

6.213 More than 15 years long-term monitoring of hydroxyl radicals at the GAW station Hohenpeissenberg.

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Abstract:

Hydroxyl radicals (OH) are known to be the major daytime detergent of the atmosphere playing a key role in the initiation of oxidation processes and in tropospheric ozone and particle formation. Their abundance is governed by the presence of water vapour, ozone, sun light, as well as by biogenic and anthropogenic pollutants. Anthropogenic emissions, change in land use and climate change have been altering the atmospheric composition constantly with potential impact on the atmospheric self-cleaning capacity. Whilst several field campaigns have measured OH radicals for short term studies, hardly any continuous long term observations are available. So far, the long term behaviour of global OH concentrations has been solely estimated indirectly by the decay of certain tracers with well-known emissions, such as methylchloroform.

Here, we report about long term OH measurements, performed since 1998 on an almost continuous base at the global GAW station Hohenpeissenberg, South Germany. OH is being measured alongside with sulfuric acid, other trace gases and meteorological parameters routinely, using chemical ionization mass spectrometry (CIMS). Diurnal and seasonal cycles, as well as the time series are presented and the possible impact of change in the atmospheric composition over almost eighteen years is investigated.