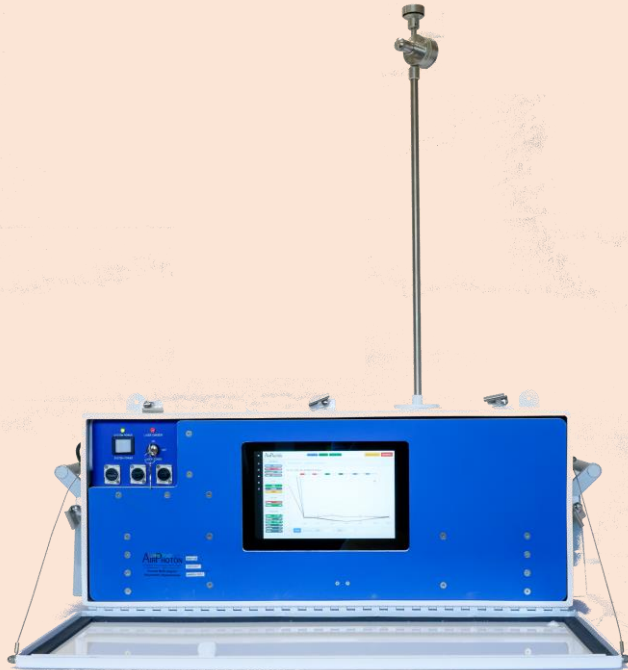


The Air Photon **IMAP 100** Inverse **M**ulti-**A**ngle **P**olarization Polarimeter With GRASP Data Retrieval

Unique high quality particulate measurements

- A complete size distribution in seconds
- Particle mass
- Full phase function
- The real refractive index of the particles
- Sphericity factor



The AirPhoton IMAP 100

IMAP Specifications



Angular ranges measured: 8

View angles centered at 5 °, 25.7 °, 51.4 °, 77.1 °, 102.8 °, 128.6 °, 154.3° and 170 °

Instantaneous field of view < 7.5°

Wavelengths: 3

470 nm, 529 nm and 621 nm

Polarization orientations: 2

Parallel and perpendicular to the scattering plane

Size measurements:

4 size bins ranging from PM1 to PM10



GRASP Data Retrieval

The GRASP algorithm is a powerful tool that allows us to maximize the information content of the instrument measurements. GRASP has been applied to ESA and NASA satellite data as well as combinations of ground and satellite instruments.

IMAP Data Sheet

Instrument size: 25 cm x 44 cm x 30cm

Inlet height: 117 cm

Flow rate: 1.5 to 12 liters per minute

Data: Saved to an SD card. Real time data access via USB, RS485, RS232

Remote Access via Wifi or Cell Network: AirPhoton Com 100 module (not included)

Calibration: Operational daily provided by clean air reference

Gas calibration: CO₂ and clean air every 3 – 6 months depending on operating conditions

Power: Mains AC power. 120- or 240-Volt systems (50 and 60Hz). 60 W maximum load. A 5-Amp circuit breaker is included that also acts as the on-off switch.



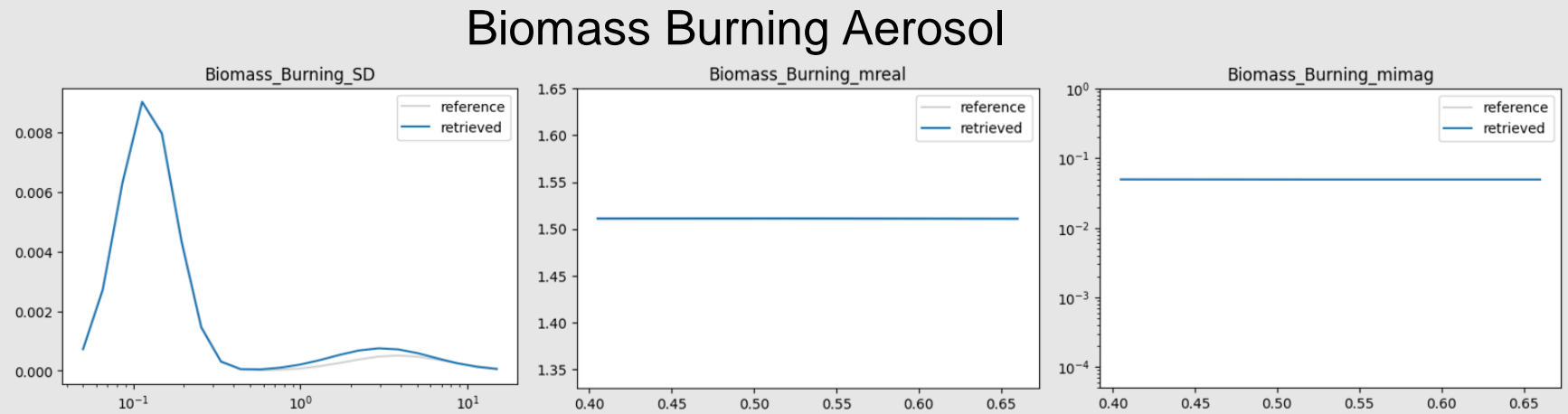
GRASP Can Create Advanced Products By Combining Data From Multiple Instruments

Integrated Nephelometer + Aethalometer synergistic retrieval using GRASP

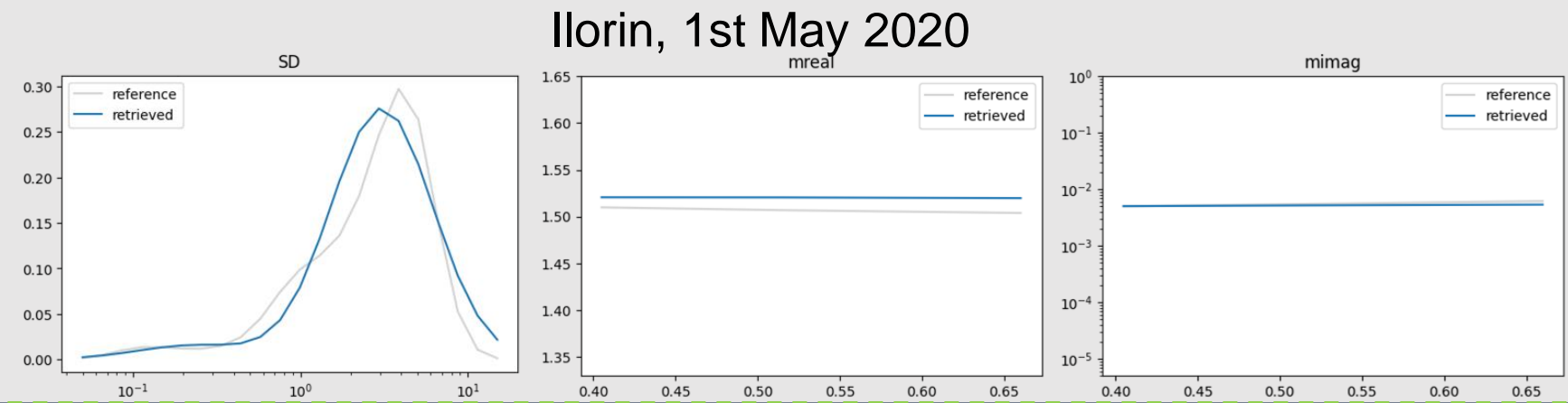
GRASP is capable of retrieving precise aerosol size distribution, refractive indices from the combination of an integrating nephelometer and aethalometer:



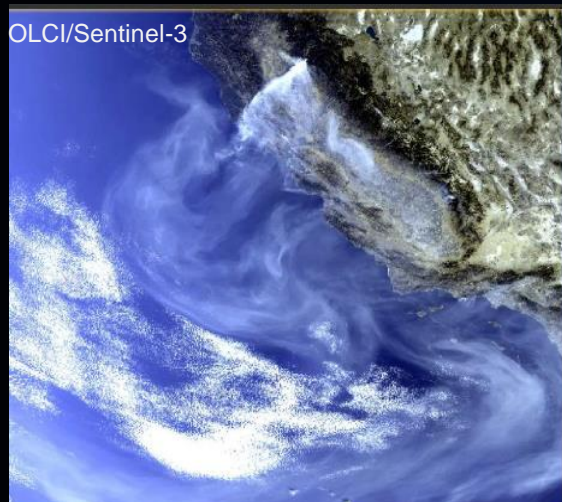
Synthetic tests based on ideal aerosol model



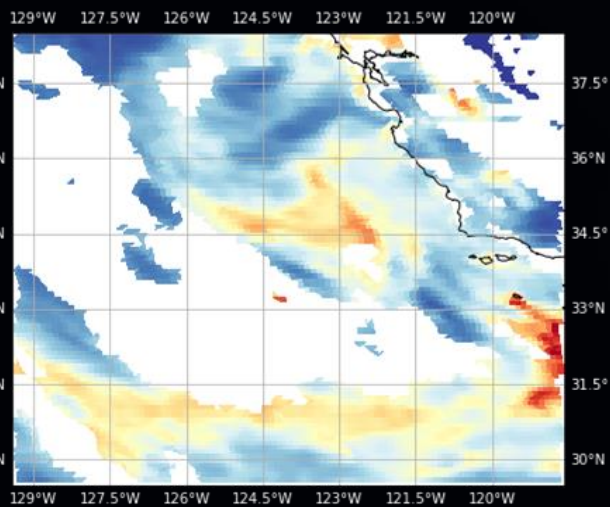
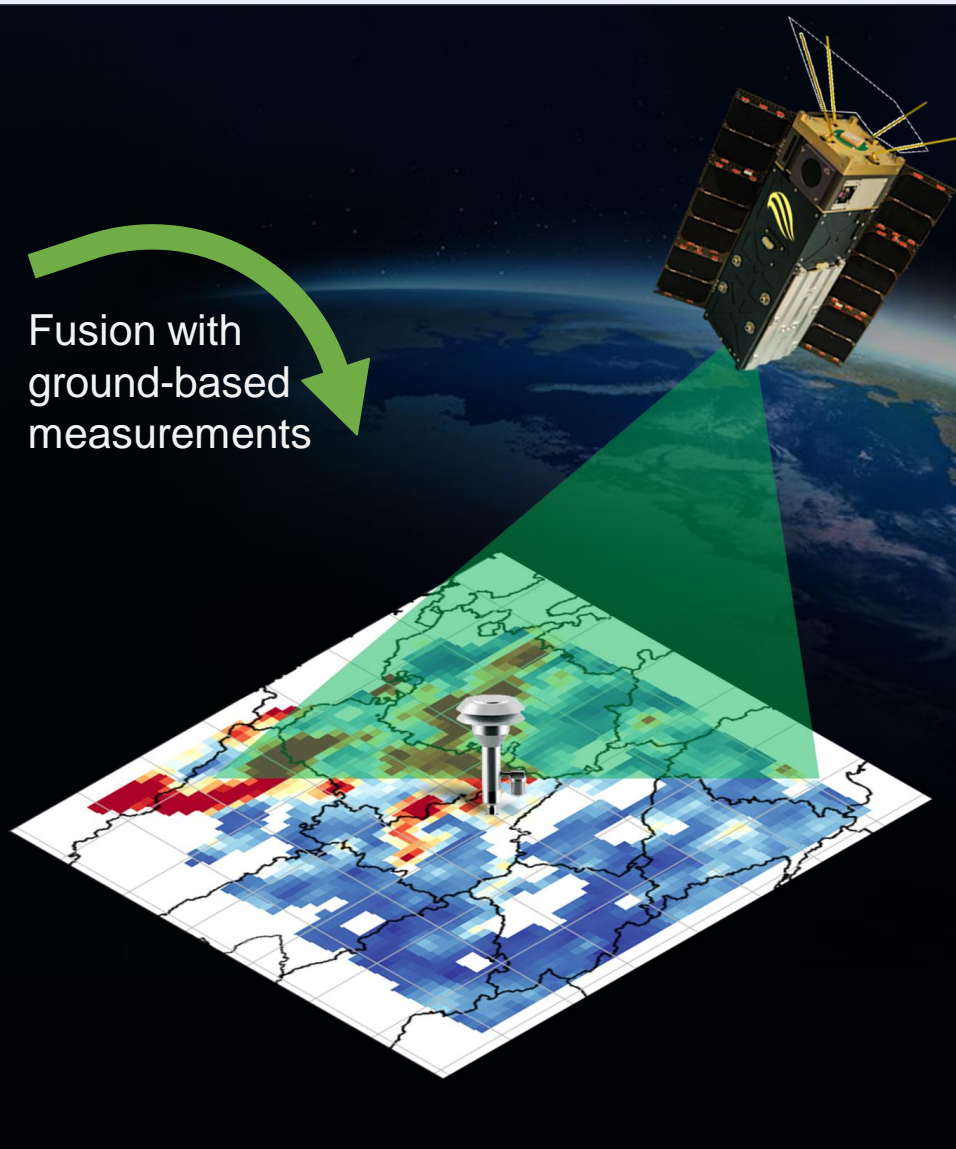
Synthetic tests based on aerosol properties from AERONET observation



Satellite data processing



Fusion with
ground-based
measurements



GRASP generalized architecture enables the combination of any kind of remote sensing observation, even satellite with ground-based measurements.

Satellite retrievals are significantly improved by the high information atmospheric content of ground based measurements.

Example of photometer + satellite

Input: Satellite radiances + Direct Sun + Sky radiances



Output: Improved surface BRDF + Aerosol concentration + Aerosol size distribution + Components fractions