



SEMINAR SERIES

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IEEE Geoscience and Remote Sensing Society Western New York Chapter
Present

Dr. Alexander Braun

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"Observing Geohazards with Space Geodesy: Tsunamis, Sand Dunes and Sea Ice"

Date: Friday December 5, 2008

Time: 12:00 Refreshments, 12:30 Lecture

Place: 435 Cooke Hall, North Campus

Abstract: Recent advances in space geodetic satellite technology have enabled geodesists to not only measure, but also monitor and interpret Earth system dynamics from space. Satellite missions such as CHAMP, GRACE, ICESAT, and the radar altimeters TOPEX, ENVISAT, JASON are able to monitor mass transfers within Earth systems as well as deformation and elevation changes of diverse Earth surface types. Many of these dynamic processes can pose geohazards to society, infrastructure or ecosystems. This presentation will feature three different geohazards, i) tsunamis, ii) migrating sand dunes, and iii) melting Arctic sea ice, and will demonstrate how space geodesy can assist in monitoring and assessing the impact and dynamics of such hazards. Specifically, the detection of the Sumatra-Andaman Island earthquake and the subsequent Indian Ocean tsunami of 2004 with radar altimetry and GRACE will be discussed. Sand dune migration in Saudi Arabia is a primary issue for infrastructure planning and construction which hinders access roads and has caused fatalities in the past. ICESat laser altimetry in combination with SRTM Digital Elevation Models are used to determine sand dune migration vectors. Melting Arctic sea ice is a hot topic in the public media. In this presentation, the contribution of ICESat and GRACE on the determination of sea ice freeboard height and thickness will be demonstrated.



Biography: Alexander Braun is a geophysicist by training and currently holds the position of Associate Professor of Geodesy in the Department of Geomatics Engineering at the University of Calgary. His research interests cover global geophysics, space geodesy and its application in Earth systems observation, and solid Earth deformation processes. He was a PI and member of the cal/val team for many satellite missions mostly related to satellite altimetry, space gravimetry and SAR. Before he took a position at the University of Calgary in 2004, he was a research scientist with the German Geoscience Research Center (GFZ) and a Byrd Fellow with the Byrd Polar Research Center at the Ohio State University. Recently, he started the spin-off company DynaDEM which provides expertise and consulting in dynamic Digital Elevation Modeling.

