



3 Monitoring methods and new sensors



Objective: A deep geological repository has to be permanently monitored, and this means that the sensors have to be able to withstand extremely harsh conditions. Which sensors are the most suitable for this purpose? What is their behaviour over the long-term? Which technologies are available on the market?

Procedure: Installation of fibre-optics sensors from different manufacturers in a heated borehole (6 metres deep) and continuous measurement of signals (e.g. temperature) over a period of 5 to 10 years.
Determination of the material characteristics for estimating sensor ageing in three sensor sets: a) prior to the initiation of the experiment; b) installed sensors after completion of the experiment; c) stored sensors after completion of the experiment.

Findings: Sensors need to be periodically recalibrated with conventional sensors; some sensors are insufficiently protected for use in Opalinus Clay.

Start: 2012
End: 2017
Project Partners: ANDRA, ENSI, SWISSTOPO
Costs: Approx. 200,000 Swiss francs