

Open Seminar Series

Geoscience & Remote Sensing

On the use of seismo-acoustic waves in monitoring geophysical media and sources

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December 6, 2016

12:40-13:30

CiTG room E



Seismo-acoustic waves are generated by a wide variety of geophysical sources and travel through all geophysical media, i.e., the solid earth, oceans and atmosphere. Global and regional networks of seismometers, hydrophones and microbarometers enable the study of respectively seismic waves in the earth, hydro-acoustic waves in the oceans and infrasonic waves in the atmosphere. Furthermore, the coupling of seismo-acoustic energy in the different media can be addressed. At low frequencies, seismo-acoustic waves travel over enormous ranges, often globally. Deterministic transient signals of sources like earthquakes, volcanic eruptions, ice-related activity (calving) can be used to characterize the sources and changes over time. If ground-truth on the sources is available, deterministic transient signals can be used to derive the propagation velocity of the seismo-acoustic waves. The latter is of interest to characterize the media in terms of composition, structure, temperature and wind. However, few sources have accurate ground-truth information on, e.g., location, time and strength. Alternatively, the ambient seismo-acoustic noise field is used in an interferometric approach to probe the geophysical media and address changes as a function of location and time. This presentation will give an overview of measurement and processing techniques and will, furthermore, discuss specific details retrieved from geophysical sources and media.