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**SUBMITTED ABSTRACT**

<b>0.</b>	<b>Paper Number</b>	172
	<b>Session Name</b>	3. Ensuring sustainability of measurements
<b>1.</b>	<b>Title of the paper</b>	Quality Assurance & Quality Control of IAGOS In Service Aircraft Measurements: Concept & Experiences Made

<b>2.</b>	<b>Institution</b>	Research Centre Jülich, Institute of Energy and Climate Research: Troposphere (IEK-8)			
	<b>Authors</b>	Dr/Mr/Ms	Family name	First name	Country
a	Lead author	Dr	Smit	Herman G.J.	Germany
b	Co-author	Dr	Gerbig	Christoph	Germany
c	Co-author	Dr	Thouret	Valerie	France
d	Co-author	Dr	Rauthe-Schöch	Armin	Germany

<b>4.</b>	<b>Abstract of the paper</b>
	<p>The European Research Infrastructure IAGOS (In-service Aircraft for a Global Observing System, <a href="http://www.iagos.org">http://www.iagos.org</a>) operates a global-scale monitoring system for atmospheric trace gases, aerosols and clouds by using the existing provisions of the global air transport system. IAGOS complements the global observing system in addition to ground-based networks, dedicated research campaigns, satellites, balloons, and ships. The infrastructure builds on the heritage of former research projects MOZAIC (Measurement of Ozone and Water Vapour on Airbus In-service Aircraft; <a href="http://www.iagos.fr/mozaic">http://www.iagos.fr/mozaic</a>) and CARIBIC (Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container; <a href="http://www.caribic-atmospheric.com">http://www.caribic-atmospheric.com</a>). The infrastructure collects regular in-situ observations between the surface and cruise altitude of about 12 km at high spatial resolution and provides long-term observations of atmospheric chemical composition since 1994 (e.g. H<sub>2</sub>O and O<sub>3</sub>). Essential in the long term monitoring in IAGOS is to have a sustainable QA/QC management plan. While the regular calibration with reference standards and comparison with reference instruments for each IAGOS instrument has been already established within the infrastructure of IAGOS, there was a lack of a harmonized QA/QC concept that was fully documented and operational. Therefore, within the IGAS (IAGOS for GMES Atmospheric Services) project, funded by the European Commission, a QA/QC evaluation concept for IAGOS was developed that is directly linked to the QA/QC-plan established at the WMO/GAW programme. The QA/QC documentation to be evaluated consists of (i) regular calibration reports, (ii) comparing IAGOS data within themselves (internal consistency), and (iii) comparing with other datasets (external consistency). We will give an overview of the concept and the procedures for regular evaluation of IAGOS- data. We will present and discuss the experiences made by testing the concept, its procedures and the automatic tools developed. Further, we will discuss the implementation of this QA/QC evaluation concept into the operational research infrastructure of IAGOS.</p>