First Ever Tsunami Satellite Data

Unique, near real-time satellite radar altimeter data on the recent Tsunami in South East Asia was captured and processed by the Faculty Aerospace Engineering at Delft University of Technology in the Netherlands. The movement of the Earthâ€™s crust associated with the earthquake was measured with GPS; this has never been done before with previous Tsunamis and magnitude-9 Earthquakes. According to Ernst Schrama, a scientist at the university, the data was acquired by pure coincidence; radar-altimeter satellites simply happened to be â€˜in the right spot at the right time.â€™ The satellites orbit Earth approximately fourteen times per day, settling in a new position over the earth after each new orbit. The satellite radar altimeter data show a travelling Tsunami wave with crest-to-trough amplitude of 1.40 metres and a length of 200 kilometres, moving through the deep Indian Ocean. FAE scientist Wim Simons announced that there were both deformation models of the Earthâ€™s crust, and real GPS measurements of the Tsunami. The earthquake caused area shift at distances of up to 1,500km away from the epicentre of the quake. According to first predictions, the Earthâ€™s crust shifted 10-25 metres at the epicentre. A geophysical model developed by Christophe Vigny at the geology department of the Ecole Normale SuperiÃ©ure, Paris, France confirms most of the GPS-observed deformation pattern. With a permanent GPS station in Singapore and a semi-permanent one in Phuket, TU Delft has been monitoring movements of the Earthâ€™s crust in South East Asia since 1994. The university participates in and organises measurement campaigns in co-operation with partners in Indonesia, Malaysia and Thailand. The results will be presented at the European Geosciences Union General Assembly to be held in Vienna, Austria, from 24th to 29th April 2005.

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