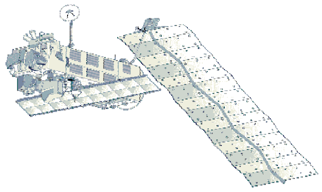
AMIL2DA

Advanced MIPAS level 2 data analysis [amil'tu:da]



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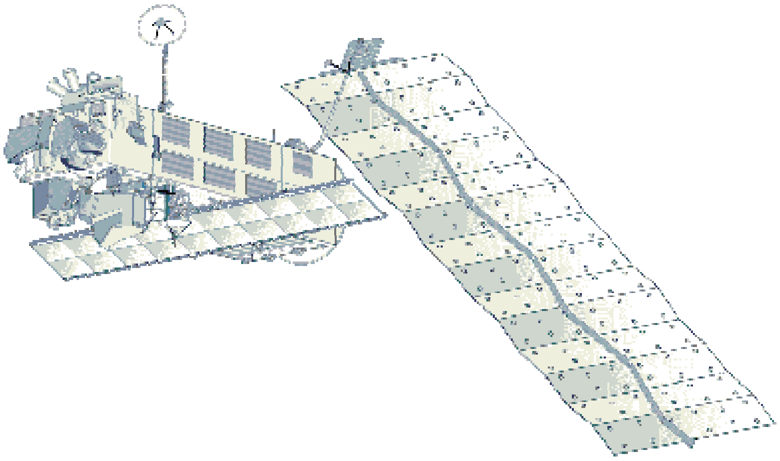
Shared Cost Action within the RTD generic activities of the 5^{th}-FP EESD Programme of the European Commission, Project EVG1-CT-1999-00015
Project Period Jul 1, 2000 - Jun 30, 2003

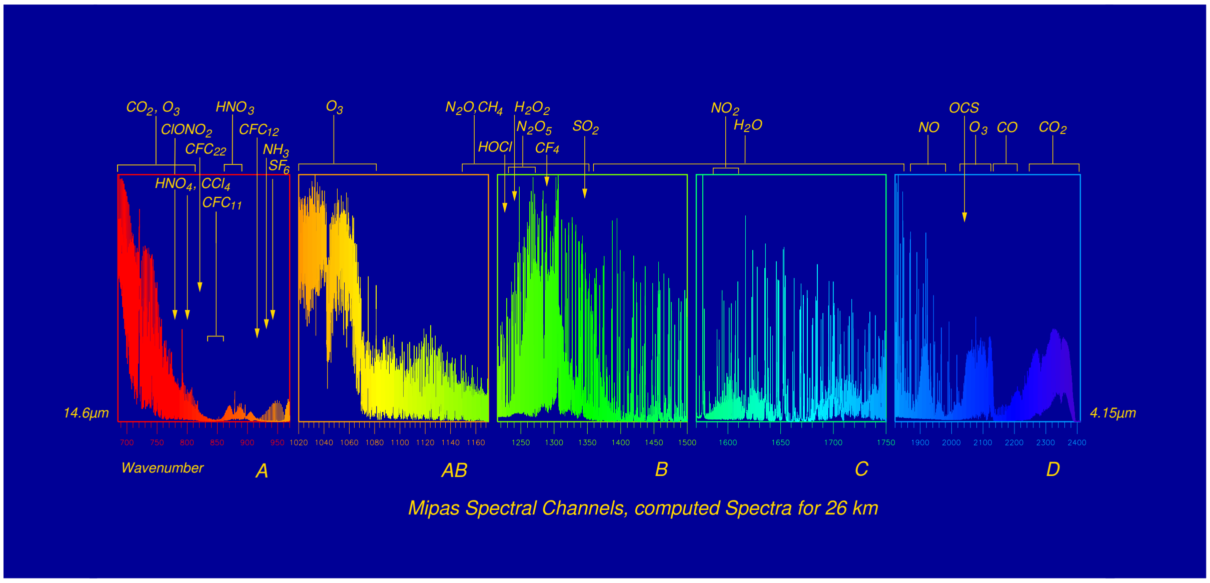
What is Envisat?

Envisat is a polar orbiting satellite to be launched by the European Space Agency in mid 2001. It carries ten different instruments for environmental research. For additional information please contact the European Space Agency's Envisat website: http://envisat.estec.esa.nl/



What is MIPAS?

The MIPAS (Michelson Interferometer for Passive Atmospheric Sounding) instrument, a Fourier transform limb emission spectrometer, is one of the instruments on Envisat. It measures the infrared spectral radiance of the Earth limb. Since atmospheric infrared emission is mainly caused by gaseous trace constituents of the atmosphere, quantitative analysis of such spectra reveals vertical abundance profiles of these constituents. Operational MIPAS data products will be vertical profiles of pressure, temperature, O_3, HNO_3, N_2O, CH_4, H_2O and NO_2.



Why AMIL2DA?

There are many species which can be measured by MIPAS but which are not part of the operational data product. Nevertheless such gases are of major interest for environmental research, e.g. stratospheric ozone chemistry or global change monitoring. This gap will be filled by scientific groups who will use their own algorithms to analyze the spectra for, e.g., CFCs, chlorine reservoirs, further nitrogen reservoirs. Moreover, these groups plan to reanalyze species of the operational data product with algorithms of higher sophistication. The use of different data analysis approaches, however, can cause inconsistencies in resulting data sets.
In order to guarantee consistent and reliable data sets, which will be used by the scientific community, thorough intercomparison and characterization of the different algorithms and data sets is necessary. AMIL2DA aims at a reasonable standardization of data products without sacrificing the diversity of data analysis strategies used by the different European groups. These activities will approve the acceptance of MIPAS data by the scientific community and will help to better exploit MIPAS data for purposes of atmospheric science.

The AMIL2DA Strategy

- Radiative transfer models and retrieval processors are adapted to the physical and computational requirements of the MIPAS experiment. Some of these algorithms include non-local thermodynamic equilibrium modeling.
- Radiative transfer models are intercompared; detected inconsistencies are removed.
- Using a set of synthetic reference spectra, blind-test retrievals are performed.
- After fixing all occuring deficiencies in the analysis tools and strategies, the retrieval processors are applied to MIPAS measurements. Residuals between measured and best-fitting modeled spectra are analyzed for systematic patterns.
- External reference data for validation will be provided by different sources including the Envisat instruments GOMOS and SCIAMACHY.

Further Information

Please check our web-site:

http://www.fzk.de/imk/imk2/ame/amil2da

You may also contact us directly:

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