



## **Implementation of a Global Navigation Satellite System (GNSS) Augmentation to Tsunami Early Warning Systems**

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The Global Geodetic Observing System has issued a Call for Participation to research scientists, geodetic research groups and national agencies in support of the implementation of the IUGG recommendation for a Global Navigation Satellite System (GNSS) Augmentation to Tsunami Early Warning Systems. The call seeks to establish a working group to be a catalyst and motivating force for the definition of requirements, identification of resources, and for the encouragement of international cooperation in the establishment, advancement, and utilization of GNSS for Tsunami Early Warning.

During the past fifteen years the populations of the Indo-Pacific region experienced a series of mega-thrust earthquakes followed by devastating tsunamis that claimed nearly 300,000 lives. The future resiliency of the region will depend upon improvements to infrastructure and emergency response that will require very significant investments from the Indo-Pacific economies. The estimation of earthquake moment magnitude, source mechanism and the distribution of crustal deformation are critical to rapid tsunami warning. Geodetic research groups have demonstrated the use of GNSS data to estimate earthquake moment magnitude, source mechanism and the distribution of crustal deformation sufficient for the accurate and timely prediction of tsunamis generated by mega-thrust earthquakes. GNSS data have also been used to measure the formation and propagation of tsunamis via ionospheric disturbances acoustically coupled to the propagating surface waves; thereby providing a new technique to track tsunami propagation across ocean basins, opening the way for improving tsunami propagation models, and providing accurate warning to communities in the far field. These two new advancements can deliver timely and accurate tsunami warnings to coastal communities in the near and far field of mega-thrust earthquakes. This presentation will present the justification for and the details of the GGOS Call for Participation.