

MILAGRO T1 Site



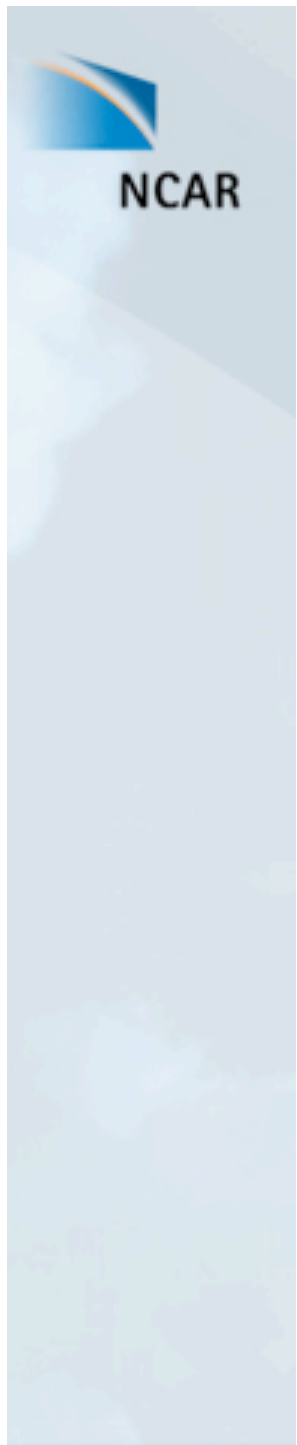
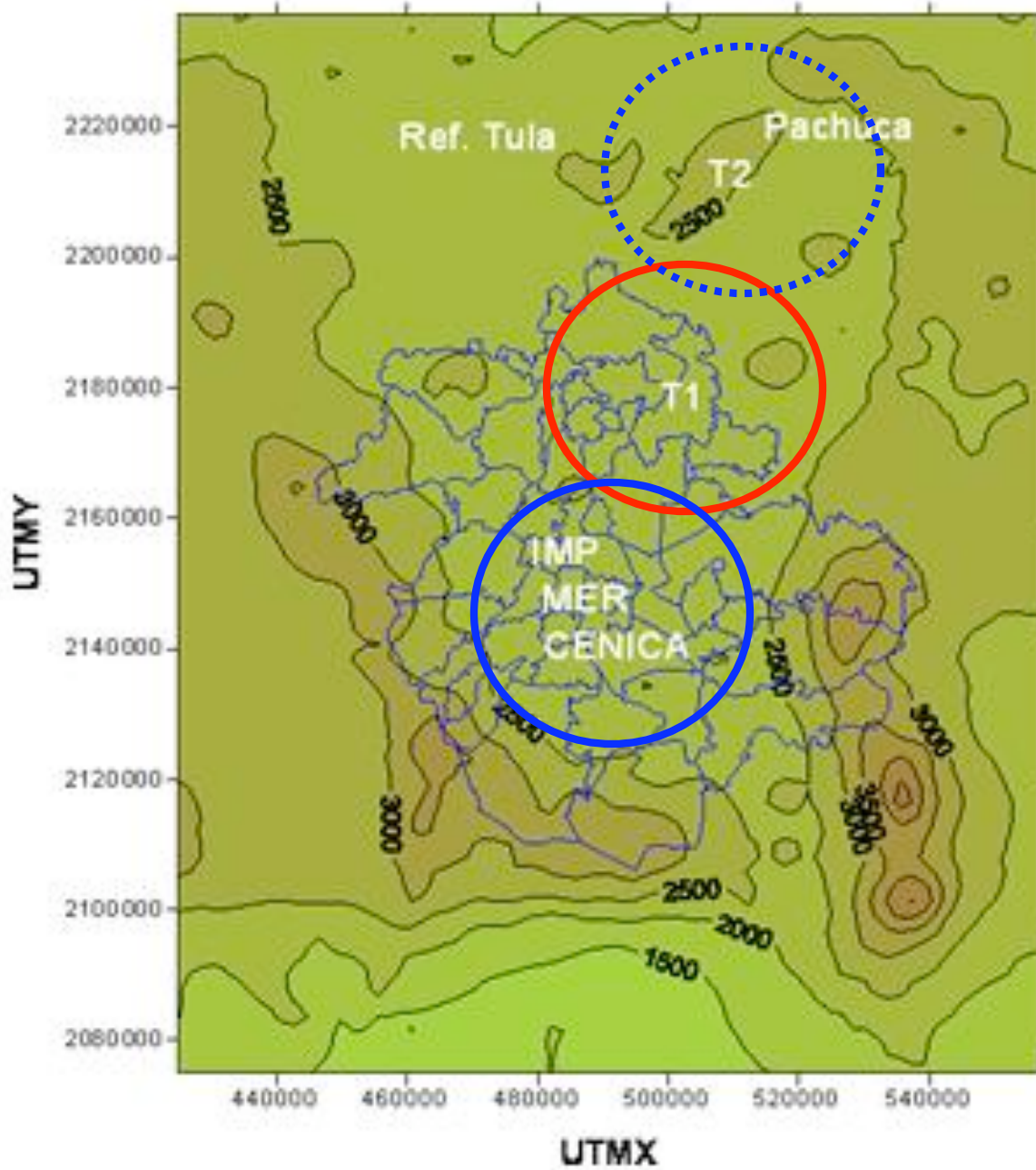
UTTEC, Tecámac, Mexico

MILAGRO T1 Site Measurement Overview



- **Where**
- **When**
- **Who and What**

MILAGRO T1 Site







1 km

T1

Mexico City

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Trailers

50 m

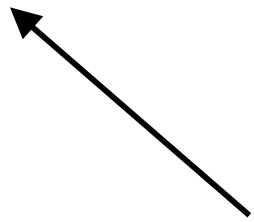
Mexico City



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To
Mexico
City



HiVol
Samplers

Tethered
Balloon

DOE-PNNL

NCAR-BAI

G. Tech

NCAR POP2

NCAR-POP1

Texas A&M

UNAM

RAMA

DOE-ANL

NCAR-FTS

Wind profilers

Milagro T1: When



March 1: Begin limited measurements
UNAM, RAMA, NCAR-FTS

March 10: Last of the equipment makes it
over the border and down to T1

March 30: Begin to pack up

April 1: Last of the measurements

Mobile Labs visited mostly in the later part of
the study

Milagro T1: Who and What



Measurements

- **Gas phase**
- **Particles**
- **Radiation**
- **Weather and boundary layer structure**
- **Human Health**

T1 Gas Phase Measurements



Successful measurements: POSTERS and Data Portal

- Baker et al.: VOCs and CO (whole air canister samples)
- Castro et al.: CO, NO₂, O₃, SO₂ (in situ)
- deGouw et al.: VOCs (in situ GC-FID, PIT-MS)
- Farmer et al. : NO₂, HNO₃, alkyl nitrates, peroxy nitrates
- Fischer et al.: ammonia (quantum cascade laser spectrometer)
- Greenberg et al.: ozone and VOC vertical profiles (teth. balloon)
- Marquez et al.: Mercury (Tekran)
- Junkermann et al.: formaldehyde (cont. fluorimetric detection)
- Lewandowski et al.: H₂O, O₂, O₃, NO₂ (solar spectrometer)
- Sinreich et al.: NO₂, HCHO, COCHO, HONO, SO₂ column (DOAS)
- Thompson et al.: ozone vertical profiles (release sondes)
- Nunnermacker et al.: total hydroperoxide
- Zavala et al.: Aerodyne Mobile lab. trace gas measurements
- Coffey and Hannigan : CO, CH₄, NH₃, OCS, C₂H₂, C₂H₄, C₂H₆, C₃H₈, CCl₂F₂, H₂CO columns (Fourier Transform Spectrometer)
- Huey et al.: CO, H₂SO₄ (CIMS), O₃, NO, SO₂

T1 Particle Measurements



Successful measurements: POSTERS and Data Portal

- Belmares et al.: PM_{2.5}, PM₁₀ composition and oxidative potential (HiVol filter samples)
- Castro et al.: physical properties: concentration, absorption, scattering coefficients
- Doran et al. : Black carbon mass absorption efficiency (OC/EC, photoacoustic absorption)
- Greenberg et al.: ultra fine and fine numbers vertical profile (CPC and OPC on tethered balloon)
- Gaffney et al.: ⁷Be and ²¹⁰Pb (gamma counting), ²¹⁰Po, ²¹⁰Bi (beta and alpha counting), ¹⁴C (accelerator MS), ¹³/¹²C (isotope ratio MS), organic/elemental fractions
- Hennigan et al.: Bulk fine (PM_{2.5}) particle composition chemical characterization (TEOM mass, OCEC, PILS-IC, PILS-TOC, WSOC)

T1 Particle Measurements



Successful measurements: POSTERS and Data Portal

- Herrera-Peraza et al.: Radioactive isotopes of fine particles (Gamma measurements)
- Iida et al. : +/- charged 3.5-25 nm particles, size distributions of positive and negative ions (0.4 to 6.3 nm), total (charged+neutral) particles (3 – 5000 nm)
- Johnson et al.: chemical and morphological analysis of filter samples (TEM, CCSEM/EDX, TOF-SIMS, STXM, NEXAFS)
- Lance et al.: sized hygroscopic growth, cloud droplet activation (CCNc, HTDMA)
- Mamani-Paco et al.: fine particles, MOUDI impactor TEM particle morphology
- Marquez et al.: Mercury correlations with V, Zn, Ta, Ga, PM_{2.5}, PM₁₀ (HiVol)

T1 Particle Measurements (continued)



- Moya et al.: elemental composition of fine PM
- Padro et al.: PM_{2.5} water soluble organic carbon (HiVol samplers)
- Paredes-Miranda et al.: aerosol absorption and scattering (photoacoustic spectrometer)
- Pekour et al.: Particle size distributions (PCASP)
- Querol et al.: Levels and composition of fine and coarse fractions, trace elements
- Smith et al. : chemical composition (nitrate, organics) of new particles (TDCIMS)
- Thornhill et al.: particulate PAH (photoelectric charging), aerosol surface area (diffusion charging)
- Yu et al.: particulate organic matter composition including in-situ single particle chemical composition (C-ToF-AMS, SMPS, OCEC, PSAPs, nephelometer)
- Zavala et al.: Aerodyne Mobile lab. fine particulate measurements
- Collins: particle size/properties (DMA, TDMA)

More T1 Measurements



Radiation measurements

- Barnard et al.: surface albedo (radiometer)
- Greenberg et al.: direct/diffuse radiation vertical profiles (tethered balloon)
- Lewandowski et al.: Direct/diffuse radiation at 7 wavelengths

Weather and boundary layer structure

- Shaw et al., Coulter et al., Doran et al., Pekour et al.: micro pulse lidar, 915 MHz radar wind profiler, radiosonde, surface weather station
- Greenberg et al.: temperature, humidity and wind- vertical profiles (tethered balloon)

Human health

- Tovalin et al.: free radical in phagocytes, lipid peroxidation, antioxidant enzymes in red blood cells, respiratory diseases, human exposure to CO, O₃, particles, VOCs

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Any questions for this bunch?

28 3 2006