



Atmospheric Station Kresin u Pacova, Czech Republic - a central European research infrastructure for studying greenhouse gases, aerosols and air quality

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Atmospheric composition, climate and meteorology are a linked system. Therefore, long-lasting research infrastructures covering all three areas are of highest importance. The Atmospheric Station (AS) Kresin u Pacova serves as a Czech National Monitoring Point for the measurement of occurrence and long-range transport of greenhouse gases, selected atmospheric pollutants and basic meteorological characteristics. It consists of a 250 m tall atmospheric tower equipped with meteorological sensors, gas analysers and a sampling system. Additional instruments are placed in a ground based container. The station was built and equipped according to the recommendations of the Integrated Carbon Observation System (ICOS) that will ensure for long-term (20 years and more) monitoring of greenhouse gases in Europe. The AS cooperates also with numerous Czech and international projects and databases (EMEP, GAW, InGOS, GMOS, ACTRIS, ISKO). The AS is located adjacent to the Kosecice Observatory specialized in air quality, meteorology and hydrology monitoring activities since 1988. Both infrastructures form the Co-located Station Kosecice – Kresin u Pacova.

First measurements conducted at ground started in 2012 (total gaseous mercury and aerosol optical properties) and beginning of 2013 (organic and elemental carbon in atmospheric aerosols). Vertical gradient measurements of total gaseous mercury and tropospheric ozone were added in autumn 2013 and greenhouse gases and meteorological parameters in spring 2014. These data allowed for conducting first tests on the instruments performance, optimization of the sampling setup and gaining first insight into the measured parameters and their variability onsite. Long-range transport patterns relevant for the site and the possible development of air flow characteristics in future were studied, too.

Due to a broad spectra of monitored parameters, production of large unique datasets and availability of technical support, the AS Křešín u Pacova is a suitable infrastructure for conducting multidisciplinary and international research activities.