

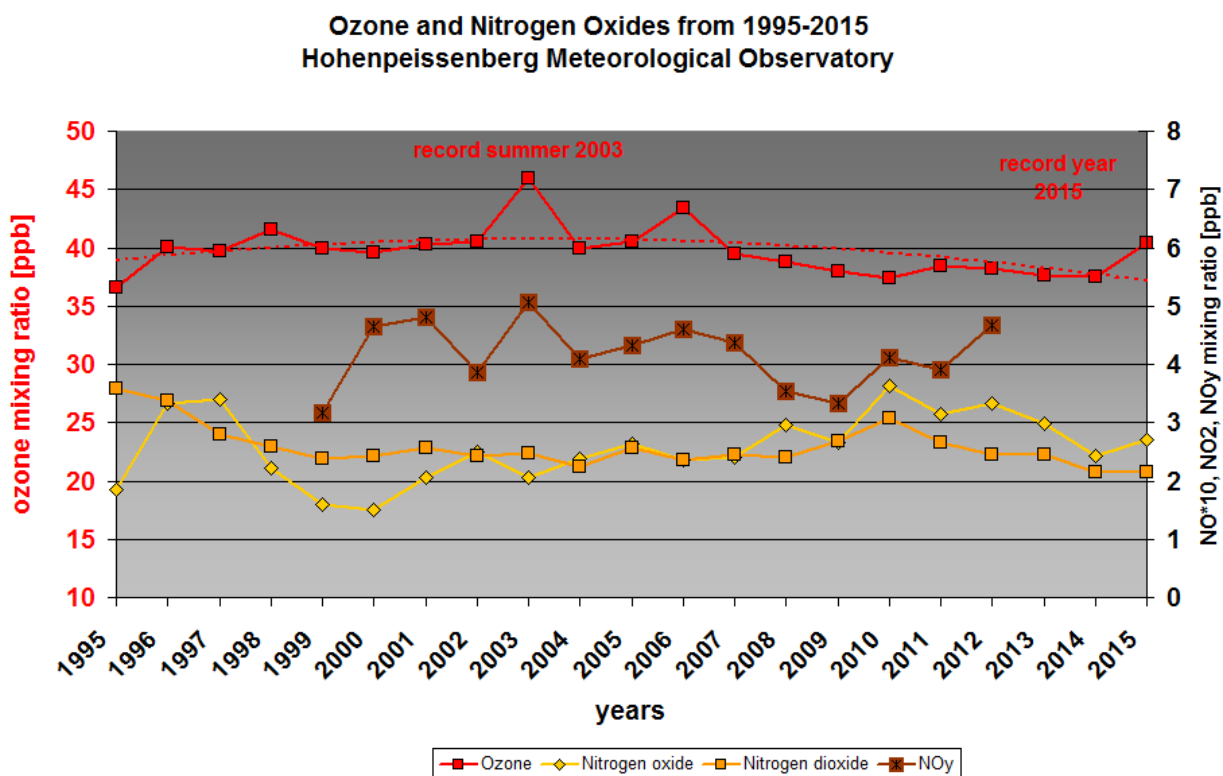
## Continuous Long-term Monitoring of Atmospheric Key Species at the GAW Global Station Hohenpeissenberg

D. Kubistin, W. Thomas, B. Briel, A. Claude, T. Elste, J. Englert, H. Flentje, R. Holla, M. Lindauer, J. Muller, M. Schumacher and C. Plass-Duelmer

Meteorological Observatory Hohenpeissenberg, German Meteorological Service, Hohenpeissenberg, Germany; +49-69-80629740, E-mail: dagmar.kubistin@dwd.de

Long-term observations of trace gases, radiation and aerosol are crucial for understanding their impact on human health and climate change. They provide information, e.g. on ozone trends, the self-cleaning capacity and atmospheric processes, as well as being an independent measure on anthropogenic emission regulations. Since 1995, the atmospheric composition, characteristic for central Europe, has been continuously monitored at the global Global Atmospheric Watch (GAW) station Hohenpeissenberg. The tropospheric components include reactive gases such as *in situ* ozone, nitrogen oxides (NO, NO<sub>2</sub>, NO<sub>x</sub>, PAN), carbon monoxide, sulphur dioxide, anthropogenic and biogenic VOCs, sulfuric acid, radical species (OH, RO<sub>x</sub>), total hydroxyl (OH) reactivity and recently the greenhouse gases carbon dioxide, methane and nitrous oxide in the framework of ICOS (Integrated Carbon Observation System). Aerosol parameters are covered by particle number, particle mass, size distribution, scattering and absorption coefficients, spectral AOD measurements, extinction and (attenuated) backscatter profiles from a multi-channel Raman Lidar (Polly<sup>XT</sup>) and a ceilometer, respectively. The chemical composition of water-soluble aerosols and of precipitation is provided by filter measurements and wet chemical analysis and are further complemented by measurements of an Aerosol Chemical Speciation Monitor.

Here we present the time series of selected trace gases, radiation and aerosol parameters, revealing their evolution over the past two decades at this central European station.



**Figure 1.** *In situ* ozone and nitrogen oxides mixing ratios at Hohenpeissenberg from 1995 till 2015.