

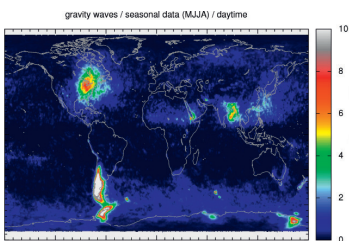
Simulation Laboratory Climate Science

Atmospheric Science on HPC Systems



- Modelling of atmospheric chemistry and dynamics (CLaMS, ECHAM, ICON, MPTRAC)
- Radiative transfer modelling and inversion techniques (JURASSIC, RFM, SARTA)
- Data analysis of Earth observation data (AIRS, HIRDLS, IASI, MIPAS, ERA-Interim)
- Dedicated user support for atmospheric science community

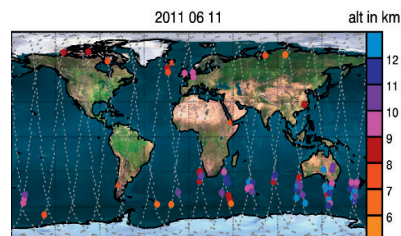
Hunting for Stratospheric Gravity Waves



Gravity wave hot spots in May, June, July, and August derived from AIRS observations.

- Gravity wave detection in multi-year records of global AIRS and IASI satellite data
- Retrievals of stratospheric temperatures from IR spectra

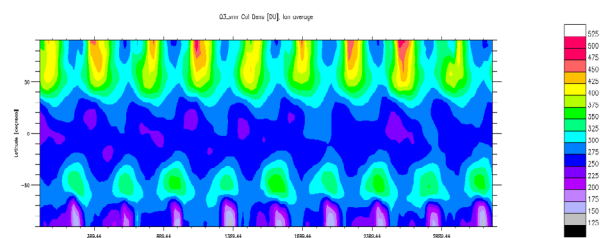
Aerosol and Cloud Measurements



Volcanic ash of the Puyehue-Cordon Caulle and Grimsvötn eruptions observed by Envisat MIPAS.

- Development of new aerosol and cloud detection algorithms for infrared remote sensing
- Analysis of multi-year record of global Envisat MIPAS data

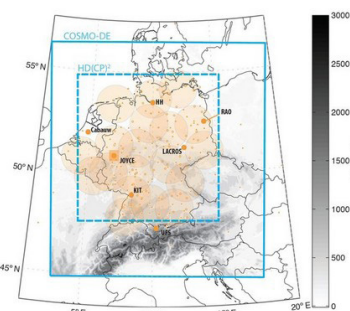
Global modelling of reactive atmospheric constituents



Evolution of zonal mean ozone total column densities [DU] for the years 2003-2011 simulated by ECHAM6-HAMMOZ

- Evaluation of global chemistry climate simulations
- Chemical boundary conditions for regional air quality models

HD(CP)² - High Definition Clouds and Precipitation for Advancing Climate Predictions



- BMBF-Project aiming at high resolution cloud simulations with the Earth System model ICON
- Analysis and optimization of scaling and performance on BlueGene/Q