



Use and validation of the GEMS chemical forecasts during POLARCAT 2008 campaigns

M.F. Khokhar (1), C. Granier (1), K. S. Law (1), L. Jones (2), J. Flemming (2), O. Stein (3), M. Schultz (3), Data teams NASA-ARCTAS, DLR- GRACE and POLARCAT-France data teams (4,4,4)

(1) LATMOS/IPSL, Université Pierre et Marie Curie Paris, France, (2) ECMWF Shinfield Park - Reading, UK , (3) Forschungszentrum Jülich GmbH - Jülich, Germany , (4) NASA-ARCTAS, DLR- GRACE and POLARCAT-France data teams

High latitude (polar) regions have profound significance for the Earth's climate and are highly sensitive to climate change. It raises concern for the future of polar ecosystems and consequently to global climate change. As a part of international polar year (IPY), major POLARCAT measurement campaigns were performed. For example, POLARCAT-France aircraft campaigns were conducted in Kiruna, Sweden during spring and Kangerlussuaq, Greenland during summer 2008.

The main objective of these campaigns was to study Arctic Haze, inter-continental transport of Siberian forest fire plumes, European agricultural fire plumes, North American and European pollution, their chemical composition and to validate satellite observations over the Arctic region.

The campaign involved forecasts from different chemistry transport models (CTMs) within framework of GEMS project. These forecasts were used for flight planning during the POLARCAT 2008 campaigns to predict anthropogenic pollution outflows, European agricultural and Siberian forest fire plumes. A snapshot analysis of predicted trace gases, obtained from GEMS CTMs forecasts and other chemical forecast models (e.g. GEOS-Chem, FLEX-PART etc) during POLARCAT 2008 campaigns will be presented. Post campaign validation of the analysis fields has been carried out using trace gas data collected by various aircrafts (e.g. POLARCAT-France, DLR-GRACE, NASA-ARCTAS) during POLARCAT 2008.