**What is IGAS?**

IGAS is a bridge between the data collected on board civil aircraft through IAGOS (In-service Aircraft for a Global Observing System) and the Copernicus atmospheric service, currently represented by MACC-II in its pre-operational state.

IAGOS is establishing and operating a distributed infrastructure for the longterm measurement of atmospheric composition, aerosol and cloud particles on a global scale. For more information on IAGOS, see iagos.org.

**What does IGAS stand for?**

IGAS stands for IAGOS for the GMES Atmospheric Service, but GMES has since been renamed Copernicus.

**What is IGAS?**

IGAS is a bridge between the data collected on board civil aircraft through IAGOS (In-service Aircraft for a Global Observing System) and the Copernicus atmospheric service, currently represented by MACC-II in its pre-operational state.

IAGOS is establishing and operating a distributed infrastructure for the longterm measurement of atmospheric composition, aerosol and cloud particles on a global scale. For more information on IAGOS, see iagos.org.

**What does IGAS stand for?**

IGAS stands for IAGOS for the GMES Atmospheric Service, but GMES has since been renamed Copernicus.

**The IGAS project aims to:**

- make the IAGOS data more accessible to the scientific community through database improvements
- develop tools to use the data to validate satellite measurements
- provide the IAGOS data streams in both near-real-time and delayed mode to the Copernicus Atmospheric Service
- harmonize and evaluate the quality of the measurements
- enhance future measurement capabilities of IAGOS through instrument development

**To enhance the IAGOS-Copernicus link, first the database services are being harmonised to ensure full interoperability.**

- Database tools are being developed to make the data easier to find and use. Tools include co-location of back-trajectories and completed columns for validation of satellite data.
- The use of IAGOS aerosol and GHG data in the Copernicus Atmospheric service will be developed and assessed, in particular with respect to bias correction.

**Enhancing the IAGOS-Copernicus link**

**Operational data transfer**

**Evaluation and harmonisation of data quality**

**Instrument development**

**Targeted instrument development within IGAS to expand the capabilities of the IAGOS fleet includes:**

- the development and certification of a new chemical mass spectrometer (PTR-MS) which would be able to measure diverse volatile organic compounds (at the Karlsruhe Institut für Technologie)
- the development and evaluation of a miniature cloud spectrometer with particle depolarisation detection capability (at the University of Manchester)
- the development and certification of a particle extinction measurement instrument based on the cavity attenuated phase shift principle (at Forschungszentrum Jülich)
- the development and evaluation of a reduced-size instrument measuring total water and water vapour (at Hilase Ltd.)
- an investigation of possible changes in configuration of the IAGOS setup in order to allow more flexibility in the installation of different combinations of instruments

**The quality of the IAGOS data will be ensured through the following procedures:**

- Development of automatic data base tools to match close-flying aircraft in 4D space
- Comparison with other existing observation systems, e.g. NOAA/GMD or CONTRAIL aircraft measurements
- Evaluation of measurements of the same compound made aboard the same aircraft by different instruments (e.g. CO, H$_2$O)
- Regular evaluation of the data quality procedures applied in IAGOS and results of the QA activities by international experts together with instrument operators.
- Regular documentation of data quality through workshop reports and by updating IAGOS metadata

**There are two components to the transmission of data from the aircraft:**

- The full information is being transmitted post-flight over the digital cellular network via GSM.
- The Real-Time Transmission Unit (RTTU) allows for in-flight transmission over the WMO Information Service, and is being certified and installed in IGAS.