



Factors affecting ice nucleus concentration over Europe and the Eastern Mediterranean

Heinz Bingemer (1), Holger Klein (1), Karin Ardon-Dryer (2), Werner Haunold (1), Zev Levin (2), Martin Ebert (3), Thomas Herrmann (3), Stephan Weinbruch (3), Lothar Schütz (4), and Joachim Curtius (1)

(1) Atmospheric and Environmental Sciences, J.W. Goethe University, Experimental Atmospheric Research, Frankfurt am Main, Germany, (2) Dept. of Geophysics and Planetary, Science, Tel Aviv University, Tel Aviv, Israel, (3) Institute for Applied Geosciences, Technical University of Darmstadt, Germany, (4) Institute for Atmospheric Physics, Gutenberg-University, Mainz, Germany

We have measured the abundance of ice nuclei (IN) at the Taunus Observatory (T.O.) in central Germany (50.22°N, 8.45°E, 825 m. above sea level) every day since April 2008, and at Tel Aviv, Israel since November 2009. IN were sampled by electrostatic collection on silicon wafers and analyzed in the static vapor diffusion chamber FRIDGE (Klein et al., 2010).

The data from both sites display the major effect of mineral dust on IN abundance, as well as of volcanic emissions during the period when the volcanic ash cloud of the Eyjafjallajökull eruption in 2010 was present.

Empirically based parameterizations of IN as a function of supersaturation and temperature will be presented for cases of clean and dusty conditions. In these parameterizations the IN activity depends stronger on relative humidity than on temperature.

The effect of large scale circulation patterns on (dust-derived) IN over Central Europe is analyzed from their covariance with various teleconnection-indices. A highly significant correlation is found between the monthly means of IN abundance at T.O. and the Atlantic multidecadal oscillation (AMO) index (Klein, 2010).

References:

Klein, H. et al.: A new method for sampling of atmospheric ice nuclei with subsequent analysis in a static diffusion chamber, *Atmos. Res.* 96, 218-224, 2010.

Klein, H.: Variabilität der Eiskeimkonzentration über Zentraleuropa, Ph.D.dissertation, Goethe-University, Frankfurt am Main, 143 pp., 2010.

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