic.oup.com

Geophysical evidence of the preparedness

for a volcanic eruption: El Hierro 2011-2012

C López Moreno - 2017 - diposit.ub.edu

Page 1. Geophysical evidence of the preparedness for a volcanic eruption: El Hierro 2011-2012 Carmen López Moreno Aquesta tesi doctoral està subjecta a la llicència Reconeixement 3.0. Espanya de Creative Commons ...

Improved Modeling and Prediction of

Surface Wave Amplitudes

JL Stevens, JW Given, TW Thompson, M O'Brien - 2017 - dtic.mil ... we retrieved 59,000 waveforms from 1850 Eurasian and African events. We also retrieved the locations, depths and origin times for all of these events from the **International Seismological Center** (ISC), and replaced the CMT origins and depths with the better ISC origins ...

Seismotectonic destruction of the Earth's

crust in the zone of interaction of the

northeastern side of the Baikal rift and the

Aldan-Stanovoy block

LP Imaeva, BM Koz'min, VS Imaev, NN Grib... - Journal of ..., 2017 - Springer

... Based on instrumental seismological data and information from the catalogs of the RAS and SB RAS Surveys and

the International Seismological Center Bulletin (http:

//www.ceme.gsras.ru; http:seismos-u.ifz.ru; http//www.isc.ac.uk), we present seismotectonic characteristics of ...

Soil liquefaction hazard assessment along

shoreline of Peninsular Malaysia/Huzaifa

Hashim

H Huzaifa - 2017 - studentsrepo.um.edu.my

... BMG : Indonesian Meteorology Agency ζ : Damping Ratio ρ : Density ISC : International

Seismological Center mb : Body-wave magnitude (short period) mB : Body wave magnitude

(long period) Me : Energy magnitude ML : Local magnitude Ms : Surface wave ...

Toward an empirical ground motion

prediction equation for France: accounting

for regional differences in the source stress

parameter

<u>G Ameri</u>, S Drouet, <u>P Traversa</u>, <u>D Bindi</u>... - Bulletin of Earthquake ..., 2017 - Springer

... We used the epicentral locations of the French events provided by Si-Hex because the original

locations reported in RESORCE-2013 are taken from

the International Seismological Center

(ISC) bulletin and thus are expected to be less precise than those obtained from Si-Hex \ldots

Quantifying the Termination Mechanism

Along the North Tabriz-North Mishu Fault

Zone of Northwestern Iran via Small

Baseline PS-InSAR and GPS

Decomposition

Z Su, EC Wang, JC Hu, M Talebian... - IEEE Journal of ..., 2017 - ieeexplore.ieee.org

... White circles represent earthquake events listed in the International Seismological Center

catalogue (ISC, 1.0 < Mw < 6.5, 2006–2013) and International Institute of Earthquake Engineering and Seismology database (IIEES, 1.0 < Mw < 6.5, 1901–2010) ...

Melt Extraction and Crustal Thickness

Variations at Segmented Mid-Ocean

Ridges

H Bai - 2017 - search.proquest.com

Melt Extraction and Crustal Thickness Variations at Segmented Mid-Ocean Ridges. Abstract. Mid-ocean ridges are underwater volcanic mountains extending more than 55,000 km in ocean basins worldwide, accounting for nearly 80% of the Earth's volcanism ...

Loss caused by earthquakes: rapid

estimates

NI Frolova, VI Larionov, J Bonnin, SP Sushchev... - Natural Hazards, 2017 - Springer

... To estimate the uncertainties in earthquake parameters by the Alert Survey of GS of RAS, two catalogs, for the period from 1991 up to 2009, were compared: the catalog of the GS RAS Alert Survey and the **ISC-GEM** Global Instrumental Earthquake Catalogue (1900–2009) ...

On the Seismicity, Geodynamics and

Neotectonics of the Moesian Platform

IM Stanciu, D Ioane - researchgate.net

... base has been built using a wide variety of data published in local, regional and global earthquakes catalogues: ROMPLUS Earthquake Catalogue (Oncescu et al., 1999 updated); EMSC Earthquake Catalogue (http://www.emsc-csem.org, 2017); **ISC-GEM** Global Instrumental ...

Supercycle at the Ecuadorian subduction

zone revealed after the 2016 Pedernales

earthquake

JM Nocquet, P Jarrin, <u>M Vallée</u>, <u>PA Mothes</u>... - Nature ..., 2017 - nature.com

 \dots Focal mechanisms for the 1942 5 and 2016 earthquakes are shown with their

respective epicentres (white stars). The black star indicates the relocation of the

1942 epicentre from $\ensuremath{\text{ISC-GEM}}$ 21 . Full size image. Strain budget ...

Within plate seismicity analysis in the

segment between the high Cordillera and

the Precordillera of northern Mendoza

(Southern Central Andes)

J Olivar, S Nacif, L Fennell, A Folguera - Geodesy and Geodynamics, 2017 - Elsevier

... Fig. 1. A) Seismicity from **ISC-GEM** Catalog from 1900 to 2013 (http://www.isc.ac.uk/iscgem/).

This catalog is the result of a special effort to adapt and

substantially extend and improve currently

existing bulletin data of large global earthquakes (magnitude 5.5 and above) \ldots

Investigating the March 28th 1875 and the

September 20th 1920

earthquakes/tsunamis of the Southern

Vanuatu arc, offshore Loyalty Islands, New

Caledonia

M Ioualalen, B Pelletier, GS Gordillo - Tectonophysics, 2017 - Elsevier

 \ldots Both tsunamis were generated by local earthquakes. Neither of these earthquakes has been

quantitatively well-constrained, but the 1920 event is classified as having a Mw magnitude of

8.1 in the **ISC-GEM** Global Instrumental Earthquake Catalog (1900–2012) ...

Geodesy and Geodynamics

J Olivar, S Nacif, L Fennell, A Folguera - 2017 - researchgate.net ... Fig. 1. A) Seismicity from **ISC-GEM** Catalog from 1900 to 2013 (http://www.isc.ac.uk/iscgem/).

This catalog is the result of a special effort to adapt and substantially extend and improve currently

existing bulletin data of large global earthquakes (magnitude 5.5 and above) ...

The Chiloé Mw 7.6 earthquake of 25

December 2016 in Southern Chile and its

relation to the Mw 9.5 1960 Valdivia

earthquake

<u>D Lange, J Ruiz, S Carrasco...</u> - Geophysical Journal ..., 2017 - academic.oup.com

 \ldots Although the background seismicity is very sparse there are two sequences of historical seismic

activity listed in the $\mbox{ISC-GEM}$ catalogue since 1900 (Figure 2). On 2nd March 1919 \dots star). This

event is listed in the $\ensuremath{\text{ISC-GEM}}$ (Storchak et al., 2013) catalogue with a depth of \dots

Assessment of the Pacific Tsunami

Warning Center's Readiness to Assume

Local Tsunami Warning Center

Responsibilities for Puerto Rico and the

Virgin ...

V Sardina, K Koyanagi - researchgate.net

... doi:10.1016/j.pepi.2012.04.002 • Storchak, DA, D. Di Giacomo, I. Bondár, ER Engdahl, J. Harris,

WHK Lee, A. Villaseñor and P. Bormann, 2013. Public Release of the ISC-GEM Global

Instrumental Earthquake Catalogue (1900-2009). Seism. Res. Lett., 84, 5, 810-815, doi ...

Estimating Seismic Hazards from the

Catalog of Taiwan Earthquakes from 1900

to 2014 in Terms of Maximum Magnitude

KP Chen, WY Chang - Pure and Applied Geophysics, 2017 - Springer

... For example, Michael (2014) recently employed it to check the completeness of the **ISC-GEM** global earthquake catalog ... Seismol. Soc. Am., 95, 1045–1058.CrossRefGoogle Scholar. Michael, AJ (2014). How complete is the **ISC-GEM** global earthquake catalog? Bull. Seismol ...

Testing alternative temporal aftershock

decay functions in an ETAS framework

<u>S Hainzl</u>, <u>A Christophersen</u> - Geophysical Journal International, 2017 - academic.oup.com

Historical tsunami earthquakes in the

Southwest Pacific: an extension to Δ > 80°

of the energy-to-moment parameter Θ

EA Okal, \underline{N} Saloor - Geophysical Journal International, 2017 - academic.oup.com

The first since 1960: A large event in the

Valdivia segment of the Chilean Subduction

Zone, the 2016 M7. 6 Melinka earthquake

<u>D Melgar, S Riquelme, X Xu</u>, JC Baez, J Geng... - Earth and Planetary ..., 2017 - Elsevier

... There is no indication in the Chilean Seismological Center's historical catalog (http://www.sismologia.cl/) or in **ISC**-**GEM** catalog that spans 1900–2013 (Storchak et al., 2013) of significant events on this portion of the megathrust ...

To which level did the 2010 M 8.8 Maule

earthquake fill the pre-existing seismic

gap?

L Wang, <u>S Hainzl</u>, <u>PM Mai</u> - Geophysical Journal International, 2017 - academic.oup.com

Abstract. There is a long-standing debate whether or not the 2010 M 8.8 Maule earthquake filled a pre-existing seismic gap in which no large earthquake occurre.

On the source of the 8 May 1939 Azores

earthquake-tsunami observations and

numerical modelling

C Reis, R Omira, <u>L Matias</u>... - ... , Natural Hazards and Risk, 2017 - Taylor & Francis

Dependence of the brittle ductile transition

on strain-rate-dependent critical

homologous temperature

PM Davis - Geophysical Journal International, 2017 - academic.oup.com

Alternative representation of the

Gutenberg-Richter relation in terms of the

logarithmic mean annual seismicity rate

and its standard deviation

WY Chang, KP Chen, YB Tsai - Natural Hazards, 2017 - Springer ... (2010) used the G–R relation to determine the magnitude of completeness (Mc) of the southern California earthquake catalog over different periods from 1932 to 2008. Michael (2014) recently used it to check the completeness of the **ISC-GEM** global earthquake

Testing stress shadowing effects at the

South American subduction zone

F Roth, T Dahm, <u>S Hainzl</u> - Geophysical Journal International, 2017 - academic.oup.com

Summary. The seismic gap hypothesis assumes that a characteristic earthquake is followed by a long period with a reduced occurrence probability for the next la.

Geophysical risk: volcanic activity

S Loughlin, S Barsotti, <u>C Bonadonna</u>, E Calder - 2017 - archiveouverte.unige.ch

Page 1. Book Chapter Reference Geophysical risk: volcanic activity LOUGHLIN, Susan, et al. LOUGHLIN, Susan, et al. Geophysical risk: volcanic activity. In: Poljanšek, K., Marín Ferrer, M., De Groeve, T., Clark, I. Science for ...

Amenaza y riesgo sísmico del Cono Sur

OD Cardona, GA Bernal, D Zuloaga... - REDER, 2017 - revistareder.com

... Enseguida, se ensambla un catálogo sismológico apropiado para así determinar la actividad sísmica de cada una de las fuentes. Para esto se usaron los catálogos del USGS-NEIC (USGS, 2013) y del **ISC-GEM** (Storchak et al., 2013) ...

Seismic reconnaissance and observed

damage after the Mw 6.8, 24 August 2016

Chauk (Central Myanmar) earthquake

S Htwe Zaw, <u>T Ornthammarath</u>... - Journal of Earthquake ..., 2017 - Taylor & Francis

... al. 2013 Storchak, DA, D. Di Giacomo, I. Bondár, ER Engdahl, J. Harris, WHK Lee, A. Villaseñor and P. Bormann [2013]. Public Release of the **ISC-GEM** Global Instrumental Earthquake Catalogue (1900-2009). Seism. Res.

Fault creep rates of the Chaman fault

(Afghanistan and Pakistan) inferred from

InSAR

<u>WD Barnhart</u> - Journal of Geophysical Research: Solid Earth, 2017 - Wiley Online Library

... Reported locations of significant earthquakes near the Chaman fault and the years that they happened are shown as white stars [Ambraseys and Bilham, 2003]. The white dots are instrumentally recorded earthquakes in the **ISC GEM** catalog [Storchak et al., 2013] ...

Seismotectonics of Bhutan: Evidence for

segmentation of the Eastern Himalayas and

link to foreland deformation

<u>T Diehl</u>, J Singer, <u>G Hetényi</u>, <u>D Grujic</u>, <u>J Clinton</u>... - Earth and Planetary ..., 2017 - Elsevier

... 2012). Fig. 1 Fig. 1 Fig. 1. A: Digital elevation model of the Eastern Himalaya and foreland with seismicity from the **ISC-GEM** Catalog (1900–1973) (Storchak et al., 2013) and the NEIC/USGS bulletin (1973–2015). Global Centroid ...

Assessing long-term stability of the

geological environment

<u>KJ Clark</u>, KR Berryman - Geological Repository Systems for Safe Disposal ..., 2017 - Elsevier

The future stability of the Earth's crust is a critical factor in the siteselection process forgeological repositories of hazardous radioactive waste. The cha.

Effectiveness of Rubber Isolators for the

Seismic Retrofitting of a Peruvian Highway

Concrete Bridge

<u>A Tafur</u>, T Swailes - researchgate.net

Page 1. Effectiveness of Rubber Isolators for the Seismic Retrofitting of a Peruvian Highway Concrete Bridge Anibal Tafur1*, Thomas Swailes2 1* Department of Civil Engineering, Pontifical Catholic University of Peru, Peru

Assessment of teleseismically-determined

source parameters for the April 25, 2015

MW 7.9 Gorkha, Nepal earthquake and the

May 12, 2015 MW 7.2 aftershock

<u>T Lay, L Ye, KD Koper</u>, H Kanamori - Tectonophysics, 2017 - Elsevier

... Hough, 2015). The rupture did not reach to the surface (eg, Angster et al., 2015), unlike the adjacent 1255 and 1934 (M S 8.0 **ISC-GEM**, Storchak et al., 2013) Bihar-Nepal ruptures (Fig. 1; Bollinger et al., 2014).

Tsunami hazard in La Réunion Island (SW

Indian Ocean): Scenario-based numerical

modelling on vulnerable coastal sites

<u>S Allgeyer</u>, É Quentel, H Hébert, A Gailler... - Pure and Applied ..., 2017 - Springer

unal.edu.co

Estimación de la amenaza sísmica

causada por el proceso de subducción y su

impacto sobre los asentamientos humanos

para la región de América ...

M Triviño Abella - Universidad Nacional de Colombia ...

Preliminary observations from the 3

January 2017, MW 5.6 Manu, Tripura

(India) earthquake

J Debbarma, <u>SS Martin</u>, G Suresh, <u>A Ahsan</u>... - Journal of Asian Earth ..., 2017 - Elsevier

БЪЛГАРСКА АКАДЕМИЯ НА НАУКИТЕ

НАЦИОНАЛЕН ИНСТИТУТ ПО

ГЕОФИЗИКА, ГЕОДЕЗИЯ И ГЕОГРАФИЯ

МЛ Попова - niggg.bas.bg

Раде 1. БЪЛГАРСКА АКА́ДЕМИЯ НА НАУКИТЕ НАЦИОНАЛЕН ИНСТИТУТ ПО ГЕОФИЗИКА, ГЕОДЕЗИЯ И ГЕОГРАФИЯ Мария Любомирова Попова Магнитудни оценки на съвременна

и историческа сеизмичност за България и околните земи АВТОРЕФЕРАТ ...

GNS Science, Lower Hutt, New Zealand

<u>KJ Clark</u>, KR Berryman - ... Repository Systems for Safe Disposal of ..., 2017 - books.google.com

... 08.58. 07.57. 06.56. 05.5 Mw 90 E 100 E 110 E 120 E 130 E 0 20 40 60 80 100 Earthquake depth (km) Figure 8.4 An extract from the **ISC-GEM** catalog showing the refined distribution of past earthquake locations in southeast Asia (http://www. globalquakemodel ...

2017年西藏米林 6.9级地震震源参数

及其构造意义

白玲, 李国辉, 宋博文-地球物理学报, 2017-

html.rhhz.net

... DOI:10.1016/0031-9201(74)90056-9. Bondár I, Engdahl ER, Villaseñor A, et al. 2015. **ISC-GEM**:Global Instrumental Earthquake Catalogue (1900-2009), II. Location and seismicity patterns. Phys. Earth Planetary Interior, 239: 2-13. DOI:10.1016/j.pepi.2014.06.002 ...

The topography of a continental indenter:

The interplay between crustal deformation,

erosion, and base level changes in the

eastern Southern Alps

<u>J Robl</u>, <u>B Heberer</u>, <u>G Prasicek</u>... - Journal of ..., 2017 - Wiley Online Library

100 Years of earthquakes in the Pamir

region as recorded in juniper wood: A case

study of Tajikistan P Owczarek, <u>M Opała-Owczarek</u>, <u>O Rahmonov</u>... - Journal of Asian Earth ..., 2017 - Elsevier

The 2015 Mw7. 2 Sarez Strike-Slip

Earthquake in the Pamir Interior: Response

to the Underthrusting of India's Western

Promontory

<u>S Metzger, B Schurr, L Ratschbacher</u>, H Sudhaus... - ..., 2017 - Wiley Online Library

The effect of uncertainty in predictor

variables on the estimation of ground-

motion prediction equations

NM Kuehn, NA Abrahamson - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

Extension rates across the northern Shanxi

Grabens, China, from Quaternary geology,

seismicity and geodesy TA Middleton, <u>JR Elliott</u>, <u>EJ Rhodes</u>... - Geophysical Journal ..., 2017 - academic.oup.com

Seismotectonics of the 6 February 2012Mw

6.7 Negros Earthquake, central Philippines

MA Aurelio, JDB Dianala, KJL Taguibao… - Journal of Asian Earth …, 2017 - Elsevier

At 03:49 UTC on the 6th of February 2012, Negros Island in the Visayan region of central Philippines was struck by a magnitude Mw 6.7 earthquake causing

deaths.

Evaluating spatial and temporal relations between an earthquake cluster near Entiat, central Washington, and the large

December 1872 Entiat earthquake

TM Brocher, RJ Blakely... - Bulletin of the ..., 2017 - pubs.geoscienceworld.org

Economic and Human Loss Empirical

Models for Earthquakes in the

Mediterranean Region, with Particular

Focus on Algeria

<u>A Guettiche</u>, <u>P Guéguen</u>, <u>M Mimoune</u> - International Journal of Disaster ..., 2017 - Springer

In this study, loss estimation models were developed for reasonably accurate assessment of economic and human losses from seismic events in the Mediterranean region, based on damage assessment at an u.

Prediction of the area affected by

earthquake-induced landsliding based on

seismological parameters

<u>M Odin, P Meunier, N Hovius</u> - Natural Hazards and Earth ..., 2017 - search.proquest.com

Prediction of the area affected by earthquake-induced landsliding based on

seismological parameters. Abstract. We present an analytical, seismologically consistent expression for the surface area of the region within which most ...

Ground-motion characterization for the

probabilistic **seismic** hazard assessment in

Turkey

<u>S Akkar</u>, <u>Ö Kale</u>, A Yakut, U Çeken - Bulletin of Earthquake Engineering, 2017 - Springer

... the **EHB**3 catalog as the main source of depth information whereas the EMME_SMdb uses **EHB** only for large events. Finally, the large difference in hypocentral depth between the two databases can stem from the complications in depth calculations. **Seismic** network coverage ...

What controls intermediate depth seismicity

in subduction zones?

MA Florez, GA Prieto - AGU Fall Meeting Abstracts, 2017 - adsabs.harvard.edu

... seismicity along the subducting slab, known as Double **Seismic** Zones (DSZ). Precise double difference relocations in Tohoku, Japan and northern Chile confirm this pattern with striking accuracy. Furthermore, past studies have used statistical tests on the **EHB** global seismicity ...

Development of new seismic hazard maps

of Indonesia 2017

<u>M Irsyam</u>, DH Natawijaya, <u>MR Daryono, S Widiyantoro...</u> issmge.org

... 3 .1 Updating the historical earthquake data **Seismic** hazard assessment requires as complete as possible of a historical earthquake data in or ... compiled from several sources as follows: The Preliminary Determination of Epicenters (PDE) from 1901 to 2014, the **EHB** catalog

Fault mechanics and post-

<u>seismic deformation at Bam, SE Iran</u> <u>S Wimpenny, A Copley</u>, T Ingleby - Geophysical Journal ..., 2017 academic.oup.com

NEAR-FIELD SEISMIC LOCALIZATION

<u>USING DELTA T MAPPING</u> SHI Peng-Cheng, W Yuan... - Chinese Journal of ..., 2017 - Wiley Online Library

... Conventional locating methods utilize **seismic** signals and seek results by finding the minimum of target functions ... abroad come up with numerous algorithms, for instance, joint inversion method (Crosson, 1976), principle events method (Spence, 1980), **EHB** method (Engdahl ...

Seismic imaging of slab metamorphism

and genesis of intermediate-depth intraslab

earthquakes A Hasegawa, <u>J Nakajima</u> - Progress in Earth and Planetary Science, 2017 - Springer

... Using hypocenter data from the **EHB** catalog (Engdahl et al. 1998; Engdahl and Villaseñor, 2002), they verified the presence of the double **seismic** zone by investigating whether two peaks appear

in the frequency distribution of intermediate-depth intraslab earthquakes with ...

Support for equatorial anisotropy of Earth's inner-inner core

from seismic interferometry at low latitudes

T Wang, <u>X Song</u> - Physics of the Earth and Planetary Interiors, 2017 - Elsevier

... Support for equatorial anisotropy of Earth's inner-inner core from **seismic** interferometry at low latitudes ... Therefore, it is meaningful to explore **seismic** structure of the inner core to understand the evolution process and the magnetic field of our planet ...

Synthetic Catalogue Simulation in Low-Seismicity Regions and Few Instrumental

Records in Central Iran Based on Monte

Carlo Method

F Moradpouri, N Fathianpour, R Ghaedrahmati... - Iranian Journal of ..., 2017 - Springer

... Table 1 Instrumental earthquake records available for the region of Naein **seismic** gap zone (http://www.iiees.ac.ir) Date Lat N Lon E Mag Kind Depth (km) Reference Region ...1969/11/11 33.39 54.95 5 mb 25 **EHB** North-East of Ardakan, Yazd Province ...

Estimation of Source Parameters of Historical Major Earthquakes from 1900 to

1970 around Asia and Analysis of Their

Uncertainties

J Han, S Zhou - AGU Fall Meeting Abstracts, 2017 - adsabs.harvard.edu

... Earthquake catalogue on the bases of modern **seismic** network recordings has been established since around 1970 in Asia and the ... historical major earthquakes (M>=7.0) in Asia based on the Shide Circulars, International Seismological Summary and **EHB** Bulletin instrumental ...

Pattern recognition of seismogenic nodes using Kohonen self-organizing map: example in west and south west of Alborz

region in Iran

M Allamehzadeh, S Durudi, L Mahshadnia - Earthquake Science, 2017 - Springer

... By considering historical and instrumental earthquake catalogs with clear magnitudes, high-risk**seismic** nodes identified. Our used inputs in SOFM were longitude and latitude of recorded earthquakes greater than 4.5 magnitude (Table 1). Table 1 ... 15. M L :5.4. **EHB**. 1983-03-25 ...

The lateral variation of Pn velocity gradient

under Eurasia

X Yang - Journal of Geophysical Research: Solid Earth, 2017 - Wiley Online Library

... As is expected, path densities are high in seismically active regions, such as the Tethys collisionbelt [Myers et al., 2010], western Pacific Rim, and central China, where more **seismic** stationsare also deployed. The path density is extremely high (> 10000) in southern Europe ...

Analysis of the seismicity in central Tibet

based on the SANDWICH network and its

tectonic implications G Zhu, <u>X Liang</u>, X Tian, <u>H Yang</u>, C Wu, Y Duan, W Li... -Tectonophysics, 2017 - Elsevier

... 2. Map of historical earthquake locations (from **EHB** Bulletin, 1961–2008) and historical focalmechanisms (GCMT solutions, 1976–2015) in central ... To investigate the tectonic features and seismogenic properties of the region, we have deployed a temporary **seismic** network, the ...

Geodesy and Geodynamics

J Olivar, S Nacif, L Fennell, A Folguera - 2017 - researchgate.net

... During the **seismic** experiment, the Principal Cordillera, south of 33 150S, only registered twoearthquakes. In all three datasets (NEIC, **EHB** and CHARSME), north of this latitude, the occurrence of little to no seismicity at all is counter balanced by a concentration at the ...

The nature of sub-slab slow velocity

anomalies beneath South America

<u>DE Portner</u>, <u>S Beck</u>, G Zandt... - Geophysical Research ..., 2017 - Wiley Online Library

... Sci. Lett., 239(1–2), 18–32, doi:10.1016/j.epsl.2005.08.003. Sandvol, E., and L. Brown (2007),SLIP - **Seismic** Lithospheric Imaging of the Puna Plateau, , doi:10.7914/SN/X6_2007 ... [2012] is shown as a magenta line. Earthquakes from the **EHB** catalog of Engdahl et al ...

Proto-South China Sea plate tectonics

using subducted slab constraints from

tomography

J Wu, J Suppe - Journal of Earth Science, 2017 - Springer

... (e) Colored dots showing the **seismic** stations used in MITP08 tomography-**EHB** catalog (Engdahl et al., 1998) in gold; other stations in red. The MITP08 tomography was augmented by the Chinese

seismographic network within East Asia (red dots within China in Fig. 1e) ...

Accurate relocation of seismicity along the North Aegean Trough and its relation to active tectonics KI Konstantinou - Tectonophysics, 2017 - Elsevier

... This is particularly true when the aim is to investigate hypocentral depth variations and their relationship with heat flow, which in turn influences the seismogenic layer thickness and the resulting **seismic** hazard ... **EHB** refers to the global relocation catalog of Engdahl et al. (1998) ...

Focal depths and mechanisms of shallow

earthquakes in the Himalayan-Tibetan

region

L Bai, G Li, <u>NG Khan</u>, J Zhao, <u>L Ding</u> - Gondwana Research, 2017 - Elsevier

... 3). The catalog from China Earthquake Network Center (CENC) relies on arrival times of regional **seismic** network which provides a good constraint ... The **EHB** catalog provides the best depth estimates based on various teleseismic arrival times for earthquakes up to the end of ...

RECEIVER FUNCTION METHOD

DETAILS BT Bishop, <u>SL Beck</u>, G Zandt, L Wagner, M Long... researchgate.net

... depth to slab seismicity could be determined from the hypocenters reported by Kumar et al. (2016) and the **EHB** hypocenters plotted in Dougherty and Clayton (2015) (**EHB** hypocenters ... Chulick, GS, Detweiler, S., and Mooney, WD, 2013, **Seismic** structure of the crust and ...

Lithospheric foundering and underthrusting

imaged beneath Tibet

<u>M Chen</u>, F Niu, <u>J Tromp</u>, <u>A Lenardic</u>, <u>CTA Lee</u>... - Nature ..., 2017 - nature.com

 \dots 4c,f). Except along profile B, one earthquake at a depth of 140 km located by the **EHB** catalogue 35 (event ID: 12477266) occurs in the vicinity of the interpreted IL upper interface (Fig. 4c) ... Figure

6 The interpretation is based on the **seismic** image along profile C (Fig ...

On the problem of destructive Iranian

earthquakes and their causative faults M Jalali, H Ramazi - Natural Hazards, 2017 - Springer

... As mentioned in this paper, these faults are likely to be in high **seismic** regions with potential for large-magnitude events as they are long, deep and bound sectors of the margins characterized by different deformation and coupling rates on the plate interface. Keywords ...

Trench motion-controlled slab morphology

and stress variations: Implications for the

isolated 2015 Bonin Islands deep

<u>earthquake</u>

 \underline{T} Yang, \underline{M} Gurnis, \underline{Z} Zhan - Geophysical Research Letters, 2017 - Wiley Online Library

... known Benioff zones, although in tomographic images, they may lie within high **seismic**-velocity regions [Engdahl et al., 1995] ... subduction zone. The profile locations are plotted in (a). Gray circles represent deep earthquakes from the **EHB** catalogue [Engdahl et al., 1998] ...

Lithospheric structure of the Eastern Iranian plateau from integrated geophysical modeling: A transect from Makran to the Turan platform

V Entezar-Saadat, SH Motavalli-Anbaran... - Journal of Asian Earth ..., 2017 - Elsevier

... The red stars are the earthquakes from **EHB** catalogue (Engdahl et al., 1998) with depth > 40km and Magnitude \geq 5. Figure (f) shows a blow ... the numbers in Table 2. Each colored dashed line and symbols in figures (e) and (f) indicate Moho depths from different **seismic** and non ...

Velocity variations and uncertainty from transdimensional *P*-wave tomography of

North America

<u>S Burdick</u>, <u>V Lekić</u> - Geophysical Journal International, 2017 - academic.oup.com

... search input. Advanced Search. Summary. High-resolution models of **seismic** velocity variations constructed using body-

wave tomography inform the study of the origin, fate and thermochemical state of mantle domains. In order ...

A Scire, G Zandt, <u>S Beck, M Long</u>... - Geosphere, 2017 - pubs.geoscienceworld.org

КОМПЬЮТЕРНАЯ СИСТЕМА ДЛЯ ГЕОДИНАМИЧЕСКОГО АНАЛИЗА ДАННЫХ О ПРИРОДНЫХ КАТАСТРОФАХ ЗЕМЛИ АВ Михеева - Марчуковские научные чтения-2017, 2017

InSAR and GPS measurements of crustal deformation due to seasonal loading of Tehri reservoir in Garhwal Himalaya, India <u>VK Gahalaut, RK Yadav, KM Sreejith</u>... - Geophysical Journal ..., 2017 - academic.oup.com

Seismological constraints on the down-dip

shape of normal faults

K Reynolds, <u>A Copley</u> - Geophysical Journal International, 2017 - academic.oup.com

... Events need to be large enough (Mw 5.5) that the **seismic** contributions from different parts of the rupture plane are distinct and separate in space ... Hypocentre locations and times were retrieved from the ISC; location data for events occurring prior to 2009 is from the **EHB** bulletin ...

利用到时差分布图方法进行近场地

表震源定位

史鹏程, 王元, 游庆瑜-地球物理学报, 2017-

html.rhhz.net

... 处理以及优化方法上(田玥和陈晓非, 2002).面对复杂的

波速环境,国内外许多学者提出了不同的

定位算法,例如: 联合反演法(Crosson, 1976), 主事件定

位法(Spence, 1980), EHB法(Engdahl et al., 1998), 单纯形

 ${\rm k:}$... 2 (a) **Seismic** sensor of type QS-05A; (b) The scene in the experiment ...

Geodynamics and Seismology

A Alizadeh, <u>FA Kadirov</u>, S Mammadov, <u>M Floyd</u>... - Geosciences of ..., 2017 - Springer

... A second branch (or branches) may extend directly to the Caspian Sea south of Baku, likely connecting to the Central Caspian **Seismic** Zone (CCSZ) ... Tectonic overview of the Arabia–Eurasia Collision Zone. Yellow dots are earthquakes from the **EHB** catalog (Engdahl et al ...

Seismotectonic perspectives on the Himalayan arc and contiguous areas:

Inferences from past and recent

earthquakes

<u>K Rajendran</u>, <u>RM Parameswaran</u>, <u>CP Rajendran</u> - Earth-Science Reviews, 2017 - Elsevier