



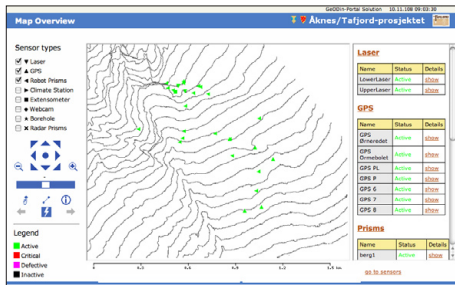
# GeODin Landslide Monitoring



**Laser sensor**

The Geiranger Fjord und Storfjorden in central Norway are areas of outstanding natural beauty. Although this area is a major tourist attraction and listed by the UNESCO, there are dangers posed by landslides that threaten to change the idyllic scenery. If such events occur the tsunamis created would have large scale affects in the region.

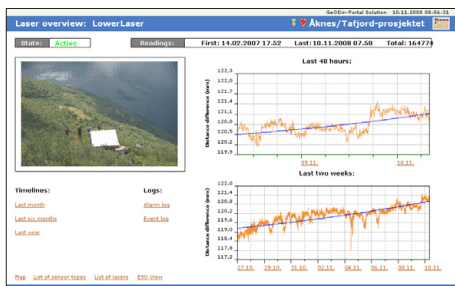
In 2006 Fugro Survey Norway won a contract to monitor the landslide areas of the Stranda and Tafjord areas and provide an early warning system to allow safe evacuation of the local population. FUGRO CONSULT GMBH was awarded the contract to provide GeODin® data management software for automatic field data collection, transfer from sensor to database and internet based analysis & presentation solutions.



**WebGIS of the region**

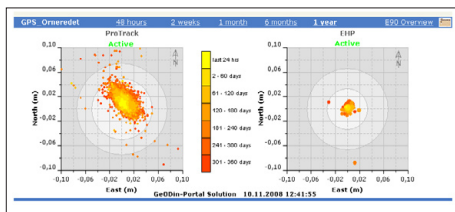
Seven different sensor types have been installed by Fugro Survey Norway to measure and record changes in the fjord topography and subsurface geology. These include lasers, GPS, web cams, extensometers & borehole sensors, as well as climate measuring and total stations. This has proved a great logistical challenge and the project generated enormous public interest.

The responsibility to provide a fast and reliable information system to cope with the vast amounts of data generated, provide real-time monitoring, integrate a web-based GIS and send alarms & reports to various official organisations and research institutions around the world has also necessitated new ideas be developed for GeODin.



**Laser overview with time series**

Once a sensor supplies a PC in the field with data, be it a distance, temperature or co-ordinates etc., GeODin takes over the data management. First the data is uploaded from the field to a FTP-Server using the program GeODin FTP-Transfer. At regular intervals GeODin Packager archives the raw data on the field PC. From The FTP-server the data is then loaded into the database with GeODin DB-Loader and the status of certain key parameters monitored with GeODin Guardian. Changes in these parameters are automatically classified and emails/SMS sent out to a selected list of recipients.



**GPS tracks on Nokia E90**

To access the GeODin Portal Server users must login with a password. This protection ensures that the data is only seen by those permitted and prevents the server from being overrun by requests when important events occur.



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