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Real-Time use of IAGOS observations

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Concentrations of chemical constituents of the atmosphere measured in situ from commercial aircraft are foreseen to be used in real-time, like the measurements of temperature, wind, and humidity that are sent to weather forecast centres since several years.
The first users of real-time chemistry observations will be air quality prediction centres that need, in addition to surface concentrations and emissions rates of various pollutants, and meteorological state of the atmosphere, a most accurate knowledge of distributions of the species participating to the chemical processes in the whole troposphere.

The IAGOS project is collaborating with European projects like MACC preparing the future "atmospheric services" of the Global Monitoring for Environment and Security initiative of the European Union and European Space Agency. The work is done also with help of national meteorological services in order to design an automatic transmission of chemical observations that will be used for initialization of air quality numerical prediction, as soon as enough IAGOS aircraft ($\sim$more than 6) will be flying from European airports. During the implementation phase of the IAGOS infrastructure, real-time observations can be used for monitoring the quality of the predicted chemical distributions.

The presentation describes the design of the real-time data transmission system, the on-board data processing, the data set made available in real time, and the collaborations needed to achieve the operational use of IAGOS data. In 2011, an on board equipment is developed for the data transmission and first IAGOS real-time data should be transmitted from 2012.