

Source Estimation of Norilsk Nickel by CARIBIC Aircraft

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Abstract text

CARIBIC (Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container) observes physical and chemical processes in the Earth's atmosphere using a measurement container aboard a Lufthansa Airbus 340-600. A special inlet system is mounted on the aircraft with probes for trace gases, water vapor and aerosol particles. It also includes a DOAS system for remote sensing and a video camera for cloud monitoring.

With this unique observatory, four consecutive flights are performed once a month during regular passenger flights. See also www.caribic.de

In October 2010 the aircraft flew from Osaka to Frankfurt over Siberia south of MMC Norilsk Nickel, a huge mining company emitting large amounts of sulphur dioxide. Using the DOAS measurements and ECMWF wind data we were able to make an estimation of the SO₂ source strength to about 4 MT/a.

On this poster, the CARIBIC project is presented and the CARIBIC flux estimation of Norilsk Nickel is compared with satellite data. The assumptions for the retrieval are discussed. Further results will be shown like the NO₂ emission of Paris according to data of a recent flight in March 2011.

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