SASZe Update

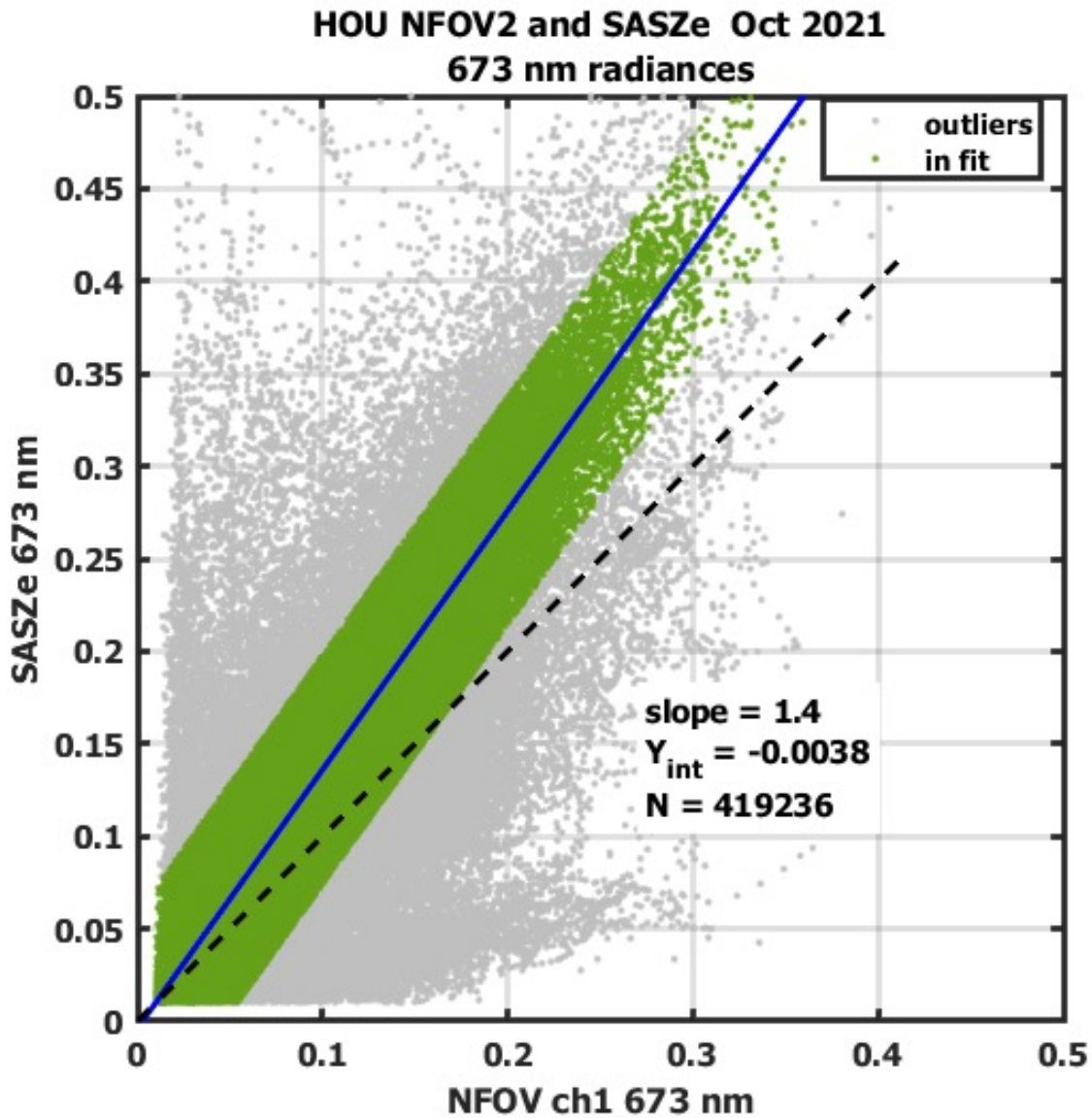
Connor Flynn

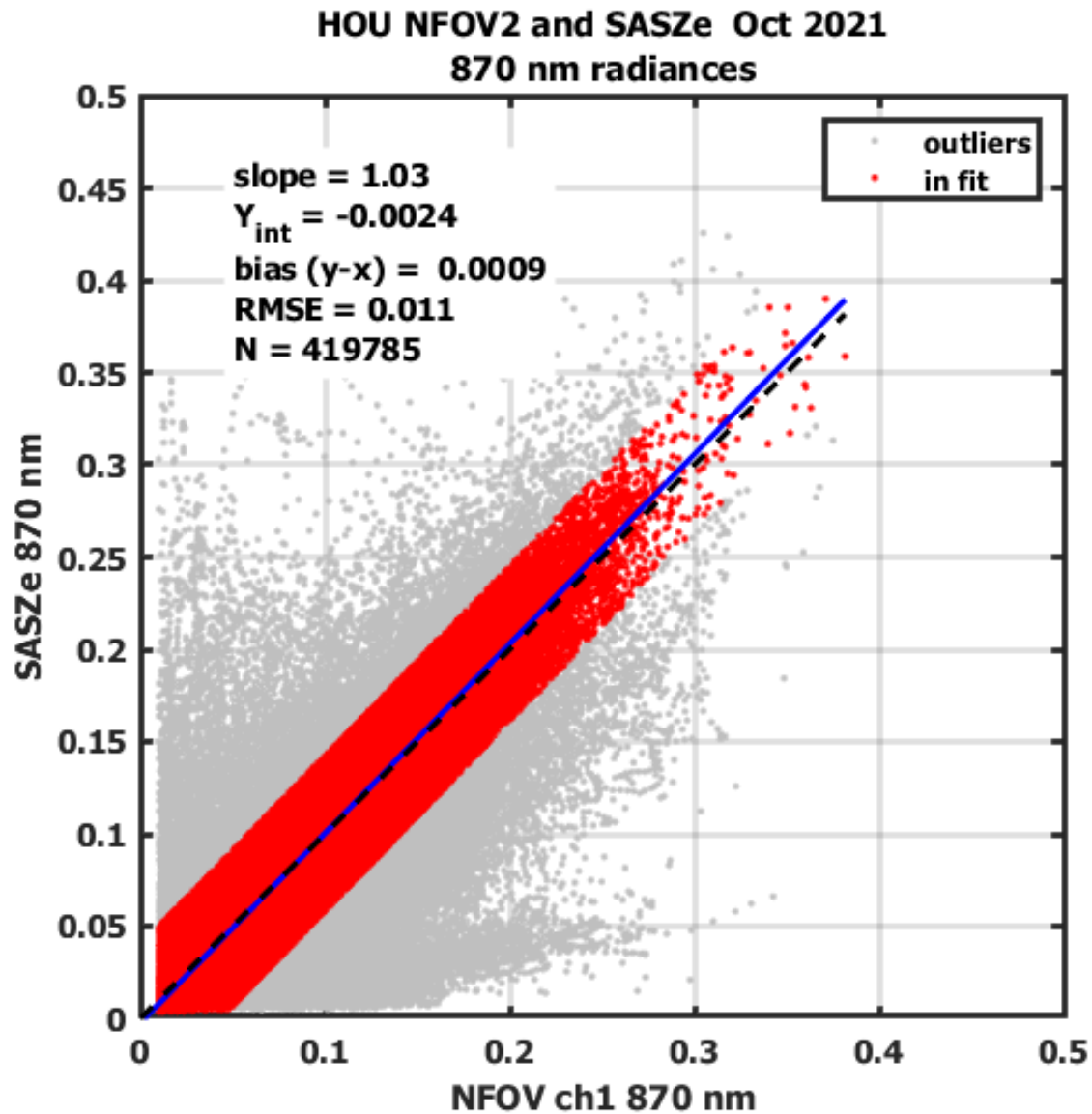
Aug 7, 2023

HOU, TRACER Zenith Radiances

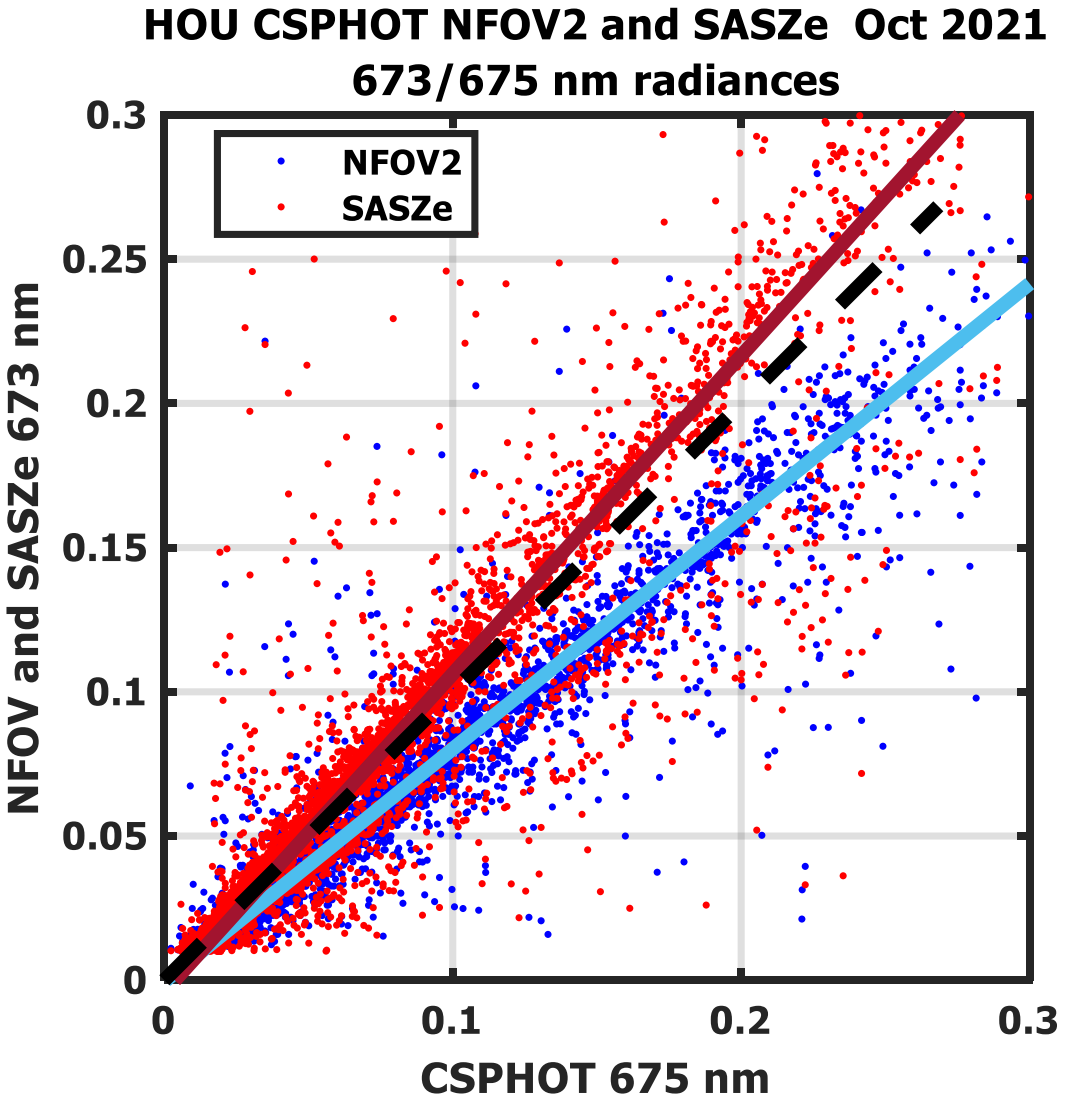
- Oct 1, 2021 to Sept 30, 2022
- CSPHOT csphotzenradv3.a1
  - 333 files from 2021-08-02 to 2022-09-25
  - 380, 440, 500, 675, 870, 1020, 1640 nm
- NFOV2 nfov2ch.b1
  - 703 files from 2020-09-14?! to 2022-10-02
  - 673 and 870 nm
- SASZe saszevis.a1, saszenir.a1, sasfilterbands.a1
  - 379 files from 2021-09-21 to 2022-10-01
    - 380-1700 nm, and 31 discrete filter wavelengths

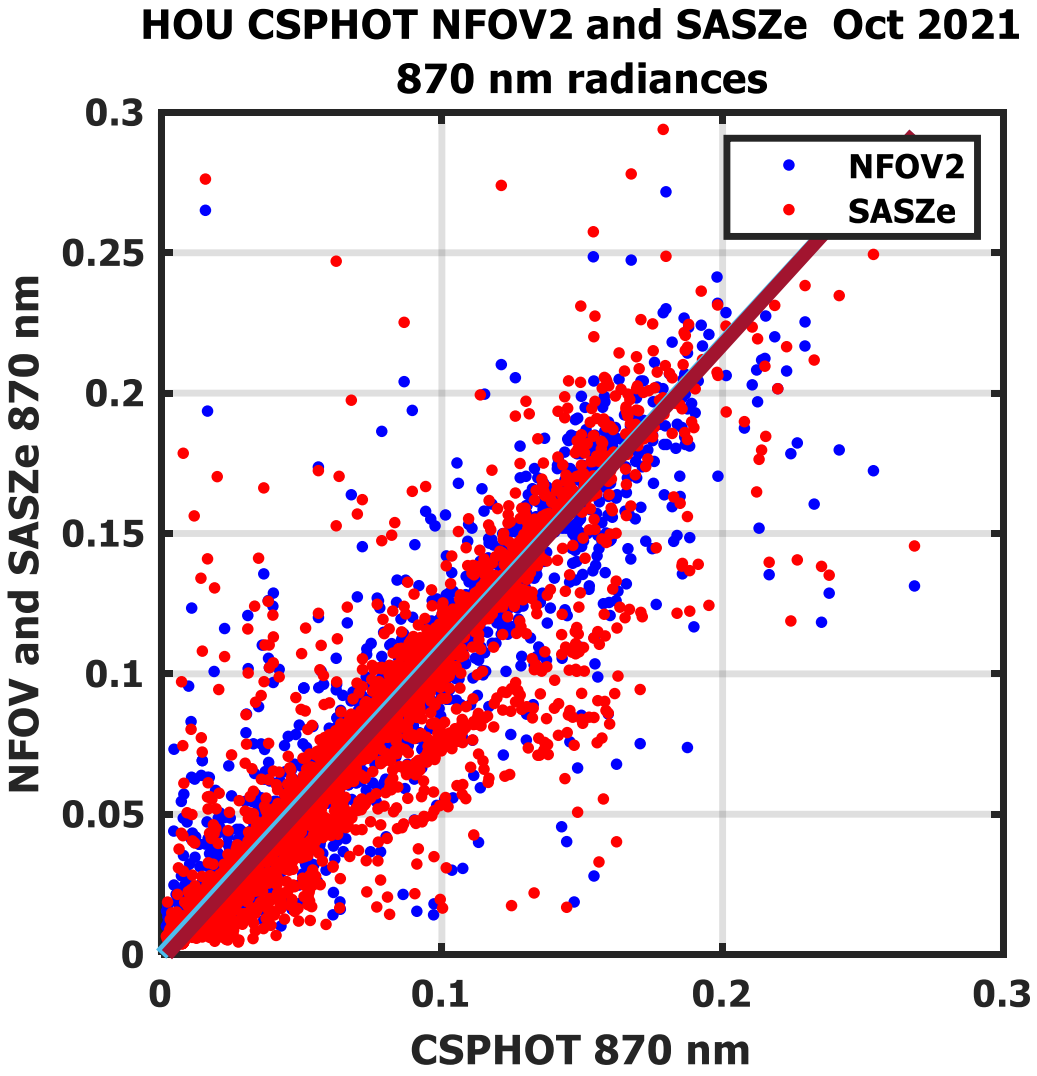
Comparison of SASZe and NFOV2 1 Hz





Comparison of SASZe, NFOV2, CSPHOT cloud mode

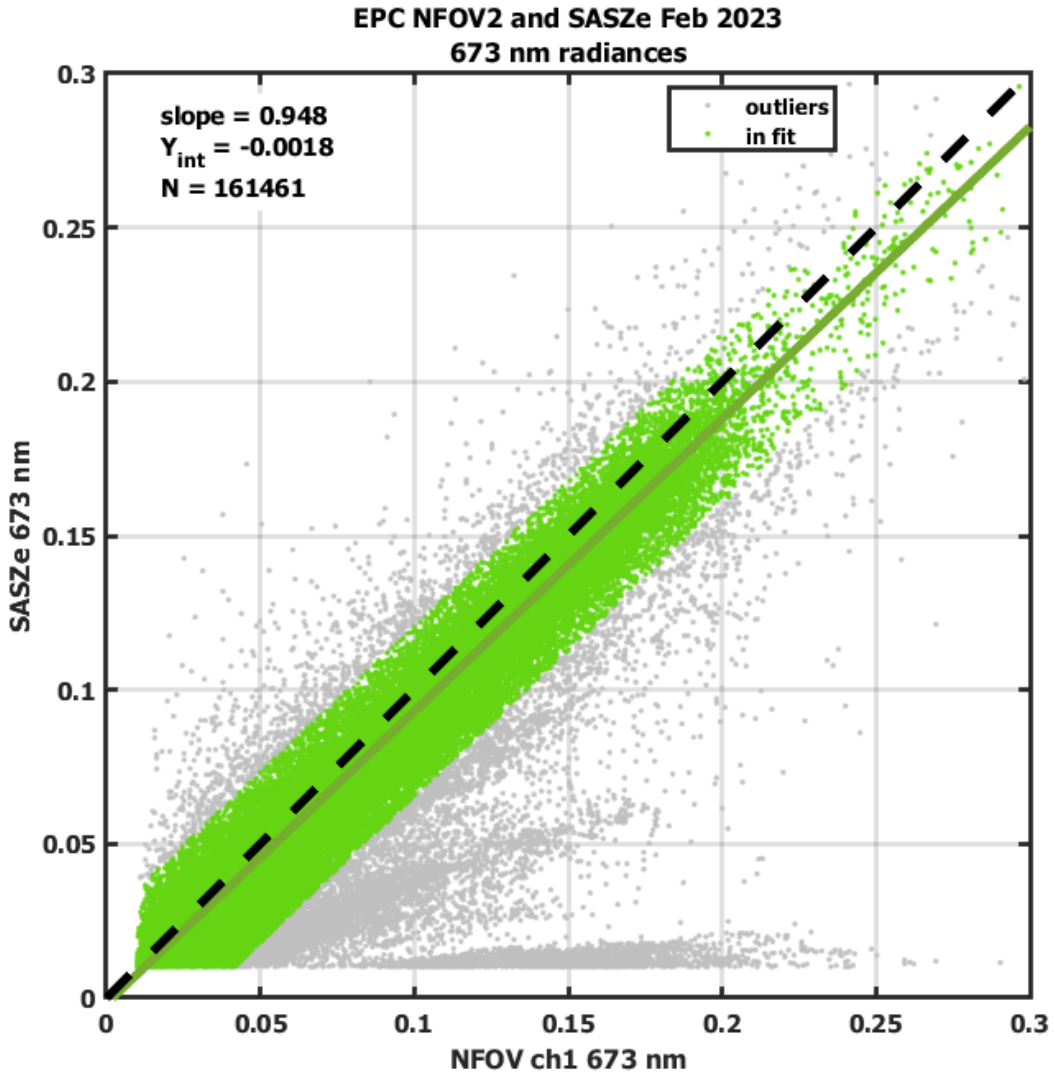


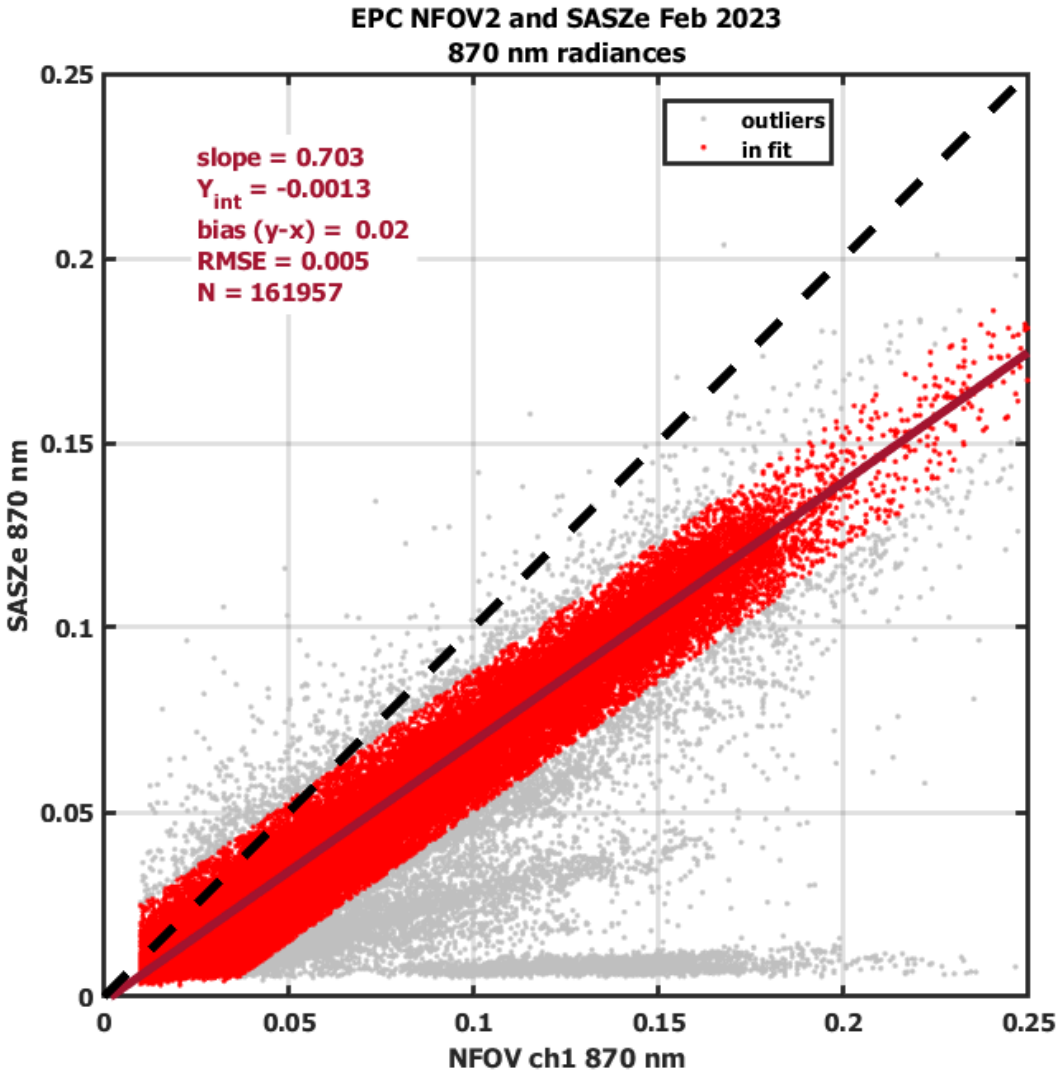


EPC, TRACER Zenith Radiances

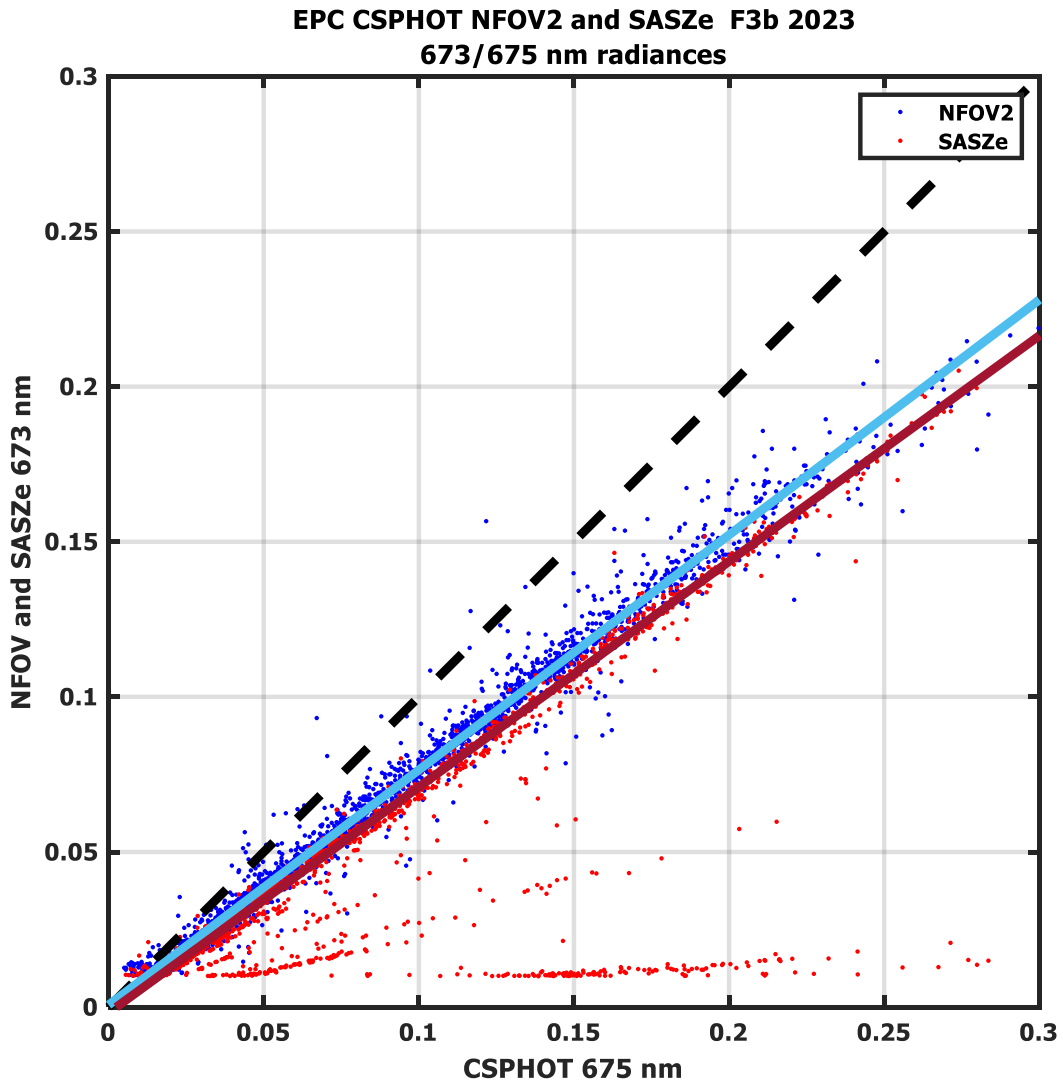
- Feb 15, 2023 to Current (Feb 14, 2024)
- CSPHOT csphotzenradv3.a1
  - 175 files from 2022-12-15 to 2023-08-03
  - 380, 440, 500, 675, 870, 1020, 1640 nm
- NFOV2 nfov2ch.b1
  - 218 files from 2022-10-02 to 2023-08-05
  - 673 and 870 nm
- SASZe saszevis.a1, saszenir.a1, sasfilterbands.a1
  - 204 files from 2023-01-13 to 2023-08-05
    - 380-1700 nm spectra and 31 discrete filter wavelengths

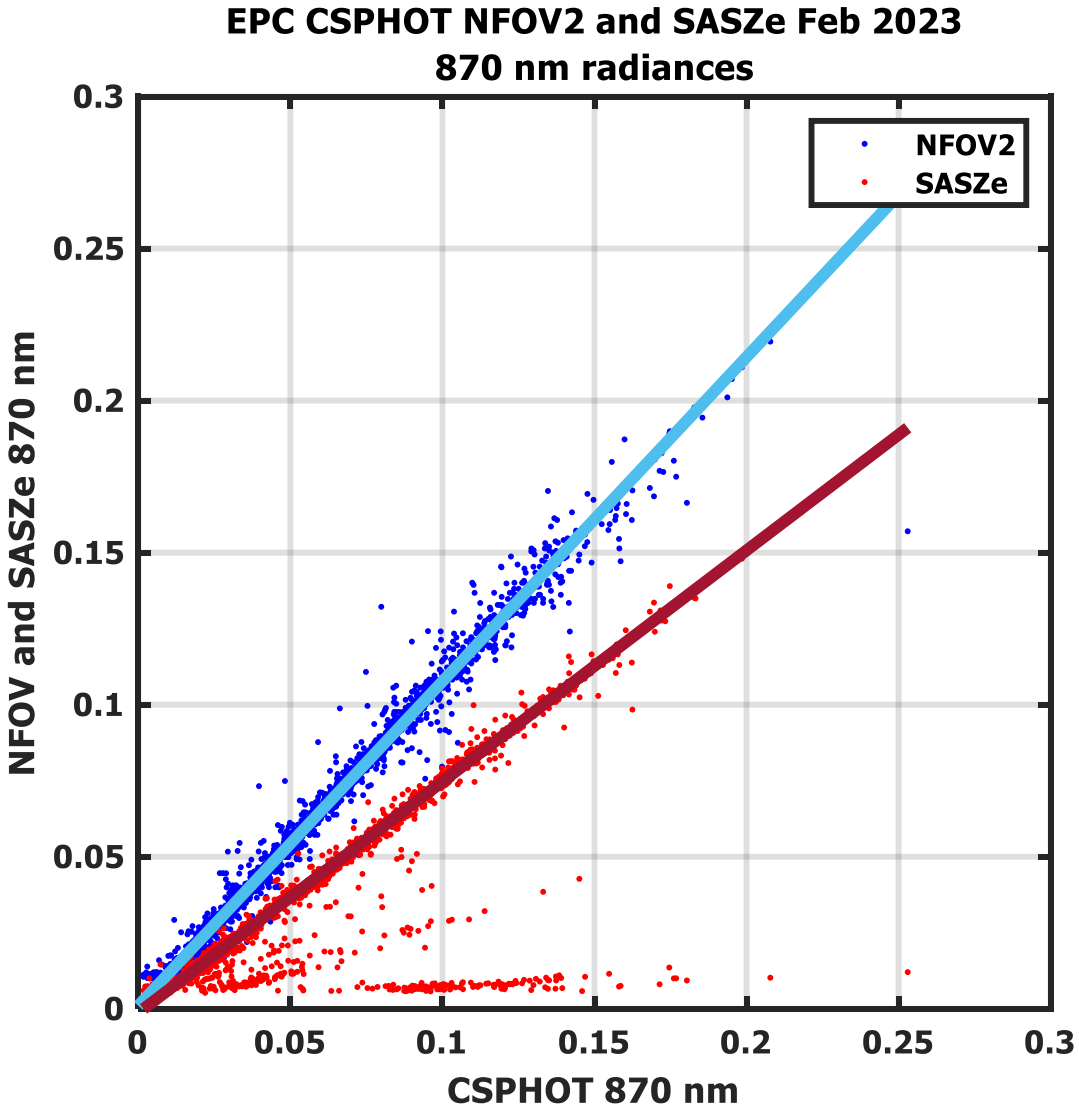
Comparison of SASZe and NFOV2 1 Hz



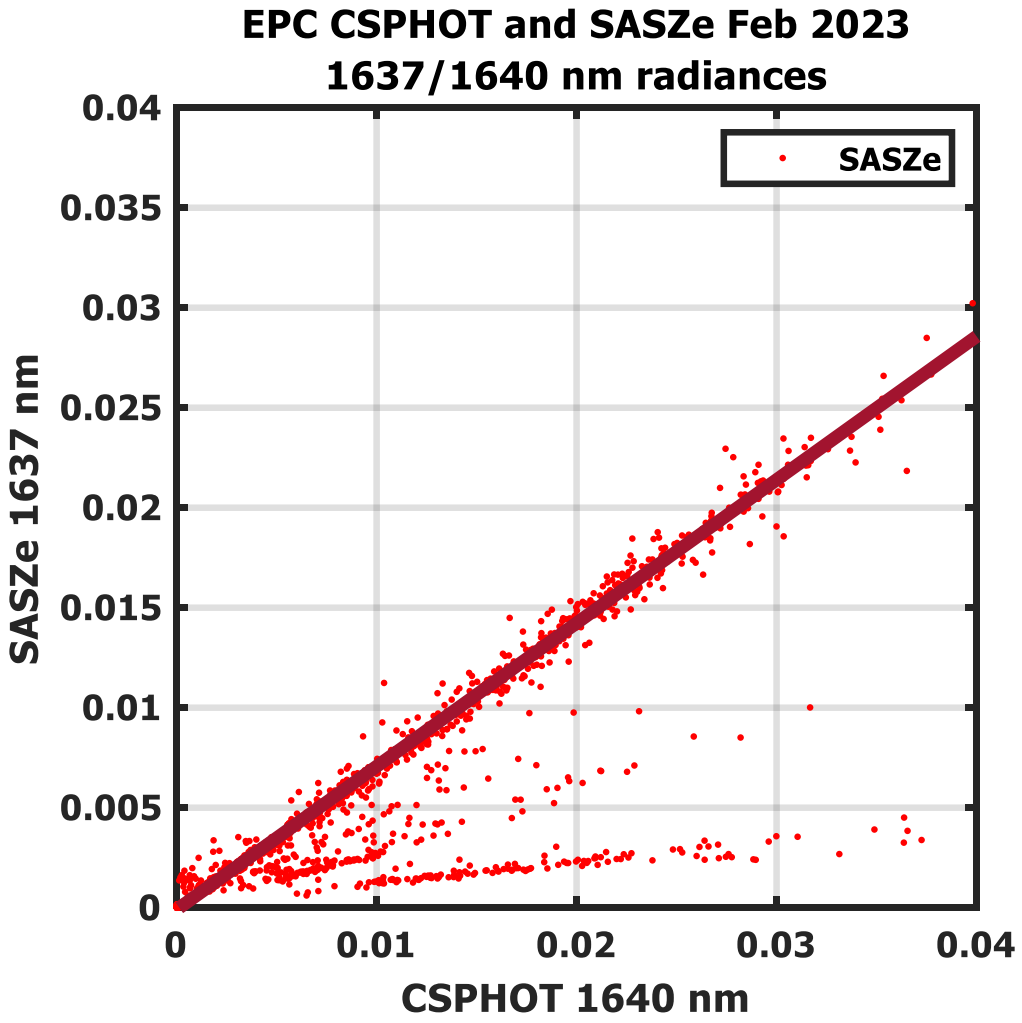


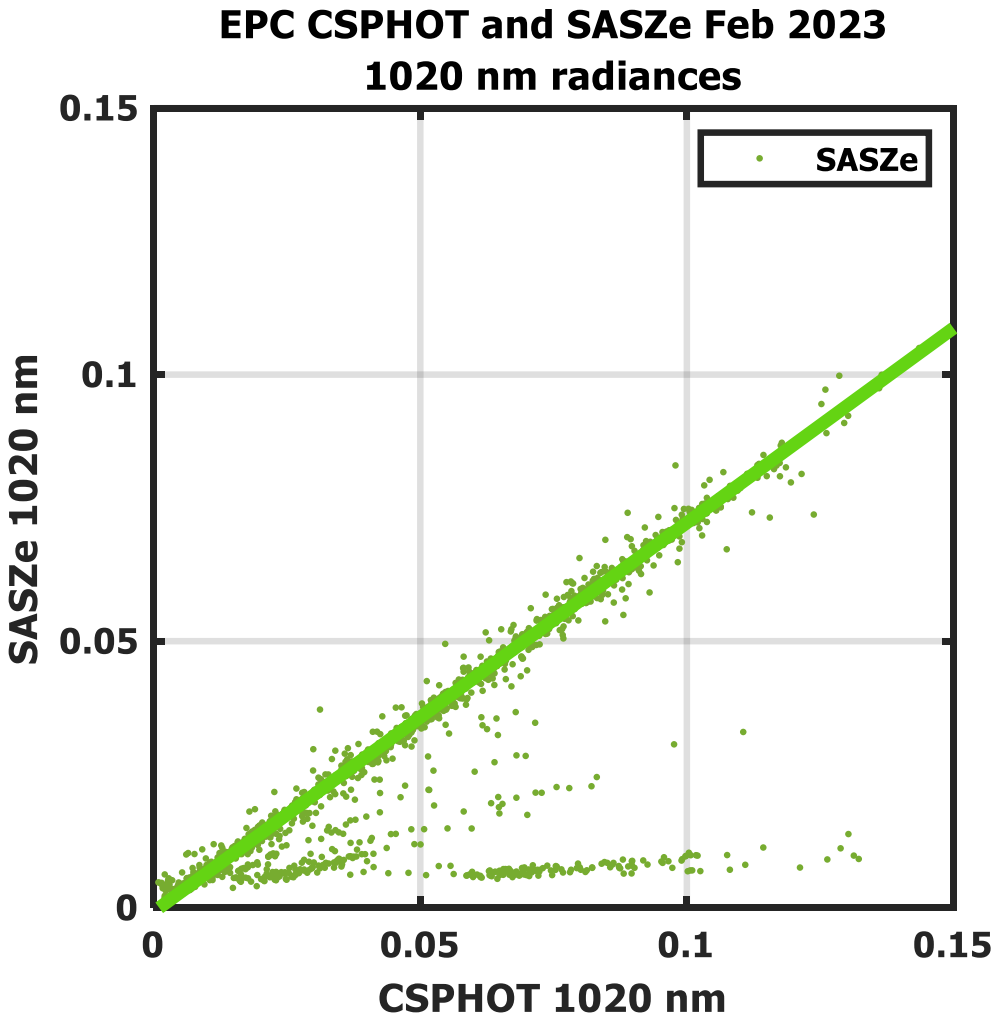
Comparison of SASZe, NFOV2, CSPHOT cloud mode





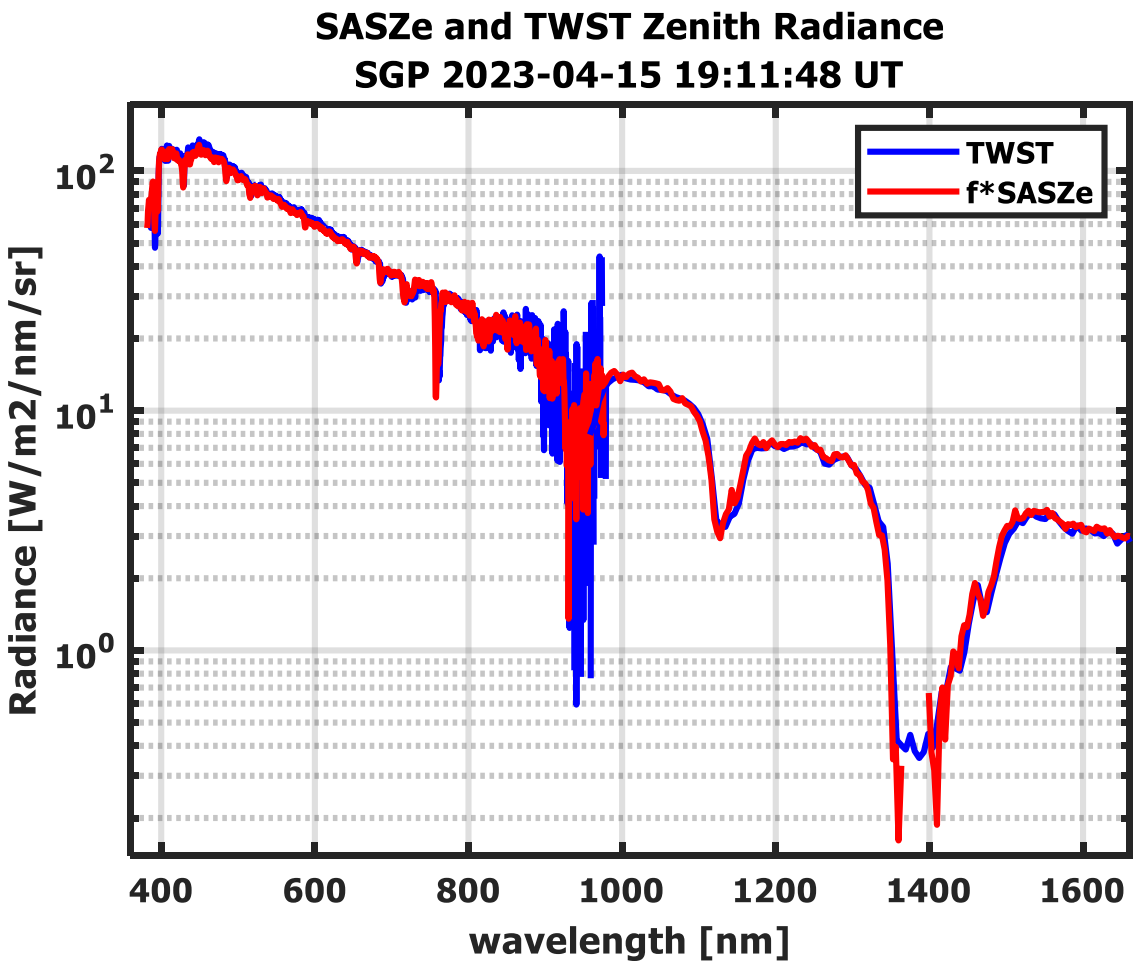
Comparison of SASZe and CSPHOT Cloud mode InGaAs Channels



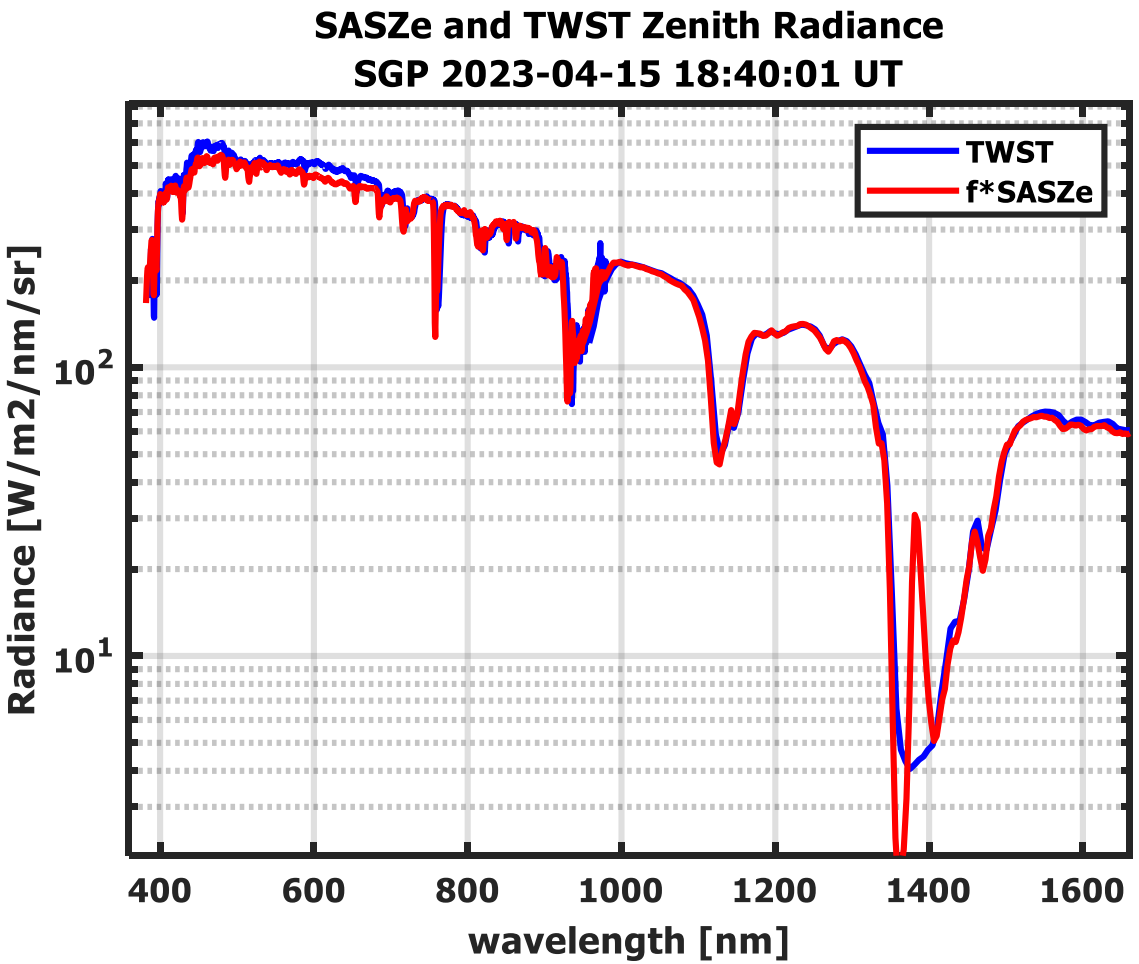


SGP SASZe & TWST Spectral Shape Agree

1-Hz average, clear



1-minute average, cloudy



Dilemma: How to tell which is (most) right?

- SW ZenRad QME:
  - Obtain measured AOD(λ)
  - Retrieve SSA(415nm) from MFRSR
    - Use “convenient” surface albedo
    - Important that SSA and Sfc Alb be “radiatively consistent”
  - Use Look-up table to identify periods where AOD and Airmass yield low expected radiance error
  - Model radiance (zenith, PPL, and ALM or Hyb to check with CSPHOT)
  - Use this model radiance to develop a time series calibration reference for all Zenith measurement