



4STAR:

Spectrometer for Sky-Scanning, Sun-Tracking

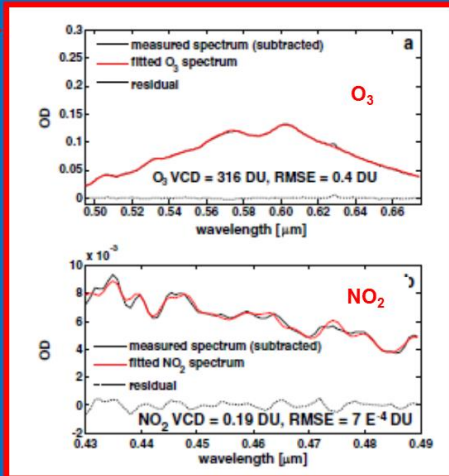
Atmospheric Research

AERONET-like

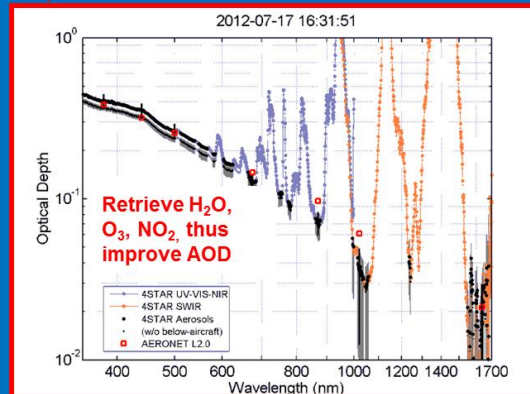
Phase function, Size mode distributions, $n_{re}(\lambda)$, $n_{im}(\lambda)$, Single-scattering albedo, asymmetry parameter, shape, aerosol type



gas retrievals



AATS-14-like measurements of column amount and profiles of aerosol & H₂O.



4STAR KORUS-AQ Team



Instrument: 4STAR

PI: Jens Redemann

Co-PI: Michal Segal-Rozenhaimer

Engineers: Roy R. Johnson, Stephan Dunagan

Scientists: Samuel LeBlanc, Yohei Shinozuka, Connor Flynn & Beat Schmid (both PNNL)

Science Capabilities

- **AOD** at 100s of λ's, extinction profiles
- **O₃, NO₂ and H₂O** (demonstrated); CO₂, CH₄, OH, Formaldehyde (desired)
- **Cloud** properties (COD, r_{eff} , phase)
- AERONET-like **aerosol μ-physics** retrievals

Publications

- Dunagan et al., 2013, *Remote Sensing*
 - Shinozuka et al., 2013, *JGR*
 - Segal-Rozenhaimer et al., 2014, *JGR*
 - Flynn et al., *in preparation*
- Campaigns: TCAP, SEAC⁴RS, ARISE, NAAMES

Observables