

European Conference on Aviation, Atmosphere and Climate

ABSTRACT

In situ measurements of contrails and cirrus clouds from the WB57 aircraft during
CRYSTAL-FACE

Randall Friedl and the WB-57 science team

The WB57F component of the Cirrus Regional Study of Tropical Anvils and Cirrus Layers - Florida Area Cirrus Experiment (CRYSTAL-FACE) mission provided 27 gas and particle sampling instruments for in situ characterization of chemical and microphysical properties of contrails and cirrus clouds in the upper troposphere and lower stratosphere. The aircraft collected over 65 hours of science data during the mission, with a substantial fraction of the time spent sampling cirrus clouds. The aircraft also obtained valuable chemical tracer data near the tropopause and in the stratosphere up to altitudes of 60 kft. The WB57F data set certainly represents the largest and most comprehensive in situ examination of cirrus cloud properties in the 40 to 50 kft region of the atmosphere. We will present an overview of the WB57 aircraft payload and flight profiles and discuss some of the important preliminary results regarding water vapor concentration and ice water content in contrails, contrail and cirrus particle composition and nitric acid uptake on contrail and cirrus particles