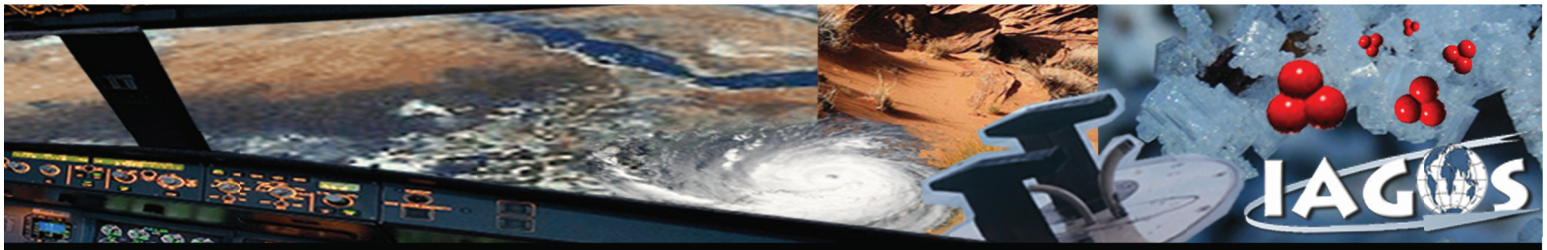


In-service Aircraft for a Global Observing System

The Consortium

IAGOS-ERI builds on 15 years of scientific and technological experience gained in the research projects MOZAIC (Measurement of Ozone and Water Vapour on Airbus in-service Aircraft) and CARIBIC (Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container).

The Partnership

JÜLICH FORSCHUNGSZENTRUM · CNRS CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE · METEO FRANCE · MANCHESTER 1824 · ifu · UNIVERSITY OF CAMBRIDGE · BRITISH AIRWAYS · Lufthansa · NATURAL ENVIRONMENT RESEARCH COUNCIL · MPI-BGC Jena · enviscope GmbH · DLR · AIRBUS · cnes · ECMWF · WHO

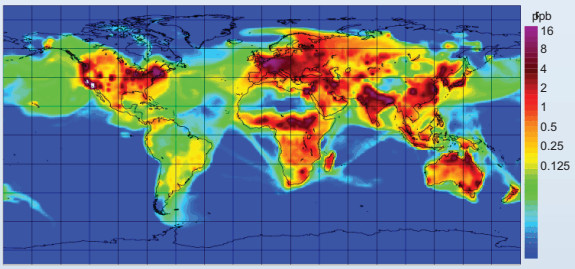
Associated Airlines

Lufthansa · BRITISH AIRWAYS · CHINA AIRLINES · QANTAS · AIR FRANCE · Austrian · Air Namibia · IBERIA · CATHAY PACIFIC · Philippine Airlines · SOUTH AFRICAN AIRWAYS

The Science

The need for routine aircraft observations at the global scale is driven by:

- The scientific communities engaged in modelling of
  - Climate Change
  - Air Quality
  - Carbon Cycle
  - Impact of Aviation
- The Task Force on Hemispheric Transport of Air Pollutants (HTAP)
- The GMES Atmospheric Service (GAS)
- The scientific community engaged in improving satellite data

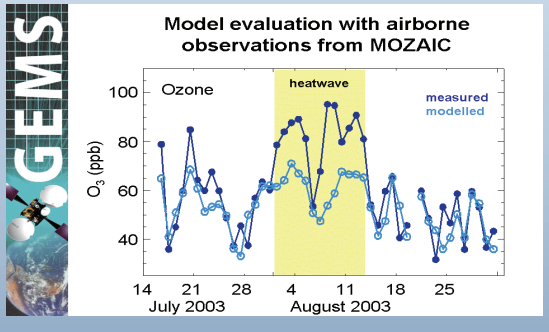


ECMWF/GEMS Forecast of Surface NOx for 26.11.2008 (http://gems.ecmwf.int)

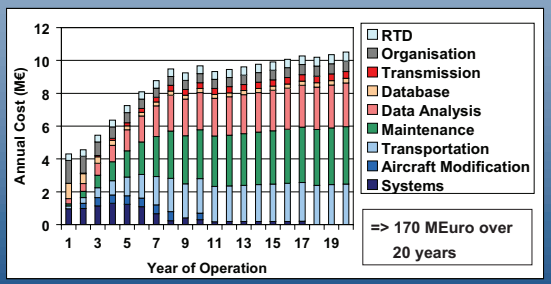
The Users

IAGOS-ERI provides data for users in science and policy, including:

- Modelling of climate change and global air quality
- Air quality forecasting in the GMES Atmospheric Service.
- Verification of CO_2 emissions and Kyoto monitoring
- Numerical weather prediction
- Validation of satellite data products



The Costs



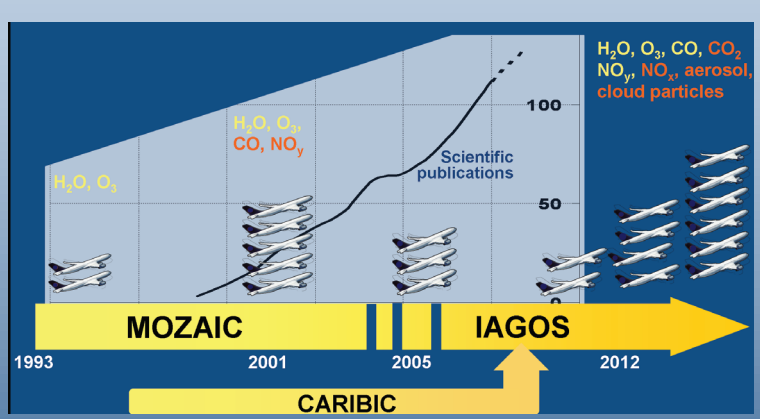
The Technical Approach

IAGOS-ERI deploys newly developed high-tech instruments aboard a fleet of Airbus longhaul aircraft for regular in-situ measurements of atmospheric chemical species (O_3, CO, CO_2, NO_y, NO_x, H_2O), aerosols and cloud particles.

IAGOS instruments are permanently installed in the avionic compartment.

In CARIBIC, a cargo container is deployed as a flying laboratory aboard one aircraft. A special multi-functional inlet system allows optical measurements and accurate sampling for aerosol and trace gases.

The Timeline



Coordinator: A.Volz-Thomas, Institut für Chemie und Dynamik der Geosphäre 2, Forschungszentrum Jülich, Germany, *a.volz-thomas@fz-juelich.de*

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