



# Generalized Retrieval of Aerosol & Surface Properties

[grasp.catalysts.cc](http://grasp.catalysts.cc) →



**GRASP** is a highly **advanced** aerosol retrieval algorithm that processes properties of aerosol- and land-surface-reflectance in cloud free environments. It infers nearly **50 aerosol and surface parameters**, including:

- **particle size distribution**
- **spectral index of refraction**
- **the degree of sphericity**
- **absorption**

The algorithm is designed for the enhanced characterization of aerosol properties from spectral, multiangular polarimetric remote sensing observations. GRASP works under diverse conditions, including bright surfaces like deserts, where the reflectance overwhelms the signal of aerosols. GRASP is highly versatile and allows input from a **wide variety of satellite and surface measurements**.

### Accurate

- Modeling using direct on-line computations
- Simultaneous multi-pixel retrieval

### Versatile

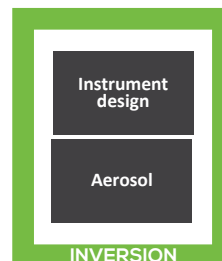
- Applicable to diverse remote sensing observations
- Transformable forward model is built of fully consistent modules
- Universal inversion is fully compatible with different forward model setups

### Fast

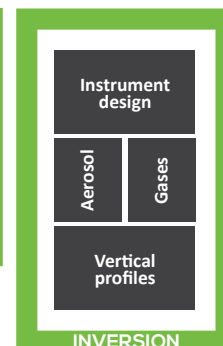
- Advanced highly parallelized implementation
- Accelerator support enabled, including GPGPU

## GRASP retrieval setups

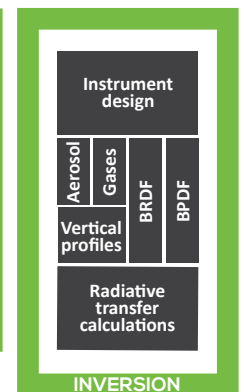
### Sun-photometer



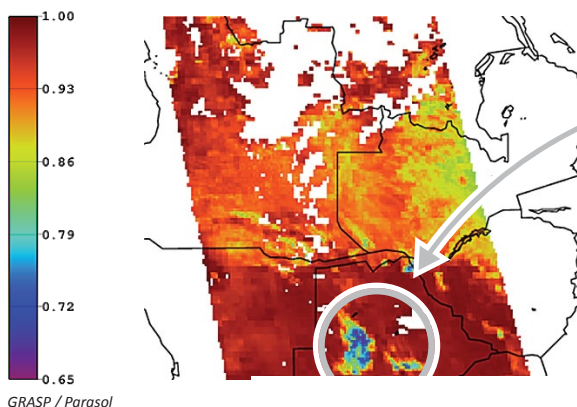
### Lidar



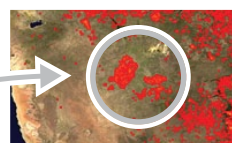
### AERONET, Parosol



## GRASP performing on real data



GRASP / Parosol



NASA Fire Map



The left image shows a SSA 675 retrieval from PARASOL/POLDER over South-Central Africa, 2008-09-01. The low SSA measurements correspond to biomass burning, as verified by the NASA Fire Map detected by MODIS.

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