**A816882 Visual Contrast Detection Thresholds for Aircraft Contrails**

Date: 1994-07 Authors: Jeffrey A. Doyal; David P. Ramer; Michael D. Stratton; Bradley D. Purvis; SCIENCE APPLICATIONS INTERNATIONAL CORP DAYTON OH

Twenty licensed pilots participated in a laboratory investigation of visual detection thresholds for simulated aircraft contrails. Subjects searched a projection screen for simulated contrails while maintaining a prescribed flight profile on a simple flight simulator. Simulated contrails varied in width from 5 arc min of visual angle to 25 arc min, and varied in length from 2 deg to 10 deg. Subjects performed the detection task in an uncued condition, in which they searched an area measuring 135 deg x 37 deg; and in a cued condition, in which they searched an area measuring 45 deg x 37 deg. Detection thresholds decreased with increasing widths and length, however, thresholds were found to be higher than those demonstrated in previous studies. This difference is attributed to the use of a …the probability of detection associated with contrails of a given size and contrast.

**A092673 Improved Prediction and Characterization of Contrails and Optically-ThinCirrus**

Date: 1999-02-22 Authors: Andrew J. Heymsfield; Larry Miloshevich; NATIONAL CENTER FOR ATMOSPHERIC RESEARCH BOULDER CO

This report summarizes research and results that pertain to AFOSR agreement no. F49620-96-C-0024. The aim of this research program has been to improve prediction of aircraft contrail and cirrus ...

**A207042 Persian Gulf Contrail Altitude Limits**

Date: 1991-06 Authors: Gregory J. Reding; AIR FORCE ENVIRONMENTAL TECHNICAL APPLICATIONS CENTER SCOTT AFB IL

Describes development of a computer program (DNCONTRL) that determines the mean and extreme upper and lower limits for conditions that favor condensation trail formation over a given upper-air reporting station. Output ...

**A191323 An Examination of the Hanson Contrail Forecast Algorithm Under Low Relative Humidity Conditions**

Date: 1997-03 Authors: Robert P. Asbury III; AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH

Accurate forecasts of contrail occurrence are essential to military aircrews. Although classical forecast methods have been reasonably successful predicting contrails, there is need for improvement at low ambient relative humidity. This thesis examines the performance of the Hanson method, which was developed to provide better contrail forecasts under drier atmospheric conditions. As a secondary objective, the forecast methods of Schumann and Hanson are compared to the algorithm currently in use by the Air Force Global Weather Central. Data used to validate the algorithms were collected at Wright-
Theoretical contrail forecasts were made for each observation, using the flight level pressure, ambient temperature, and relative humidity. Comparisons ...roughly 75 percent of observed contrails under moist atmospheric conditions. However, the Hanson method's performance decreased when drier atmospheric observations were tested. Schumann's method.

**A118083 Investigation of Properties of High Level Cirrus Clouds and their Importance for Satellite and Aircraft Operations**

Date: 1999-12-29 Authors: John Hallett; NEVADA UNIV RENO DESERT RESEARCH INST

New instrumentation has been designed developed and deployed for characterizing ice and water droplets in clouds in the atmosphere by in situ aircraft measurement. The principle of operation depends ...