Annales Geophysicae

ISSN: 0992-7689 (printed version)
ISSN: 1432-0576 (electronic version)

Abstract Volume 12 Issue 10/11 (1994) pp 969-978

A numerical study of contrail development

M. Boin (1) (*), L. Levkov (2)

(1) University of Hamburg, Institute of Meteorology, Bundesstr. 55, D-20146 Hamburg, Germany
(2) GKSS Research Center Geesthacht, Institute of Physics, Max-Planck-Str., D-21502 Geesthacht, Germany

Received: 1 October 1993 / Revised: 19 April 1994 / Accepted: 22 April 1994

Abstract. In this study, the formation of a contrail from an aircraft flying near the tropopause is simulated using a three-dimensional mesoscale atmospheric model including a very complex scheme of parameterized cloud microphysical processes. Two different primary ice nucleation parameterizations for deposition nucleation, condensation freezing, and contact freezing are applied. The model-predicted ice concentrations are compared to data measured during the International Cirrus Experiment (ICE), 1989.

(*) *Present address:* TAKATA (Europe) Vehicle Safety Technology GmbH, Helmholtzstr. 22, D-89081 Ulm, Germany
Correspondence to: Manuela Boin