IAG Scientific Assembly 2025:
Geodesy for a changing environment

Symposium J03: Geohazard Monitoring through Geodesy

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This joint symposium aims to explore the critical contributions of geodetic technologies in better understanding and monitoring natural hazards, ultimately improving risk mitigation efforts. As events such as surface deformation, volcanic unrest, seismic activity, and tsunamis impact a larger part of the world's population, the need for advanced observation, alerts, early-warning, and forecasting systems has never been more urgent. This interdisciplinary symposium will focus on how geodesy, with its precise measurement and data analysis techniques - such as GNSS, InSAR, satellite altimetry, gravity field modelling and atmospheric data analysis - contributes to early detection, real-time monitoring, and hazard forecasting. Key topics for presentation include:

- Monitoring volcanic deformation: Using geodetic tools to track ground deformation and forecast the trajectory of eruption or unrest.
- Seismic activity monitoring: Leveraging geodesy to quantify tectonic movements and accumulation of strain.
- Tsunami detection and early warning systems: Enhancing tsunami forecasting and coastal risk management with satellite and ground-based geodetic data.
- Data integration and modelling: Combining geodetic data with seismic, oceanographic, and atmospheric observations to improve hazard models and simulations.
- Applications for disaster risk reduction: Practical uses of geodetic information in public safety, urban planning, and emergency response.

The symposium will provide an opportunity to present the latest technological innovations, data integration strategies, and case studies from recent natural disasters, highlighting the growing importance of real-time data processing and multi-hazard monitoring systems.