QASUME II – the new portable solar UV reference spectroradiometer

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QASUME

Quality **A**ssurance of **S**pectral **U**ltraviolet **M**easurements in **E**urope

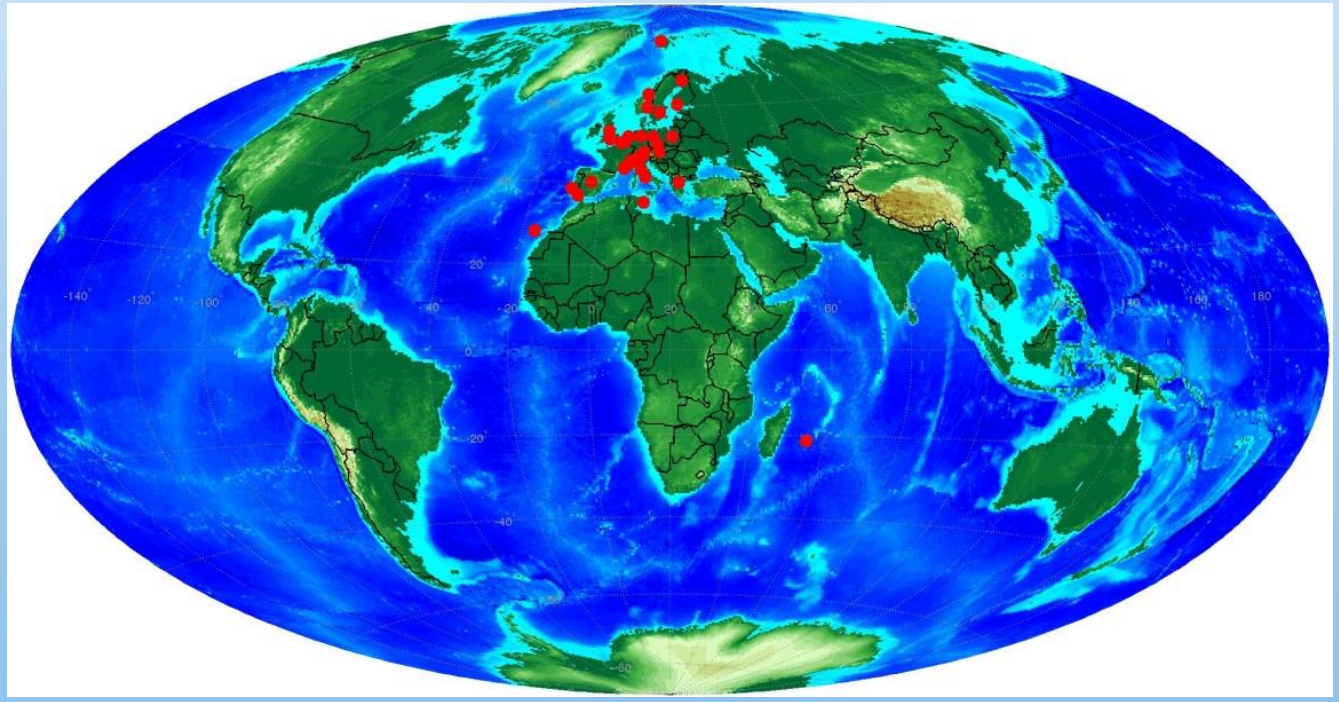
UV Workshop, Davos,
15 July 2014

Motivation

- Age of Qasume I (*2002)

- World Calibration Center EUVC ➔ WCC-UV
  - More Site Audits
  - Longer Trips

- New Gadgets



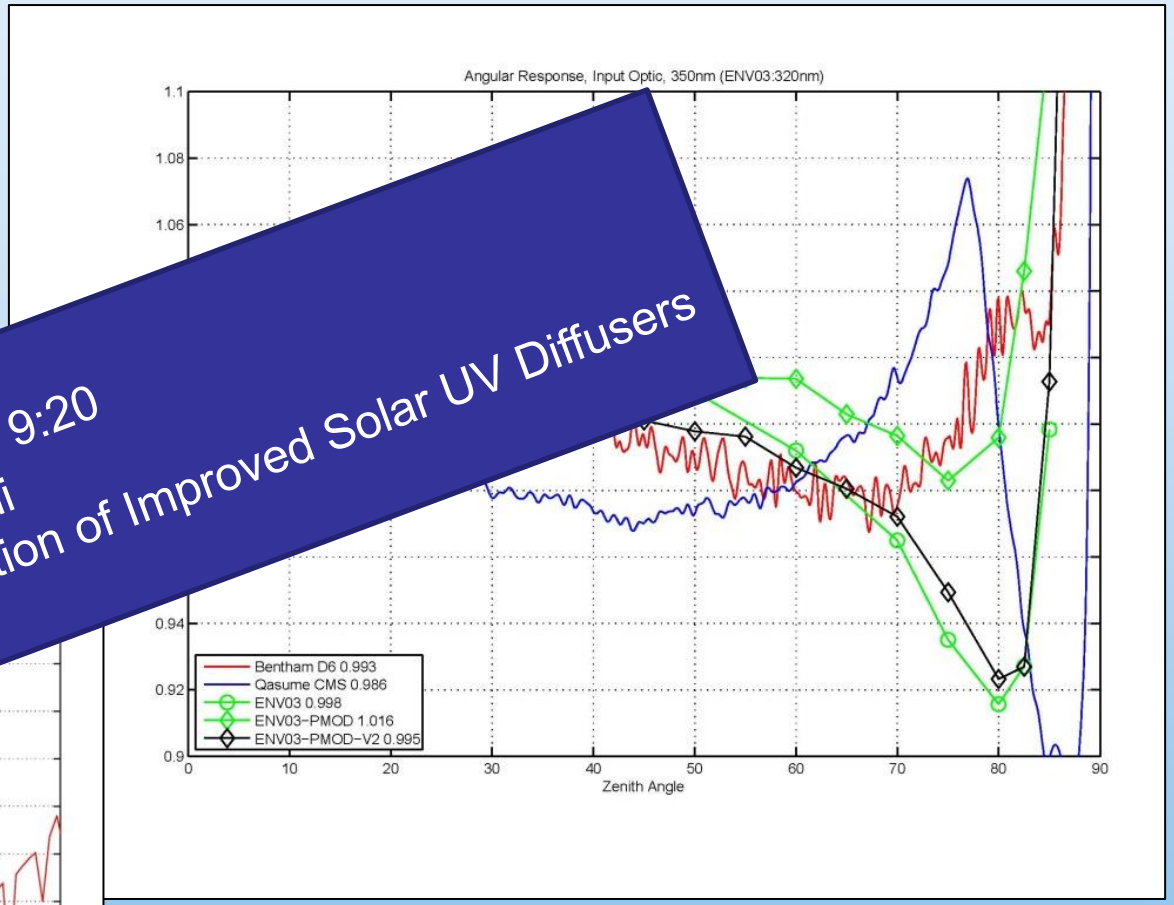
http://www.pmodwrc.ch/wcc_uv/wcc_uv.php?topic=qasume_audit

QASUME II

- Copy of QASUME
  - Bentham DM150
  - Identical Framework
- New Gadgets
  - SSDS
  - Input Optic

Input Optic

- High Throughput
- No Cosine Error
- No Azimuth Error
- No Sensitivity
  - Humidity
  - Temperature



Tomorrow 9:20
Tomi Pulli
Realization of Improved Solar UV Diffusers

SSDS Hyprid

Hybrid Design

- How much light for each detector?
  - Solar Irradiance vs. Lamp Measurements
  - Fast sampling (Solar Scan <20min)
- Position of the Detectors influence
  - Slit Function
  - Dispersion Relation

Operation Modes:

A

- Primary Si
- Secondary PC (low intensities)

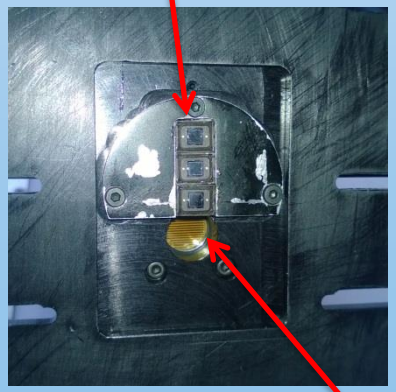
B

- Both in Parallel

C

- Primary PC
- Si as Monitor device

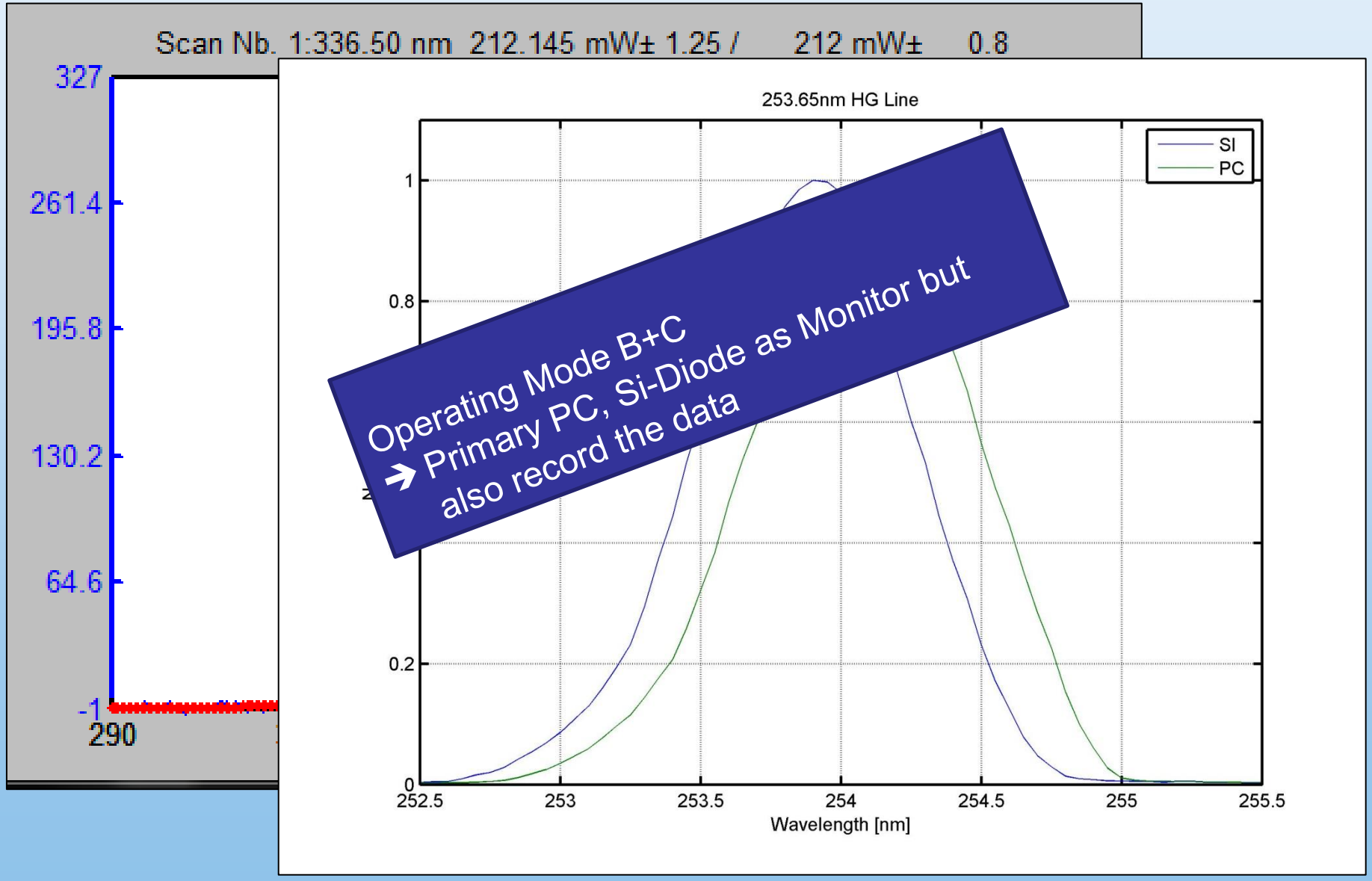
Silicon Diodes



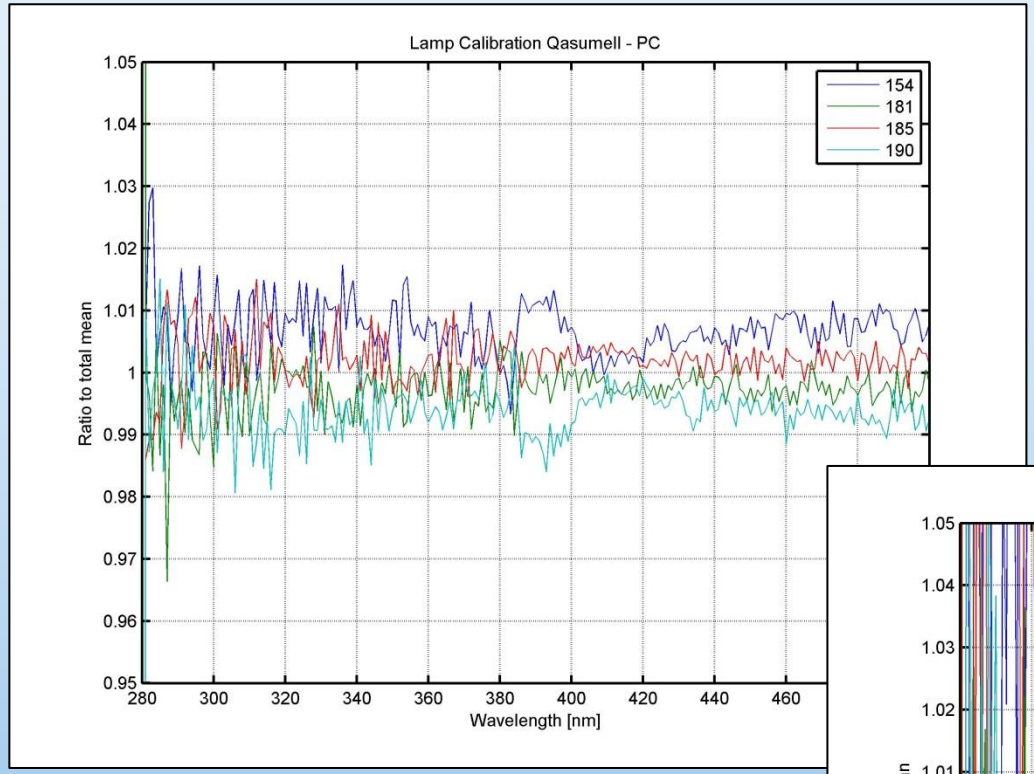
Switch Integrator Amplifier (CMI)

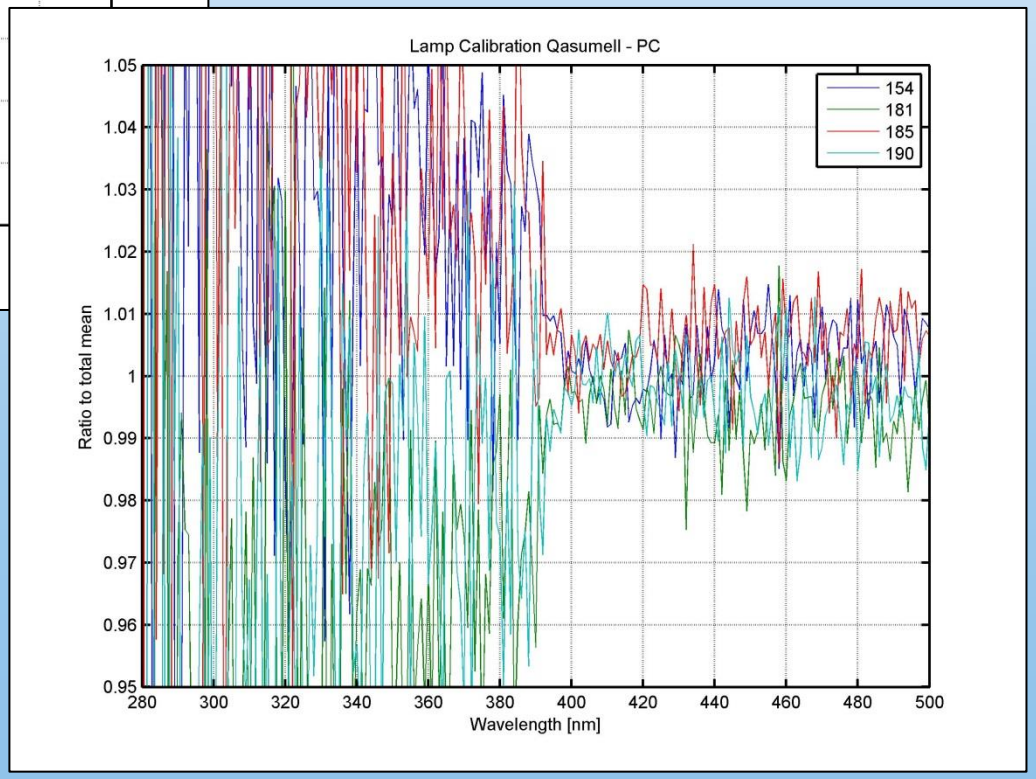
Photocounter

SSDS

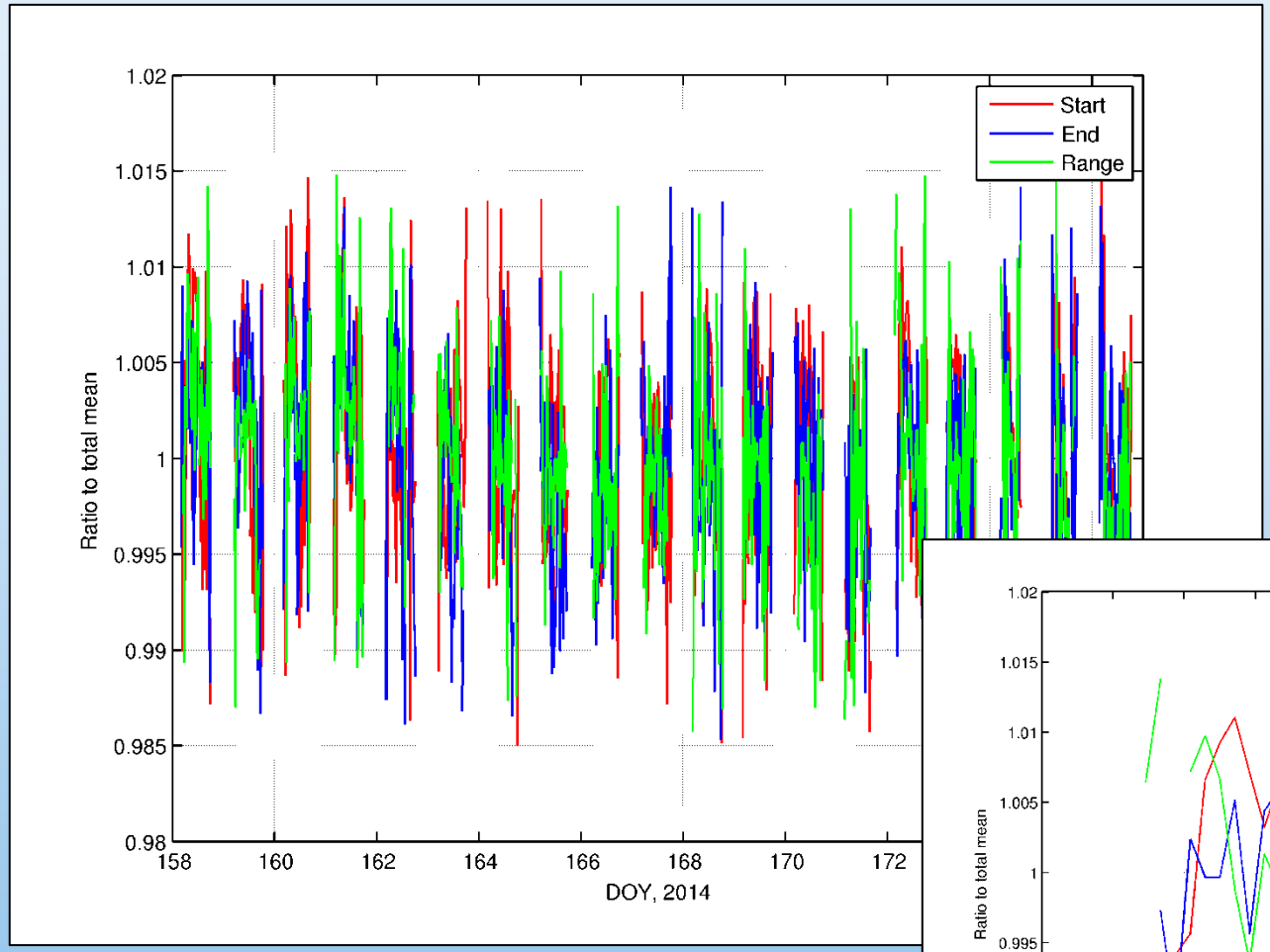

Scan Nb. 1:336.50 nm 212.145 mW± 1.25 / 212 mW± 0.8
327
261.4
195.8
130.2
64.6
-1
290
253.65nm HG Line
SI
PC
1
0.8
0.2
0
252.5
253
253.5
254
254.5
255
255.5
Wavelength [nm]
Operating Mode B+C
➔ Primary PC, Si-Diode as Monitor but
also record the data

SSDS Stability

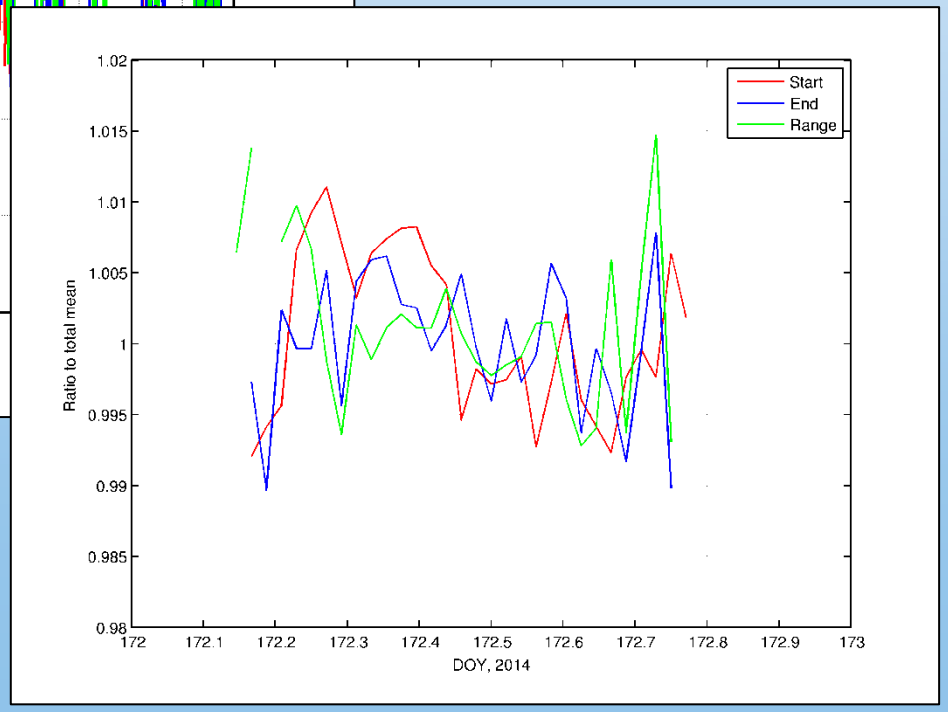




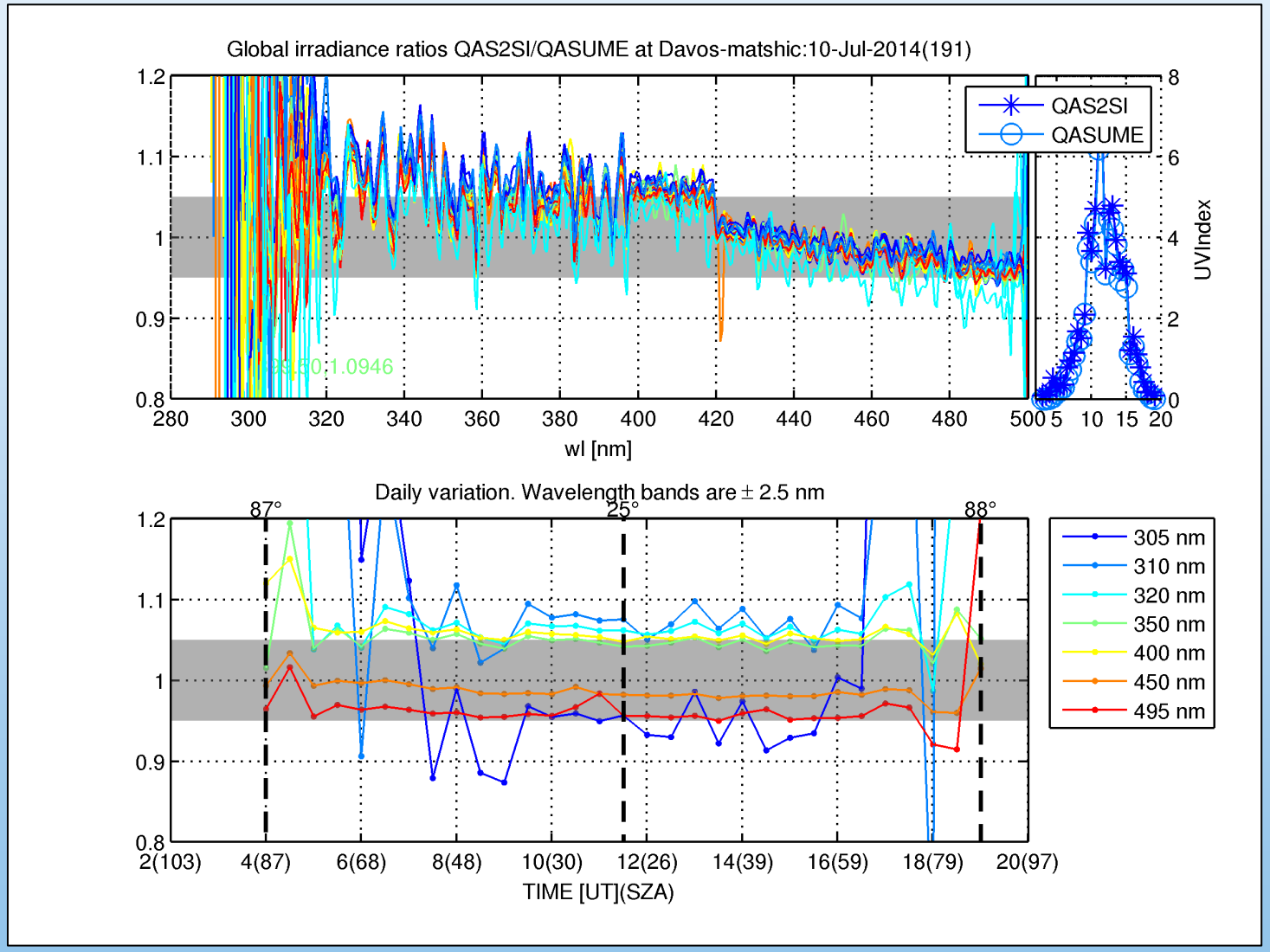
SSDS: Si-Diode Monitor



Ratio Si/PC



Solar Irradiance Measurements



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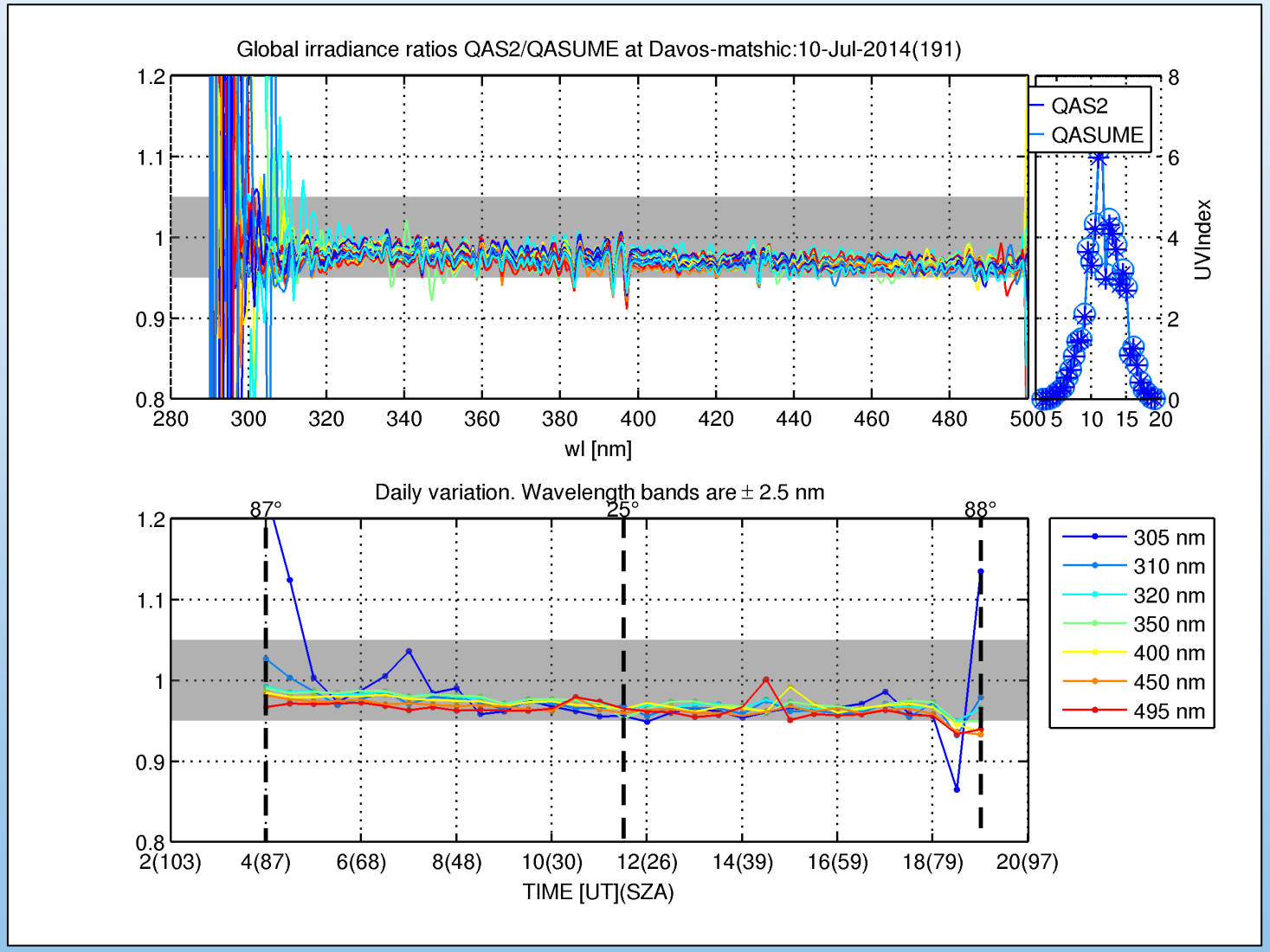

Outlook

- Operating Mode D
  - Calibration of Si-Diode via PC
- Lots of testing and comparisons...

Good luck for the countless journeys with the second transportable reference spectroradiometer!!