



**HOKUDAN**  
**International Symposium**  
**on Active Faulting 2015**

12--17 January 2015

Awaji City, Awaji Island, Japan

The keys to mitigate risks from extreme earthquake hazards: “Remember Kobe.”

Introduction to the Hokudan International Symposium 2015 on Active Faulting

12th to 17th January 2015, Awaji City, Hyogo, Japan

The 2011 great Tohoku earthquake and tsunamis together with the accidents of the Fukushima Dai-ichi nuclear power plant have raised serious concern about very large plate boundary earthquakes and subsequent disasters. The society as well as the scientific communities, learning the limitation of our knowledge and imagination, is seeking the way to better prepare for the risks from unknown extreme events. The lessons from Tohoku are quite important for the severe natural hazards in general. We should imagine unimaginable and be prepared for extreme natural hazard.

Most people after Tohoku disaster worry about large earthquakes from subduction plate boundary for their magnitude and devastating tsunamis. However, extreme ground shaking derives mostly from the earthquakes under the ground we live on. And the ground shaking damages buildings and other structures, or induce liquefaction to kill people. Though the magnitude was only Mw 6.9, 1995 Great Hanshin-Awaji (Kobe) earthquake killed more than 6000 people and injured 20000. The 2011 Mw 9.0 Tohoku earthquake made far less damages by ground shaking. The very large number of casualties by the 2008 Wenchuan earthquake and the 2010 Haiti earthquake clearly indicates the importance to prepare for earthquakes under where we live.

The 1995 Great Hanshin-Awaji (Kobe) earthquake had given start to new programs in all earthquake related disciplines from traditional seismology to earthquake engineering and geology. The geological study of active faults for the purpose of understanding their seismic potential (recently defined as earthquake geology) is a relatively young discipline, mainly developed in the Western United States and Japan since 1970s.

The principal aims of this discipline are (i) describing the seismic source from its geologic and geomorphic signature, and (ii) extending back in time, up to thousands of years, the historical (rarely longer than 1000 years) and instrumental (less than 100 years long) catalogues of seismicity, by recognizing and characterizing earthquakes of the past in the geologic records.

Thus, earthquake geology allows us to observe several seismic cycles on the same fault. On one hand, this is a contribution to the understanding of the seismogenic processes and particularly of the recurrence of large earthquakes. On the other hand, it has a direct social impact because of its direct

applicability for seismic hazard assessment. The 1995 Great Hanshin-Awaji (Kobe) earthquake increased substantially our awareness of the need for active faulting studies in earthquake prone countries and it is following this lesson that we have organized the Hokudan International Symposium and on Active Faulting in 2000, 2005, 2010.

January 12 through 17, 2015, on the occasion of 20th anniversary of the 1995 Great Hanshin-Awaji (Kobe) earthquake, The Hokudan International Symposium will be held in Awaji Island where the source fault of the 1995 earthquake ruptured the surface and the fault is preserved as a natural monument. Just like the surface rupture is preserved, we need to remember the lessons from the 1995 Great Hanshin-Awaji (Kobe) earthquake and to develop our researches for better preparedness. The importance of earthquake geology has been more emphasized by the 2011 Tohoku earthquake.

The objective of the Hokudan International Symposium on Active Faulting 2015 is to present the latest results on active fault research in Japan and all over the world to international audience including the sufferers of Kobe earthquake, scientists, engineers, and practitioner from developing countries in Asia and Pacific regions. The hottest research topics will be reviewed for the strategy to mitigate hazard in better international and multidisciplinary cooperation. The strategy to benefit the community in large from active fault research will also be an important objective.

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