From: Brent Holben <bholben@pop900.gsfc.nasa.gov>
Subject: Calipso ground campaign summary from June 26-CATZ A
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Folks, thanks to everyone for your participation in the June 26th Calipso ground-based field campaign. Lorraine suggested we call it CATZ (Calipso And Twilight Zone). So this is CATZ A (June 26). Seven cimels, 10 microtops and 1 MPL were successfully deployed. Numerous ground and sky photos were taken. The cimel AOD measured at 1 and 3 minute intervals all seemed very useful with AOD at overpass ranging from 0.66 near Wallops to 0.86 at Strausburg PA. Cloud cover was in the 30 to 50% range depending on the site and compromised most of the cimel PP observations but we may have a few that will be useful. The Aqua MODIS image (attached) showed that we were on the western edge of cloud development over the Delmarva. Vanderlei was able to fly over West Denton (where the MPL, two Cimels and 8 microtops) were located along 7 km of the track. This area appeared to have more clouds during the overpass than the other sites. The MPL appeared to function well. The microtops data will be analyzed as needed. The cimels largely preformed well but results are pending final calibrations so these data are still preliminary. The Raman and HSRL did not fly nor was SMART deployed.

Bottom line first guess assessment of data for project needs:

Twilight-Excellent
Joint Inversion-fair
Calipso AOD validation-Very Good
AERONET cloud AOD-No data collected
AIRBORNE polarimeter-Very Good

We're tentatively planning a limited effort near Dulles on July 3. The next major effort will be July 12 if all goes well. Details to the airbone folks on Friday/Monday.

Following are a few of the field reports and reactions.

Thanks everyone.

bh

PS: Attached are a few snaps.

It's the first real field work for the three students. They did a good job and learned something about sunphotometry.
The attached photos can help you to pinpoint the locations of the instruments, and serve as records of sky conditions.

Thanks,
Jack

We did it!

We arrived right on schedule and Rich sprung into action. While I was reading the warnings and information on the generator in preparation for buying gas and oil, Rich decided he MUCH rather find real power to plug into. (I, of course, preferred ANYTHING to actually speaking with a stranger.) But Rich had no fear. He and Eliana (who looked very young and very cute) knocked on the door of the house on the corner, asking if we could set up in their driveway and plug into their power. The owner said, yes!

So, we didn't dirty the generator after all.

I'll show you tomorrow on the map where this was, but it was REALLY close to the track on the map. The lidar and most everybody organized themselves in this driveway. I stayed across the street with the Cimel. There were a lot of trees near the driveway and the field across the street was a better Cimel site.

Sasha did a great job of transporting people north to various locations and training the Microtops corps. I think that went well also. Having Jack and Rob there was vitally important. I don't think we could have managed all the transportation and worked as many sites as we did without them.

Ilan and Arnon stayed near the lidar and took many sky images. We've been wanting this type of data for a long time and we are very excited that we might get it this time.

Tim came about midday and gave us a real boost when he gave us a thumbs up on the mobile lidar installation and thought that the data was usable. Brent, we might have snuck into that 30% probability range! I'm so excited.

I was able to follow the Cimel protocol mostly. I ran it in BCLSun the whole time, except for the principal plane times. In the hour before and the hour of overpass there were times when the sun was obscured by clouds, but this was what I wanted. There should be plenty of AOT data near overpass, despite the clouds, and there was plenty of twilight. While we were out there had been a thunderstorm at home in Baltimore, but we didn't see anything like that in West Denton, just 50% cloud cover of cumulus, no higher than about 9,000 ft.

Vanderlei had power problems in the airplane, but he flew with his

polarization cameras and at least the manually operated camera took plenty of pictures of the clouds located right overhead. He tells me that they flew back and forth along the satellite track over West Denton until 3:25 pm.

Brent, it was great. I can't wait to see the data.

West Dentoneers rule! We're a great team.

LAR
39 05.842
75 57.541
Elev. 17ft

(I gave these coordinates to Dave and Ilya already)

Parking lot of the Lonesome Dove

No instrument problems. Partly cloudy all day. Sun was usually unobscured for AOD, but no usable PP.

I wish we could get by with a shorter protocol (like 1.5 or 2 hours before and after overpass). Of course, I knew it would be unpleasant out there, but it was really too hot and dull to sit there for 4.5 hours beforehand, especially since the morning almucantar was not usable anyway. I should have brought a chair.

I'm thinking it'll be a challenge to round up volunteers for the next one after yesterday's sweatfest. I'll be driving back from Delaware on the 3rd, but I'll be here for the 12th.

Joel
It was an interesting day yesterday, will try to find some spare time a little later in the week to analyze some of the ground lidar data.
Tim

The report from Strasburg, PA follows.

My son Travis and I arrived on site about 10 am. I searched for a site near the June 26th day and night crossing point which happened to fall in a ravine in the middle of an Amish farm. We found a dirt lane that lead us in the right direction of the crossing point. After getting permission from the farmer, we established a site on a knoll about 400 meters from the crossing point over looking bucolic fields of corn, alfalfa and nearby Amish farm houses, oh yes the manure pit 20 feet away was ripening nicely.

Measurements began around 14:30 in the automatic mode and I thereafter followed the planned protocol fairly closely. Throughout the data time stamped sky photos were taken and along with notes of my estimate of sun and sky conditions mostly for each sun

observation during the automatic mode and sporadically during the BCLSUN mode. Beginning at 1400, Cu began developing peaking around 1700 with approximately 50% cloud cover. At the time of over pass cloud cover was decreasing (~40%) and by break down 2030 was 20% and decreasing rapidly. I took extra PP shortly after the overpass and by break down added an almucantar.

There seemed to be much thin Ci and scud leading up to the overpass but there were clear holes that we hit as well, especially at overpass and later. I doubt if many of the PP will be useable. Clearly the current measurement sequence used for the PP is inadequate for this latitude and this time of year. We should measure horizon to horizon and develop smart strategies for screening the data.

I did not attempt the cloud mode.

I searched for a site for SMART near the crossing point. Given that the particular crossing point is in an Amish field and likely other crossing points will also fall in Amish fields and Amish don't use electricity, we have a problem. The best candidate was a church parking lot about 1.4 km from the June 26 target. There is power, friendly people, a great horizon and the security that the parsonage obscures the view from the road. Discussions will follow.

All in this was a good day for Calipso AOD validation and the twilight folks. We may have obtained some marginal data for the Joint Inversion investigation.
bh