GEO PRÆVENT

ALARM AND MONITORING SYSTEMS FOR NATURAL HAZARDS

GEOPRÆVENT AG
Technoparkstrasse 1
8005 Zürich
Switzerland

Tel.+41 44 419 91 10
info@geoprevent.com

WHY ELECTRONIC ALARM AND MONITORING SYSTEMS?

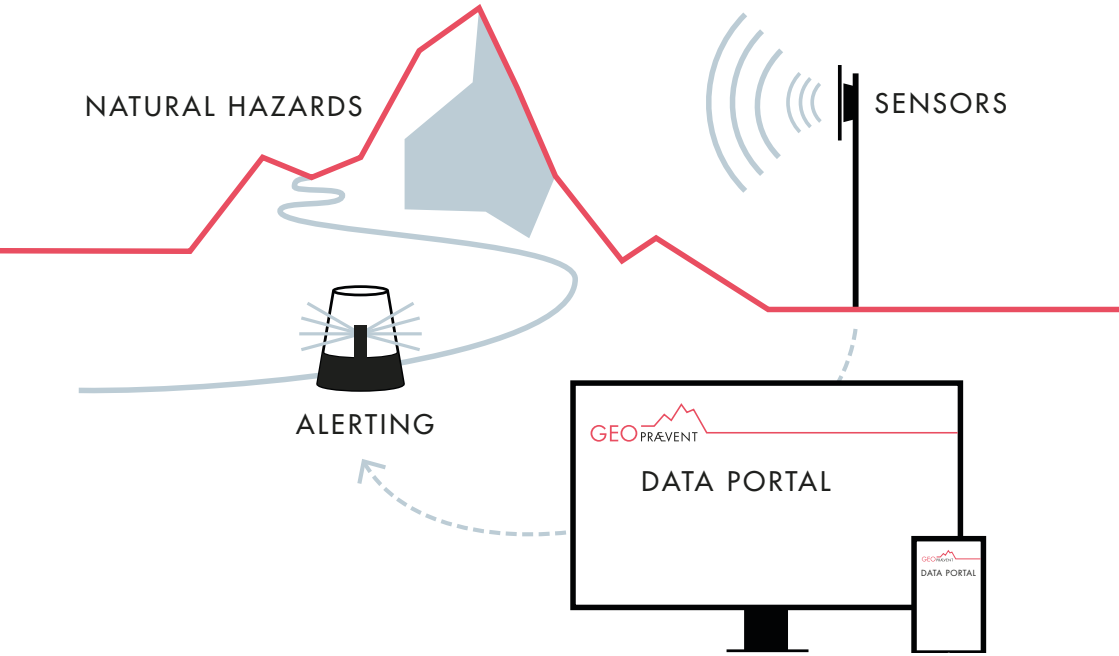
Rockfall, landslides, debris flows, floods, avalanches and glacial lakes can threaten roads, inhabited areas or regions frequented by tourists. In such situations, electronic monitoring systems can often complement or even replace structural protection measures — usually at lower costs and certainly with a weaker impact on the alpine scenery. In addition, they are easy to install, are flexible in their use and adjustable at any time.

Geopraevent is dedicated to providing the best alarm and monitoring technology for natural hazards. We develop, install and operate state-of-the-art systems for avalanches, permafrost, glaciers, floods, rock instabilities and debris flows.

Dr. Lorenz Meier
CEO Geopraevent

HOW DOES IT WORK?

Geopraevent's sensors detect a variety of natural hazards. Specialized algorithms process the data, and the results are immediately displayed online. In case of an event alarms are triggered automatically — affected people are informed, roads and railways are closed within seconds.



150 PROJECTS 60 ACTIVE INSTALLATIONS
6 COUNTRIES 11 EMPLOYEES

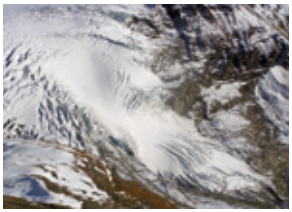
Multidisciplinary team of physicists, software developers, electrical engineers and electronics technicians.

NATURAL HAZARDS

Geopraevent provides alarm and monitoring solutions for a wide range of natural hazards. We either monitor the hazard zone to measure precursors of an event or we detect the event itself and automatically trigger alarms. Geopraevent also provides technology to detect people in the hazard zone (e.g. prior to avalanche blastings).

ROCKFALLS

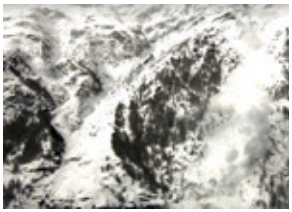
FLOODS



GLACIERS

LANDSLIDES

GLACIAL LAKES



AVALANCHES

DEBRIS FLOWS

SAFETY NETS

PEOPLE

SENSORS

To ensure effective detection and monitoring of natural hazards, we use a wide range of sensors and measuring technologies. For each situation we select and combine different sensors to provide maximum safety.

ROCKFALL RADAR

GEORADAR

PEOPLE RADAR

AVALANCHE RADAR

LEVEL MEASUREMENTS

CRACK MEASUREMENTS

WEBCAMS

INFRARED CAMERAS

MOTION SENSORS

MORE SENSORS:

- Geophones
- Infrasonic measurements
- Temperature loggers
- 2D radar measurements
- Laser distance measurements
- Pressure-/temperature sensors
- Weather stations

DATA PORTAL

Always be up to date! All installations supply data around the clock providing valuable information for experts and local authorities. Geopraevent's portal is accessible on all devices and interactive.

– Events easily visible on a map
– Track events with interactive charts
– Images at all times
– Easy communication within the data portal
– Live tracking of movements
– Manage traffic lights and gates online
– Available on all devices

ALERTING

Identifying potential dangers is important – but during events, reliable alarm transmission is crucial.

LOCAL WARNING

Wherever transportation routes and human beings are threatened by natural hazards, the time available for evacuations or the application of protective measures is usually short. That's why we always use alerting systems that function independently of our data servers. Sometimes tethered alarm transmissions are possible, in other situations wireless radio transmissions have to be used, but they are completely autonomous in all cases.

ALERTING LOCAL AUTHORITIES

Notifying local authorities is usually a high priority. Decisions have to be made, protective measures need to be initiated in order to keep further damage to a minimum. In cooperation with telecom providers, we offer automatic issuing of prioritized alarm-SMS where coverage is available. Alarm recipients need to confirm the incoming warning, otherwise the alarm is automatically distributed on other channels (e.g. a phone call, pager, community alarm sirens). Additionally, telephone conferences can be automatically initiated with all the involved authorities and decision makers.

CUSTOMER PROJECTS

Our customers include federal and local authorities, railways or private infrastructure operators such as hydroelectric power plants or mountain railways. Geopraevent completed more than 150 projects in 6 countries.

GLACIER LAKE MONITORING WITH RADAR GAUGES
Shaksgam-Valley, Western China
2 Radar gauges, Webcams, Satellite
Glacier lake: 20 Mio. m^3

ROCKFALL MONITORING SYSTEM WITH GEORADAR
Preonzo (TI), Switzerland
1 Georadar
Rockfall: 300'000 m^3

Learn more about Geopraevent's projects online
www.geopraevent.ch/customer-projects

ALARM SYSTEM
WITH AVALANCHE RADAR
Zermatt (VS), Switzerland
2 Avalanche radars
Monitoring area: more than 2 km^2

MONITORING SYSTEM
FOR PROTECTION NETS
Ovella (GR), Switzerland
100+ Motion sensors
Rockfall barriers: 1.2 km in length

ALARM AND MONITORING
SYSTEM WITH RADAR GAUGES
Steffisburg (BE), Switzerland
2 Radar gauges, 1 Webcam
Drainage area: 89 km^2

ALARM AND MONITORING
SYSTEM WITH GEORADAR AND
AVALANCHE RADAR
Lauterbrunnen (BE), Switzerland
1 Georadar, 1 Avalanche radar, 3 Webcams
Potential ice fall: 80'000 m^3

«The monitoring system works very well. The interferometric radar predicted several glacier detachments a couple of days in advance. Thanks to the avalanche radar we are able to keep running our train operations as the radar would stop our trains in a safe place in case of a larger detachment.»

Jürg Lauper
Head of Infrastructure, Jungfraubahnen AG

«The system supports us in monitoring the road Taesch–Zermatt. Every single avalanche movement in the area is shown, which let's us assess the situation a lot better.
Thanks to the webcams we can check, if the avalanche reached the road. The system also shows the size of the avalanche and it's flow path. It works very well and increases the safety.»

Bruno Jelk
Chief Observation Officer Winter
Regional Safety Service Mattertal

ALPINE INSTALLATIONS

High mountain environments are our area of expertise. There are innumerable instruments and methods of data acquisition – but which installation ensures a reliable functionality in the harshest of environments and throughout many years?

Accessing our stations is hardly ever easy. All our staff are experienced mountaineers that bring along the necessary know-how to install alarm and monitoring stations wherever they are needed. Additionally, most of us have been trained at rope access work and are certified by the Swiss Mountain Guides Association.

Geopraevent develops, installs and operates high-quality alarm and monitoring systems for natural hazards. Learn more online or contact us.

GEOPRÆVENT AG
Technoparkstrasse 1
8005 Zürich
Switzerland

Tel.+41 44 419 91 10
info@geoprevent.com