



## Ground anchors' monitoring in real-time with automatic, remote data transmission.

**CLIENT:** Several

### THE CHALLENGE

Making the most of materials' mechanical properties and transmitting a tensile load, ground anchors are used as stabilizing elements to increase safety in projects involving excavations, slopes, foundations, and other types of structures.

There are several types of tiebacks: strand or bar; active or passive; temporary or permanent; re-stressing or not; single stage, multistage, or multistage and selective grouting.

Drilling, installation, and commissioning of a ground anchor is a complex task that must be controlled by experienced staff, from start to finish.

From their commissioning and throughout their entire service life, ground anchors' status must be known without interfering with the standard activities in this kind of projects.

### THE SOLUTION

Including the commissioning phase of a ground anchor, the measurands to be controlled as a function of time are stretching (mm), deformation (mm/m) and force (tensile, kN). It is convenient to know the temperature evolution for both the structure and the head of the anchor because it helps to interpret the registered values.

At InGeoLAC we have the experience required to recommend several types of measurement systems for monitoring those magnitudes: load cells (kN), displacement transducers (mm), elastic strain gauges (mm/m) and clinometers. (°, mm/m).

With project needs in mind, InGeoLAC supplies different kinds of systems for the acquisition, transmission, and presentation of data in real-time, both in the project and on a Web platform 24H/7D.

### THE OUTCOME

Real-time, automatic, and remote readings with data transmission (wireless or single cable), their presentation on site with no latency time as well as on a data Web platform in the cloud, grants the understanding of the magnitudes' evolution and the option to take the appropriate decisions before affecting the anchored structure.

With no interference with the usual project tasks, InGeoLAC systems allow displaying the data both during testing, commissioning, and throughout the service life of the ground anchor. All the information is available in digital format and on a Web platform, 24H/365D, with restricted access via username and password.

