Geophysical Research Abstracts
Vol. 18, EGU2016-6479, 2016
EGU General Assembly 2016

Long-term Temperature Measurements of the Upper Troposphere and Lowermost Stratosphere with MOZAIC and IAGOS

Florian Berkes (1), Patrick Neis (1), Susanne Rohs (1), Herman Smit (1), Martin Schultz (1), Paul Konopka (2), Phillipe Nédélec (3), Damien Boulanger (3), and Andreas Petzold (1)

(1) Forschungszentrum Juelich, Institute of Energy and Climate Research - Troposphere, Juelich, Germany (f.berkes@fz-juelich.de), (2) Forschungszentrum Jülich, IEK-7, Jülich, Deutschland, (3) Laboratoire d' Aerologie, CNRS, Université Paul Sabatier Toulouse III, Toulouse, France

An important component of numerical weather prediction models is the assimilation of in-situ temperature measurements on a global scale. The sources of temperature data are retrievals from various satellite instruments, and in-situ radiosonde and commercial aircrafts measurements. The European Research Infrastructure IAGOS (In-service Aircraft for a Global Observing System) operates a global-scale monitoring system for meteorological and atmospheric trace gases at high spatial resolution by instrumented passenger aircrafts.

We will present in-situ airborne temperature measurements at cruise level by IAGOS/MOZAIC since 1994. The temperature measurements are obtained through a Pt100 built into a VAISALA capacity hygrometer, and they are independed, which means the measurements are not assimilated in numerical weather prediction models. The accuracy is better than the in-general installed temperature sensors on commercial aircrafts. We will show an inter-comparison between the ERA-Interim temperature data against the Pt100 measurements for different atmospheric layers (upper troposphere, tropopause, lowermost stratosphere) and focus on the northern and mid-latitude regions.