

VAP Update for *Warm Boundary Processes Working Group*

Shaocheng Xie
(Lawrence Livermore National Laboratory)

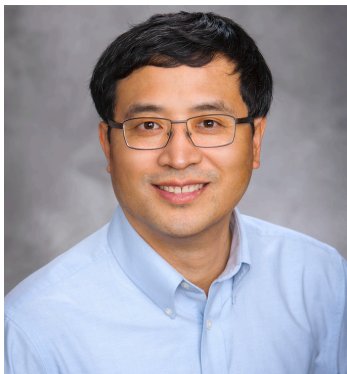
On Behalf of the ARM Translator Group

This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. IM-release: LLNL-PRES-811877. Lawrence Livermore National Security, LLC

Science Product Development Led by a Team of Scientists



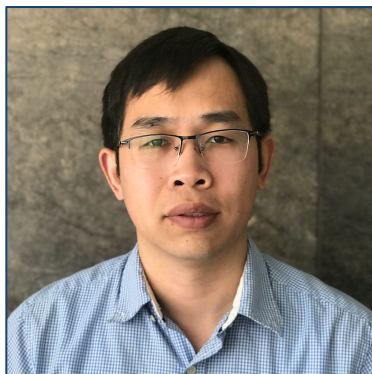
Translator Group



Shaocheng Xie
Lead Translator
Modeling POC



John Shilling
Aerosol POC
TRACER POC



Damao Zhang
High-latitude POC
MOSAiC POC



Scott Collis
Convective POC
CACTI POC



Scott Giangrande
Warm Clouds POC
COMBLE POC



Krista Gaustad
Software
Development



Ken Kehoe
Data Quality

Warm Boundary Layer Clouds VAPs

To provide surface site data and vertical profiles of cloud and aerosol properties, as well as simultaneous thermodynamics and large-scale environments

► Core VAPs for Mobile Facility deployments

- QCRAD, RADFLUX (being shipped), PBLHT, MWRRETv1, MPLCMASK, AERINF **(Damao Zhang)**
- ARSCL, SACR, Disdrometer VAPs **(Scott Giangrande)**
- Variational analysis forcing and ARMBE **(Shaocheng Xie)**

► New VAP Development

- Photogrammetry Products: COGS (evaluation), PCCP (development; end FY19) **(Damao Zhang)**
- QCAOD, MFRSRAOD **(John Shilling)**
- MWRRETv2, AERIOE (SGP), PBLHT-MPL **(Damao Zhang)**
- LASSO High Frequency Observations **(Scott Giangrande)**

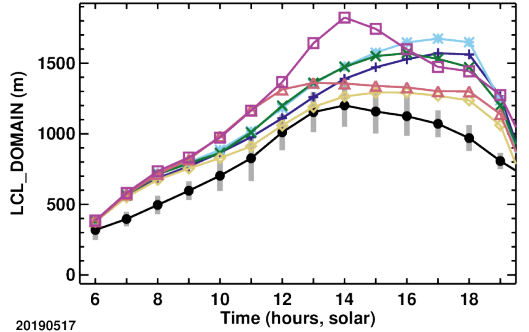
► Cloud Type (SGP, TWP) and Shallow Cumulus (SGP) **(Damao Zhang)**

Highlights: New LASSO High Frequency Observation Data / VAPs

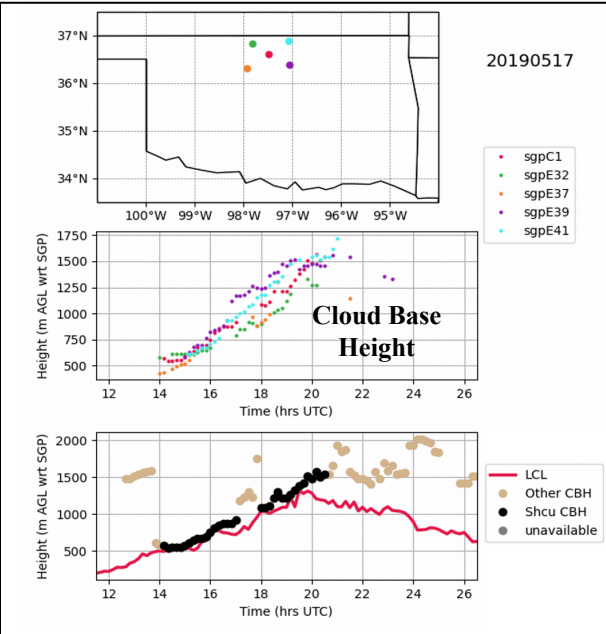
Translator contact: **Scott Giangrande**,
sgrande@bnl.gov

- LASSO LCL VAP:** Lifting Condensation Level Height for SGP and Oklahoma Mesonet facilities
- LASSODLCBHSVCU VAP:** Cloud Base Height from Doppler Lidar for SGP and surrounding facilities (10-min)
- LASSOBLTHERMO VAP:** Boundary Layer Thermodynamics from AERloe and MWRRet (10-min)
- CLDFRACSET VAP:** KAZRARSCCL and TSI Cloud Fraction
- LASSOLWP VAP:** AERloe LWP with MWRRet when AERloe is unavailable
- RWPWIND VAP:** Radar Wind Profiler wind estimates (10-min)

From the LASSO Diagnostics ...



... And now from the LASSO High Frequency Data Products



Availability: To be released for the **2019** LASSO cases in supplemental LASSO data bundles.



Data Issues and Uncertainties

One-Page VAP Description: *provide a brief description of VAPs with emphasis on data issues and algorithm caveats*

- Basic description with references
- Data quality information (e.g., conditions when VAP is applicable, when it struggles)
- Related datastreams
- Associated Mentor/Translator/Developer/Science Sponsor

Initial list of high priority quantities for data quality and quantifying uncertainty

Measurement	Instrument	Translator Contacts
Radar reflectivity	KAZR	Scott Giangrande
Liquid water path (Microwave Brightness Temperatures)	MWR, MWR3C	Damao Zhang, Shaocheng Xie
Surface Turbulent Fluxes (SH, LH)	EBBR, ECOR	Shaocheng Xie
Aerosol Optical Depth	MFRSR, CIMEL	John Shilling Damao Zhang
Cloud base height	MPL, CEIL, DL, other lidars	Damao Zhang John Shilling
Precipitation (rain rates)	Gauges, disdrometers, CSAPR, XSAPR	Scott Giangrande, Scott Collis