

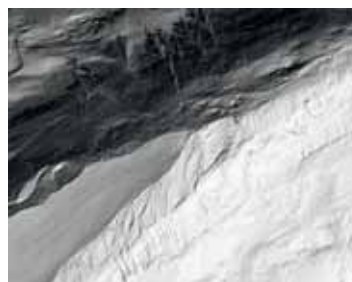
# ALS-X

## Combination and Evaluation of Airborne Laser Scanning Data and TerraSAR-X Data for Glacier and Snow Monitoring

Due to their close and rather direct relationship to atmospheric energy and material fluxes, mountain glaciers are perfect indicators for the ongoing global climate change. Both the high point density (1 point/m<sup>2</sup> or higher as a standard value), which allows a very detailed terrain representation, and the extraordinary vertical accuracy of about  $\pm 10\text{cm}$  has made airborne laser scanning become a standard method for the acquisition of topographical data for glaciological purpose.

The project aims at analysing and evaluating time synchronous airborne laser scanning data and TerraSAR-X satellite data under glaciological and snow hydrological aspects. Therefore, four laser scanning data acquisition campaigns have been carried out at Hintereisferner and Kesselwandferner (Tyrol) during the glaciological year 2007/2008. Besides the comparison of the two data types, it is a further objective of this project to continue the worldwide unique time series of laser scanning data originating back to 2001. Based on the laser scanning data both DEMs (Digital Elevation Models) and surface classification maps are calculated, compared and evaluated with relevant TerraSAR-X data products. In-situ data from field campaigns during the EO data acquisition contribute to the validation of the results.

Furthermore, a concept for an efficient monitoring strategy with integrated airborne and satellite EO data will be developed, with particular consideration of end-user requirements (glacier ski resorts, power authorities).



### **Infobox**

**Project duration:**

01.10.2007 – 31.03.2009

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