



Contribution ID: 81

Type: Poster

## Global Stratospheric Aerosol Watch (GSAW) –a web portal for NRT visualization and analysis of satellite and ground-based observations relevant to stratospheric aerosol

GSAW is a new web portal conceived for quick visualization of various satellite observations relevant for the stratospheric aerosols with a specific focus on extreme events, such as wildfires/pyroCb and volcanic eruptions reaching the stratosphere. GSAW provides visualization of Near-Real Time (NRT) data (delivered with a latency of 1-3 hours) as well as historical data dating back to 1979 for some data sets.

The portal includes several modules offering various ways of data visualization for the following purposes:

- 1) NRT detection of extreme events: wildfire outbreaks and explosive volcanic eruptions
- 2) Spatiotemporal tracking of aerosol plumes in NRT mode
- 3) Source attribution of aerosol plumes in the UTLS
- 4) Multi-scale analysis of stratospheric aerosol perturbations, their evolution and longevity

Post-KUMAR is the most advanced interactive GSAW module enabling NRT visualization of global nadir mapping and along-orbit vertical sections. The geographic maps of UV absorbing Aerosol Index (AAI) and SO<sub>2</sub> total column are overlaid by satellite orbit ground tracks, realized as clickable objects. Clicking on the orbital track in a region of interest displays the respective vertical curtain of aerosol/clouds. Post-KUMAR comprises the following objects:

- ☑ Daily maps of AAI and SO<sub>2</sub> total column (zoomable and color-scalable)
  - o TROPOMI AAI 2019/01 –present (operational)
  - o OMPS-NM AAI 2012/02 –2018/12
  - o AAI merged satellite record ESA CCI 2000/01 –2012/01
- ☑ Satellite ground tracks (clickable) and along-orbit cross sections
  - o EarthCARE ATLID 2024/08 –present (operational)
  - o SNPP OMPS-LP 2012/02 –present (operational)
  - o NOAA-21 OMPS-LP 2023/02 –present (operational)
  - o CALIPSO CALIOP 2006/06 –2023/06
- ☑ Aerosol layer detections (color-coded by layer top altitude)
  - o SNPP OMPS-LP (stratospheric aerosol layer detection –SALD) 2012/02 - present
  - o NOAA-21 OMPS-LP (SALD) 2023/02 - present
  - o CALIOP (upper tropospheric smoke and SALD) 2006/06 –2023/06
- ☑ Solar occultations (clickable) and vertical profiles of aerosol and gases
  - o SAGE II (1984/10 –2005/08) and ISS SAGE III (2017/05 –present) extinction ratio profiles
  - o ACE-FTS extinction, temperature, CO, H<sub>2</sub>O, O<sub>3</sub>, HCN vertical profiles (2004/02 –2023/11)
- ☑ Animated GFS wind fields at 12 UT at different pressure levels (2000/01 –present)

### Topic

Applications (e.g., data assimilation, gridded products, spacecraft re-entry plumes)

**Author:** KHAYKIN, Sergey (LATMOS, IPSL, CNRS, UVSQ, Sorbonne Université, Guyancourt, France)

**Co-authors:** Dr KADYGROV, Nikolay (LATMOS, IPSL, CNRS, UVSQ, Sorbonne Université, Guyancourt, France); LAENG, Alexandra (KIT IMKASF)

**Presenter:** KHAYKIN, Sergey (LATMOS, IPSL, CNRS, UVSQ, Sorbonne Université, Guyancourt, France)