Automated 3D deformation and displacement measurement

Solexperts is a pioneer in the field of automated, optical 3D displacement measurements and permanent monitoring, with the first applications including the monitoring of the Potsdamer Platz railway station in Berlin (1994) and the Gabcikovo lock (1997). Since these beginnings, Solexperts has continuously developed the systems and can now draw on a wealth of experience and recognised efficiency in the service of your project.

Examples: Metro L11 GC03 / Champs Elysées Clémenceau Station, Metro L5 (Octys)

Continuous monitoring of the displacements is carried out using automated theodolites controlled by a GeoMonitor data acquisition system. Our theodolites are Leica TM30 or TM50 with the following specifications (under optimal atmospheric conditions):

- Angle measurement accuracy: horizontal and vertical: 0.5" (0.15 mgon) or 1" (0.3 mgon)
- Accuracy of distance measurement with prisms: 0.6 mm - 1 mm + 1 ppm;
- Accuracy of distance measurement without prisms: 2 mm - 5 mm+ 2 ppm
- Temperature range: -20°C to +50°C

On site, the measurement accuracy is theoretically +/- 0.5 mm but can be +/-1 mm depending on the conditions when measuring with prisms. For automatic measurement, the measuring points on the ground or on buildings are fitted with mini prisms. The theodolite automatically aligns itself to reference points that are outside the area of influence.

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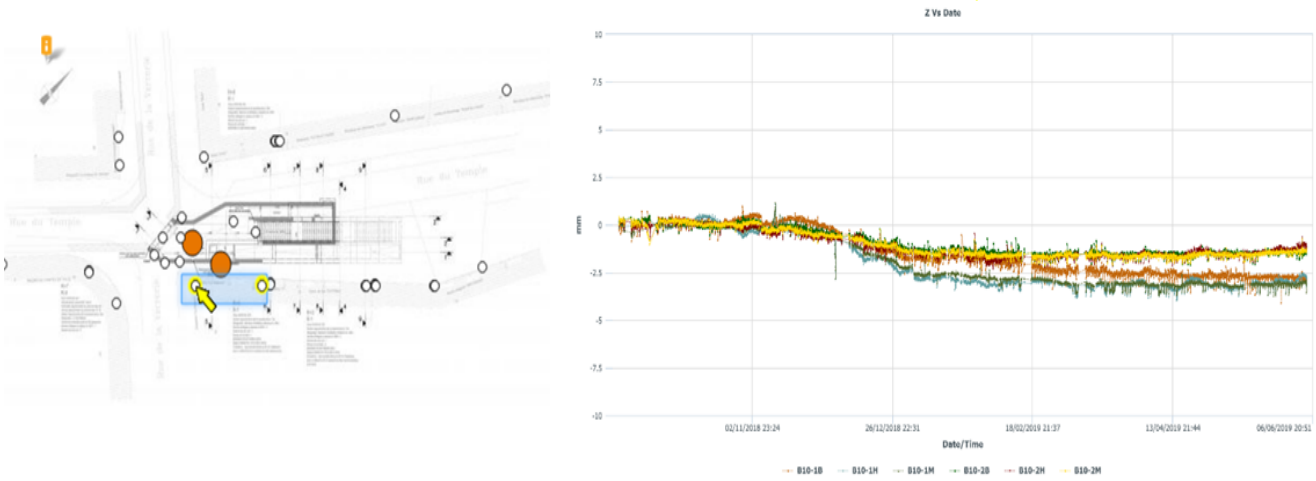
Example RER B (Cassini)

The GeoMonitor detection and control software calculates the displacements, manages the data, triggers local alarms (e.g. siren or warning light) and stores the measurement data, which it regularly sends to our IoT platform via an encrypted protocol. There, the data is processed and visualised for the customer.

Solexperts IoT is a cloud-based Internet of Things platform tailored to data acquisition, processing and visualisation for geotechnical and hydrogeological applications. Solexperts IoT can be used to implement projects with high security requirements, complex alarming needs and versatile visualisations. The strength of Solexperts IoT is that the platform can be customised to your needs. Customizing for our customers ranges from user-defined specifications for data acquisition, automated processes, e.g. for reporting, to setting up customised visualisations and connecting third-party systems.



Example of the displays available on the visualisation platform (interactive map, data visualisation curve)