# Preface of Special Issue entitled
## "Field Study on Predicting Large Inland Earthquakes"

To clarify how large earthquakes are generated, we should closely observe changing signals associated with their preparatory processes underground. For the purpose of monitoring the preparatory processes of large earthquakes, various surveys and local observations were conducted under the project entitled "Field Study on Predicting Large Inland Earthquakes," sponsored by Earthquake Research Institute, University of Tokyo, which started in 1995 and ended in 2007. The main target areas are the Hakuba Village region around the northern Fossa Magna and the Niigata area, central Japan.

Affiliated organizations are Shinshu University, Toyama University, Tokyo Metropolitan University, Tokai University, Nagasaki University, Osaka University, and National Institute of Advanced Industrial Science and Technology.

The main results obtained from the project are as follows:

1) GPS observations disclosed preceding anomalous changes of strain in the crust about six months before the period of high seismic activity in the northern Fossa Magna region (Sumino *et al.* 2008: This issue).

2) Changes observed in ground water and underground gasses that may be related to seismicity.

3) Anomalous rectangular electric current signals were observed and detected as far away as throughout Nagano Prefecture. The estimated current source was located at around the epicenter of a M4.7 shock that occurred about one week after the anomaly.

4) LANDSAT infrared image disclosed the lineament of high ground temperatures in northern Niigata Prefecture. This is interpreted as pressurized hot water intruding up into near surface rocks from the deep crust, which is considered to be a precursor of high seismic activity including a severe shock of M 5.5 (Tsukuda *et al.*, 2005: Bull. Earthq. Res. Inst., Vol. 80, pp. 105–131).

This special issue is a collection of papers presenting some observational and theoretical results obtained through discussions among members of the group conducting the collaborative research project.

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