TRACER

BROWSE DATA

TRACKING AEROSOL CONVECTION INTERACTIONS EXPERIMENT (TRACER)

1 OCTOBER 2021 - 30 SEPTEMBER 2022
LEAD SCIENTIST: MICHAEL JENSEN
OBSERVATORY: AMF1, HOU

During the TRacking Aerosol Convection interactions ExpeRiment (TRACER), scientists will use the first ARM Mobile Facility (AMF1), the second-generation C-Band Scanning ARM Precipitation Radar (CSAPR2), and a small satellite (ancillary) site with radiosonde and aerosol measurements to learn more about cloud and aerosol interactions in the deep convection over the Houston, Texas, area.

The Houston region offers a unique environment where isolated convective systems are common and experience a spectrum of polluted aerosol conditions from urban and industrial areas. In addition, surrounding areas also show significantly lower background aerosol concentrations.

The TRACER campaign has been postponed from its originally planned dates due to

CAMPAIGN LINKS

- Science Plan
- Backgrounder
- Images
- ARM News
- Media
- NASA TRACER-AQ Page
- Campaign Dashboard

RELATED CAMPAIGNS

TRACER-NASA
15 July 2022, Munchak

COVID-19 risks associated with the earlier dates. **The revised dates for TRACER are October 1, 2021, to September 30, 2022.**

TRACER also will include a four-month intensive operational period (IOP). A climatological analysis of radar observations from the Houston/Galveston-area NEXRAD (KHGX) shows that convective initiation occurs in this area on 40 to 55 percent of the days each month of the year. The total number of convective events is strongly peaked during the months of June through September. To capture these events, **the TRACER IOP will run from June 1 to September 30, 2022**.

With this single IOP during the convective season of 2022, this effectively postpones the original TRACER IOP by one year.

TRACER-Sonde: O3 as a tracer for convective mixing
1 July 2022, Flynn

TRACER-MAP: Mapping Aerosol across Houston
1 July 2022, Sheesley

See more (+21

The TRACER campaign consists of three primary sites operated by ARM:

- **the AMF1 main site (M1)** in La Porte, Texas, an area that experiences significant polluted conditions
- **the ancillary site (S3)** to the southwest of downtown Houston in a rural region with less pollution
- **the CSAPR2 site (S2)** located approximately midway between the AMF1 and ancillary sites.

The main and CSAPR2 sites will operate during the entire TRACER campaign, while the ancillary site will only operate during the IOP. Operation dates for the three primary sites are as follows:

- **Main (M1):** October 1, 2021, to September 30, 2022
- **CSAPR2 (S2):** October 1, 2021, to September 30, 2022
- **Ancillary (S3):** June 1 to September 30, 2022.

During the IOP, ARM will host many guest experiments and interagency collaborations at the TRACER sites. All three primary sites will hos guest experiments, but most will be at the main site.

In addition, during the 2022 IOP, ARM is planning tethered balloon system (TBS) flights at the ancillary site and a secondary site at Smith Point, Texas, on the eastern shore of Galveston Bay that will be strongly influenced by the bay breeze circulation.

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TIMELINE

1 OCTOBER 2021 — 30 SEPTEMBER 2022

TRACER: Tracking Aerosol Convection Interactions Experiment

Lead: Jensen, Michael

TRACER-UAS

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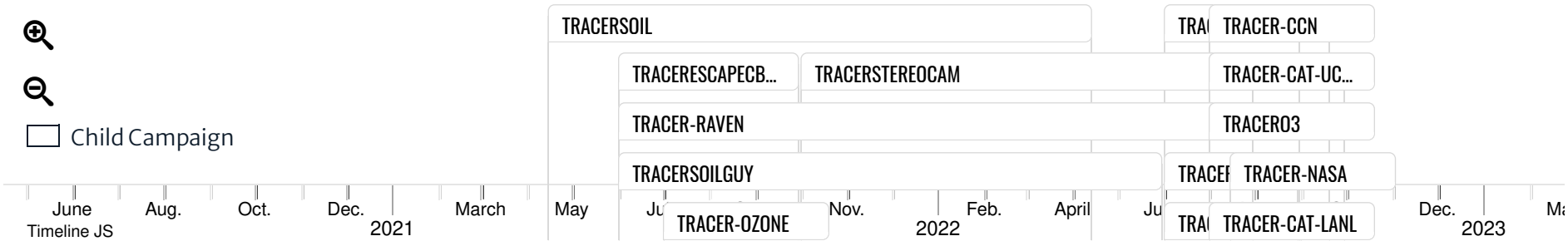

RELATED PUBLICATIONS

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Research Highlight

VIEW ALL RELATED PUBLICATIONS

HOU DATA SOURCES

NAME	FULL NAME	BROWSE DATA
ACSM	Aerosol Chemical Speciation Monitor	Browse Data
ACSMCDCE	ACSM, corrected for composition-dependent collection efficiency	Browse Data
AERI	Atmospheric Emitted Radiance Interferometer	Browse Data
AETH	Aethalometer	Browse Data
AOS	Aerosol Observing System	Browse Data
AOSMET	Meteorological Measurements associated with the Aerosol Observing System	Browse Data
APS	Aerodynamic Particle Sizer	Browse Data

NAME	FULL NAME	BROWSE DATA
CAMSITE	camera that monitors a site area	Browse Data
CCN	Cloud Condensation Nuclei Particle Counter	Browse Data
CEIL	Ceilometer	Browse Data
CO-ANALYZER	Carbon Monoxide Analyzer	Browse Data
CPC	Condensation Particle Counter	Browse Data
CSPHOT	Sunphotometer	Browse Data
DL	Doppler Lidar	Browse Data
ECOR	Eddy Correlation Flux Measurement System	Browse Data
GNDRAD	Ground Radiometers on Stand for Upwelling Radiation	Browse Data
HTDMA	Humidified Tandem Differential Mobility Analyzer	Browse Data
IRT	Infrared Thermometer	Browse Data
KAZR	Ka ARM Zenith Radar	Browse Data
LDIS	Laser Disdrometer	Browse Data
LDQUANTS	Laser Disdrometer Quantities	Browse Data

NAME	FULL NAME	BROWSE DATA
MAWS	Automatic Weather Station	Browse Data
MET	Surface Meteorological Instrumentation	Browse Data
MFRSR	Multifilter Rotating Shadowband Radiometer	Browse Data
MFRSRLANG	MFRSR Langley analyses and plots	Browse Data
MPL	Micropulse Lidar	Browse Data
MPLCMASK	Cloud mask from Micropulse Lidar	Browse Data
MWR	Microwave Radiometer	Browse Data
MWR3C	Microwave Radiometer, 3 Channel	Browse Data
MWRHF	Microwave Radiometer – High Frequency	Browse Data
NEPHELOMETER	Nephelometer	Browse Data
NFOV	Narrow Field of View Zenith Radiometer	Browse Data
OZONE	Ozone Monitor	Browse Data
PBLHT	Planetary Boundary Layer Height	Browse Data
PSAP	Particle Soot Absorption Photometer	Browse Data

NAME	FULL NAME	BROWSE DATA
RWP	Radar Wind Profiler	Browse Data
SASHE	Shortwave Array Spectroradiometer-Hemispheric	Browse Data
SASZE	Shortwave Array Spectroradiometer-Zenith	Browse Data
SEBS	Surface Energy Balance System	Browse Data
SKYRAD	Sky Radiometers on Stand for Downwelling Radiation	Browse Data
SMPS	Scanning mobility particle sizer	Browse Data
SO2	Sulfur Dioxide Monitor	Browse Data
SONDE	Balloon-Borne Sounding System	Browse Data
SONDEPARAM	convective parameters derived from radiosonde data	Browse Data
STEREOCAM	Stereo Cameras for Clouds	Browse Data
TSI	Total Sky Imager	Browse Data
UHSAS	Ultra-High Sensitivity Aerosol Spectrometer	Browse Data
VDIS	Video Disdrometer	Browse Data
VDISQUANTS	Video Disdrometer VAP	Browse Data

NAME	FULL NAME	BROWSE DATA
WB	Weighing Bucket Precipitation Gauge	Browse Data

ATMOSPHERIC RADIATION MEASUREMENT USER FACILITY