

The T2 Site
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MAX-MEX/MILAGRO
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Objective:

To study the evolution of aerosol properties as they age. In particular, to study the evolution of the specific absorption of black carbon as it becomes coated and changes from an external to an internal mixture. Previous estimates ~ 2-25 m²/gm.

Field Approach:

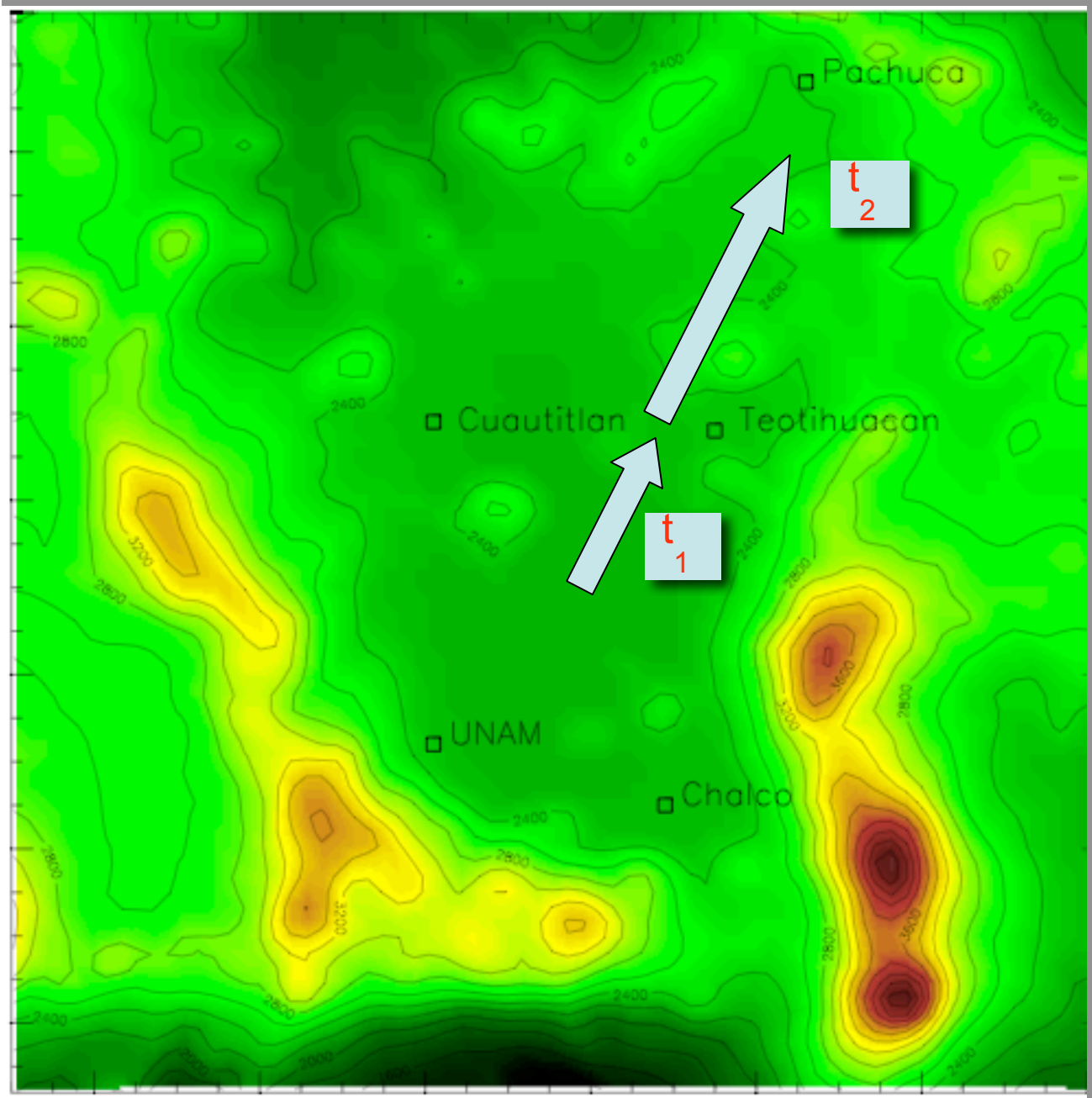
Measure optical and chemical properties of aerosols at two sites downwind from Mexico City, with travel times t_1 and t_2 , at the surface and aloft.

20

19

-99.6

-98.6



Pachuca

Cuautitlan

Teotihuacan

UNAM

Chalco

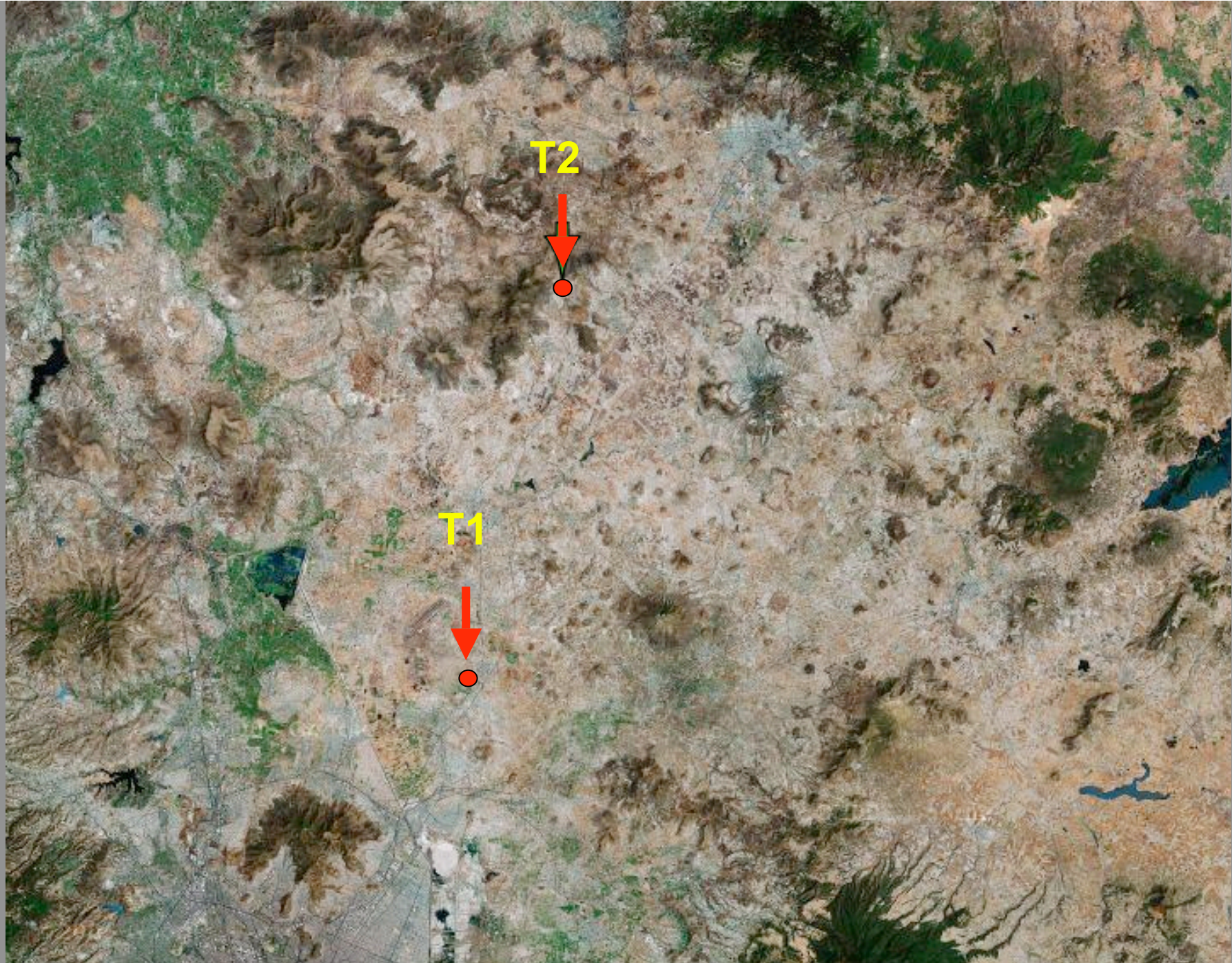
t
2

t
1

T2



T1



Instruments

radar wind profiler

surface meteorological station - wind, temperature, humidity, solar radiation

radiosonde system

Eppley B&W radiometers, NIP, solar tracker

nephelometer (450, 550, and 700 nm)

particle soot absorption photometer (470, 530, and 660 nm)

multi-filter rotating shadowband radiometer (415, 500, 615, 673, 870, and 940 nm)

photoacoustic spectrometer (870 nm)

aeronet

organic and elemental carbon analyzer

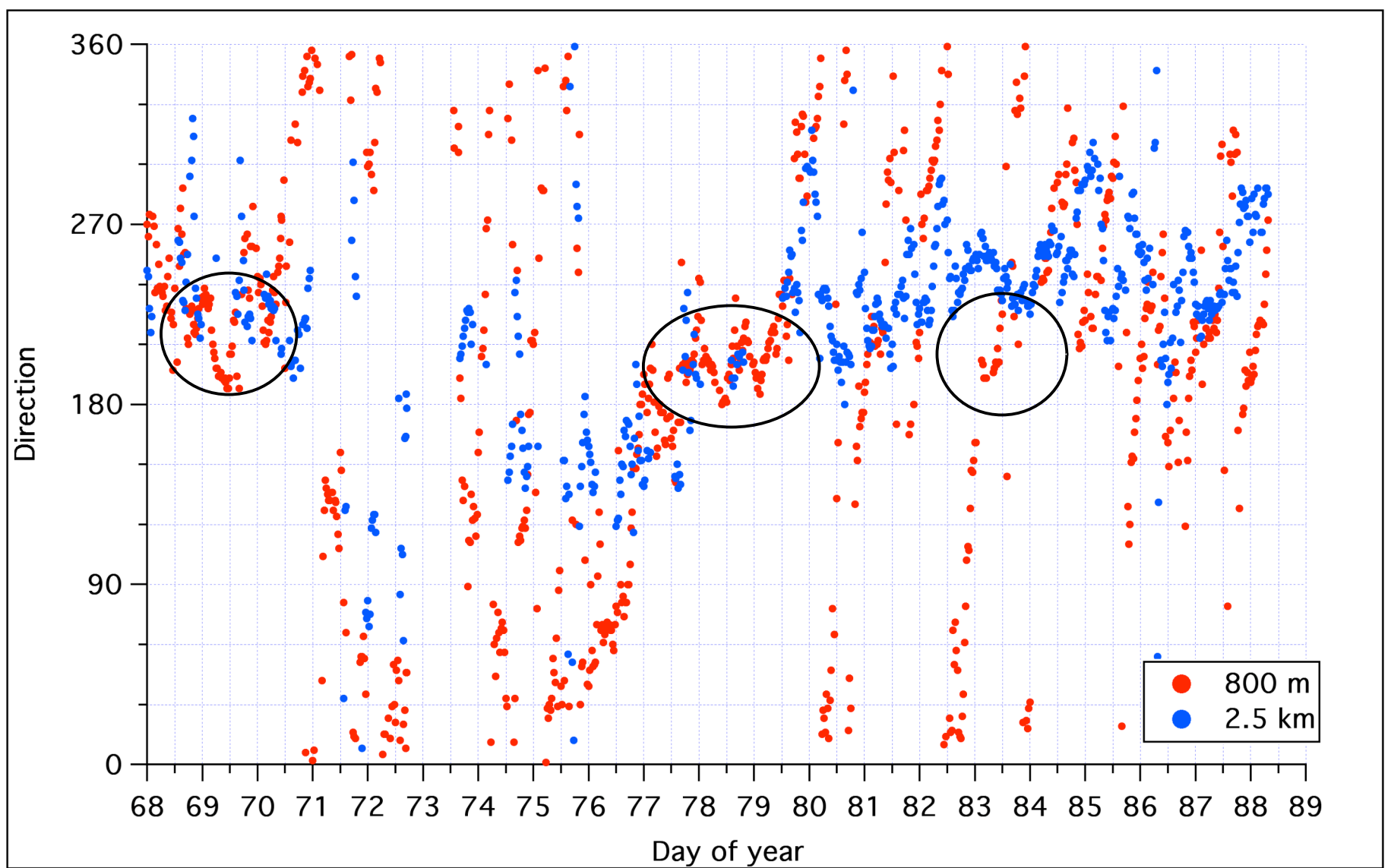
3-stage drum impactor --> elemental composition
PM_{2.5}

time-resolved aerosol collector (TRAC) -->
elemental composition, size, shape, morphology,
and mixing state

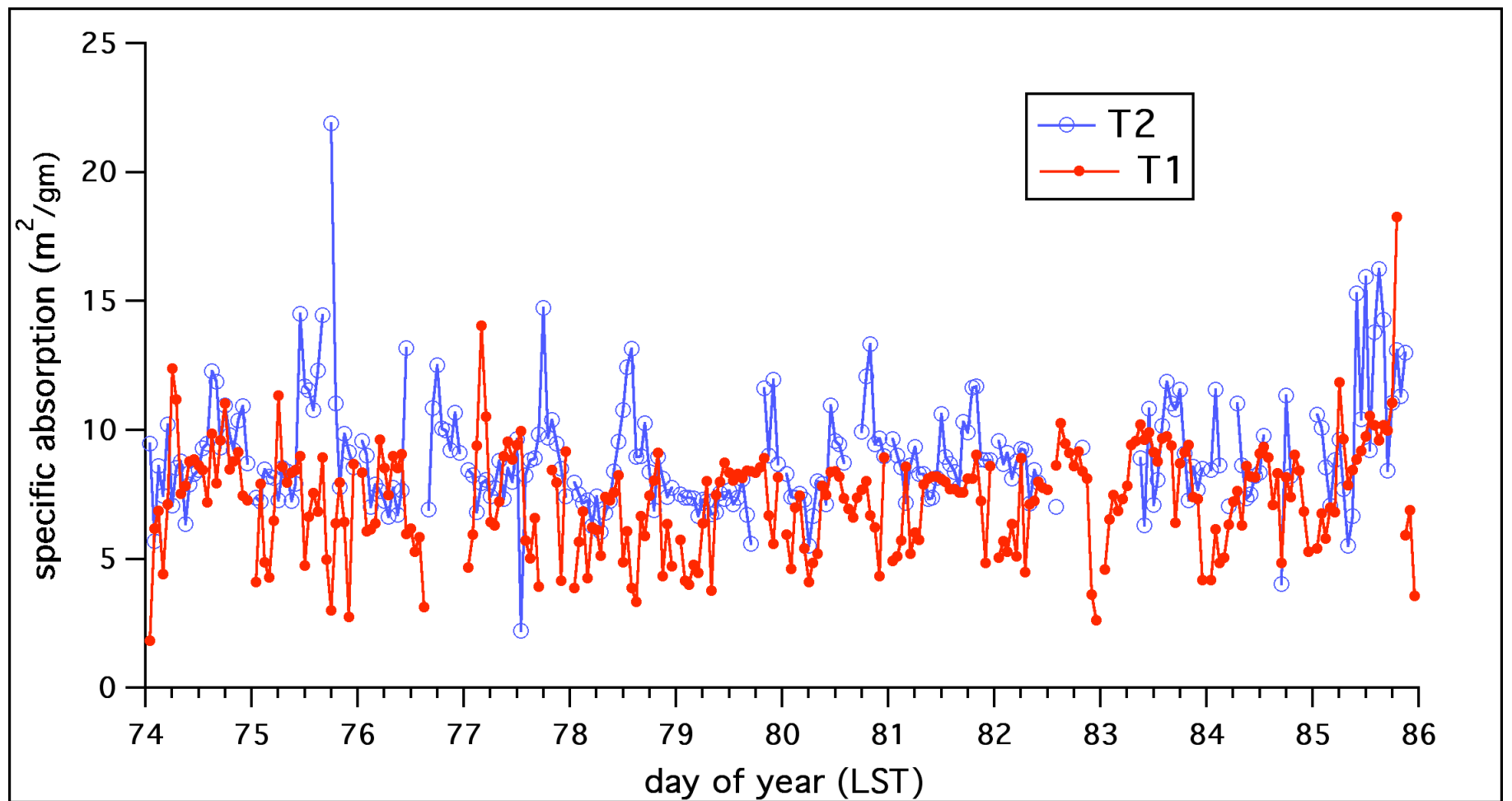
CO, NO_x, O₃, SO₂

Mini-MAX DOAS for column NO₂ and other gases

Wind directions from radar wind profiler



Time series of absorption per unit mass of EC at T1 and T2.



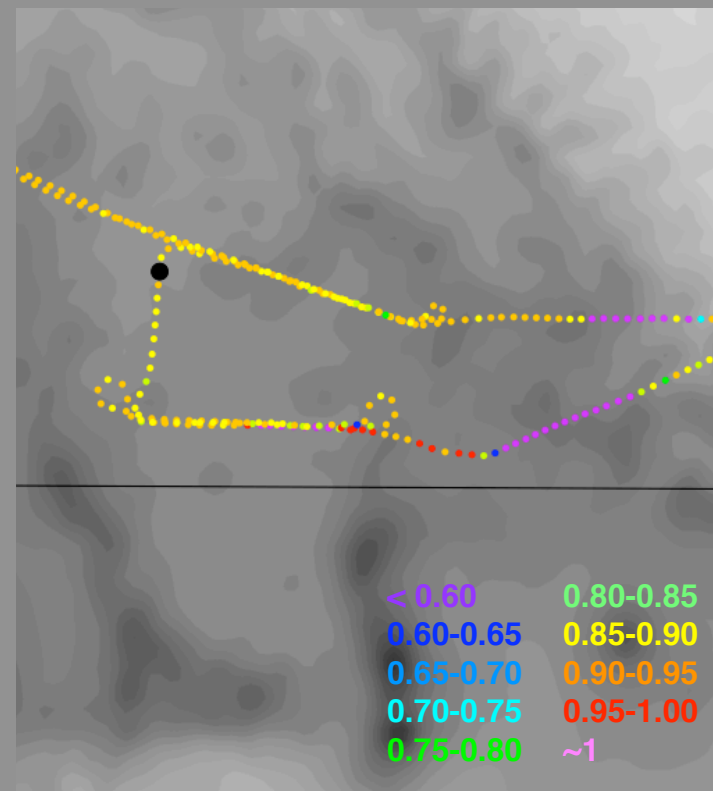
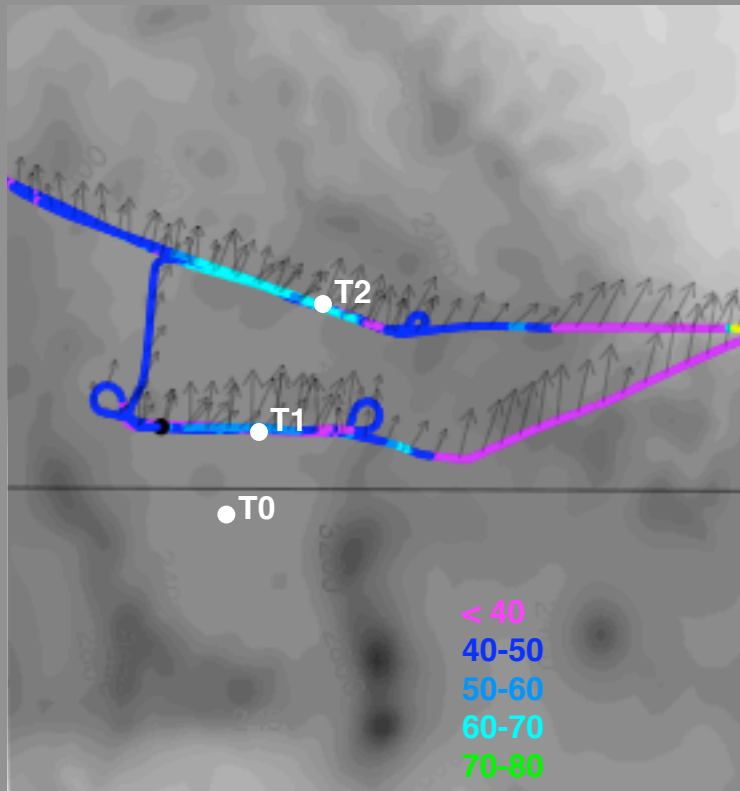
G-1 flights over T1 and T2

<u>Date</u>	<u>Approximate times</u>
9 March	10:30-12:15 16:00-17:15
18 March	14:25-16:25
19 March	10:50-12:00 15:45-17:15
20 March	10:25-11:30 15:00-16:15
22 March	10:25-11:35
26 March	10:40-12:05

19 March 15:45-17:15 LST

ozone

ω_o (550 nm)



Example of particles collected at T0 site: microscopy evidence of organic coating on sulfates

