Geophysical Research Abstracts, Vol. 8, 02741, 2006
SRef-ID: 1607-7962/gra/EGU06-A-02741

CIWSIR: A Proposed ESA Mission to Measure Cloud Ice Water Path

S. A. Buehler (1), N. Courcoux (1), C. Emde (2), P. Eriksson (3), F. Evans (4), G. Heygster (1), V. O. John (5), T. R. Sreerekha (6)

(1) University of Bremen, Germany, (2) German Aerospace Center (DLR), Germany, (3) Chalmers University, Gothenburg, Sweden, (4) University of Colorado, Boulder, USA, (5) University of Miami, USA, (6) Met Office, UK

Ice clouds play an important role in Earths radiation balance. In spite of this, our current knowledge of the global statistics of Cloud Ice Water Path (IWP) is astonishingly poor. For example, the different climate models in the IPCC AR4 archive show discrepancies in zonal mean IWP of a factor of 10.

CIWSIR is a new satellite mission that has been proposed in the current ESA call for Earth Explorer Missions. It uses passive radiometric measurements in the submillimeter wave spectral range, a spectral range that has so far not been used for meteorological satellite measurements. The advantage of these wavelengths for cloud ice measurements is that the radiation can penetrate the clouds, while still interacting strongly with the cloud ice particles. This allows IWP retrieval with approximately 20-30% accuracy for IWP, according to retrieval simulations. The use of simultaneous infrared data can improve the accuracy to approximately 10-20%.

The presentation focuses on the scientific background of the mission, the mission characteristics, and the expected performance. It is given on behalf of the CIWSIR science team.