

## WVIOP 2000 Status: Thursday, 28 September

An extended Science meeting featured Tony Clough talking about radiative transfer calculations for the whole spectrum, from the solar through the IR to the microwave. The argument for using the microwave as an absolute reference for total column water vapor was also presented. In addition, there was a lot of lidar news. The DIAL demonstrated good performance and reasonable agreement with the 0530 9/28 sonde. Backscatter was obtained up to 7 km and the low altitude channel worked very well (0.7% noise compared to 3% last October). CARL analyses with a single, fixed calibration showed significant differences from the normal calibration that is automatically updated with MWR PWV. We need to use the AERI/LBLRTM QME to distinguish whether variations in the MWR or the CARL are responsible. The new Scanning Raman configuration demonstrated a daytime improvement that could be implemented on CARL (reducing daytime noise by as much as a factor of 3). For the example shown, the SRL profile agreement with a sonde was quite good, while the CARL showed much higher water vapor mixing ratios above 3 km. Interesting atmospheric waves and layer tilts were defined by HARLIE combined with SRL data on 9/19, 20. Significant aerosol depolarization was also found in 3 km boundary layer from CARL yesterday. Other significant events included the third LN2 calibration verification tests, a demonstration that sonde scaling based on the new preflight procedures is working, and the first successful DataPlane test flight of the IOP. Hopefully we will get some good flying conditions for the DataPlane soon.

Weather: Conditions were clear and dry, with light southerly winds all day.

INSTRUMENT	STATUS/COMMENTS
<u>Microwave</u>	
CART CF (23.80/31.4 GHz)	Operated Continuously, except for brief AM LN2 test.
CART Spare (23.80/31.4 GHz)	Operated Continuously, except for brief AM LN2 test.
NOAA-CSR (20.6/31.65 GHz)	Stopped overnight (9/28-29). Thermal stability is also still an issue. Brief AM LN2 test performed.
NOAA-PSR (18/21, 10,37, 89 GHz with polarization)	Ran continuously. Brief AM LN2 test performed.
U of L'Aquila, Italy (23.8, 31.6, 53.5, 55.5, 58.0 GHz )	Operated continuously, but adequate temperature stability is still questionable.
JPL J-Unit (20.7, 22.2, 31.4 GHz)	Operating continuously in Tip Calibration mode, except for brief AM LN2 test.
<u>Lidar</u>	
CART Raman WV (CARL)	Operating Continuously
NASA, Scanning Raman WV (SRL)	Operated 15 hours, including daytime and automatic scanning mode until daybreak (9/29).
Max Planck Inst DIAL WV	Excellent data, except for power drop from blown fuse.
NASA HARLIE, cloud lidar	Operated for 8 hours

CART MPL, cloud lidar	Operational
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### BBSS (CART)

Central Facility, Digi-CORA	Dual, 3-hourly mode--lost two overnight (9/28-29), but performance improved after cleaning receive connections.
#2, PC-CORA	Dual, 3-hourly mode

### BBSS Launch Site Refs.

THWAPS	Operational, but order 5% disagreement with the chilled mirror is being observed.
Chilled Mirror	Operational

### Tower In Situ Sensors

CART 60m HMP 35 South, 10x	Operational
CART 60m HMP 35 North	Operational
CART 25m HMP 35 South, 10x	Operational
CART 25m HMP 35 North	Operational
Chilled mirror 60m	Operational, except data link
OK MESONET 60m	Operational, except data link
Chilled mirror 25m	Newly installed and Operational, except data link
OK MESONET 25m	Newly installed and Operational, except data link
<u>SMOS (CART)</u>	Operational

### DataPlane

T, RH, P – tower to 1 km	First successful flight of the IOP! Data from 6:35 - 7:40 PM CDT
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### AERI

CART (AERI-01)	Operational
Prototype (AERI-00)	Down for remainder of IOP

### GPS

<u>Central Facility</u>	Operating normally, expect data this week (10 days needed to establish location)
<u>Lamont NOAA</u>	Operational

### Sun Photometer/Spectrometer

MFRSR N1(CART)	Operational
MFRSR/RSS (Albany)	Operational
Cimel Sunphotometer	Operational
NASA AATS-6 channel	Operated all day

### Proteus Aircraft

<u>NAST-I</u>	Flights expected to start flying October 2 or 3
<u>NAST-M</u>	Flights expected to start flying October 2 or 3
<u>FIRSC</u>	Not expected to fly

Hank Revercomb, University of Wisconsin, IOP Chief Scientist.