Enrich and Enhance the Application of TEMPO and GEOS Data Products for Regional Air Quality and Public Health Management under Smoke Conditions

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Team Members & Collaborators

Co-Investigators:

Xiong Liu	Harvard Smithsonian Observatory
Melanie Follette-Cook	NASA GSFC
Daven Henze	University of Colorado-Boulder

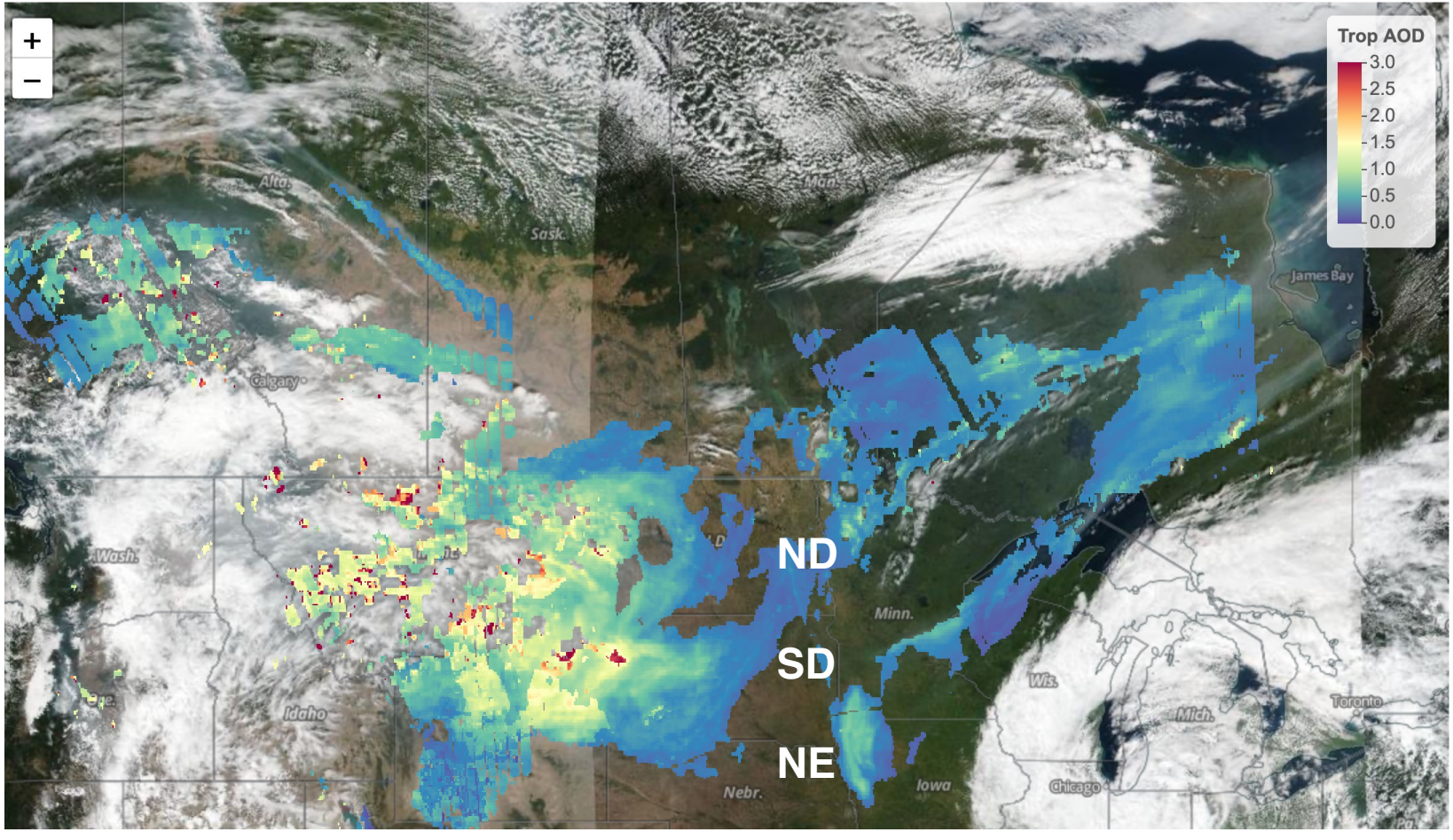
Collaborators:

Scott Epstein	South Coast Air Quality Management District, CA
Zac Adelman	Lake Michigan Air Directors Consortium
Martha Webster	Maine Department of Environmental Protection
Daniel Welsh	Colorado Department of Public Health & Environment
Daniel Ross	Oklahoma Department of Environmental Quality
Christoph Keller	Universities Space Research Association

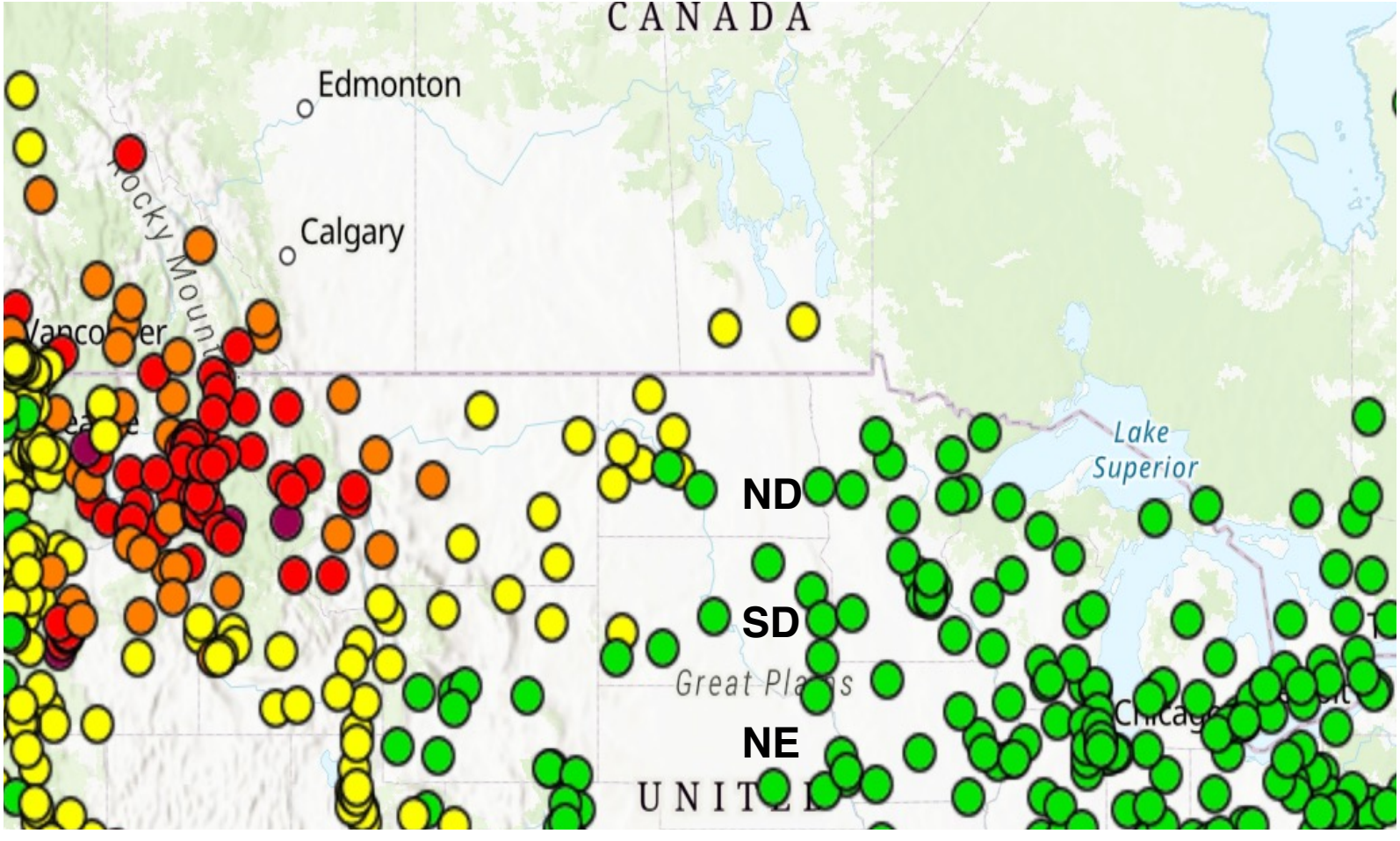
Decision-making Activities

- **AQ forecast and public health management activities**
- **Exceptional event analysis**
- **A new website/decision support system, FireAQ integrates in NRT:**
  - Aerosol optical centroid height (AOCH) and AOD from TEMPO
  - Fire combustion efficiency product from JPSS and S-NPP
  - GEOS-FP (forward processing) forecast of surface $PM_{2.5}$
  - GEOS-CF (composition forecast) of O_3

High AOD over the Great Plains associated with long-range transport of smoke

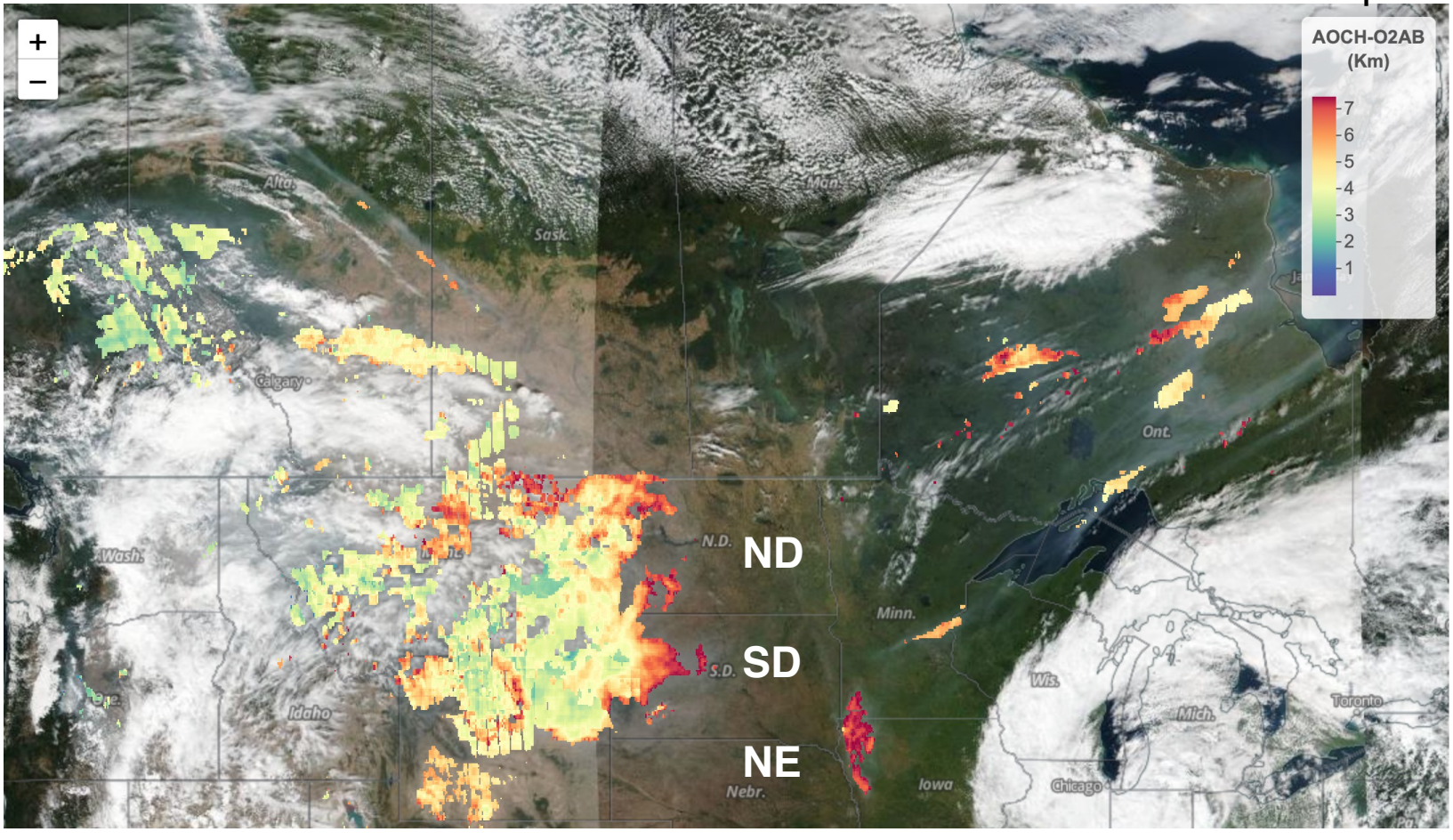


Surface AQI from EPA's AIRNOW

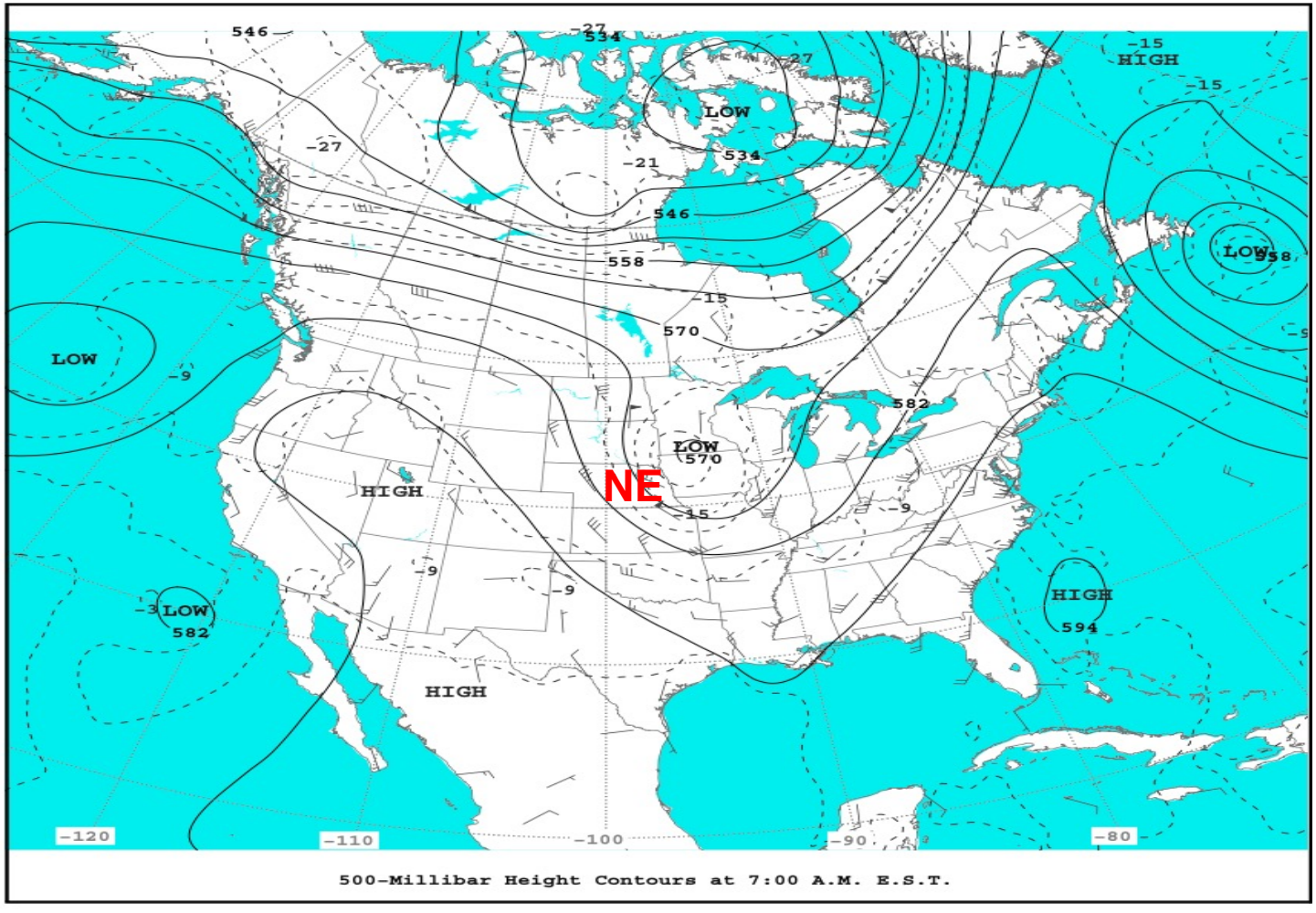


Hourly AOCH data from TEMPO
using TROPOMI data as proxy

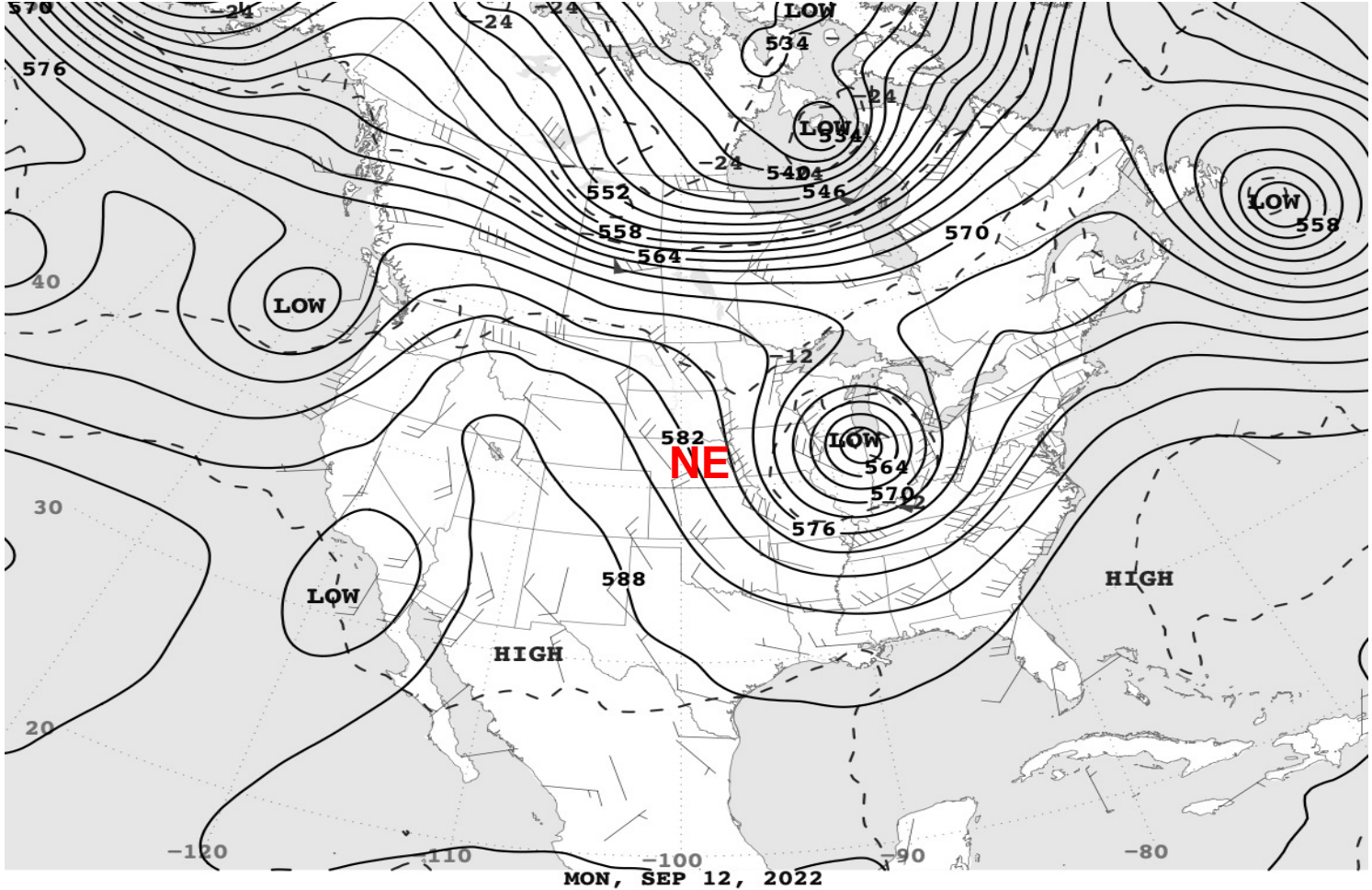
12 Sep. 2022



Synoptic (500hpa) map on 11 Sep. 2022



Synoptic (500hpa) map on 12 Sep. 2022

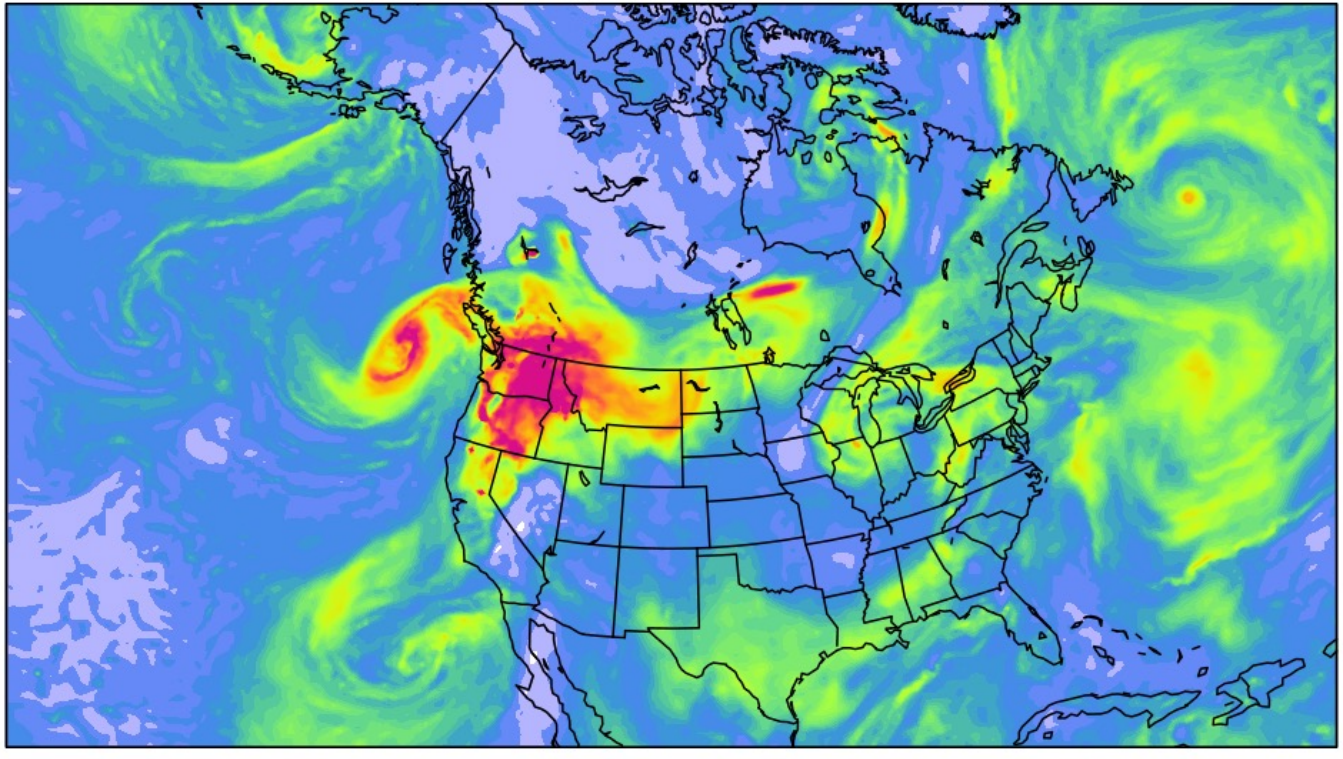


So far

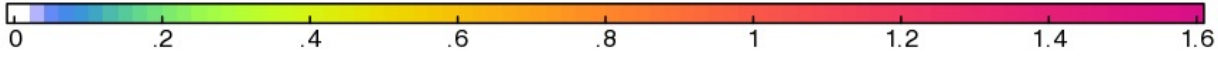
- **Received the grant and made two subawards to two Co-Is' institution in August 2022**
- **A postdoc is hired to engage with stakeholders**
- **The AOCH product (from TROPOMI) has now been requested by and delivered to several groups (including modeling groups at NOAA)**
- **Is working with Melanie Follette-Cook to find another person to support engagement and the application of GEOS-FP/CF.**
- **ARL 2/3 → ARL8**

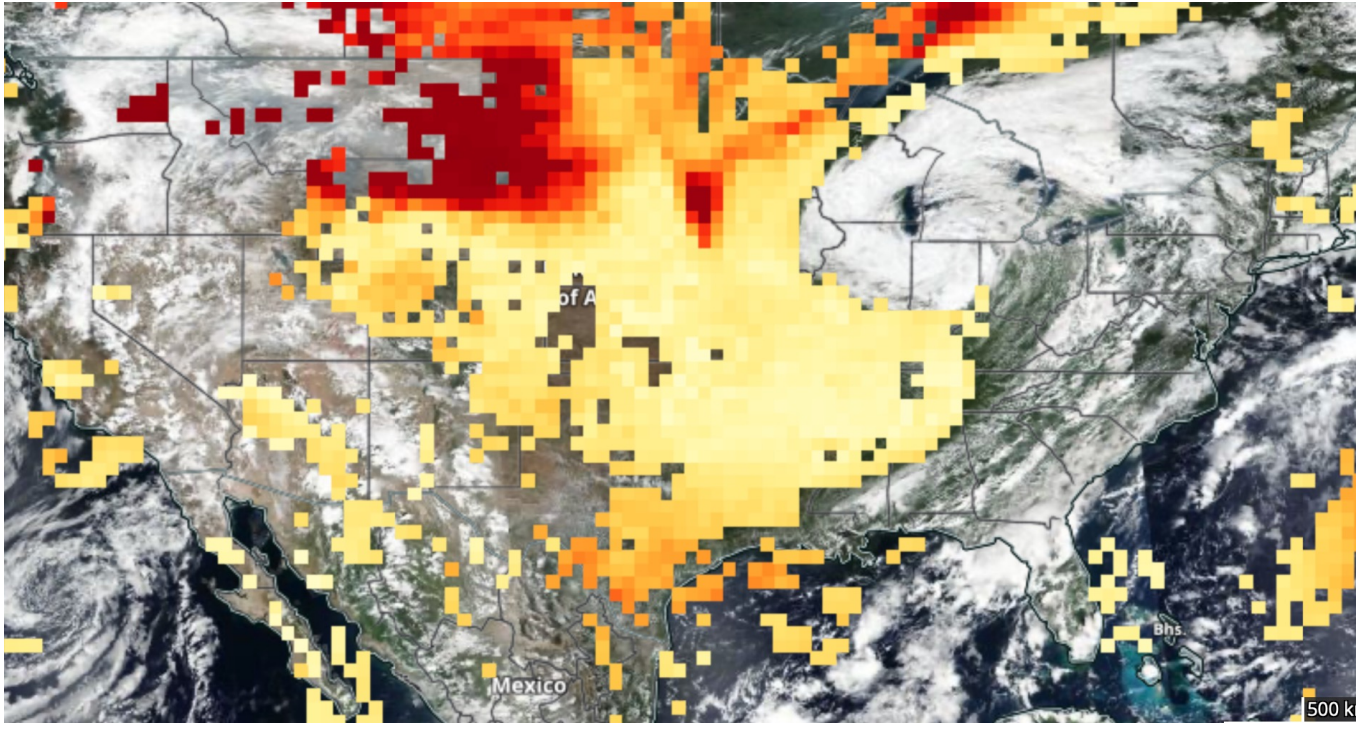
NASA/GMAO - GEOS Forecast Initialized on 12z 09/12/2022

Total Aerosol Optical Thickness



006 hr forecast valid Mon 18z 2022-09-12

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