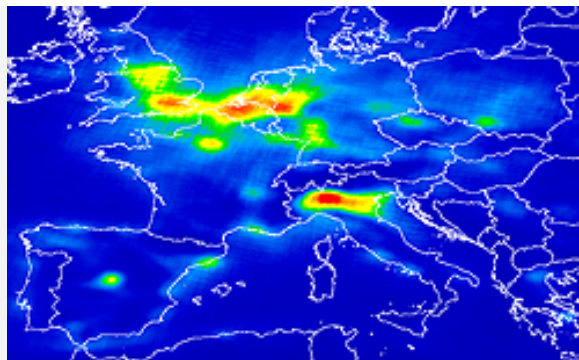


## News Archive

### Metop-A: Global air quality checks delivered daily from space

1 August 2008



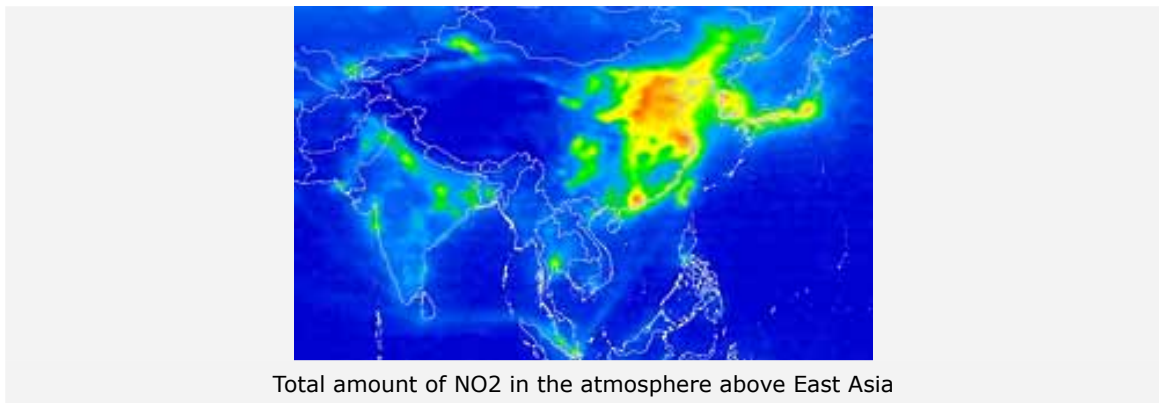
Total amount of NO<sub>2</sub> in the atmosphere above Europe

The GOME (Global Ozone Monitoring Experiment)-2 scanning spectrometer on board Metop-A is now delivering daily reports on the amount of nitrogen dioxide (NO<sub>2</sub>) in the Earth's troposphere. A sophisticated data processing system, which produces maps showing global NO<sub>2</sub> concentrations based on processed GOME-2 data, was developed by the German Aerospace Center (DLR). NO<sub>2</sub>, together with aerosols and ozone, is one of the most important contributors to air pollution.

The GOME-2 NO<sub>2</sub> products are available in near real time, i.e. 2 hours and 30 minutes after observation, making it possible to track changes in global tropospheric NO<sub>2</sub> on a daily basis. The NO<sub>2</sub> pollution pattern varies significantly from day to day, mainly as a result of changes in weather conditions and variations in emissions. The near-real-time monitoring of tropospheric NO<sub>2</sub> with GOME-2 is especially useful for improving air pollution forecasts.

The system that delivers the operational GOME-2 NO<sub>2</sub> products was developed by DLR, a partner member of EUMETSAT's Satellite Application Facility on Ozone and Atmospheric Chemistry Monitoring (O3M-SAF), which is coordinated by the Finnish Meteorological Institute. The O3M-SAF generates, validates, archives and distributes atmospheric data products for ozone, trace gases, aerosols and surface ultraviolet radiation using measurements from Metop-A, and is part of a long-term European commitment to monitor the recovery of the ozone layer and to support the monitoring and forecasting of air quality for citizens of Europe and the world.

#### GOME-2 provides near-global daily coverage

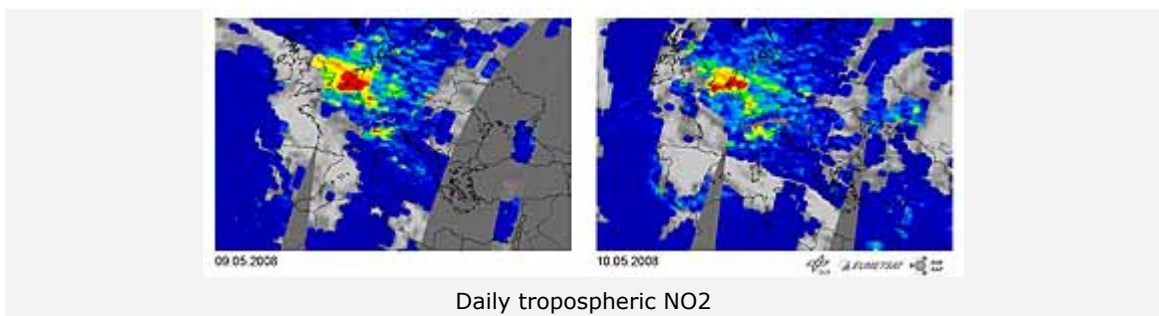


GOME-2 is a follow-on to the successful GOME flown on the European Space Agency (ESA)'s ERS-2 satellite launched in April 1995, and provides near-global coverage daily. The instrument measures profiles of atmospheric ozone and the distribution of other trace gases in the atmosphere that are related to the depletion of ozone in the stratosphere and to natural and anthropogenic sources of pollution.

Nitrogen dioxide, which comes from motor vehicles exhausts, power plants and from industry and farming, is one of the most important contributors to air pollution, and is an important precursor in the production of ground-level ozone, known as summer smog. With the GOME-2 instrument, NO2 can be measured worldwide and at a 'city-size' scale. Clearly visible in the image are the high tropospheric NO2 concentrations above large urban and industrial areas of Europe, such as the Po Valley, Rotterdam, Antwerp and Germany's Ruhr area.

The world's largest area with high NO2 pollution is found above east China, which is a result of China's spectacular economic growth during the last decade, accompanied by a strong increase in emissions of air pollutants. Another remarkable feature visible in the image is the growth in tropospheric NO2 along shipping lanes in the Bay of Bengal and the South China Sea.

GOME-2 tropospheric NO2 data can be ordered via O3M-SAF and is available in near-real time via EUMETSAT's EUMETCast system. DLR provides near-real-time maps on the Internet at the World Data Centre for Remote Sensing of the Atmosphere and EOWEB.



Note: The plots shown here are based on operational GOME-2 level-1b data provided by EUMETSAT and pre-operational Level 2 data provided by DLR.

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