4th International Conference on Knowledge Science, Engineering & Management (KSEM 2010)

1-3 September 2010

Belfast, Northern Ireland, UK

Special Session on
Application of Data Mining to Seismic Data Analysis for Earthquake Study

Important Dates

Paper submission:	**30 March, 2010**
Author notification:	**15 May 2010**
Camera-ready submission:	**30 May 2010**

Strong earthquakes have been the largest menace to human lives since last century, especially being natural disasters to many countries with rapid development and concentrated populations, such as the Sumatra M9.0 Earthquake on December 26, 2004, the Wenchuan M8.0 Earthquake on May 12, 2008 and the latest Haiti M7.0 Earthquake on January 12, 2010. Many scientists in the world have been dedicating research on a variety of methods and techniques for reducing earthquake damages and predicting earthquakes. But the preparation of earthquakes is really a complex process, until now no one can explain its mechanism clearly.

With the quick development in observing technology, massive data about earthquakes has been obtained, including electromagnetic data, geochemical data, remote sensing data, GPS data, satellite data, of course the geological data, tectonic data and so on. Therefore large amount of data provides opportunities for researchers and domain experts to capture more information about earthquakes, but it also brings a big challenge to seismologists, that is how can they effectively distil anomalies or precursors that are really related to earthquake evolution and preparation.

Advances in data mining make it possible to combine all the data together and discover the internal connections and patterns within the different data sources by using the technologies of association analysis, clustering, classification, time-series pattern and deviation analysis. It also can help people find useful information for earthquake study, such as abnormal phenomena and seismic precursors, relations between anomalies and earthquakes, study the mechanism of earthquake preparation and occurrence, and finally provide consensus for final decisions.

The main aim of this special session is to establish a communicating platform for researchers and experts in the areas of earthquake science and intelligent data analysis, promote the development of data mining technology in earthquake science and foster

new collaborations in these two fields. We thus call for contributions on the following topics, but not limited by:

1. Methods and techniques for detecting concept drifting within sequential data that can be employed in earthquake research
2. Data fusion technologies for making use of multiple observing data sources for earthquake study
3. Effective methods for maintaining and accessing large seismic data archives
4. Intelligent data analysis methods for correlating seismic precursors to earthquakes
5. Intelligent systems for earthquake prediction
6. A broad spectrum of probabilistic or soft computing models for risk reduction that can be used to design effective mitigation strategies for communities

Paper Submission

Papers will go through the normal process of KSEM 2010 submission through the EasyChair on-line submission system, where the authors need to indicate the name of the session submitted to. The session organizer will handle the review process for each session paper. Session papers should have the same format as the regular papers and no more than 12 pages. All accepted special session papers will be published in the conference proceedings by Springer-Verlag in the Lecture Notes in Artificial Intelligence (LNAI) series. Please follow the instructions for KSEM 2010 paper submission at http://www.ulster.ac.uk/ksem2010/submission.php.

Special Session Organizer

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