

## **Aerosol Optical Thickness (AOT) Measurements** (reported by Andrea Castanho)

### **Report #1 from T0**

February 25th, 2006

I arrived at Mexico City yesterday and went to UNAM to meet the people that I had the opportunity to meet before at the Boulder meeting.

Everybody is of course very busy, but could give me a great help with what was possible. We made some progress; we have potential person to do the measurements in all the sites, until Tuesday we might have all sites visited and everything defined hopefully.

The shipment of the MicrotopsII and the Nuclepore filters devices are still somewhere on the way; Richard from NASA is taking care of it, he is already at T2, and as soon as he get some news, we are in touch.

### **Report #2 from T0**

March 5th, 2006

Until Wednesday when the equipment arrived, I could visit the possible sites and find the students to do the measurements. The following is a distribution of the sites chosen for the 5 Microtops network in Mexico City.

UNAM (Universidad Nacional Autónoma de México) where the CIMEL was located  
UAM (Universidad Autónoma Metropolitana - Iztapalapa)  
Zócalo-downtown at Centro Histórico ;  
Corena at south at the border of the city plume;  
Tecnologico de Monterrey ? Northwest of the city

All the sites have some meteorological and PM<sub>2.5</sub> or PM<sub>10</sub> measurements nearby, in RAMA or mobil stations.

I got the equipment at T1 on Wednesday (March 1). Thursday, Friday and Saturday were dedicated to train the students to operate the MicrotopsII and also to get measurements together with the Cimel at T0 to be used as a reference for calibration of the Microtops.

On Sunday morning (Mar 5) the Microtops Measurements start in four of the stations; on Monday in Corena. Probably on Sunday, we can also have the filters working. Shipments fortunately are going pretty well,

### **Report #3 from T0**

March, 12th 2006

We got the last pieces to install the Nuclepore filters station; it started to run on Tuesday (Mar 7) at T0. The filters have been sampled from 8:30 AM until 6:00 PM (day), and from 6:00 PM until 8:30 AM (night).

Nuclepore filters station at T2 run by Vanderlei Martins and Zahra from NASA Goddard also started on Tuesday (Mar 7).

The Microtops II network has been working since Sunday (Mar/5) without any problems. I'll have to change one of them (downtown site) for another one that I'm going to get on Sunday (Mar/5) at T2.

Since the first day we can see a very well defined aerosol layer, the filters, both coarse and fine mode, have gotten a very dark color after sampling.

The sky condition has been totally free of clouds, as far as we can identify, until Wednesday (Mar 8), when a few cirrus started to appear. On Thursday (Mar 9) the sky was all covered by cirrus, condition totally unfavorable to the AOT measurements. Friday (Mar 10) had less cloud contamination, data will have to be carefully analyzed. Saturday (Mar 11) there was only some cirrus at horizon.

### **Report #4 from T0**

March 19th, 2006

The downtown (Hidalgo) site had the Microtops II instrument (#6 to #2) changed on Monday (13th) and started to work in the morning.

The calibration measurements taken in the beginning of the experiment were compared with the CIMEL measurements. They have good agreement but a correction in the calibration coefficient is necessary. We are planning two other calibration measurements, with the CIMEL: next week and another one at the end of the experiment, to have enough calibration data points.

Data have been downloaded from all the sites and looks good.

The sky cloud cover condition were good for satellite measurements last Sunday (12th) and Monday (13th), the rest of the week the cloud cover condition were unfavorable, presenting always cirrus contamination, in general. Today Sunday (19th) the sky conditions were very good without any apparent presence of clouds, AQUA satellite was also favorable today.

As this is a prolonged weekend until Tuesday, the strong wind in the afternoon, yesterday and today and the reduction on the emission are contributing to an increase in the visibility, the volcanos could be seen late in the afternoon, from IMP.

Filter samples are operating routinely without further comments.

**Report #5 from T0**

March 26th, 2006

The beginning of this week we got some good measurements but, cloud cover conditions got unfavorable from Wednesday (March 23rd) until Friday. We have had some rain events this week that helped to clean a little bit the coarse mode of aerosols at the atmosphere that are favorable for the calibration.

Saturday and Sunday morning we could get some calibration measurements at IMP (T0) from intercomparison with the CIMEL.

Filters samples presented an increased reduction in the flow this week (3 days) due to the atmosphere high relative humidity. It is running continuously.

We are planning to extend the maximum of the measurements until Wednesday (March 29th), next week that is the last day to return to NASA the equipments.