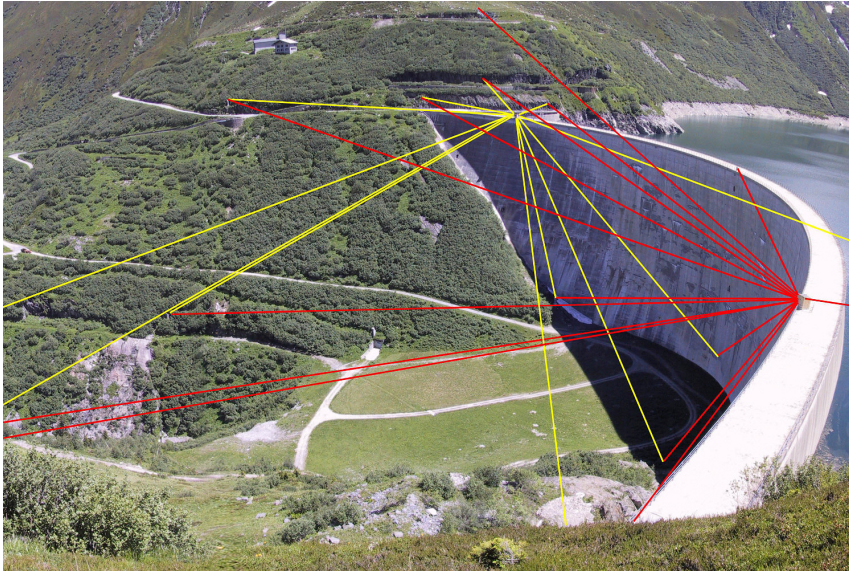


AlpTransit Gotthard Dam Safety Monitoring

Permanent monitoring of 3 dams and their surroundings since the construction of the Gotthard Base Tunnel



- 📍 Gotthard region, Switzerland
- 👤 AlpTransit Gotthard AG & Axpo AG
- 🕒 2000 - ...

Expertise

TEDAMOS

Systems

- ◆ 1 main data and reporting center at the office in Regensdorf-Watt (CH)
- ◆ 3 local surveillance stations, each equipped with a steering and temporary storage tool
- ◆ Data communication between the different data centers via GSM mobile radio
- ◆ Sensors: 10 high precision total stations Leica TCA2003, 10 dual-frequency GPS receivers, 10 multi-extensometer, meteorological sensors

Find more information on the **TEDAMOS** solution under <http://en.tedamos.ch>

Tunnel constructions are known to possibly activate rock dewaterings, resulting in potential surface subsidences. The 57 km long trace of the Gotthard Base Tunnel crosses the area of influence of three retaining lakes Curnera, Nalps and Sta. Maria in Southern Switzerland. Theoretical explorations have shown that the tunnel excavation results in surface subsidences up to 5 cm. To minimize the risk for the dams, an extensive monitoring system has been installed, which surveys all the year round the dams and their surroundings for changes at the scale of millimeters. The surveillance requires a high weather resistance of the instruments and all other installations. The project has been realized by an association of BSF Swissphoto, Grünenfelder und Partner and Amberg Technologies.

The monitoring systems at the Nalps and Sta. Maria dams (2 total stations each) were taken over by the dam owner and operator, **Axpo AG**, from AlpTransit Gotthard Ltd. in 2016.

The operation of the total stations will continue to be guaranteed by Terradata. In the summer of 2020, these monitoring installations celebrated their **20th anniversary** - probably the longest permanently operational total station monitoring project in the world!

Our services

- ◆ Fully-automated and continuous monitoring of dam cross sections of 3 dams and 4 valley cross section
- ◆ Elevation surveillance by means of GPS technology at 10 exposed locations in alpine area
- ◆ Rock mechanics measurements
- ◆ Yearly high precision levelling (approx. 100 km) along roads and through the pressure pipe galleries between the three dams
- ◆ Independent and interruption-free electrical power supply by means of solar panels and lightning protection
- ◆ Permanent data communication via radio and GSM