



Consert Radar Tomography in transmission, a new technique for glaciers characterisation: Perspectives and preliminary results for the Glacier de l'Argentière

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The radar tomography in transmission is an imagery technique developed to investigate the internal structure of cometary nucleus. The Consert instrument of the Rosetta probe (ESA) launched in 2004 will image the Churyumov-Gerasimenko Comet in 2014 and allows us to identify the mean dielectric permittivity, the main structures and the heterogeneity scales of the nucleus (1).

This technique seems promising for earth applications in arid or frozen regions, especially to detect liquid water cells in temperate glaciers for risks management. In order to evaluate its potential, the first measurement campaign on the Glacier de l'Argentière (French Alps) was done last September using Consert prototypes (2). The transmitter was located under the glacier at the bedrock level using the water caption tunnels. The radio wave propagates throughout a few hundreds meters of glacier and were acquired by the receiver located on the glacier surface.

In this talk, we explain the radar tomography concept: instrument, measurements and data inversion. Then we present the measurement campaign, the data and the first results

1. Kofman W. et al. , Comet Nucleus Sounding Experiment by Radiowave Transmission. *Advances in Space Research*, 1998, Vol 21, n°11, pp 1589-1598
2. We thanks to the Societe d'Emosson for the access to the facility.