

**PROGRESS REPORT 2007**  
**IASPEI Commission on Seismological Observation and**  
**Interpretation (CoSOI)**  
**Working Group (WG) on Magnitudes**

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## BACKGROUND

- At the 2005 IASPEI meeting in Santiago, Chile, the Magnitude WG proposed standard procedures for  $ML$ , two types of  $MS$ ,  $mb$ ,  $mB$ ,  $mb(Lg)$ , and  $Mw$ .
- The procedures were adopted by the CoSOI at the 2005 meeting and are now called the IASPEI Standard Procedures for Magnitude Determination.

## IMPLEMENTATION OF THE STANDARD PROCEDURES: ACCOMPLISHMENTS SINCE 2005, AND WORK YET TO BE DONE

- **ACKNOWLEDGEMENT:** A significant part of the reported progress occurred as the result of work done outside of the framework of the Magnitude WG, sometimes by scientists who are not members of the Magnitude WG.

## Advertising the Standard Procedures for Magnitude Determination

- The International Seismological Centre (ISC) has notified the seismological community of its intent to implement the IASPEI Standard Procedures.
- Magnitude WG member Bormann and ISC director Avi Shapira made presentations at the 6th Asian Seismological Commission in Bangkok in 2006.
- Some research papers by WG members and their colleagues have explicitly cited the IASPEI Standard Procedures
- To be done -- Publication of a technical paper on the Standard Procedures
- To be done -- Broadcast announcement by the USGS/NEIC of its intent to calculate magnitudes by the Standard Procedures.

## Evaluating existing magnitude procedures in light of the IASPEI Standard Procedures

- Peter Bormann, Liu Ruifeng, and colleagues recently published a paper in the Bulletin of the Seismological Society of America (2007, “Chinese national network magnitudes, their relation to NEIC magnitudes, and recommendations for new IASPEI magnitude standards,” v. 97, p. 114-127).
- The ISC has invited contributing observatories to document their procedures. As of 22 June, 2007, the ISC web-site ([http://www.isc.ac.uk/magnitude/mag\\_info.html](http://www.isc.ac.uk/magnitude/mag_info.html)) listed five centers that have contributed information on how they measure amplitudes or determine magnitudes. These centers are those denoted by the standard abbreviations of CLL, INMG, ISK, WAR, and WEL.
- To be done – much more documentation and comparison of regional and national network magnitudes with IASPEI Standard Procedure magnitudes.

## *Adoption of IASPEI Standard Procedures by the USGS/NEIC, ISC, and IDC*

- The ISC has announced its intention to implement the IASPEI Standard Procedures and has developed standardized phase identifiers for contributed amplitudes that were measured with the IASPEI Standard Procedures.
- The USGS/NEIC is testing an automatic implementation of the IASPEI Standard Procedures.
- The USGS/NEIC and the Global Centroid Moment Tensor project have agreed to use the IASPEI Standard formula for  $M_w$ .
- To be done – The USGS/NEIC procedure has to be put into routine use
- Setback – The Working Group no longer has a member affiliated with the International Data Centre (IDC) of the United Nations Comprehensive Nuclear Test Ban Organization

## Compilation of sample data-sets and special study data-sets

- To be done – Compilation of sample sets of digital seismographic data that could be used by seismological centers to test their implementations of the IASPEI Standard Procedures.
- To be done – organization of international observational periods for collecting magnitude data.

## Future of the Magnitude WG -- Issues

- The Magnitude WG was not intended to be a permanent group.
- However, some of the remaining tasks of standardizing magnitudes are made much easier by the continued existence of an IASPEI Magnitude WG.
- The Magnitude WG recommends that the WG be continued.
- Perhaps an adjustment of membership would be desirable.