



A Possible Contribution of an Integrated Geodetic Infrastructure to EPOS: Case Study the Czech Republic

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The Earth is subject to a multitude of dynamic processes that cover a broad variety of spatial and temporal scales and are driven by large interior and exterior forces. The need for a global monitoring of the Earth has been recognized by the UN which resulted in initiating several global observing systems. None of these systems explicitly includes a geodetic component nor it is directly connected to the Global Geodetic Observing System. Nevertheless, only geodetic techniques can provide both the reference frame for Earth system observations as well as observations of crucial parameters related to changes in the Earth's geometry, rotation and gravity field. To ensure a long-term stability of the terrestrial reference system on the accuracy level of $1\text{E-}9$ in the global and continental scale, the interactions between different time-dependent influences of the system Earth to the terrestrial reference system have to be considered. Therefore, necessary observations of different observation techniques must be available. To achieve reliable results, observations must be completed with meteorological parameters and environmental data of different kinds (ground water level, soil moisture etc.). A possible contribution of a regional geodetic infrastructure is illustrated by an example of the Geodetic Observatory Pecný, the Czech Republic, which continuously provides time series of GNSS, gravity (based on the absolute and superconducting gravimeters), seismic, environmental, climatological and meteorological (including radiometric atmosphere profiling) observations. Parallel to it, several data and analysis centers of the IAG international scientific services and of international geodynamical and meteorological projects are running at the observatory. The observatory is also a reference station for the scientific and experimental GNSS network operated in the Czech Republic and a part of the regional seismic network. Some time series of observations are presented and interpreted.