Friberg–LEO-GEO & GEO-GEO Stereo Imaging Diurnal Observations

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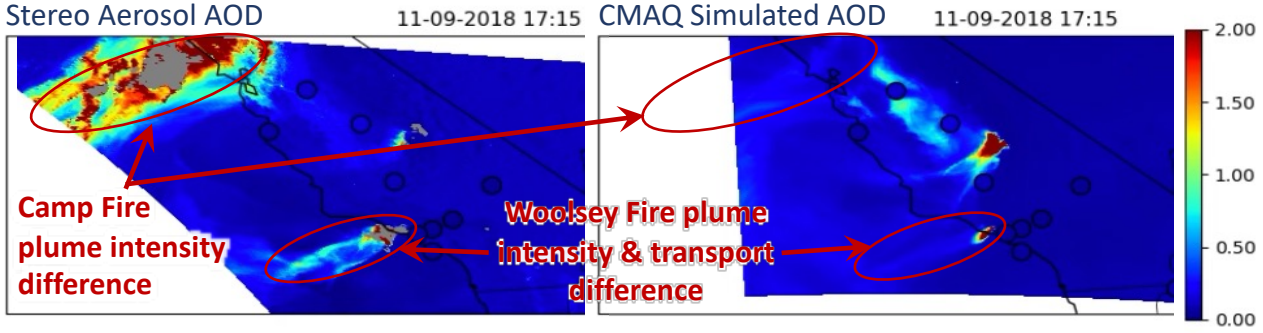
- **Motivation:** Wildfire Height, Dust Transport, and Plume Dynamics observations are critical to assessing air quality impacts but remain sparse and lack the spatiotemporal coverage and accuracy needed by models.
- **Objectives:** Increase wildfire and dust weather dynamics observations by applying our LEO-GEO and GEO-GEO Stereo-Imaging Techniques by:
  - Leveraging NASA's LEO and NOAA's GEO
  - Increase assignment accuracy of model using stereo
    - Plume injection time and top height
    - Plume wind speeds and directions
    - aerosol loadings, composition, and transport
  - ***Diurnal coverage of GEO-GEO stereo products*** support improvements of
    - Sub-hourly numerical weather and chemical transport simulations needed to capture intense fire dynamics and dust transport
    - Data assimilation inputs into numerical prediction systems at the sub-hourly frequency
    - Furthering our understanding of intense plume dynamics and PBL variations (e.g., pyroCB)
  - Comparison between stereo-imaging remote sensing products and model simulations highlight how important the stereo observations are for aerosol transport and illustrate how hourly simulations may not be enough to capture intense fire dynamics or dust transport.

California Camp & Woolsey Fire (11/2018)



California Creek Fire Diurnal Plume Heights (9/2020)