

Discussion: Identifying and Filling Additional “Measurement” Needs for TRACER Science

Field deployments always involve a tradeoff between:

- Science
- Logistics
- Funding

“Measurement” Needs

- 1) Forecasting participants
- 2) Aerosol (CCN/CN) Profiling
- 3) Additional Thermodynamic Profiling
- 4) Extended surface aerosol network
- 5) Others?

Need #1: Forecasting participants

- During IOP period (June 1st – September 30th 2021)
 - Daily (ONLINE) forecast discussions/decisions
 - Need lead forecaster, mission scientist, additional forecasters
 - Excellent opportunity for graduate student participation
 - 2 week shifts?
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- Planning practice forecasting exercise for June 2020



Need #2: Aerosol (CCN/CN) Profiling

Currently planned aerosol profiling

- MPL at AMF1

Needs

- Aircraft
 - Exploring interagency option for aircraft deployment
 - Additional in situ atmospheric state, cloud microphysics
- Remote sensing solutions?
 - Additional lidars (network?)
 - HSRL
 - Other options?

Need #3: Additional Thermodynamic Profiling

Currently planned thermodynamic profiling

- AMF1 and ANC site radiosonde profiles
- AMF1 remote sensing, AERI
- Proposed NSF mobile sounding units, drones (cold pool profiling)

Needs

- Horizontal variability in thermodynamic profiling
 - Better capture convective environment
 - Advance, and depth of sea-breeze, bay breeze, UHI

Need #4: Extended surface aerosol network

Currently planned aerosol observations

- AMF1 (CCN, CPC, UHSAS, SMPS, etc.)
- ANC (CCN, CPC, SMPS)
- Texas Commission on Environmental Quality (TCEQ)
 - Trace Gas, PM_{2.5} measurements

Needs

- Horizontal variability in CCN/CN characteristics

Need #5: Others

- INP measurements
- Stereo Camera observations (COGS)