

AccuEarth Calibration & Test Site

In an era when the number of Earth-observing satellites is still rapidly growing and when measurements from these sensors are used to answer various global questions, it is understandable that scientists and decision makers rely on the accuracy of Earth-observing data products. Characterization and calibration of these sensors are highly necessary to achieve an integrated and accurate global observation system for coordinated and sustained observations of Earth.

Location	Prague, Czechia
Latitude	50.07° N
Longitude	14.41° E
GCPs	52
Area (km)	7 x 10



Calibration & Test Site is suitable for satellite as well as aerial sensors. In case of satellite sensors there isn't any possibility to re-calibrate the sensor after the satellite is launched. So, for satellite sensors the site is used to only test the sensor's accuracy over time. On the other hand, the aerial sensor can be calibrated repeatedly so the site serves to improve the sensor's parameters. To sum it up, term Calibration Site is used when speaking about aerial sensors and term Test Site is used when speaking about satellite sensors.

AccuEarth Calibration & Test Site

The AccuEarth Calibration/Test (AE C&T) Site consists of 52 photo identifiable highly accurate ground control points (GCP) equally distributed over a 7 x 10 km field that covers the central part of the Prague metropolitan area, Czechia. Most of the points are grouped in so called clusters, which are usually 2-5 points collected within a relatively small area. The AE C&T Site is composed of 12 point clusters supplemented by 5 additional single ground control points. Finally, all the points were distributed in a specific way so that they form the AccuEarth acronym (letters "AE").



CZEPOS – constantly operating GNSS stations

Every GCP was collected with professional survey-grade GNSS equipment Leica Viva GS15. Several independent control methods were implemented and strict surveying procedures were maintained during the survey to achieve and guarantee high accuracy.

All points were collected using the CZEPOS service, which is a network of constantly operating GNSS stations, that provides real-time position and elevation data (corrections). Receiving these corrections during surveying enables one to refine raw satellite observations and to determine the measured position with high accuracy within short sessions (several seconds). CZEPOS was founded and it is operated by Czech State Administration of Land Surveying and Cadaster (ČÚZK).

Baseline processing and online GNSS services

To ensure the accuracy of the final coordinates we also survey long static observations during the survey. Baseline processing was carried out in Trimble Business Center software. This method is based on computations of the network composed of several constantly operating GNSS stations and points collected by static method. In this case, GNSS observation data were taken from the EUREF network - publicly accessible database of Europe-wide constantly operating GNSS stations.



Geodetic benchmarks

Additionally, control measurements were carried out on several geodetic benchmarks throughout the AE C&T site. Official data sheet coordinates of these benchmarks were added to the baseline processing as supplementary control. The geodetic benchmark network is set up and maintained by ČÚZK.