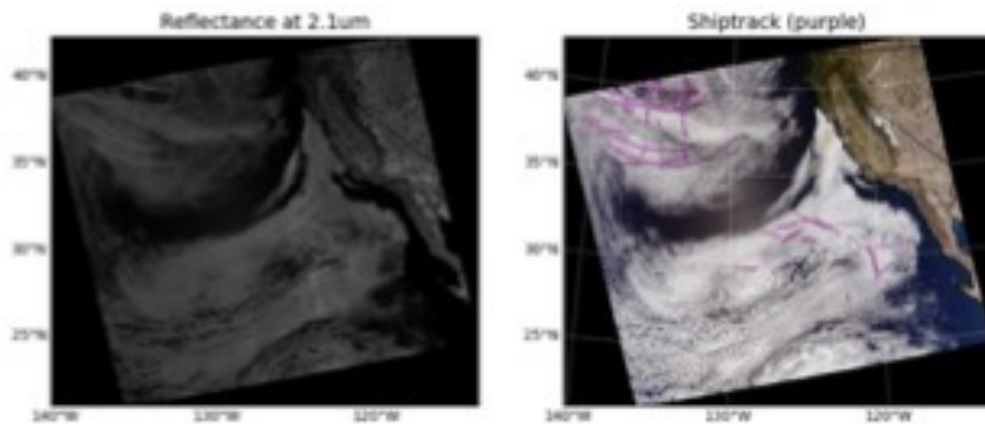# Observationally Constrain Aerosol Indirect Forcing Through Studying Ship-tracks Using TASNPP

Tianle Yuan (PI), H. Song, C. Wang, K. Meyer, S. Platnick, L. Oreopoulos
UMBC-JCET, NASA GSFC

Left: 2.1 μm reflectance; right: detected ship-track mask overlaying on the true color image.

Objectives:

1. Improve ship-track detection algorithm and develop the analysis algorithm;
2. Study cloud responses to ship-emitted aerosols in ship-tracks under various environmental conditions
3. Quantify the magnitude of aerosol indirect forcing using observed cloud responses

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- Developing validation method for ship-track detections
- Exploring the use of nighttime cloud retrieval to the analysis
- Analyzing the cloud responses

Status/Updates

- Collecting data
- Manuscript for initial results

Needed Satellite Products

- MODIS/VIIRS cloud/ cloud mask/L1b radiance

Known Issues or Concerns

- N/A

Recent/Relevant Publications

- Yuan et al. (2022), revision, Sci. Adv.
Yuan et al. (2022), under review.

2020 Anomaly of ST Density

MODIS/VIIRS Atmo. Discipline Virtual Mtg. May 2022

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