

In-service Aircraft for Global Monitoring: Status and Perspectives

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In-Service Aircraft for a Global Observing System (IAGOS) is a European Research Infrastructure (www.iagos.org) which has been established in 2014 from the two European research projects Measurement of Ozone and Water Vapour on Airbus in-service Aircraft (MOZAIC) and Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container (CARIBIC). The goal is to establish and operate a sustainable observing system for monitoring of atmospheric trace gases, aerosol and cloud particles from commercial aircraft at a global scale, using two complementary technical approaches:

IAGOS-CORE: *In situ* instruments permanently installed aboard currently six AIRBUS A330 or A340 aircraft operated by Deutsche Lufthansa, Air France, China Airlines, Cathay Pacific, and Iberia. The long-term plan is to expand the fleet to 20 aircraft in order to improve global coverage.

IAGOS-CARIBIC: Monthly deployment of a cargo container currently equipped with 16 instruments for *in situ* measurements and remote sensing, as well as provisions for the collection of samples for subsequent analysis of many trace gases and aerosol chemical composition.

The presentation will discuss the ultimate goals of IAGOS, the current status of the technical implementation, and the planned developments, including the plans for liaising with airlines, such as Hawaiian. Selected results will be presented to highlight the value of 20 years of regular airborne data from commercial aircraft for a better understanding of atmospheric composition and its variability in a changing climate. IAGOS data are extensively used for process studies, trend analysis, as well as model and satellite validation. Near real-time data are provided for the Copernicus Atmosphere Monitoring Service (CAMS). For a recent overview of scientific achievements of the MOZAIC-IAGOS programme see <http://www.tellusb.net/index.php/tellusb/pages/view/thematic>.

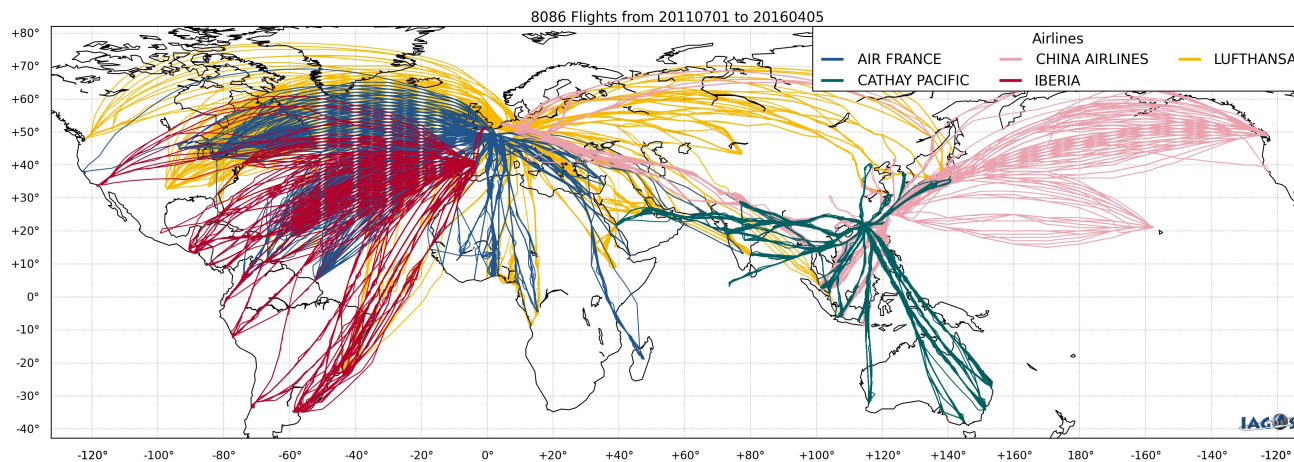


Figure 1. Map of flight routes of the aircraft equipped with IAGOS instruments.