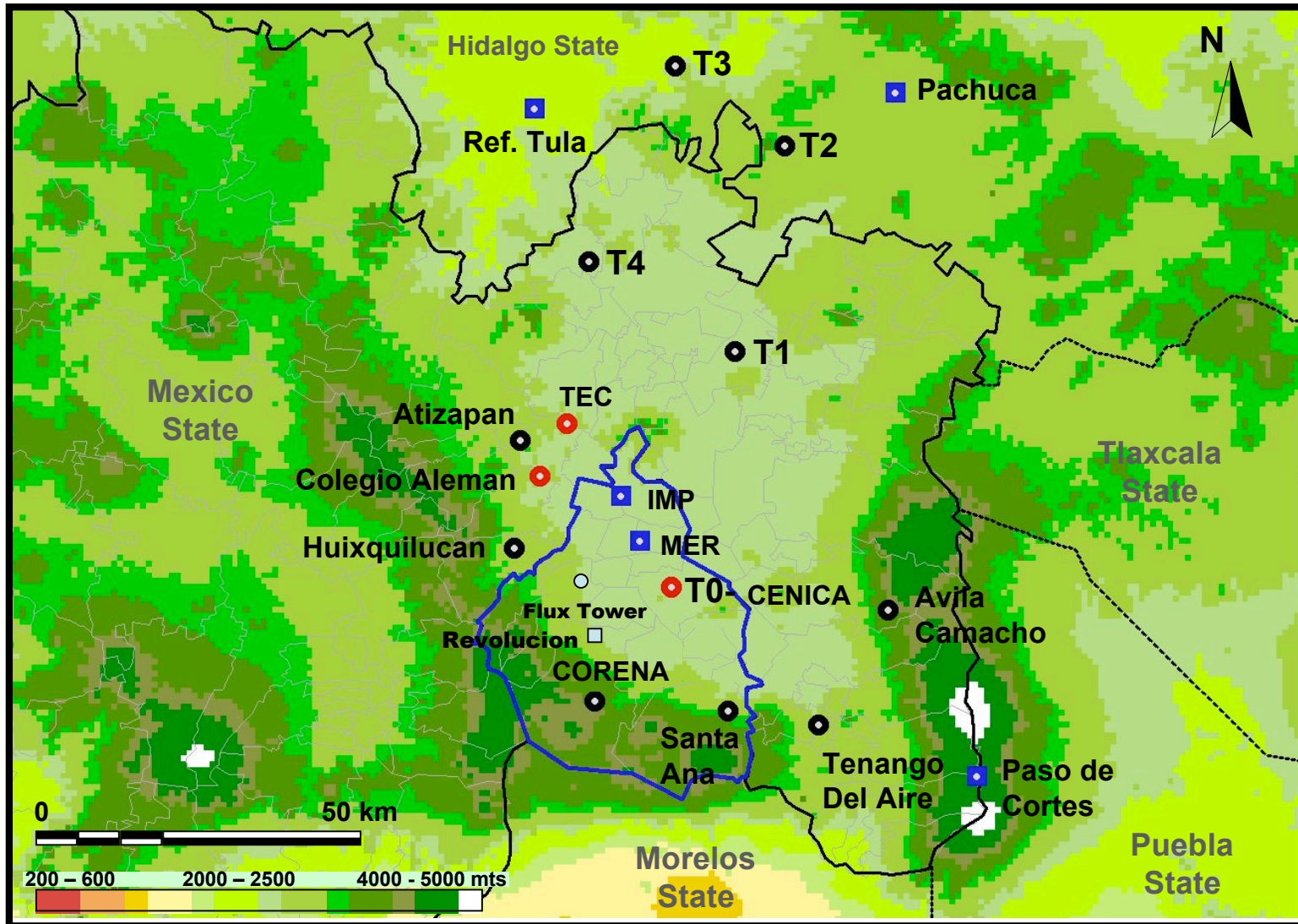


MILAGRO Monitoring Sites

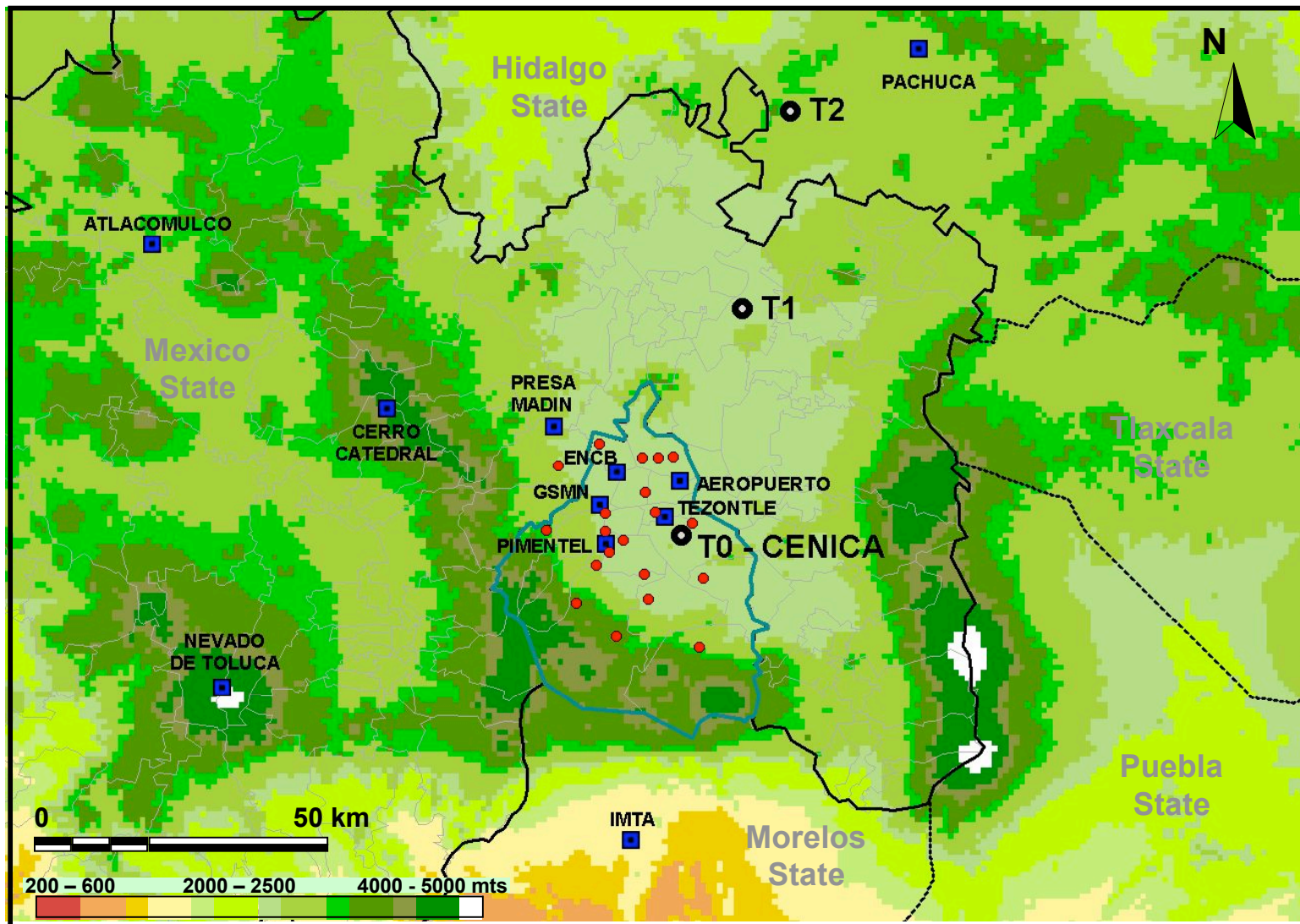


● Fixed site

● Mobile site

■ Other measurements

Meteorological Monitoring Sites

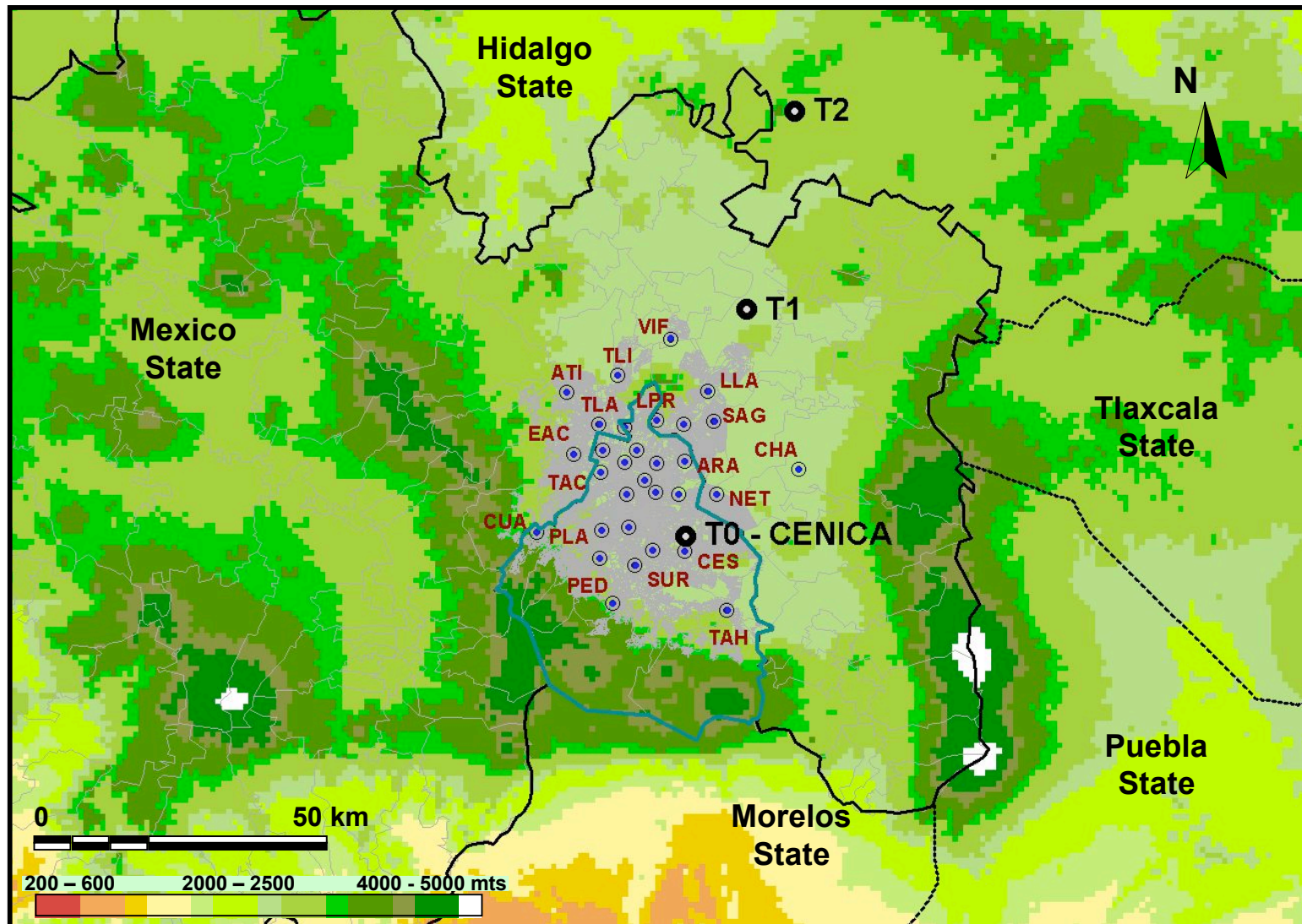


■ EHCA (SMN)

● PEMBU (UNAM)

● Other measurements

RAMA Automatic Monitoring Stations



● RAMA station

● Other measurements

T0 Meteorological Measurements

- 12 groups
 - Pilot balloons with theodolites (TAMAYA)
 - Weather Station
 - Blimp (sondes, GPS, camera, etc.)
 - Wind Profiler
 - Balloon Sounding System
 - Tethered balloon, ozonesondes, metsondes
 - Surface measurements
 - Tethered balloon profiles

T0 Gas Phase Measurements

- 16 groups

GC-FID

comercial automatic monitors

DOAS

DOAS

MAX-DOAS

MAX-DOAS

PTR-MS

CIMS

Open path NIR TDLAS

H₂/CO/C₂H₄ Monitor

Dual MAX-DOAS

Stationary Solar FTIR
O₃

Open path FTIR Whitesystem

HCHO instrument

HONO instrument

Tekran Hg

55 speciated hydrocarbons

NO_x, CO, O₃, SO₂, and PM₁₀

NO₂, HONO, VOC, HCHO, glyoxal

Aromatic VOCs: HCHO, SO₂, NO₂, HONO

Vertical profiles of NO₂, SO₂, HCHO, aerosols

Vertical profiles of NO₂, HCHO, CHOCHO, aerosols

VOCs

HNO₃

NH₃

H₂, CO, C₂H₄

Total column of SO₂, NO₂ and possibly CH₂O

Total column of CO, CH₂O, ethylene, NH₃, HNO₃ and

CO, CH₂O, ethylene, NH₃, HNO₃, O₃, N₂O, CH₄,
CO₂ and possibly more.

HCHO

HONO

Hg(0)

T0 Aerosol Measurements

- 33 groups

10 minivol samplers (PM2.5)

LIDAR

Aethalometer (7 channel)

Multi-angle Absorption Photometer

Nephelometer 3 wavelength)

Nephelometer 1 wavelength

Nephelometer 1 wavelength

Filter Sampler

Filter Sampler

CCN Counter

Scanning Mobility Particle Sizer

EcoChem monitors

High Res. TOF-AMS

Thermal Denuder

OC,EC, TC, ion HPLC in PM2.5
aerosol

BC Aerosol absorption

BC Aerosol absorption
particle scattering

dry particle scattering

wet particle scattering

OC/EC, Humic Like Substances

14C, 40K, 210Pb, 7Be, 210Po, 210Bi,

Cloud Condensation Nuclei

Aerosol size distributions

PAHs

aerosol size and composition

aerosol volatility before AMS

T0 Aerosol Measurements

Continued

Aerosol Concentrator
Optical Particle Counter
TSI SMPS
TSI nano-SMPS
TSI DustTrak
Sun Photometer
nuclepore filter

ARI High Res. TOF-AMS*
Photoacoustic Spect.
Photothermal Spect.
DRUM Aerosol Sampler
TRAC Aerosol Sampler
ATOF-MS Aerosols,
Filter Sampler
Semicontinuous EC/OC
TDMA
APS
CCN Separator
3 High Vol

aerosol concentration before AMS
aerosol size, number (Grimm 1.109)
particle size distribution
nanoparticle size distribution
aerosol concentration
aerosol optical thickness
mass concentration, chemical composition, and spectral absorption property
Non-refractory fine PM size & composition
Aerosol Absorption
Aerosol Absorption (Black Carbon)
sampling for PIXE/PESA/STEM
sampling for TEM, SEM/EDX analysis
single particles
Organic speciation, some 12 hr samplers?

Hygroscopicity
Supermicron size distr.
CCN properties
PAH characterization

Other Urban Measurements

- Flux Tower (RAMA HQ building)
 - VOC/CO₂/energy fluxes, DOAS NO₃, AMS aerosol measurements
- Tula Refinery Measurements
 - PM_{2.5}, PM₁₀, OC/EC, PAH, VOCs, SVOCs, aldehydes, metals, SO₂
- Volcano Measurements
- Health Impact Studies
- Network Monitoring Stations
 - 35 RAMA stations and 2 Cenica stations
 - criteria pollutants
 - surface met observations
 - EPA VOC canisters
- Fixed Mobile Units

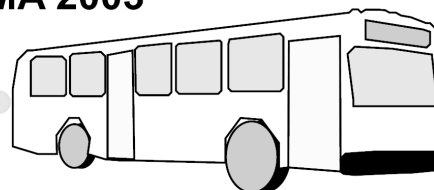
Mobile Labs

- ARI Laboratory
 - Operated at selected sites in fixed mode
 - Possible locations: Santa Ana, Cenica, Merced, Tula, T1, Pedregal?, Pasa de Cortez?,
- Chalmers mini-DOAS
- IMP mini DOAS

CAMPAÑA MCMA-2003: ARI MOBILE LAB



**Aerodyne Mobile Lab
MCMA 2003**



Roof
Sun Photometer
Anemometer
GPS

NO_y converter

