Atmospheric Chemistry and Physics
An Interactive Open Access Journal of the European Geosciences Union

Atmos. Chem. Phys., 3, 1551-1564, 2003
www.atmos-chem-phys.net/3/1551/2003/

An improved infrared carbon monoxide analyser for routine measurements aboard commercial Airbus aircraft: technical validation and first scientific results of the MOZAIC III programme

P. Nedelec[1], J.-P. Cammas[1], V. Thouret[1], G. Athier[1], J.-M. Cousin[1], C. Legrand[2], C. Abonnel[3], F. Lecoeur[4], G. Cayez[5], and C. Marizy[6]

[1]Laboratoire d'Aérologie, CNRS, Observatoire Midi-Pyrénées, UMR 5560, 14 Avenue Edouard Belin, 31400 Toulouse, France

[2]Air C.O.M., Avenue Tsukuba, 14200 Herouville Saint Clair, France

[3]Météo-France, Centre d'Aviation Météorologique, Aérodrome, 91228 Brétigny-sur-Orge, France

[4]Météo-France, Direction des Systèmes d'Observation de la Météorologie, 7 Rue Teisserenc-de-Bort, BP 202, 78195 Trappes, France

[5]Météo-France, Direction Interrégionnale Nord-Est, BP 124 Parc d'Innovation, Boulevard Gonthier d'Andernach, 67403 Illkirch Cedex, France

[6]Airbus France, 316 Route de Bayonne, 31300 Toulouse, France

Abstract. The European-funded MOZAIC programme (Measurements of ozone and water vapour by Airbus in-service aircraft) has been operational since 1994 aboard 5 commercial Airbus A340. It has gathered ozone and water vapour data between the ground and an altitude of 12 km from more than 20 000 long-range flights. A new infrared carbon monoxide analyser has been developed for installation on the MOZAIC equipped aircraft. Improvements in the basic characteristics of a commercial CO analysers have achieved performance suitable for routine aircraft measurements : ±5 ppbv, ±5% precision for a 30 s response time. The first year of operation on board 4 aircraft with more than 900 flights has proven the reliability and the usefulness of this CO analyser. The first scientific results are presented here, including UTLS exchange events and pollution within the boundary layer.

Final Revised Paper (PDF, 7785 KB) Discussion Paper (ACPD)

Citation: Nedelec, P., Cammas, J.-P., Thouret, V., Athier, G., Cousin, J.-M., Legrand, C., Abonnel, C., Lecoeur, F., Cayez, G., and Marizy, C.: An improved infrared carbon monoxide analyser for routine measurements aboard commercial Airbus aircraft: technical validation and first scientific results of the MOZAIC III programme, Atmos. Chem. Phys., 3, 1551-1564, 2003. Bibtex EndNote Reference Manager