

## Middle Latitude Cirrus Cloud Properties Experiment (MACPEX) Flight 1 Summary Report (1 April 2011).

### 1. Purpose of Mission:

Sample cirrus clouds along the Cloudsat, Calipso, MODIS track east of the Yucatan Peninsula.

### 2. Flight Summary

The WB57F (926NA) successfully conducted the first MACPEX science flight and sampled thin cirrus along the A-Train track east of the Yucatan Peninsula.

The aircraft launched at approximately 16:30 UTC and encountered the Cloudsat track at approximately 19:15 UTC. Thin Cirrus were found at flight level 410. The track was flown southbound in cirrus for approximately 50 nautical miles with the sampling of this region again during the northbound leg of the flight. A cruise climb to max altitude (~57 Kft) was conducted on the return.

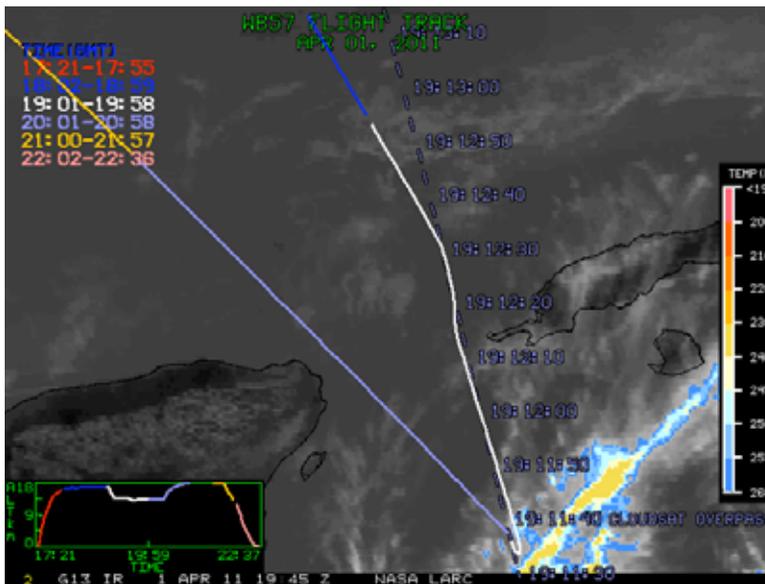
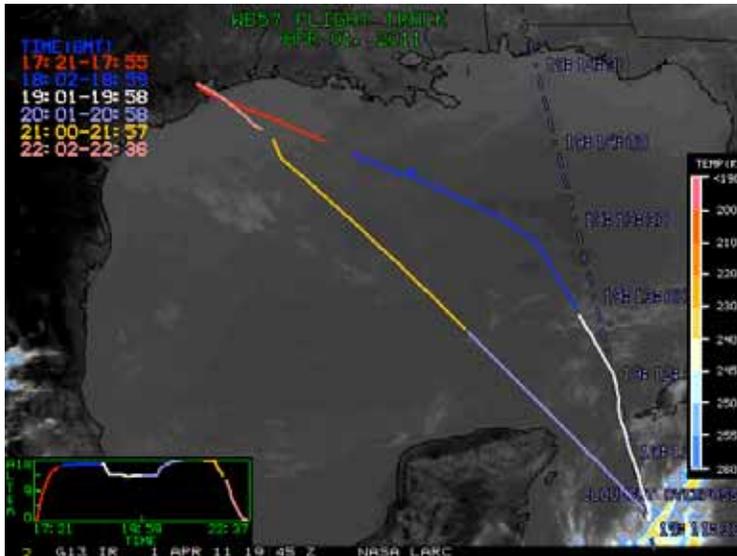


Figure 1. Flight Track overlaid on IR satellite image. Dashed line is Cloudsat track. Images Courtesy of Minnis Group.

### 3. Instrument Operations Officer Report:

#### **General Information**

**Flight date-** 1 APR 2011

**Flight duration** – 5.3 hours

**Crew** – HUL/DOM

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

12:22	<b>Takeoff</b>	17:58	<b>Land</b>
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#### **Flight Log**

##### **Engine**

**Start** 1211

<b>Data Rec</b>	1213	<b>Begin</b>	1645	<b>Landing</b>	1758
<b>On</b>		<b>Descent</b>			

##### **Gear extension/retractions**

<b>Gear Up</b>	1222
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<b>Gear Down</b>	1710
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#### **Weather Observations** Clear day

One cloud about 882nm south. Mid level cirrus haze at FL410.

#### **Flight Profile**

Transit to range uneventful. Transit at FL530 with slow decent to initial point.

Diverted, per science direction, to point 5 then headed due south (slight deviation for Cuban airspace).

Ascended after exiting visible cloud, returning to base to eventual max altituse of FL580.

#### **Instrument Notes**

NMASS fail on initial start up. Action per checklist; reset without incident 1X.

HARVWV fail light at FL1341 FL530. Action per check list; reset without incident 1X.

4. Preliminary Instrument/Data Status for this flight:

SID3	Worked Well
VIPS	Worked Well
2DS	Some Issues with 1 channel
FCDP	Unknown
HVPS	Worked Well
CPI	Worked Well
CIN	Laser Failure. Instrument Removed from Aircraft
NMASS	Not Operational
FCAS	Worked Well
PALMS	Worked Well
MMS	Worked Well
ALIAS	Worked Well
CLH	Worked Well
JLH	Worked Well
ULH	Worked Well
DLH	Worked Well
Harvard Water Vapor	Worked but Some Issues Noted
Harvard TDL	Unknown
Harvard Total Water	Not Yet Ready
Harvard Halogen	Not Flown
FISH	Worked Well
CIMS	Worked but Some Issues Noted
O3	Worked Well
O3Lite	Worked but Some Issues Noted



Figure 2. Images of cirrus over cumulus taken from WB57. Timestamp on image is MDT. Top image captured at 1927 UTC. Bottom image captured at 1945 UTC.