

Middle Latitude Cirrus Cloud Properties Experiment (MACPEX) Flight Summary Report (14 April 2011).

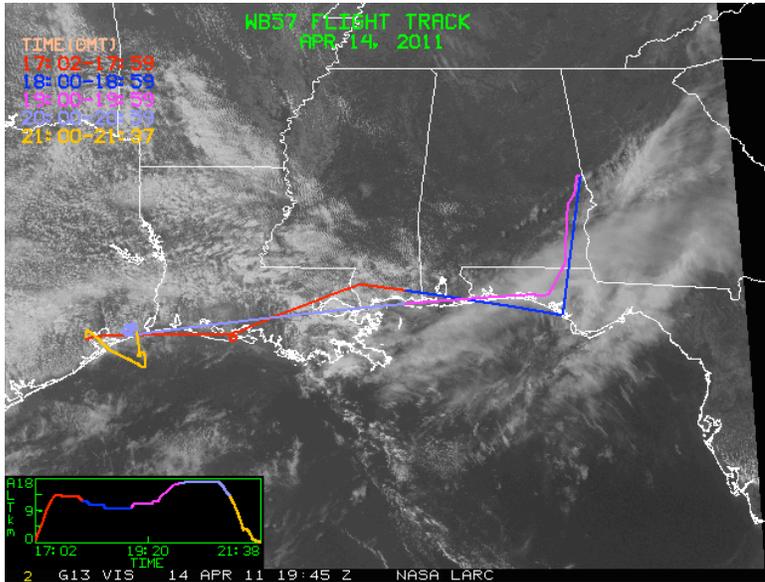


Figure 1. Flight Track overlaid on Visible satellite image. Images Courtesy of Minnis Group.

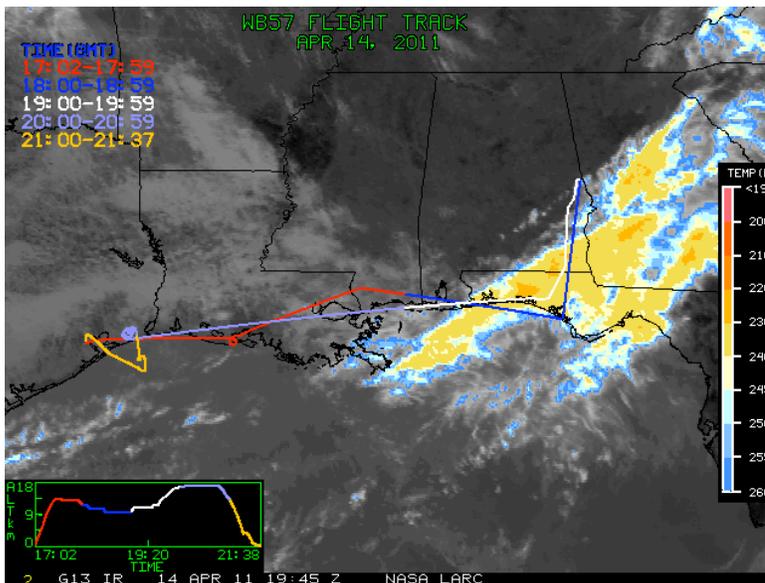


Figure 2. Flight Track overlaid on IR satellite image. Images Courtesy of Minnis Group.

1. Purpose of Mission:

Primary Mission:
Sample cirrus associated with subtropical jet steam over Gulf Coast

Secondary Objective:
Compare measurements of stratospheric water vapor.

2. Flight Summary

The WB57F (926NA) sampled cirrus associated with a weakening subtropical jet stream maximum over the Florida Panhandle and Southeast Georgia. Both along-wind and cross-wind legs were flown during this flight.

Following the cloud sampling, the aircraft headed toward a rendezvous with the balloon-borne frostpoint hygrometer near Houston.

3. Instrument Operations Officer Report:

Flight duration – 4.7 hours

Crew – RKE/DOM

Instruments flown: 2DS, ALIAS, CPI, CIMS, CLH, DLH, FCAS, FCDP, FISH, HARWV, HARHAL, HVPS, JLH, MMS, NMASS, O3, O3LITE, PALMS, SID3, ULH, SP2, VIPS

1158 **Takeoff** 1637 **Land**

Flight Log

Engine

Start 1141

Data Rec 1148 **Begin** 1635 **Landing** 1637
On **Descent**

Gear extension/retractions

Gear Up 1158

Gear Down 1633

Weather Observations

Ascended through solid cloud layer at 3,000.
Light cirrus evident above and solid deck below when on N-S line at FL360.
Able to be in solid layer for most of the leg. Return vector traveled through evident ice crystal layer for some 10-15 minutes en route back.
Light turbulence noted at FL535 14:52.

Flight Profile

Transit to range was uneventful.
MMS maneuvers accomplished at FL430 at 12:23.
Decended in route to FL350 near cloud tops and point 5 as directed by Theroy.
Began S-N route descending to FL310. Ascended to FL360 for South-bound leg.
Vectored off course and required to ascend to FL 380 per ATC. Turned to EFD short of southern point by ATC.
Spiral down to FL430 at designated point and RTB.

Instrument Notes

HARHAL failed upon start. Reset 1X
PAMLS failed on start. Rest multiple times no joy.
HARHAL and HARVWV fail below 3,000'. No action per checklist.

4. Preliminary Instrument/Data Status for this flight:

| | |
|---------------------|--|
| SID3 | Worked Well |
| VIPS | Worked Well |
| 2DS | Worked Well |
| FCDP | Instruments ran, quality unknown. |
| HVPS | Worked Well |
| CPI | Issues with particle collection noted. |
| CIN | Instrument Flown but did not function. |
| NMASS | Instrument worked but issues noted. |
| FCAS | Worked well |
| PALMS | Major Problems |
| MMS | Worked Well |
| ALIAS | Major Problems Reported. |
| CLH | Worked Well |
| JLH | Worked Well |
| ULH | Worked Well |
| DLH | Worked. Quality improving. |
| Harvard Water Vapor | Worked, Minor Issues Noted |
| Harvard TDL | Unknown |
| Harvard Total Water | Not Ready For flight |
| Harvard Halogen | Worked but Issues Noted |
| FISH | Worked Well |
| CIMS | Worked Well, Minor Issues |
| O3 | Worked Well |
| O3Lite | Worked Well |