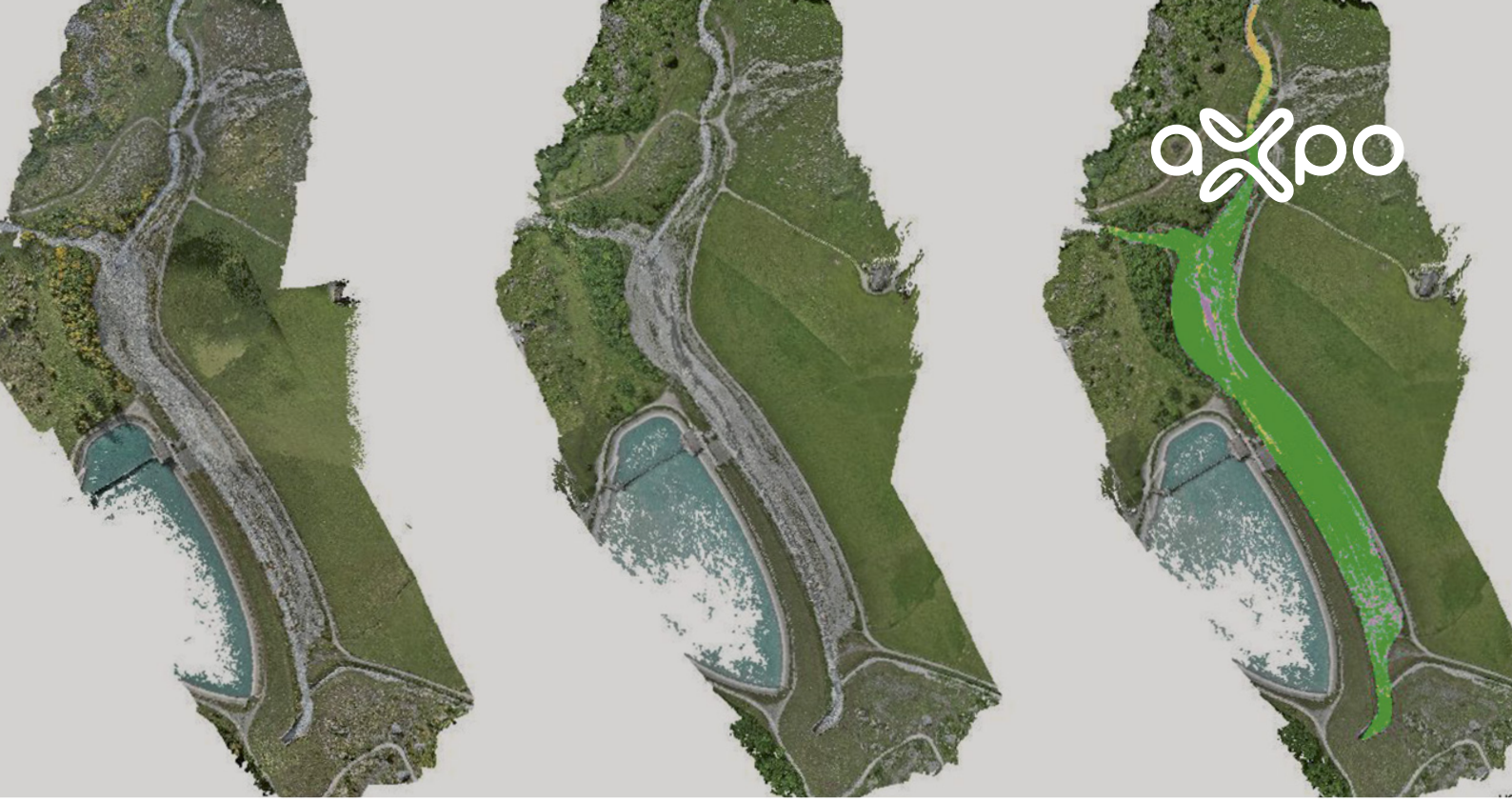


Axpo Hydro Digital – Robotics Services

Deformation Monitoring of Terrain: comprehensive, risk-free, and efficient

Accurate insights on movements and volume changes – without on-site inspections

Knowledge of the processes that occur in the vicinity of dams is essential for their safe operation. Traditional monitoring concepts for natural hazards are based on observing individual points. The definition of these monitoring points requires specific prior knowledge of the area, and marking in the field is usually time-consuming and also carries risks.

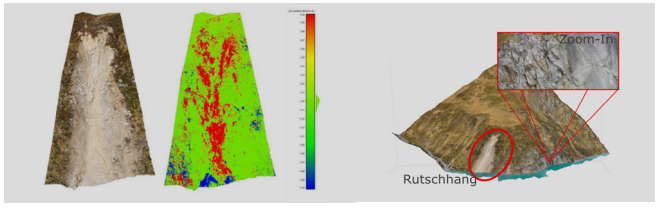
Modern, wide-area recording technologies such as drone-assisted photogrammetry and laser scanning now provide technologies that provide precise information. The results supplied by the recording technologies enable large-scale analyses of entire areas without the need for prior knowledge or examination of the terrain by individuals.

We offer a complete service package

- **Flexible deployment**
  Without long lead times
- **Secure data collection from the air or the ground**
  Depending on the area of application
- **High-resolution models covering vast areas**
  For detailed results
- **Expert analysis**
  Expert assessment if required

Details on the service package

Our comprehensive monitoring approach enables precise analysis and assessment of movements (e.g. landslides) and volume changes (e.g. sediment deposits in the water body area in dry conditions). On request, our environment, hydraulic engineering, mechanical engineering and dam safety experts can provide a professional analysis and evaluation of the results. Thanks to our modular service package, you are free to decide which services you use – entirely according to your needs.



Detailed results

- Deformation maps
- 3D models
- Orthophotos
- Mass balances
- Topographic contour maps

Individual monitoring concepts

- Conducted by Axpo (for high accuracy with photogrammetry / TLS)
- Planning and definition of control points by Axpo
- Independent drone flight with support from Axpo
- Analysis and modelling by Axpo

References

„Through the drone images and the photogrammetric evaluation, we were able to quickly obtain a precise calculation of the difference in volume. At the same time, the area-wide analysis makes it possible to monitor the slope over a large area without installing control points. For one thing, this saves time and increases safety, as there is less need to enter the potential hazardous zone."

Marius Bühlmann - Dams Departement, Axpo Power AG

„We use drones to assess sediment accumulation in mountains streams at water intakes and dams. The high-resolution aerial images enable precise and comprehensible documentation of changes, which means that developments can be clearly verified for third parties."

Marco Baggio - Linth Limmern power plants

Want to know more?

In-depth assessment of the condition of the site – digital results without site inspection

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