Regional Thresholds of the ISC Bulletin

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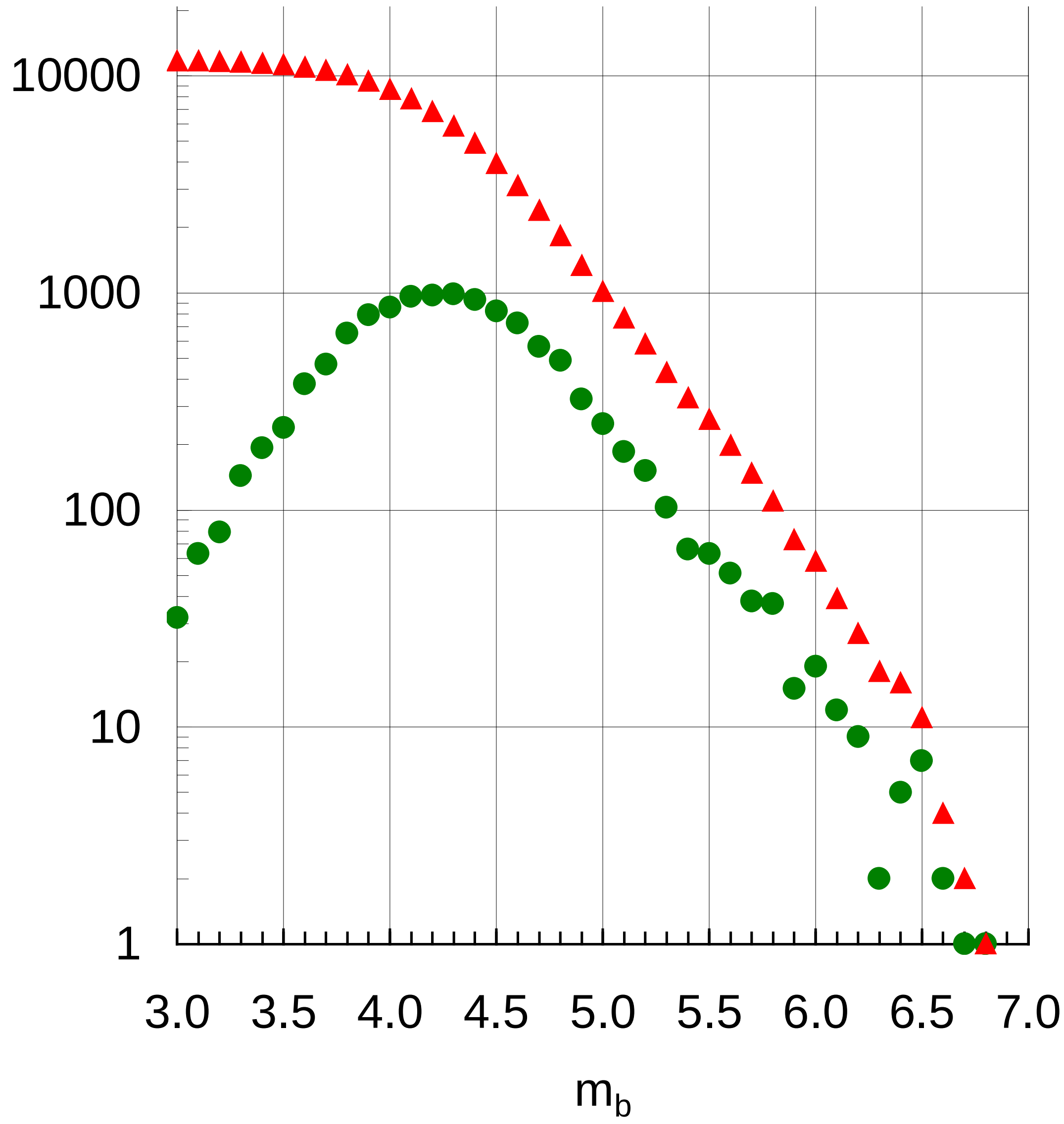
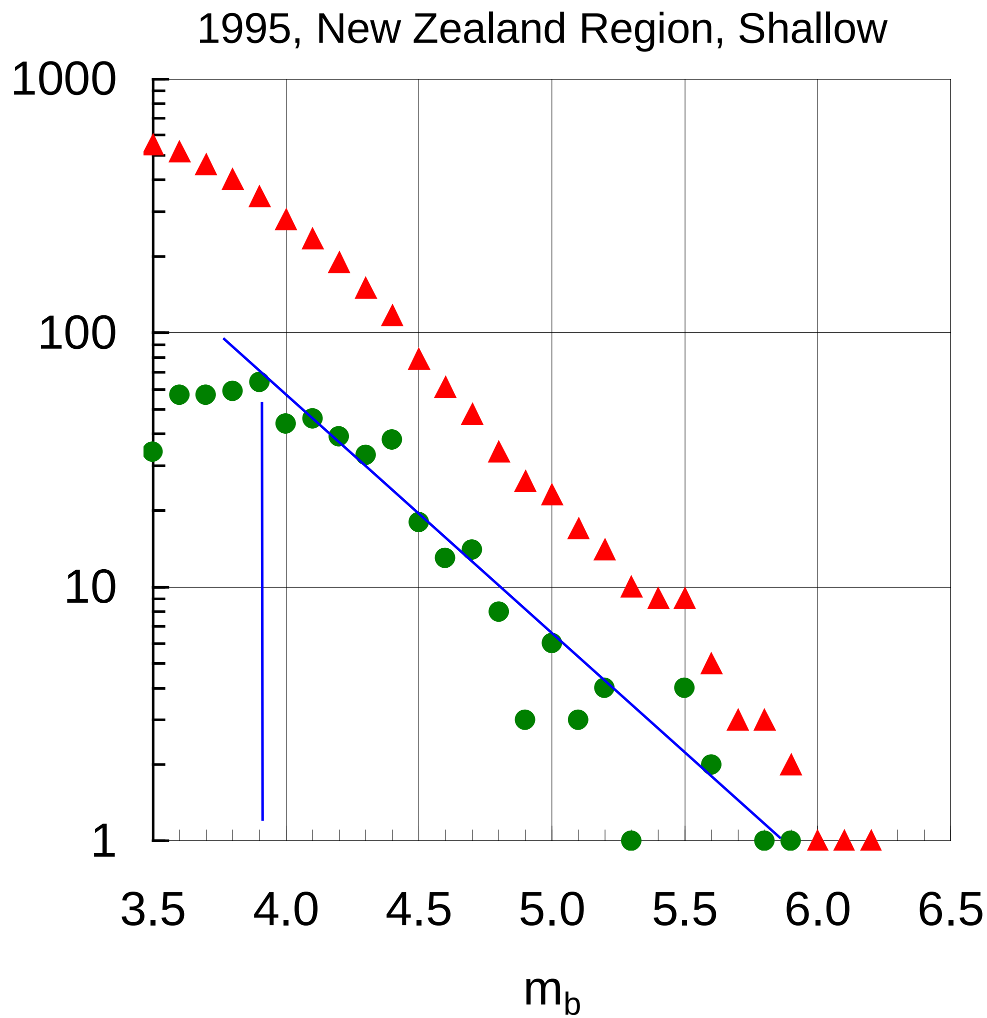
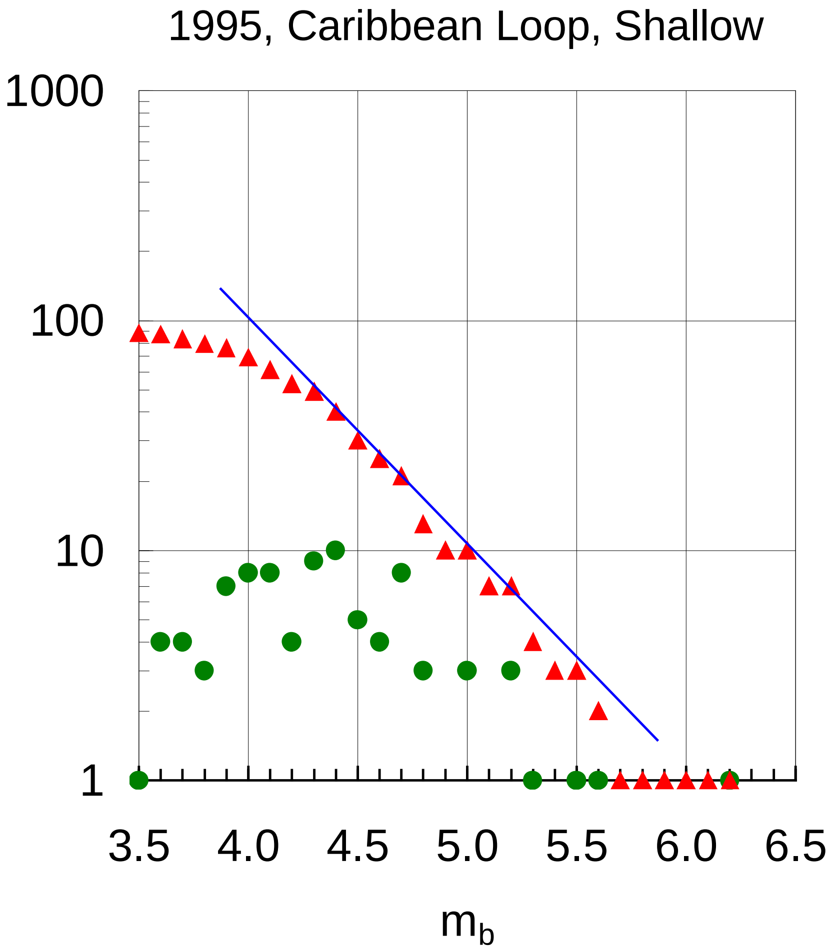
http://www.isc.ac.uk/magnitude

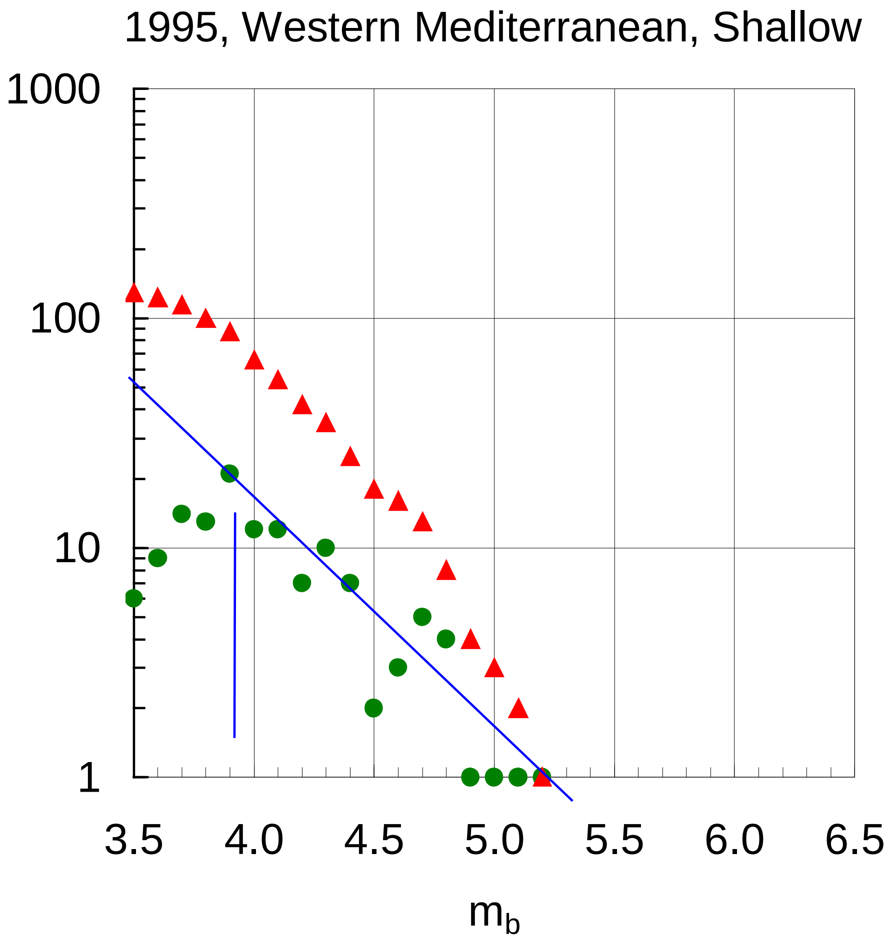


- For most regions, I estimated a lower bound on the m_b threshold as the maximum of the density distribution.



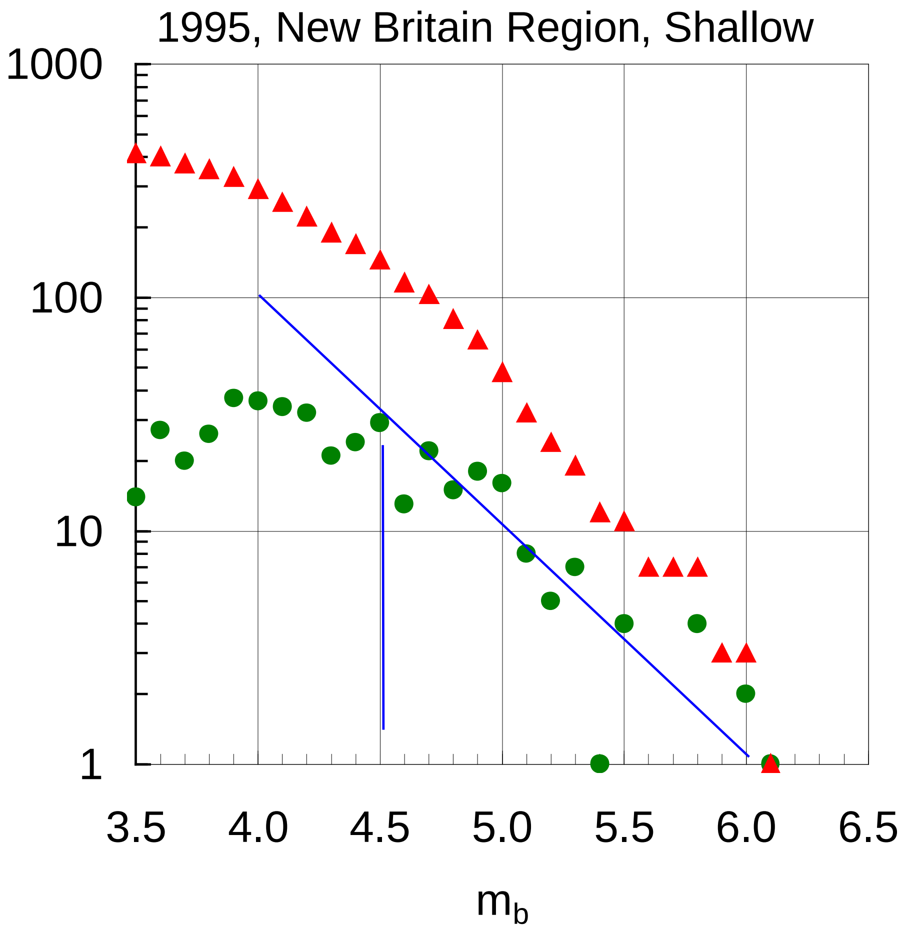
- I estimated the threshold in each seismic region where the 1995 ISC Bulletin includes more than 100 body wave magnitudes.
- Especially in regions where m_b is computed for a small fraction of earthquakes, this may not be a true completeness threshold.

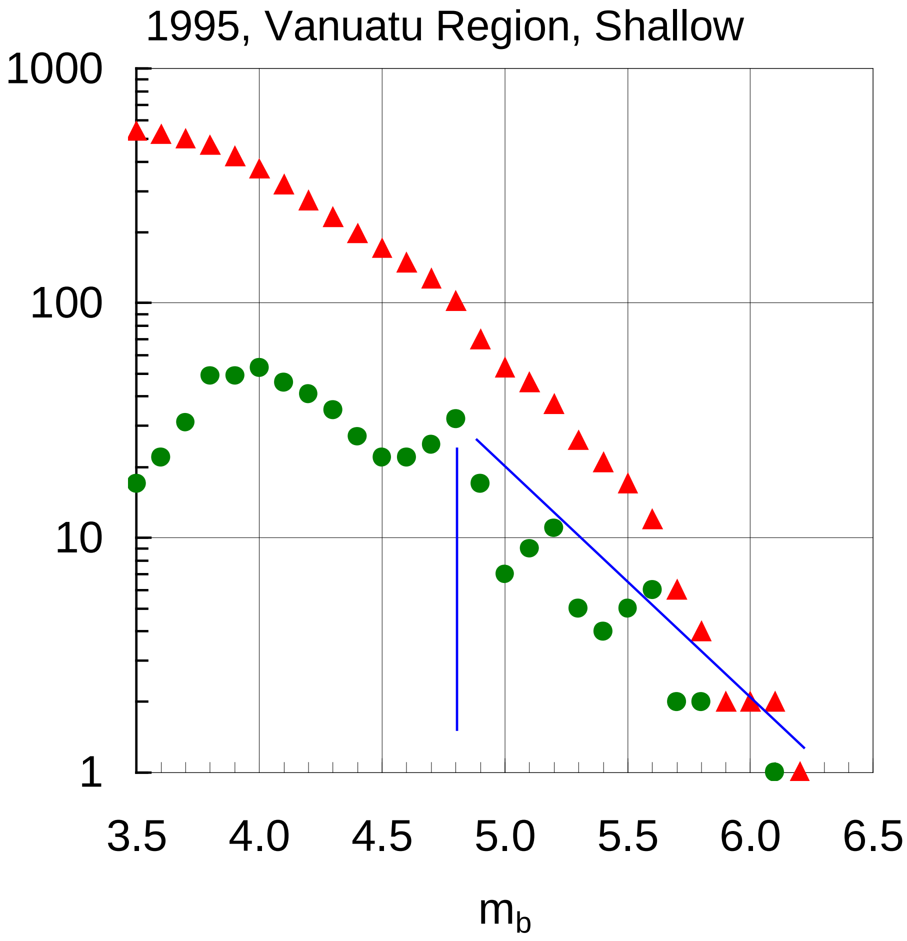




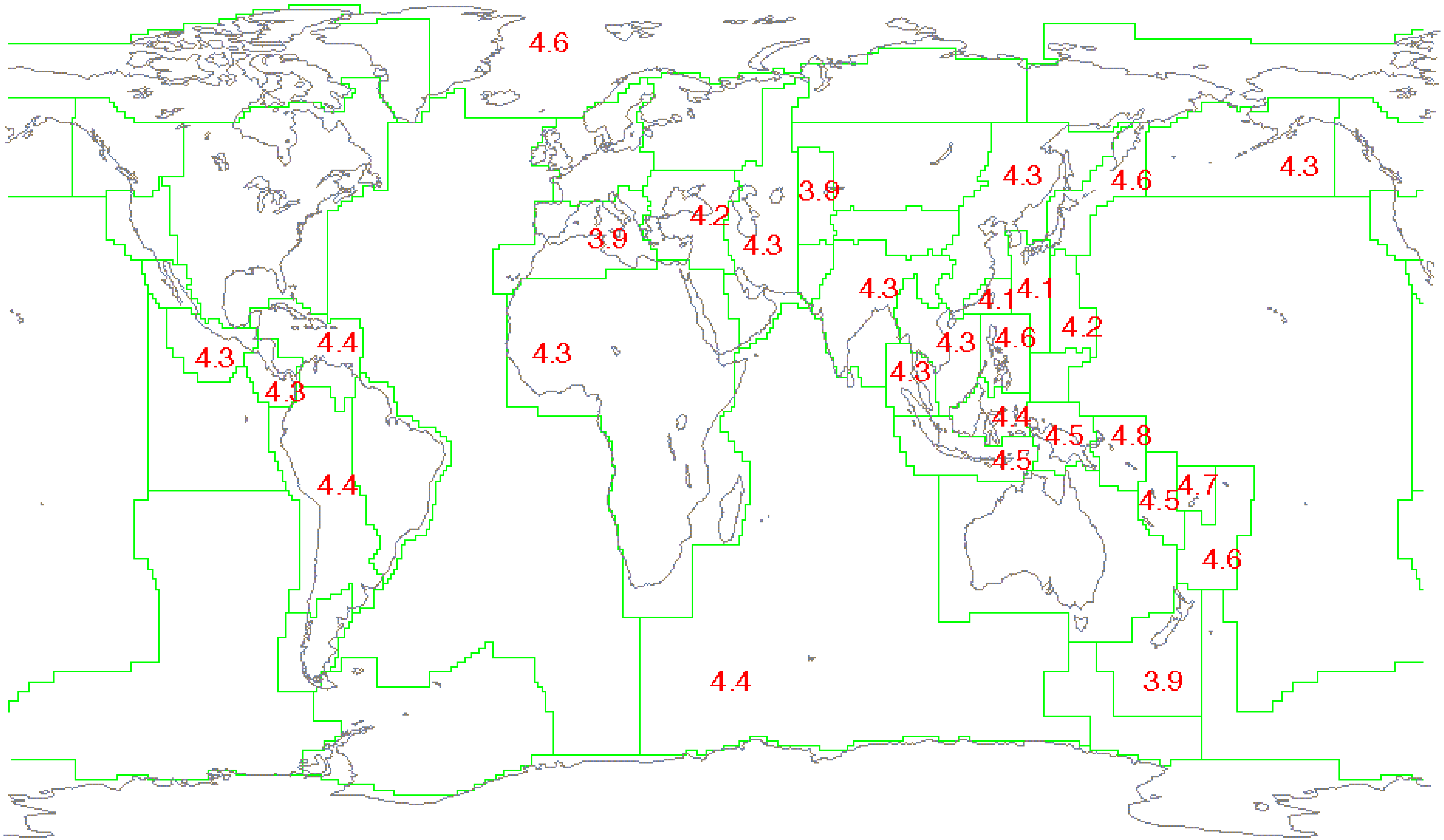
Some density distribution maxima occur far below a plausible lower bound on the completeness threshold. The reasons may include

- Slow roll-off of the density distribution
- Multiple earthquake populations?

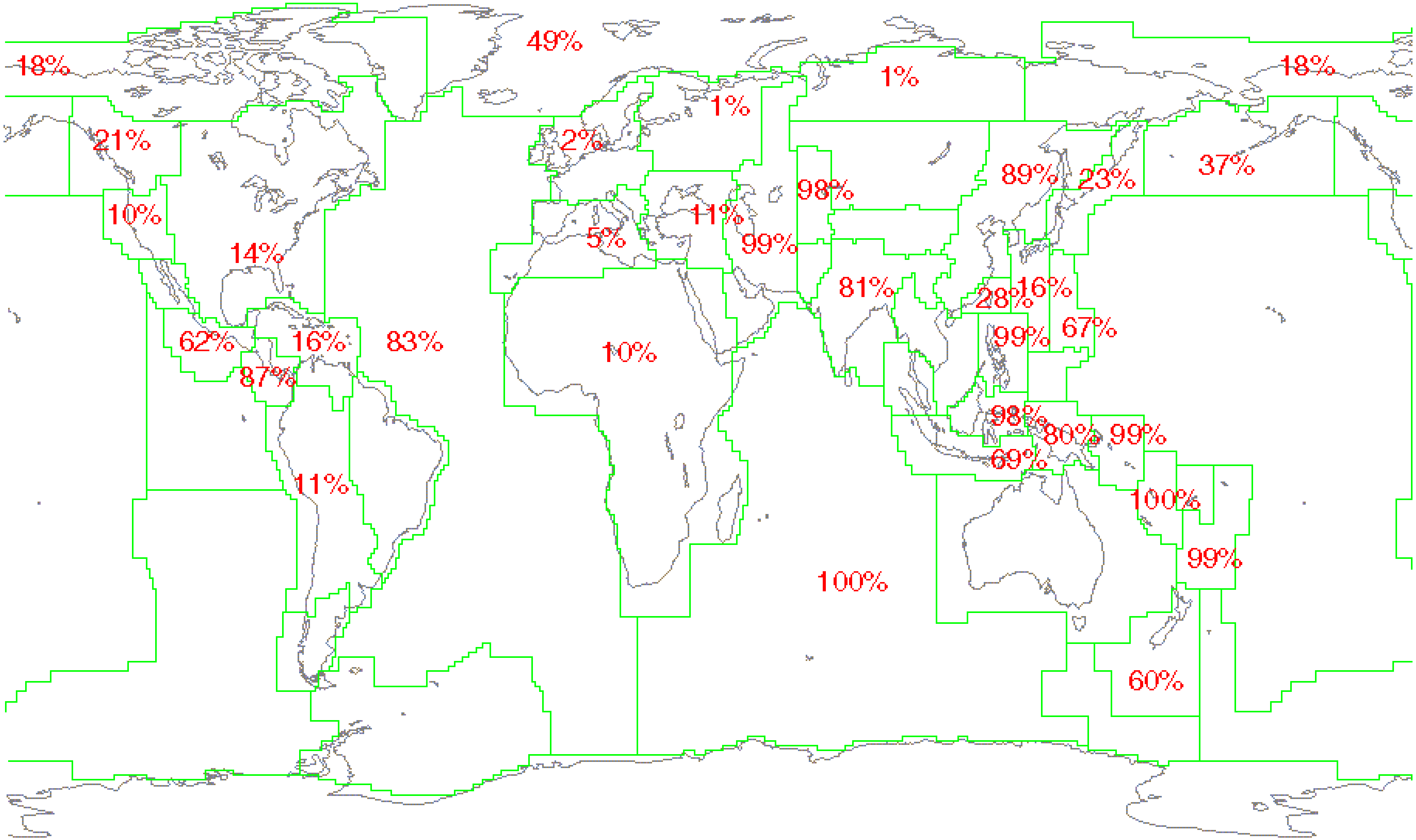




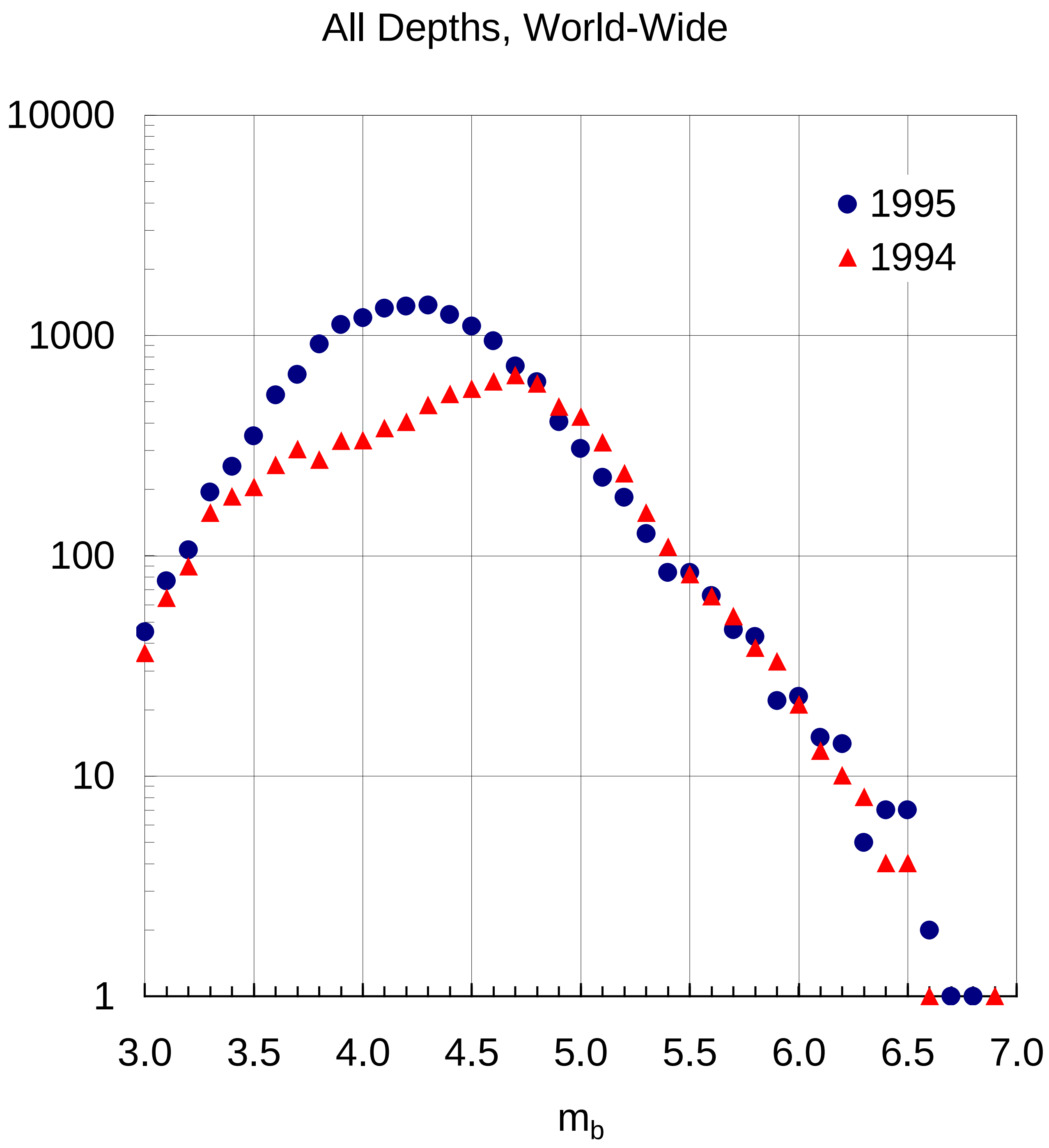
Thresholds are regionally variable, and surprisingly high in some places



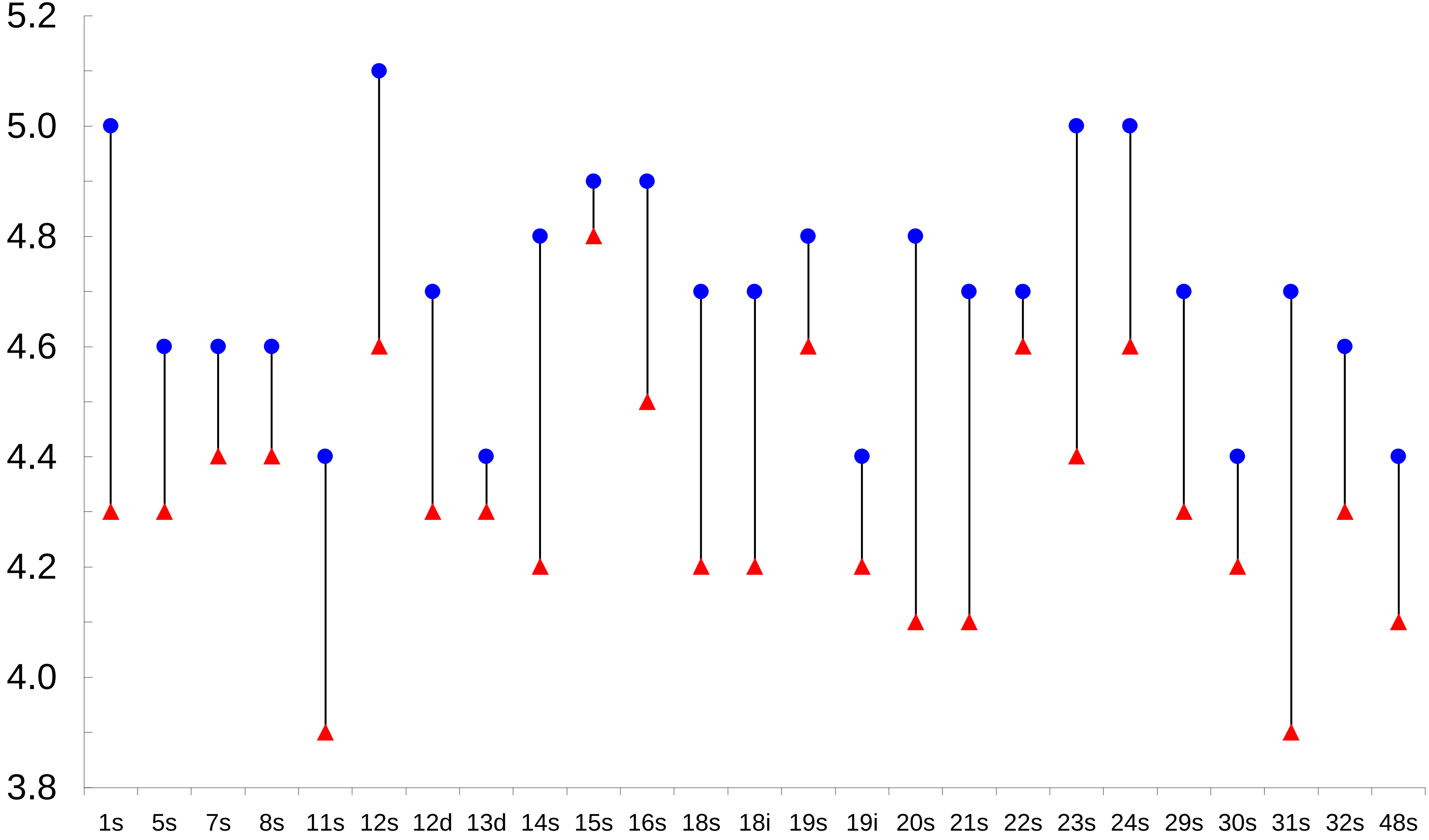
Body wave magnitude thresholds are high in many regions partly because no teleseismic amplitudes are reported to the ISC for many earthquakes.



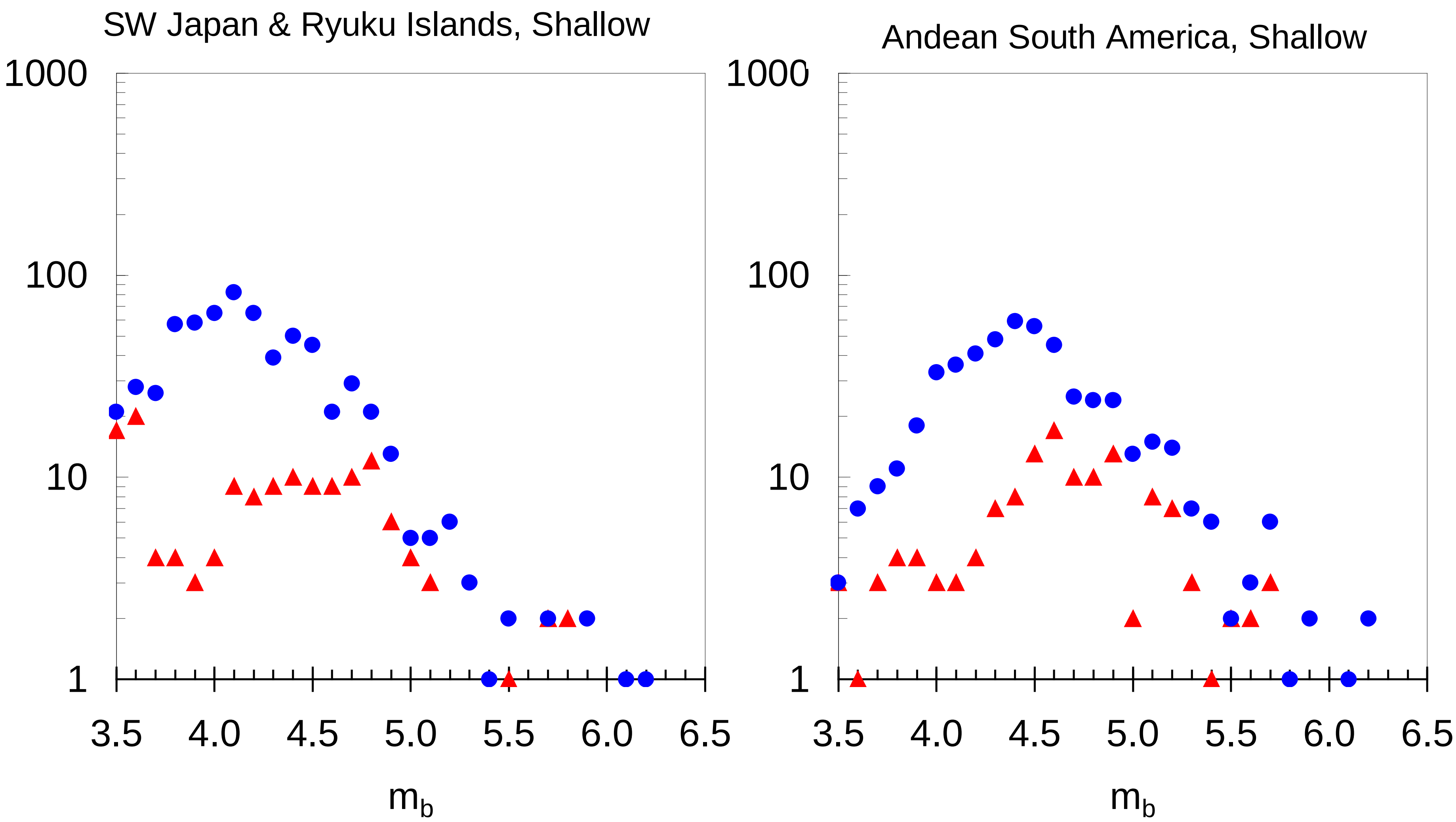
- Improvement in m_b threshold from 1994 to 1995 is shown dramatically in a comparison of global density distributions from the two years.
- Improvement can also be seen clearly in density distributions for individual seismic regions.



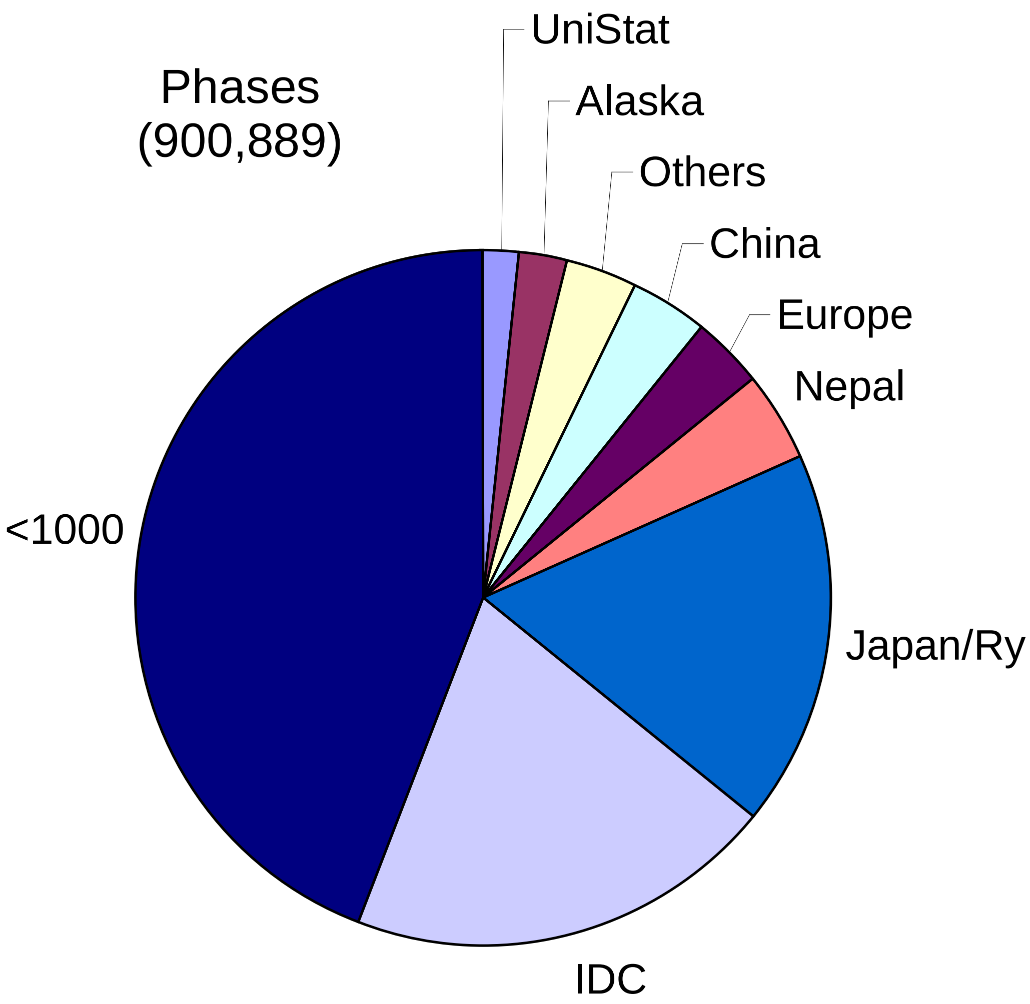
In regions with more than 100 body wave magnitudes in 1994,
thresholds improved by an average of more than 0.3 from 1994 to 1995

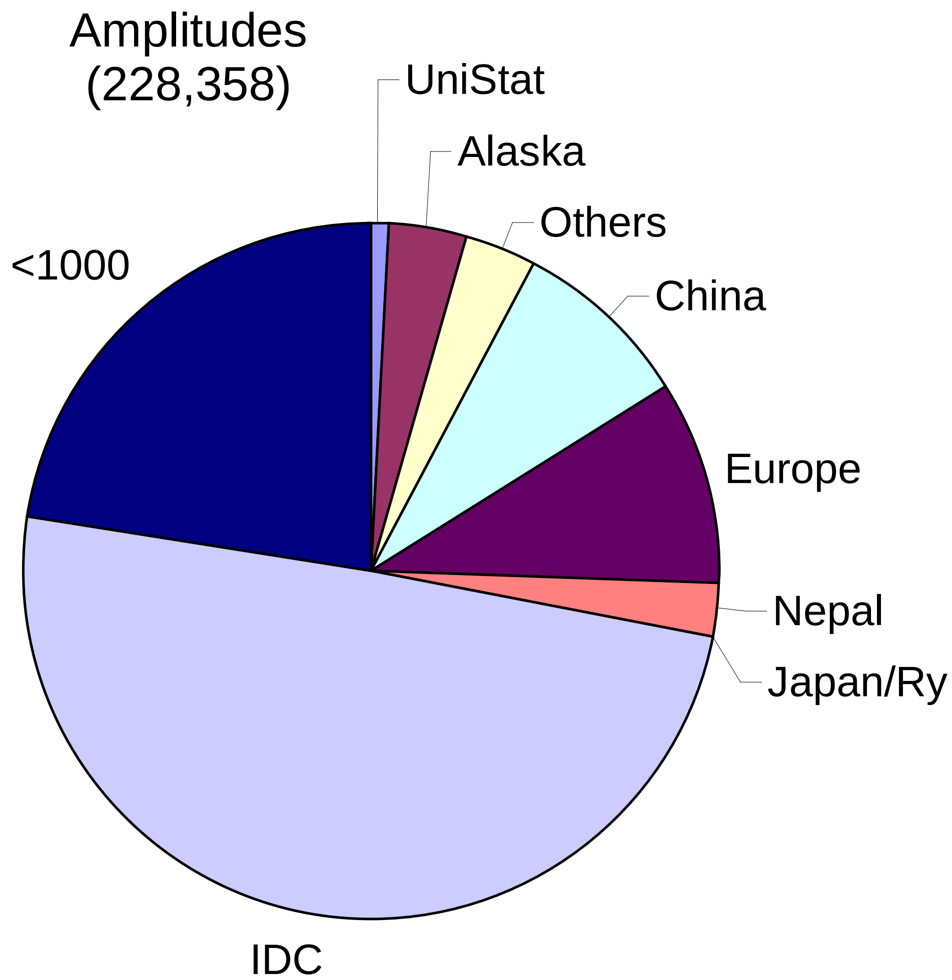


Direct comparison of 1994 and 1995 density distributions demonstrates improvement even where the change in the threshold is small.



- In the 1995 ISC Bulletin, nearly half of all initial-phase teleseismic <u>amplitudes</u> are from the GSETT-3 International Data Centre





Figures for all seismic regions can be viewed at http://www.isc.ac.uk/magnitudes

ISC body wave magnitude thresholds

- Are uncertain and regionally variable
- During 1995 generally > 4; and > 4.5 in some areas
- Substantially better in 1995 than 1994, probably due to GSETT-3
- Could be greatly improved if more stations reported amplitudes