



Time-series comparisons of MIPAS Level 2 products with climatology

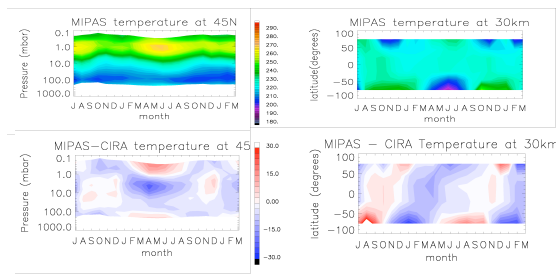
V. Payne, A. Dudhia, C. Piccolo

Atmospheric, Oceanic and Planetary Physics, Department of Physics, Oxford University, Oxford, UK
payne@atm.ox.ac.uk

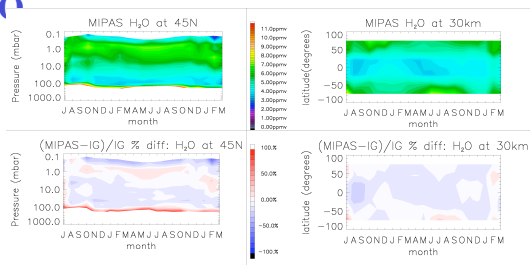
Introduction

Monthly mean profiles have been calculated for the MIPAS Near-Real-Time Level 2 products (temperature, H_2O , O_3 , HNO_3 , CH_4 , N_2O and NO_2) from July 2002 until March 2004. The Level 2 profiles have been split into six latitude bands (90S-65S, 65S-20S, 20S-0, 0-20N, 20N-65N, 65N-90N) for the calculation of the means. Here we compare these monthly means with reference climatologies for each of the Level 2 products in order to provide an overview of the quality of these products over the timescale that MIPAS has been operating. The reference climatologies used in these comparisons are the COSPAR Reference Atmosphere (CIRA) for temperature and the IG2 dataset (used in the construction of the initial guess for the MIPAS retrievals) for the gases.

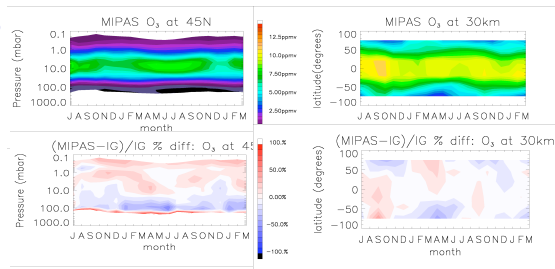
Temperature



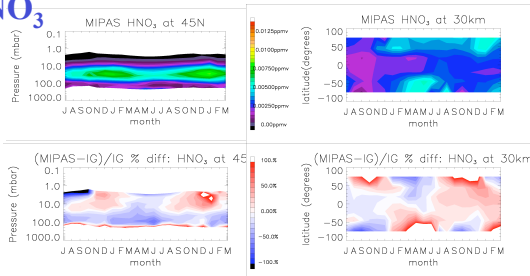
H_2O



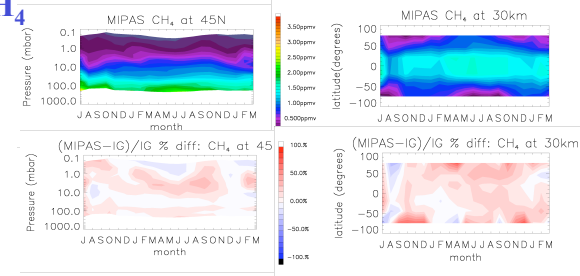
O_3



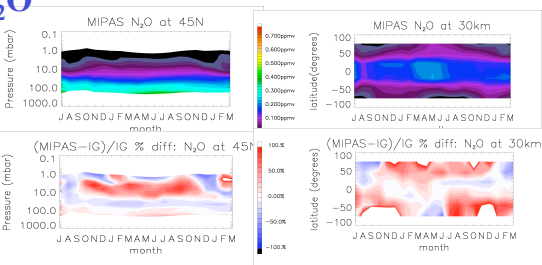
HNO_3



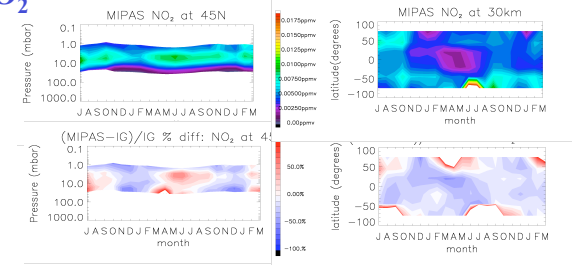
CH_4



N_2O



NO_2



Guide to figures

Four panels are shown for each of the Level 2 products.

Top left : contour plot of the monthly mean profiles from July 2002 to March 2004, for the latitude band 20N-65N.

Top right: cross-section of latitude versus time for the 30km nominal altitude.

Bottom left: time series of the percentage difference (absolute difference in Kelvin for temperature) of MIPAS from the reference climatology used.

Bottom right: latitude cross section of the percentage difference from climatology at the 30km nominal altitude as a function of time.

References:

Remedios, J. J., Extreme atmospheric constituent profiles for MIPAS, Proceedings of the European Symposium on Atmospheric Measurements from Space, ESTEC, Noordwijk, Netherlands, 20-22 January, Vol 2, 779-783, 1999

<http://badc.nerc.ac.uk/data/cira>

<http://www.atm.ox.ac.uk/group/mipas>