XXV INTERNATIONAL UNION OF GEODESY AND GEOPHYSICS (IUGG) GENERAL ASSEMBLY

International Association of Seismology and Physics of the Earth's Interior, IASPEI (SYMPOSIA: Grand Challenges in Natural Hazards Research and Risk Analysis: Earth on the Edge: SPECIAL SESSION – Recent Pacific Rim Disasters)

Why March 2011 Tohoki earthquake, such a catastrophic event has been missed?

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For Japanese seismologists, who have one of the best world seismological network,
was impossible to detect this earthquake's preparation processes on time.
It became clear considering, firstly, that this event has huge deformation zone which covers all of their observation systems and, secondly, the real physics of socalled "seismic gap" effect in pre-earthquake time. Our researches have shown that seismic processes do not die out during this period and that the earthquake source is not an isolated, self-regulated entity, but a part of an entire system, in constant energy exchange with its containing environment.
Its mechanism is acting as an energy pump, constantly absorbing energy from the medium, thereby increasing its intrinsic energy. The more energy is absorbed by the earthquake source and the less released to the ambient medium. While the level of stressed state of the medium increases in sources activation period the level of signals on earth surface permanently reducing which makes prediction impossible if network situated within deformation area.
But outside of deformation zone an uninterrupted increase of signals intensity is registered and such a catastrophic destructive event can be predicted using seismic data collected beyond it. For example, by analyzing variations of microseisms radiation intensities, frequencies and polarizations.
The importance of the Global System development became more evident after Japanese earthquake. Not only for the earthquake prediction problem approaching but for organizing global control of natural or artificial impacts on the environment

and providing international secure measures for atomic plants as well.