

Kickoff Events Held for “AI-DeTect,” an International Joint Research Project on AI-Based Monitoring and Anomaly Detection of Earthquake and Volcanic Activity (August 24–27, 2026)

Theme: AI-based detection of earthquake and volcanic activity, crustal deformation monitoring, and international joint research

Venues: International Research Institute of Disaster Science, Tohoku University, and Natori City Earthquake Disaster Reconstruction Museum

Kickoff events for “AI Science for Deformation Anomaly Detection to Support Forecasting and Early Warning of Volcanic Eruptions and Earthquakes” (AI-DeTect) were held primarily at IRIDeS from August 24 to 27, 2026. Led by Professor Yo Fukushima (Communication Science for Disaster Risk Reduction Lab), this international joint research project is supported by the Japan Science and Technology Agency (JST) under the e-ASIA Joint Research Program. Researchers from Japan, the Philippines, and Indonesia participated in a field visit, symposium, research planning workshop, and hands-on machine-learning training. They shared knowledge on monitoring earthquake and volcanic activity and developed joint research plans for the next two and a half years. The IRIDeS participants were Professor Fukushima, Assistant Professor Yutaro Okada (Uehiro Disaster Risk Reduction Research Division), and Research Fellow (Specially Appointed) Yağızalp Okur (Inland Earthquake and Volcano Lab).

On August 24, participants visited the Natori City Earthquake Disaster Reconstruction Museum. They learned about the damage caused by the 2011 Great East Japan Earthquake and Tsunami, the reconstruction process, the community today, and ongoing disaster risk reduction initiatives. The visit fostered a shared understanding of the impacts of major earthquake and tsunami disasters and reaffirmed the importance of connecting crustal deformation research with disaster risk awareness and practical risk reduction.

At the symposium on August 25, participants shared information on crustal deformation monitoring systems and research using geodetic data in Japan, the Philippines, and Indonesia, as well as on major earthquakes, volcanic eruptions, and future risks in each country. All participating project members also presented their expertise and previous research findings, helping to foster mutual understanding and deepen their knowledge of the research context in each country.

At the research planning workshop on August 26, researchers formed multinational groups for each target region. With future use in operational warnings and forecasts in mind, each group discussed research plans for using AI to detect crustal deformation anomalies associated with earthquake and volcanic activity. The workshop established a framework for combining observational data, research expertise, and local knowledge from the three countries and translating the project’s outcomes into improved data monitoring.

On the final day, participants received hands-on training in machine-learning fundamentals, focusing on deep neural networks and their implementation in Python. Participants including those with little prior experience learned the overall analysis workflow and the foundational skills needed to apply neural networks to their own crustal deformation data.

The series of events deepened mutual understanding of the observational and research strengths and data resources available in each country. It also established concrete research and communication frameworks for advancing international collaboration on AI-based anomaly detection of earthquake and volcanic activity.



Group photo at the kickoff symposium



Presentation during the kickoff symposium