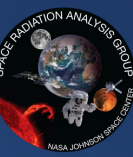




SRAG ISS Measurement Trends for Cycle 25



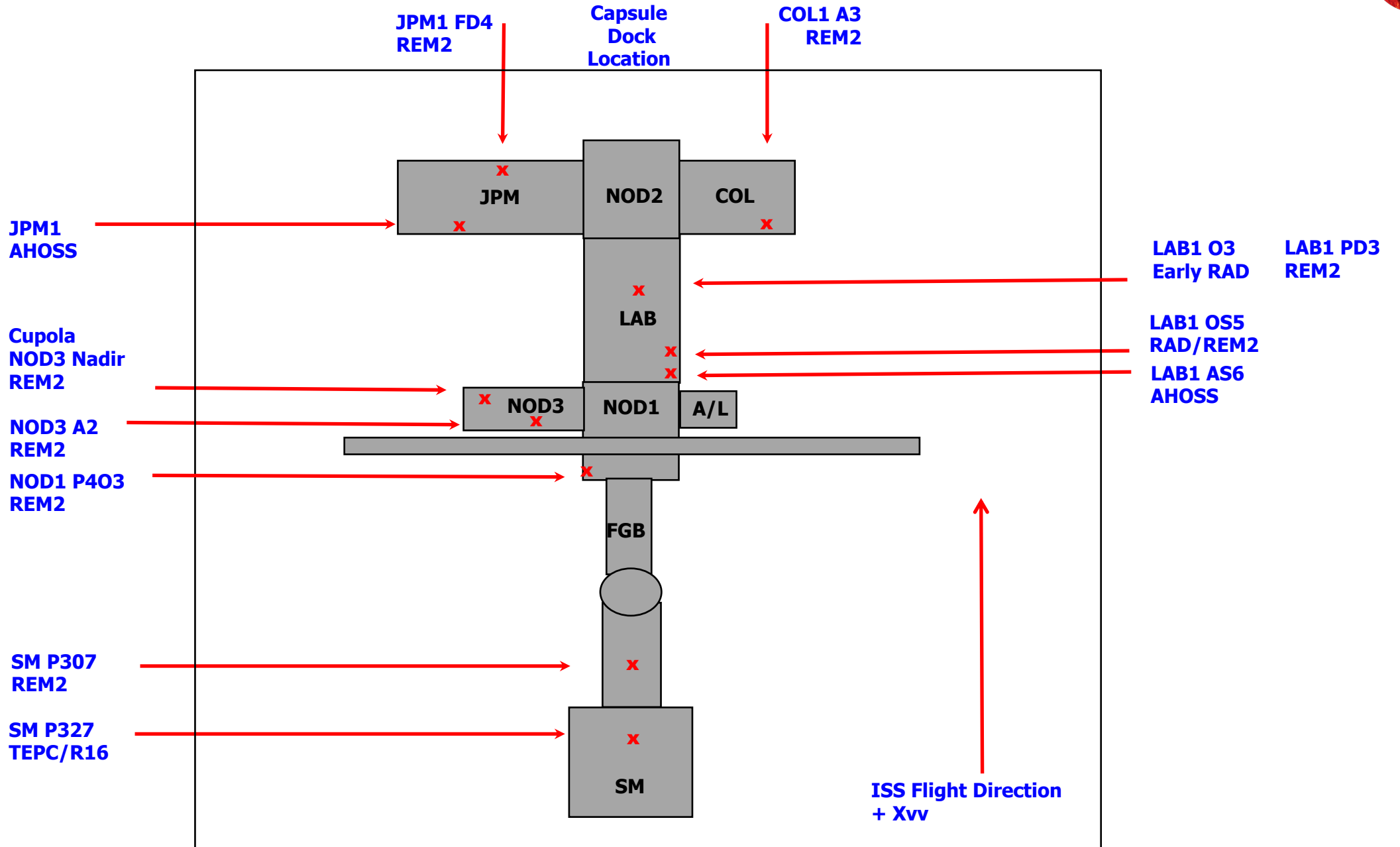
WRMISS SEPTEMBER 2024

- A. Steve Johnson, Eddie Semones, Stuart George, Cary Zeitlin, Thomas Campbell-Ricketts, Sergiy Rozhdestvensky, Nic Stoffle, Ramona Gaza, Luke Stegeman, Diego Laramore

Presented by Stuart George on behalf of A. Steve Johnson

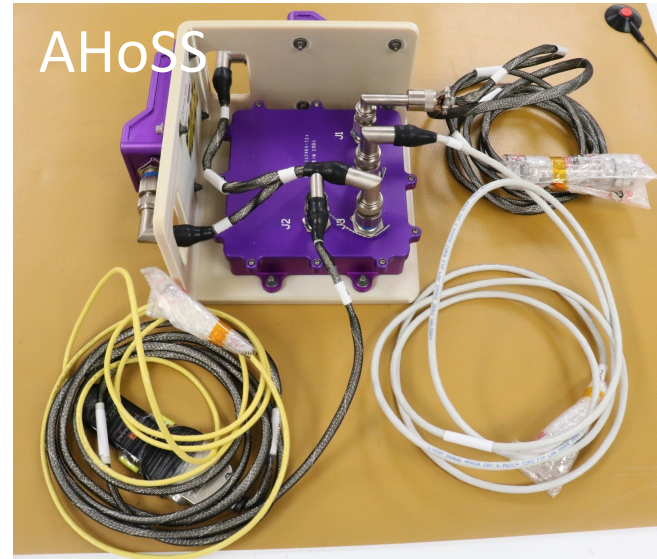


SRAG ISS Measurement Locations





SRAG ISS Instruments





TEPC

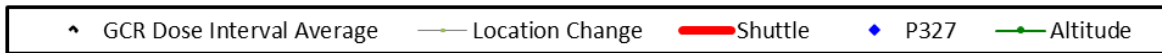
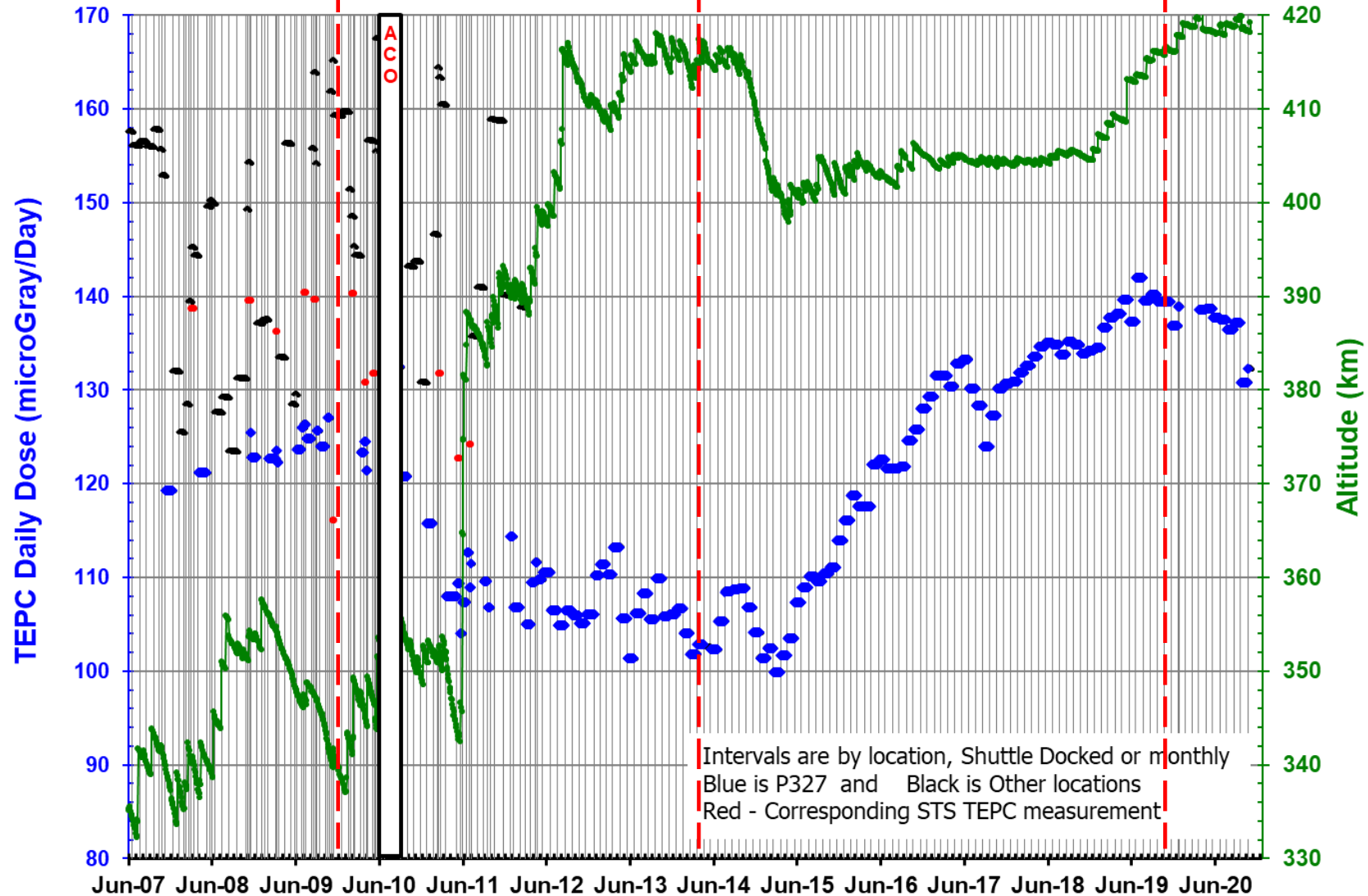


Solar Min

Solar Max

Solar Min

ISS TEPC Interval GCR Dose Trend



TEPC Final
18 Oct 21



TEPC

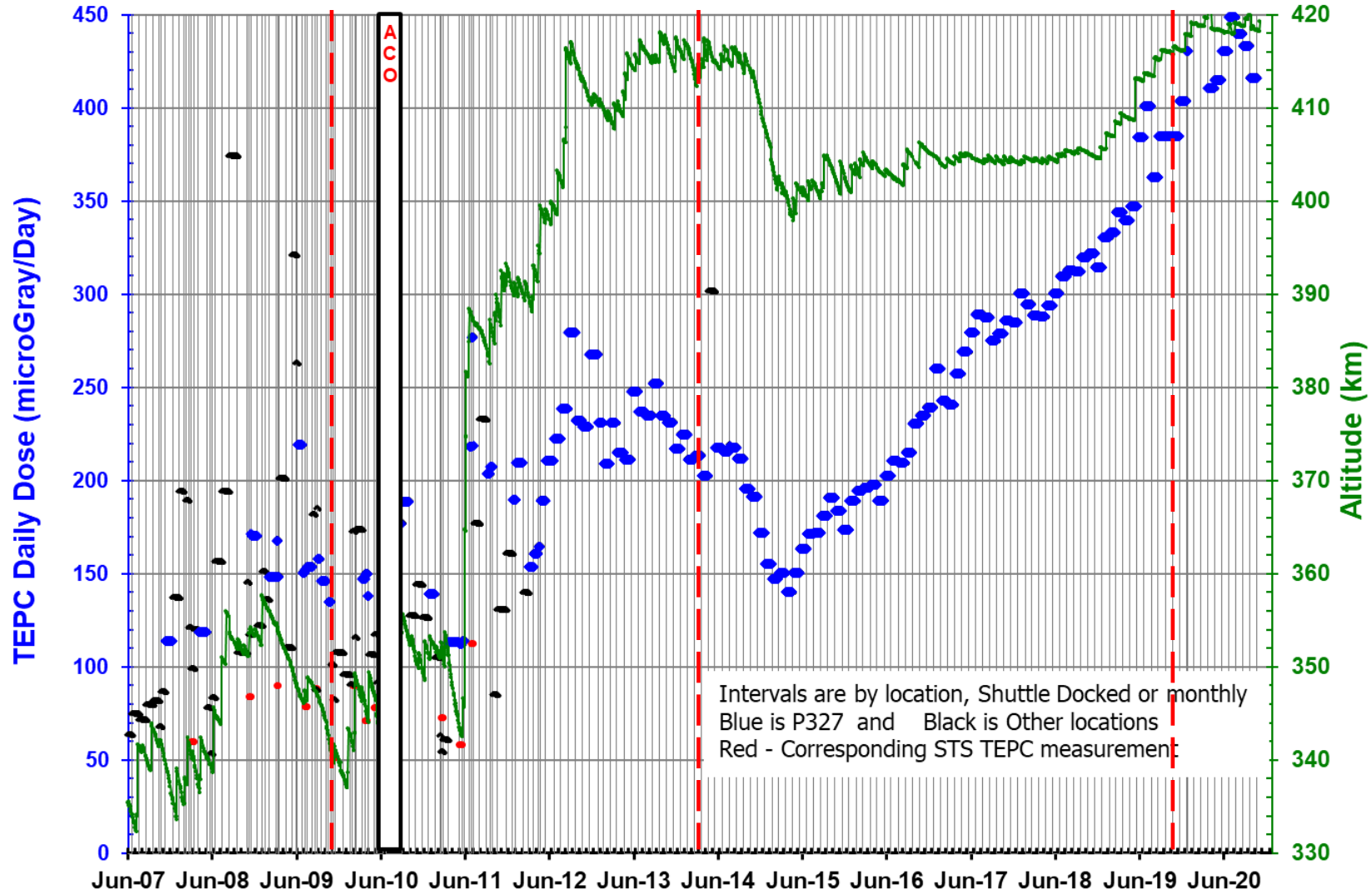


Solar
Min

Solar
Max

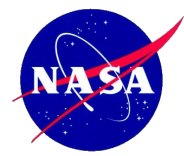
Solar
Min

ISS TEPC Interval SAA Dose Trend



▲ SAA Dose Interval Average — Location Change — Shuttle ◆ P327 — Altitude

TEPC Final
18 Oct 21



TEPC

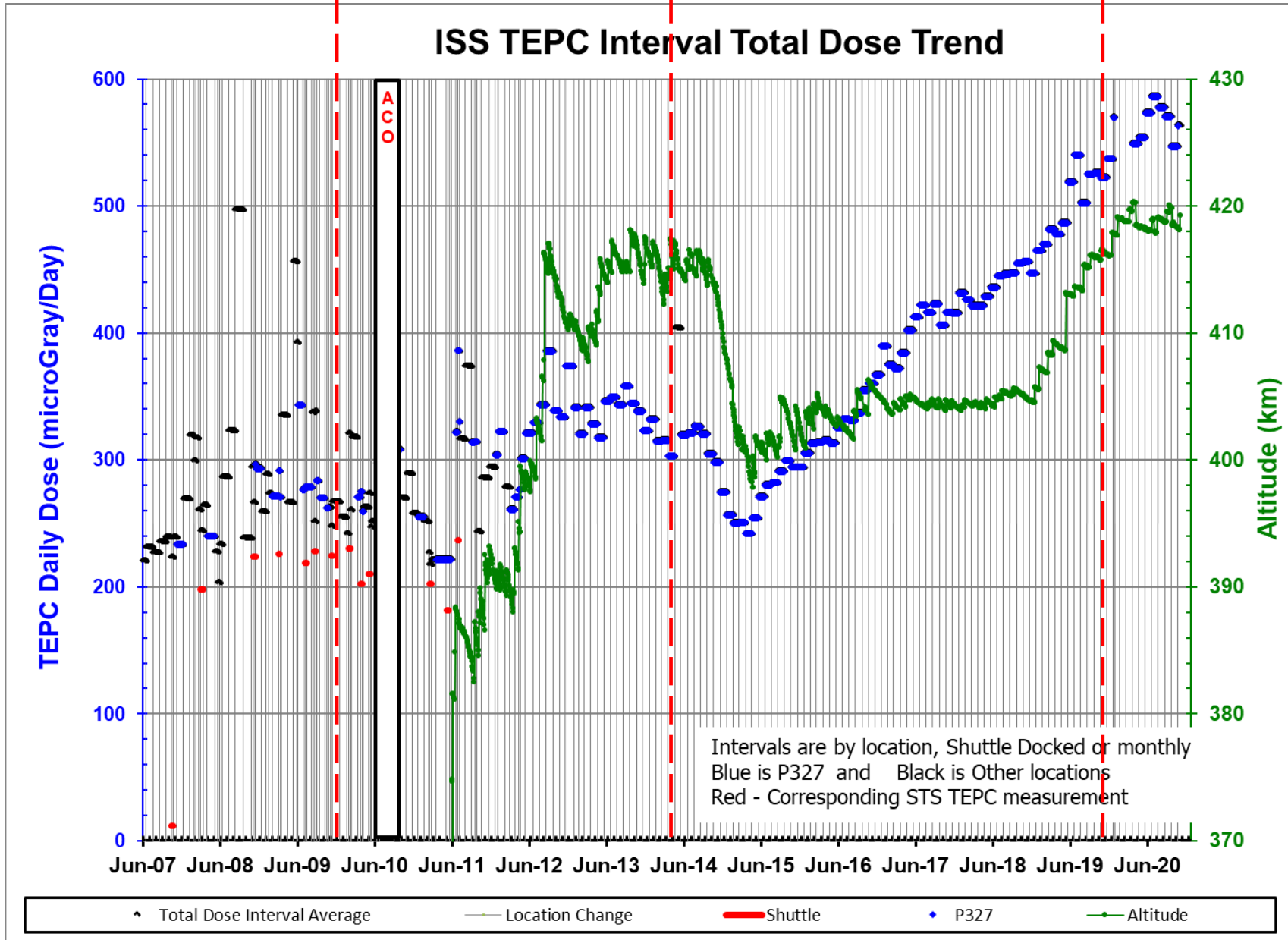


Solar
Min

Solar
Max

Solar
Min

ISS TEPC Interval Total Dose Trend

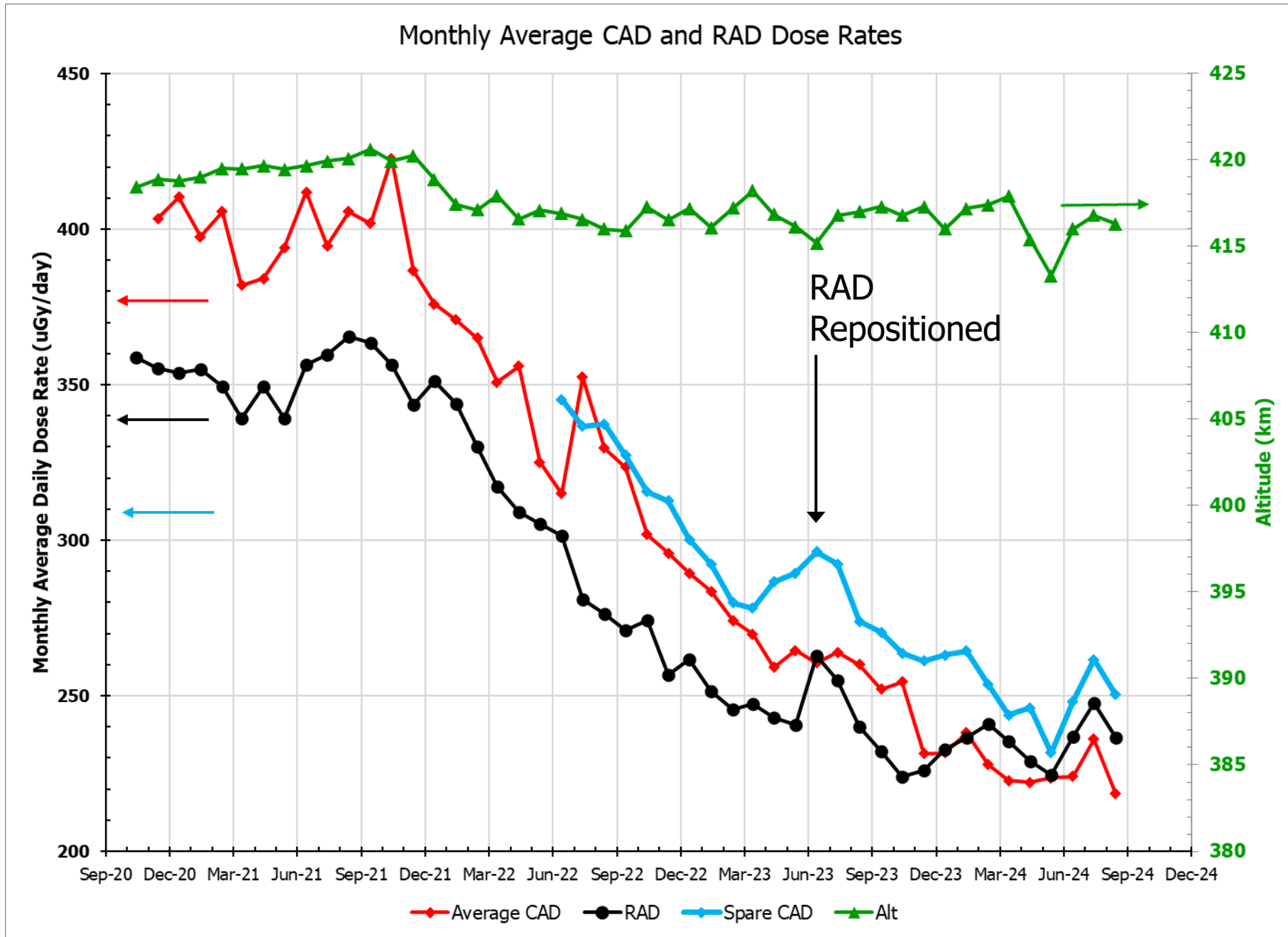


TEPC Final
18 Oct 21



CAD
RAD

Solar Min
Dec 2019

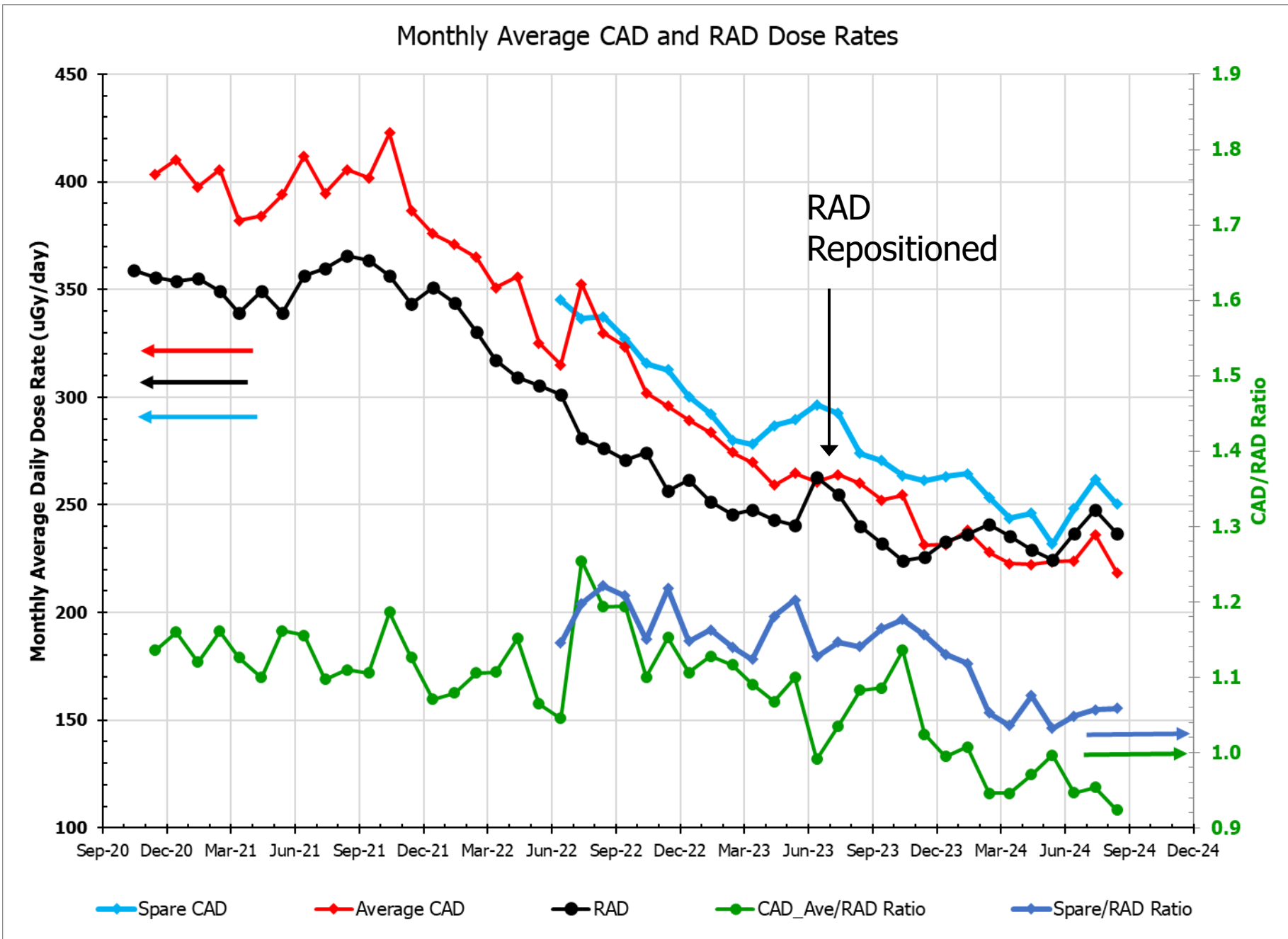




CAD
RAD



Monthly Average CAD and RAD Dose Rates

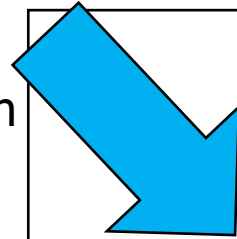


Solar Min
Dec 2019



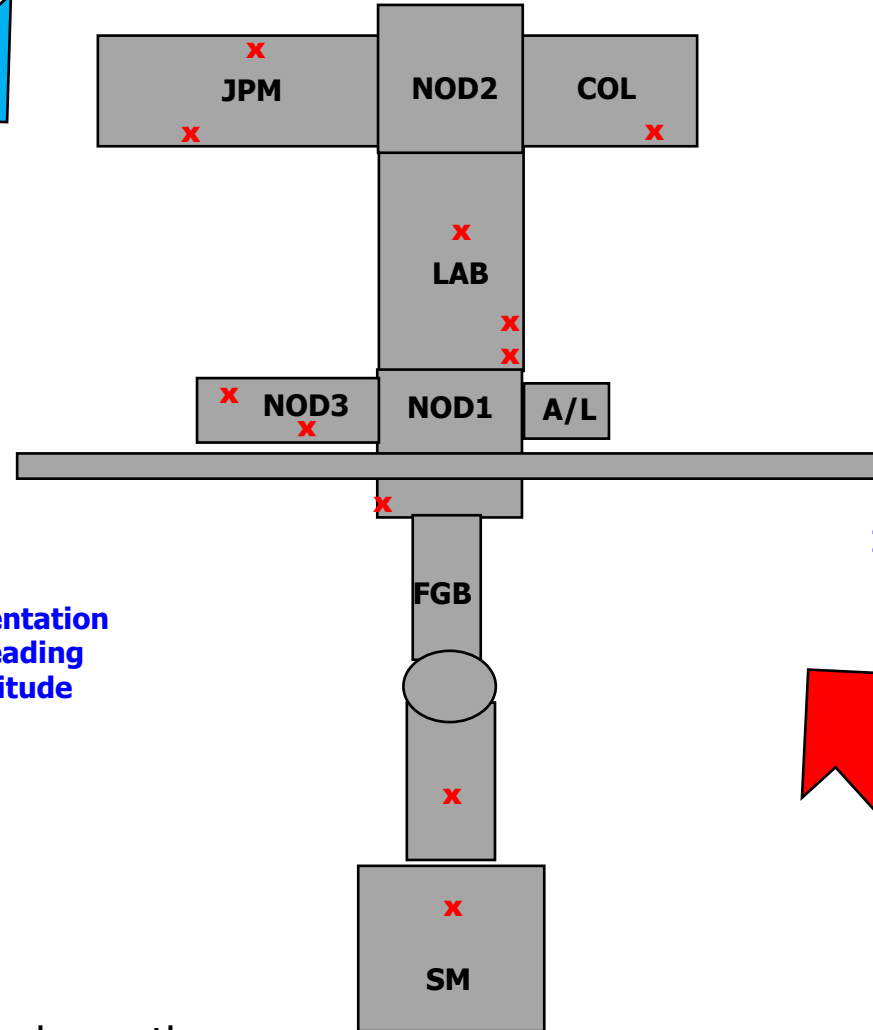
Trapped Radiation

SAA Lower
Source Direction



DOSES tend to be **lower** on the **Port** side/direction

Flight Orientation
NOD2 is leading
+ Xvv Attitude



ISS Flight Direction

DOSES tend to be **higher** on the **Starboard** side/direction

SAA Higher
Source Direction

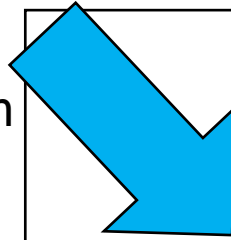
Earth is underneath



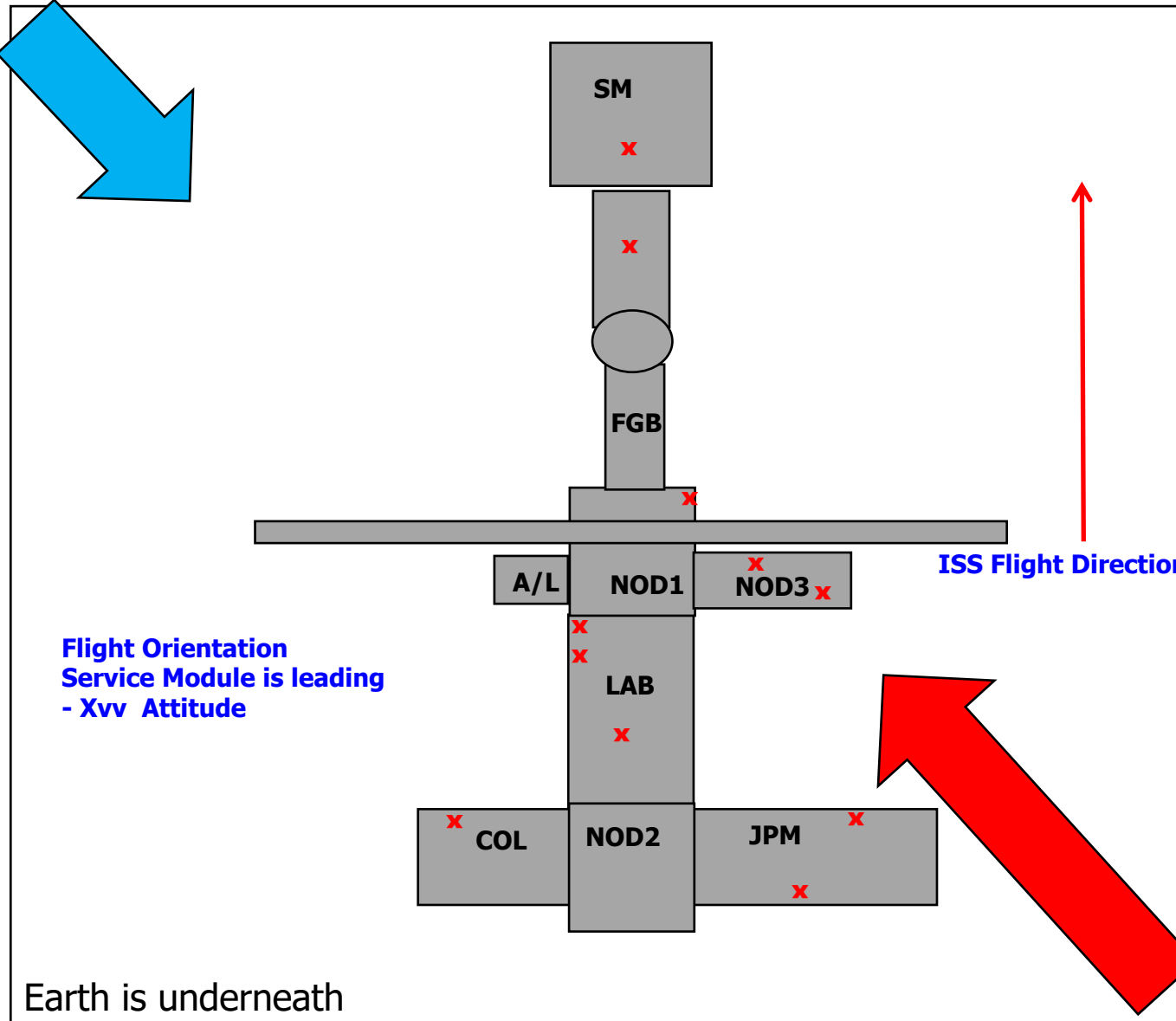
Trapped Radiation – Orientation Effects



SAA Lower
Source Direction



DOSES tend to
be **lower** on
the **Port**
side/direction



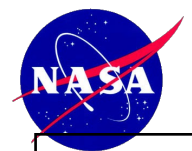
Flight Orientation
Service Module is leading
- Xvv Attitude

Earth is underneath

ISS Flight Direction

DOSES tend to
be **higher** on the
Starboard
side/direction

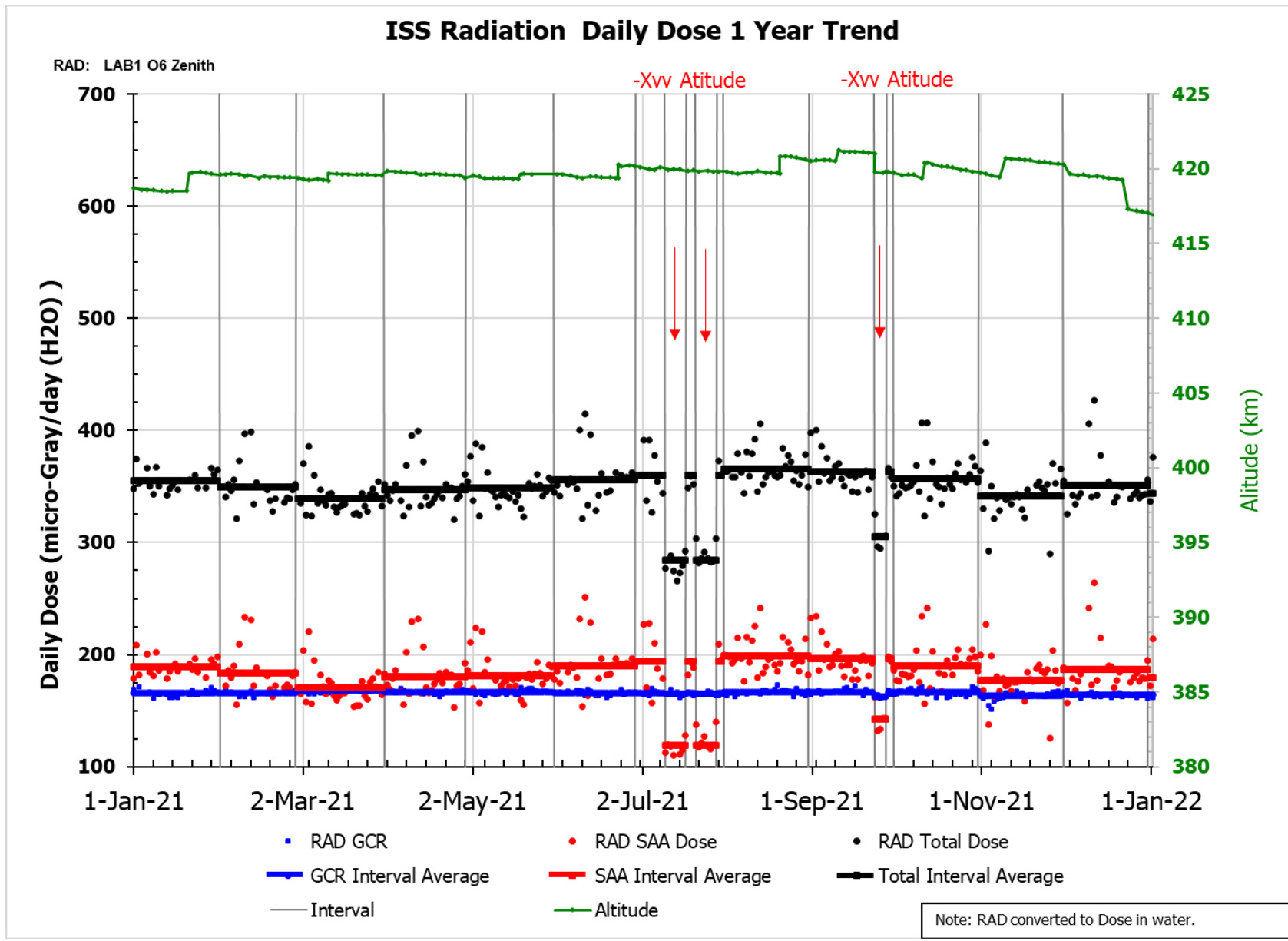
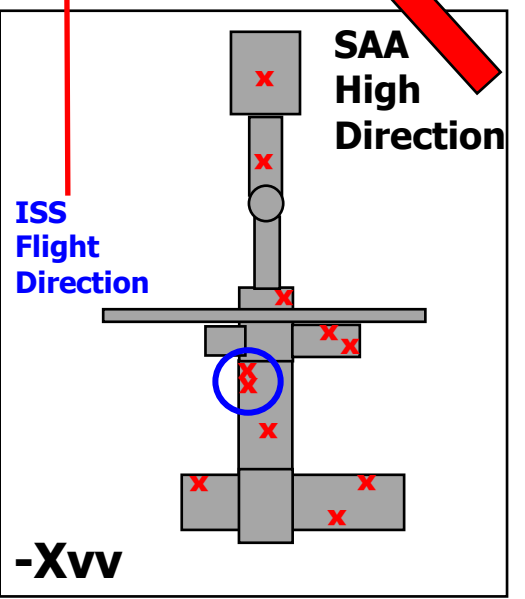
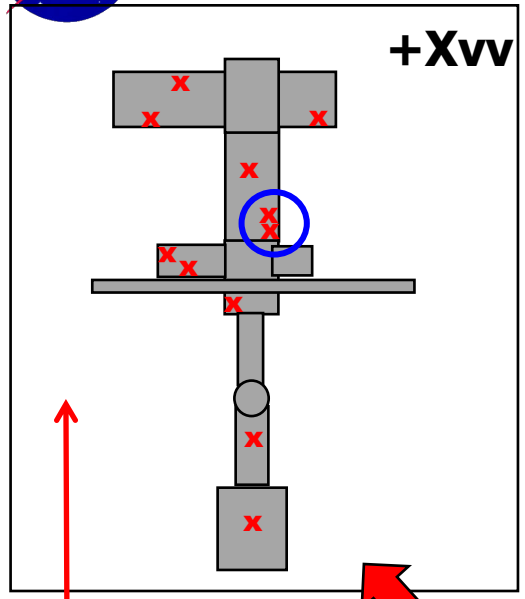
SAA Higher
Source Direction



Trapped Radiation – Orientation Effects



RAD

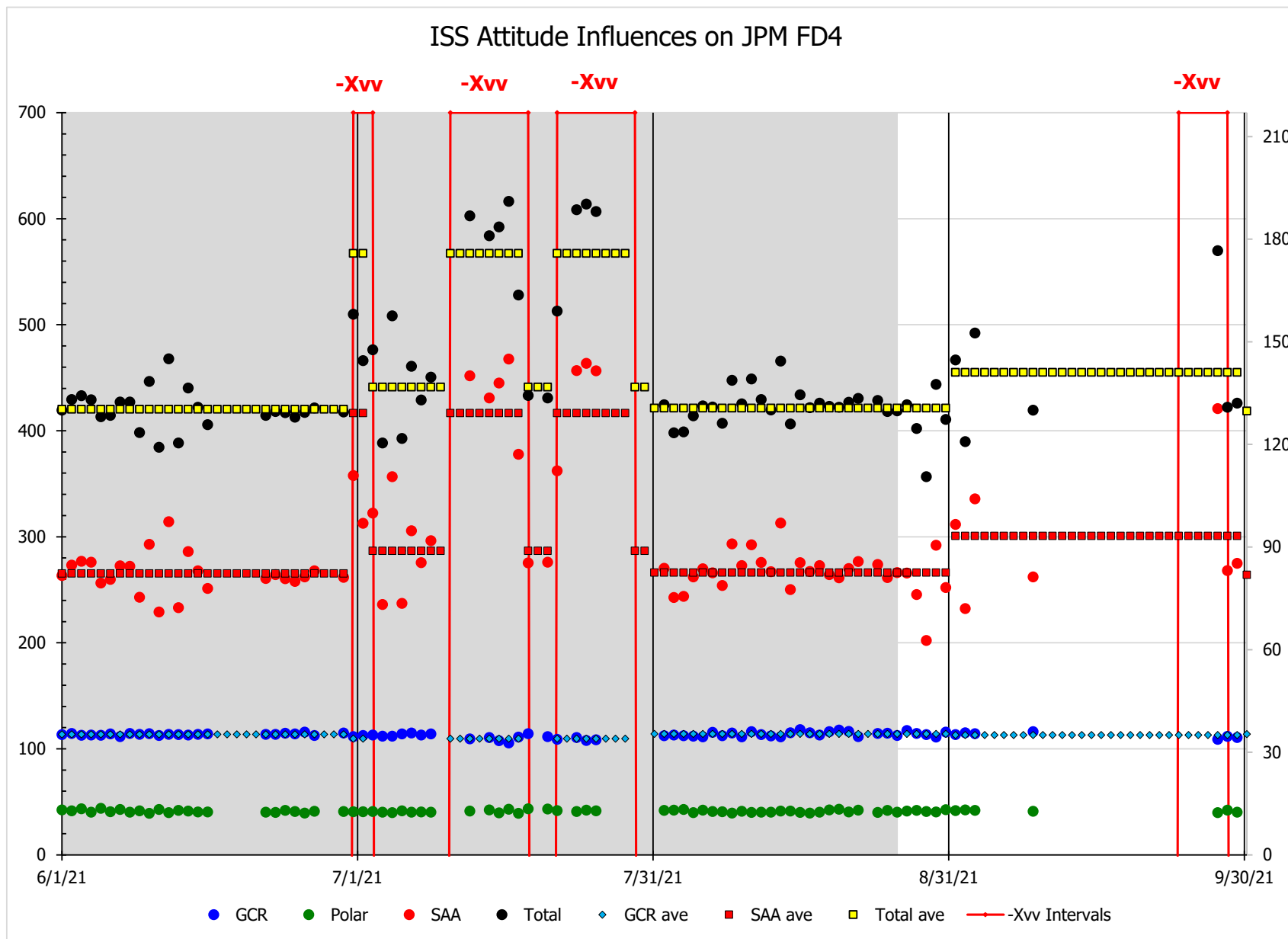
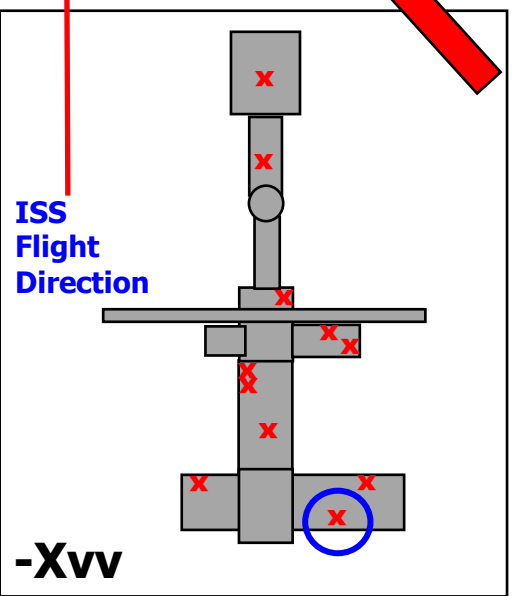
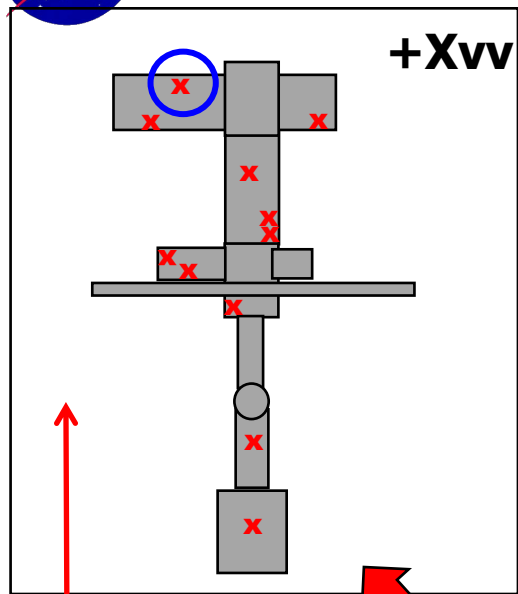




Trapped Radiation – Orientation Effects



REM2



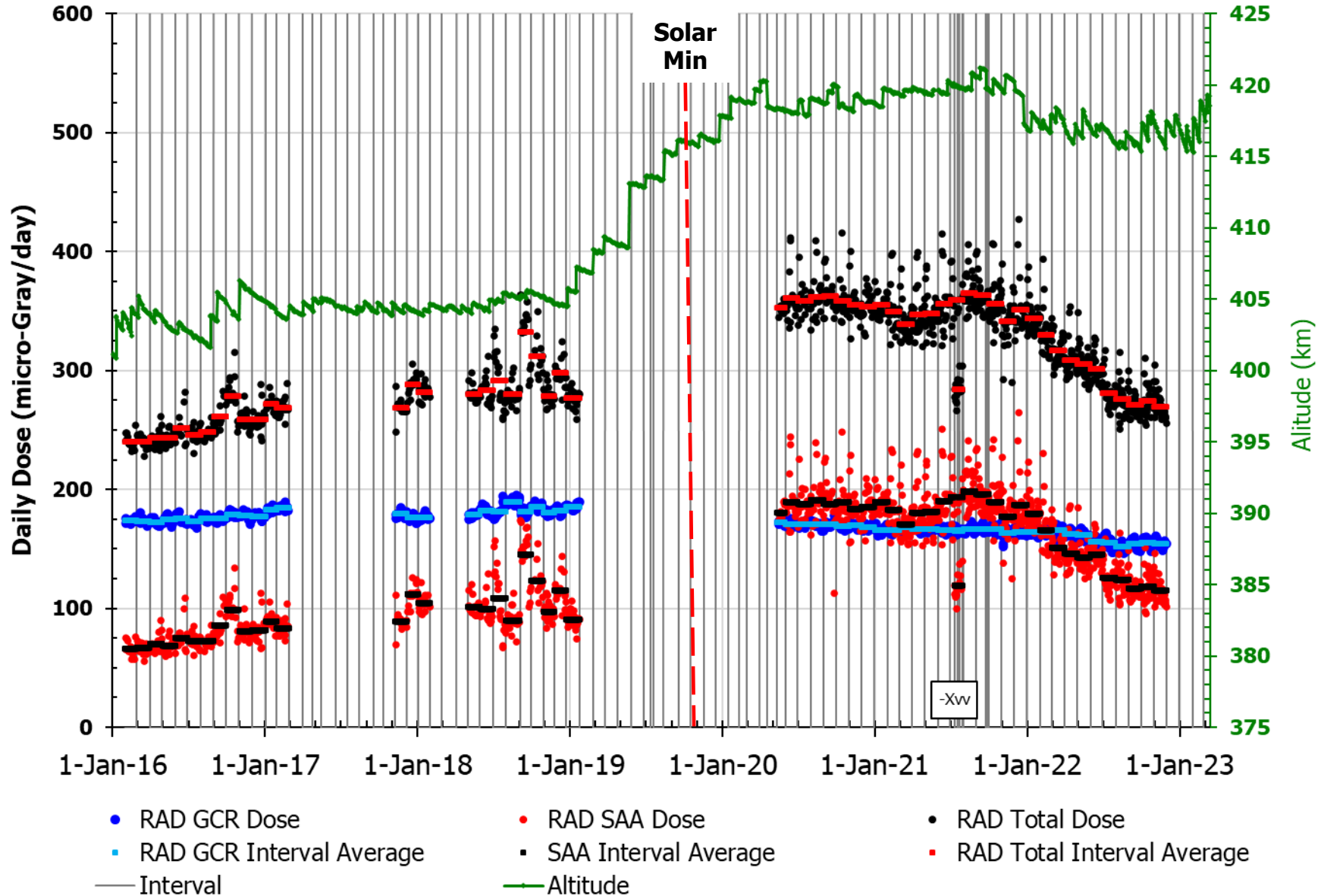


RAD

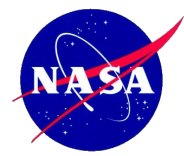


ISS Radiation Daily Total Dose Trend: Lab Only

Intervals by location/monthly



RAD
Positions shown
are LAB positions



RAD

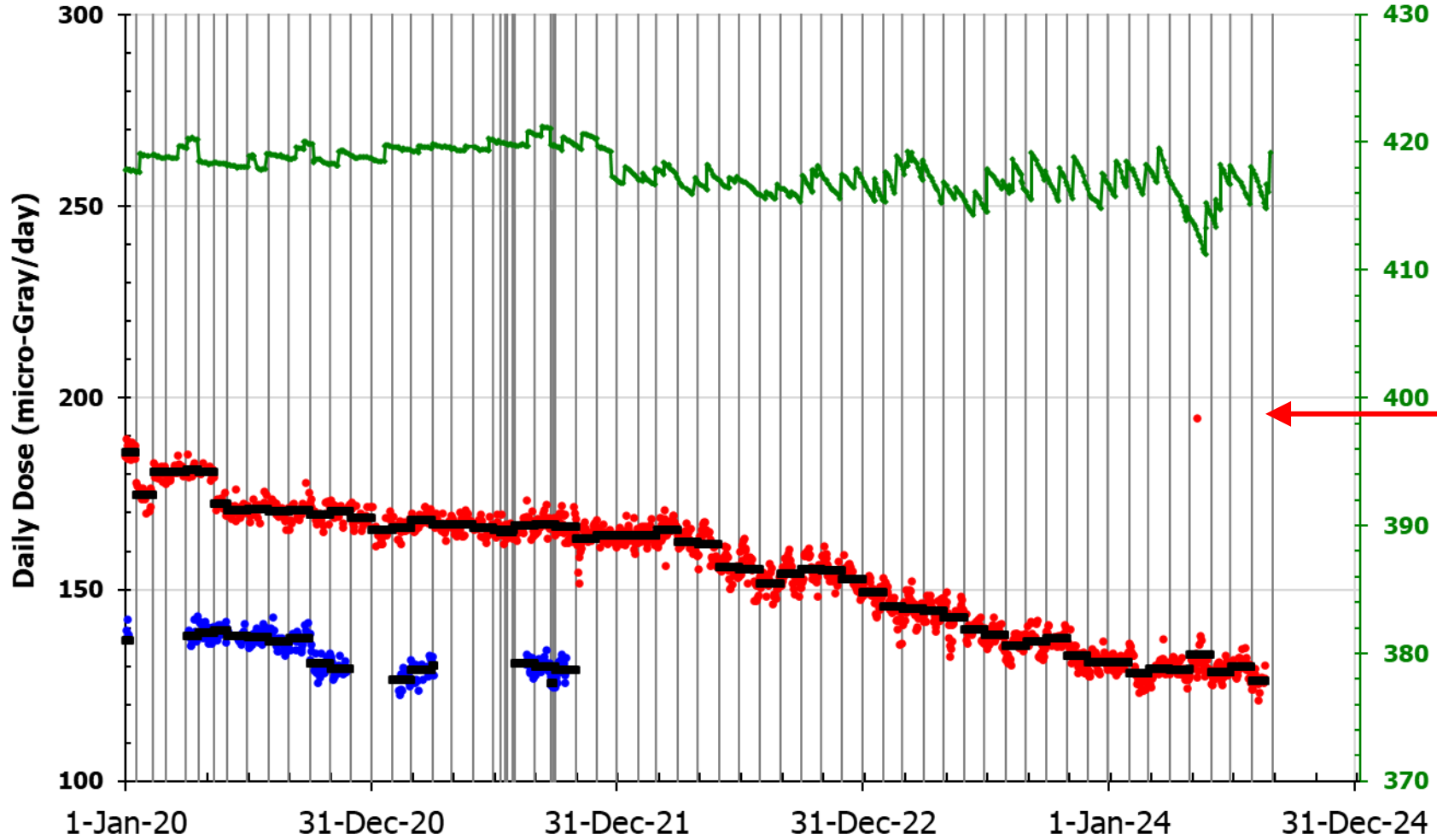


ISS Radiation Daily GCR Dose Cycle 25 Year Trend

RAD Location
LAB1 OS5

TEPC
SM P327 Port

Intervals by location/monthly



RAD
LAB1 OS6 or OS5

TEPC Final
18 Oct 21

Solar Min
Dec 2019

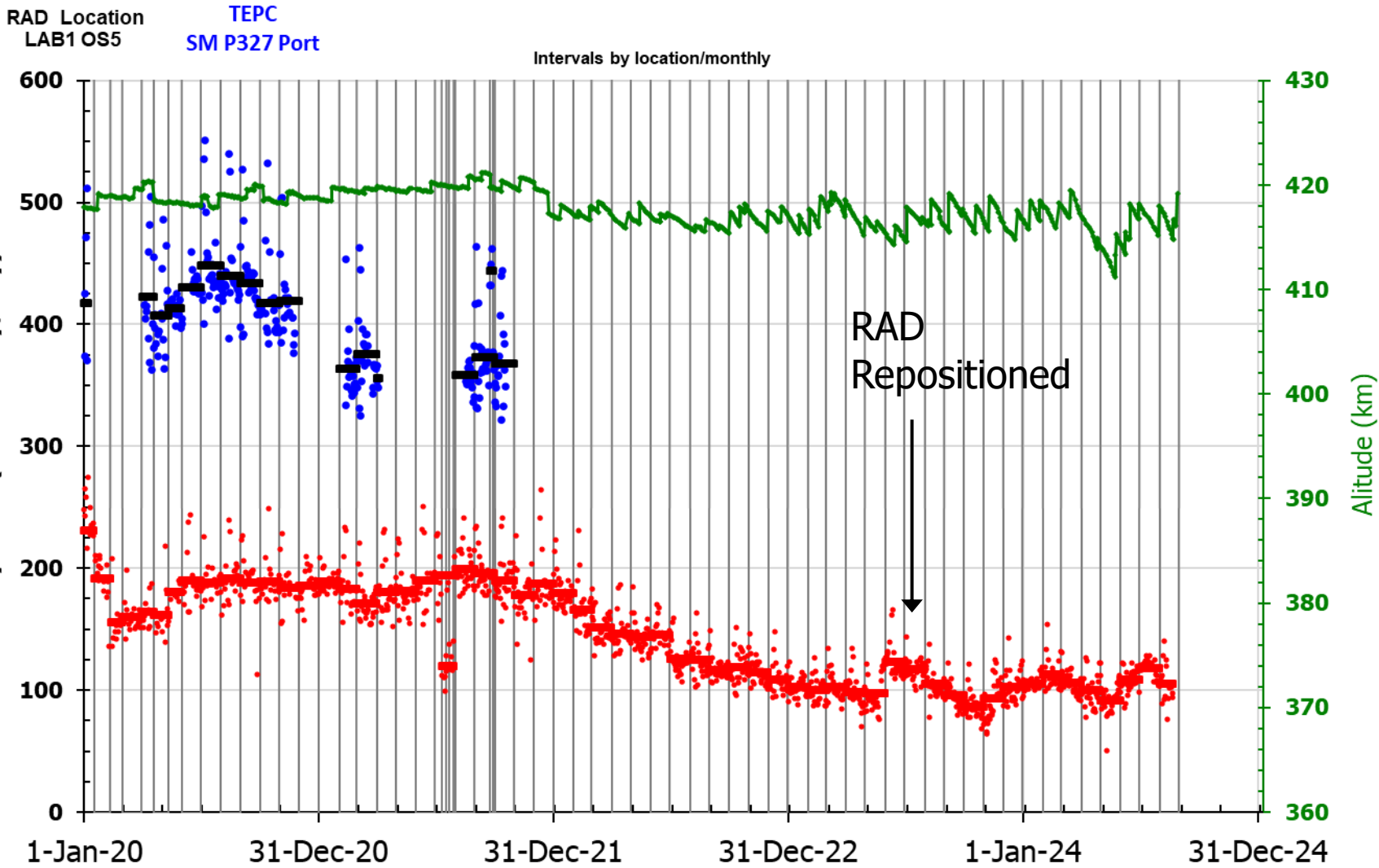
- RAD GCR Dose
- TEPC GCR Dose
- Interval
- RAD GCR Dose Interval Average
- TEPC GCR Dose Interval Average
- Altitude

ESEP



ISS Radiation Daily SAA Dose Cycle 25 Year Trend

RAD



TEPC Final
18 Oct 21

RAD
LAB1 OS6 or OS5

Solar Min
Dec 2019



RAD

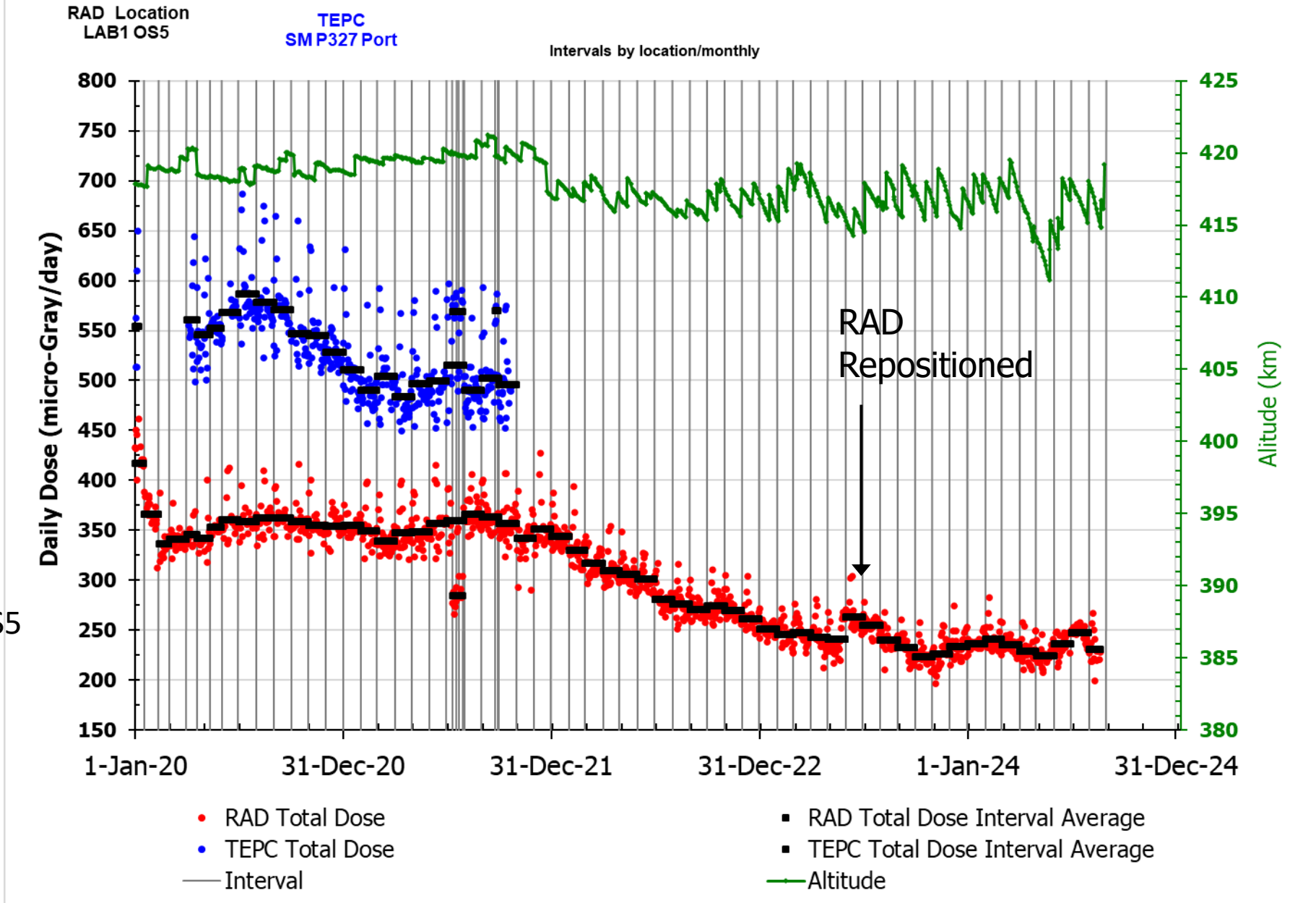
TEPC Final
18 Oct 21

RAD
LAB1 OS6 or OS5

Solar Min
Dec 2019



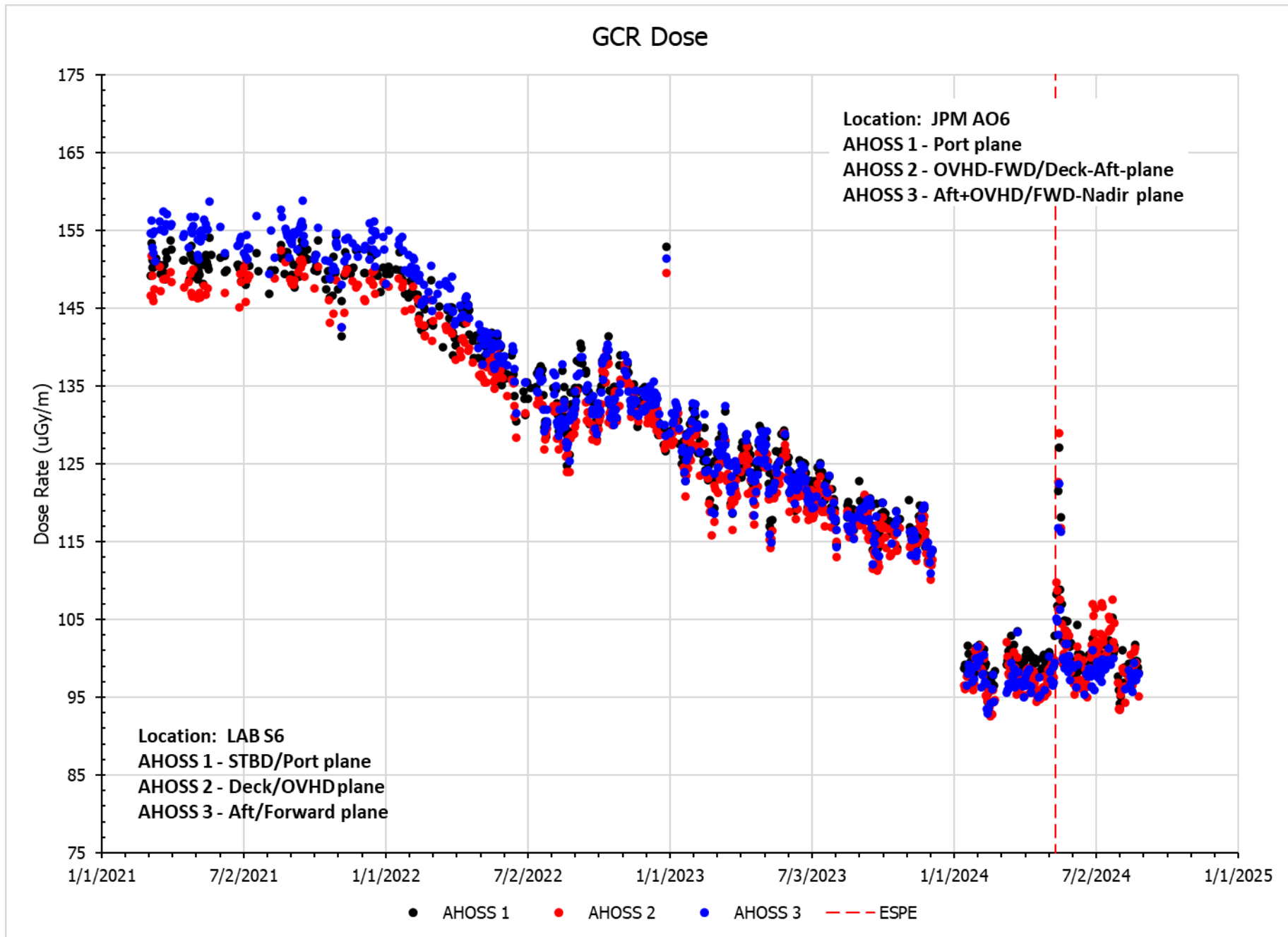
ISS Radiation Daily Dose Cycle 25 Year Trend





AHOSS

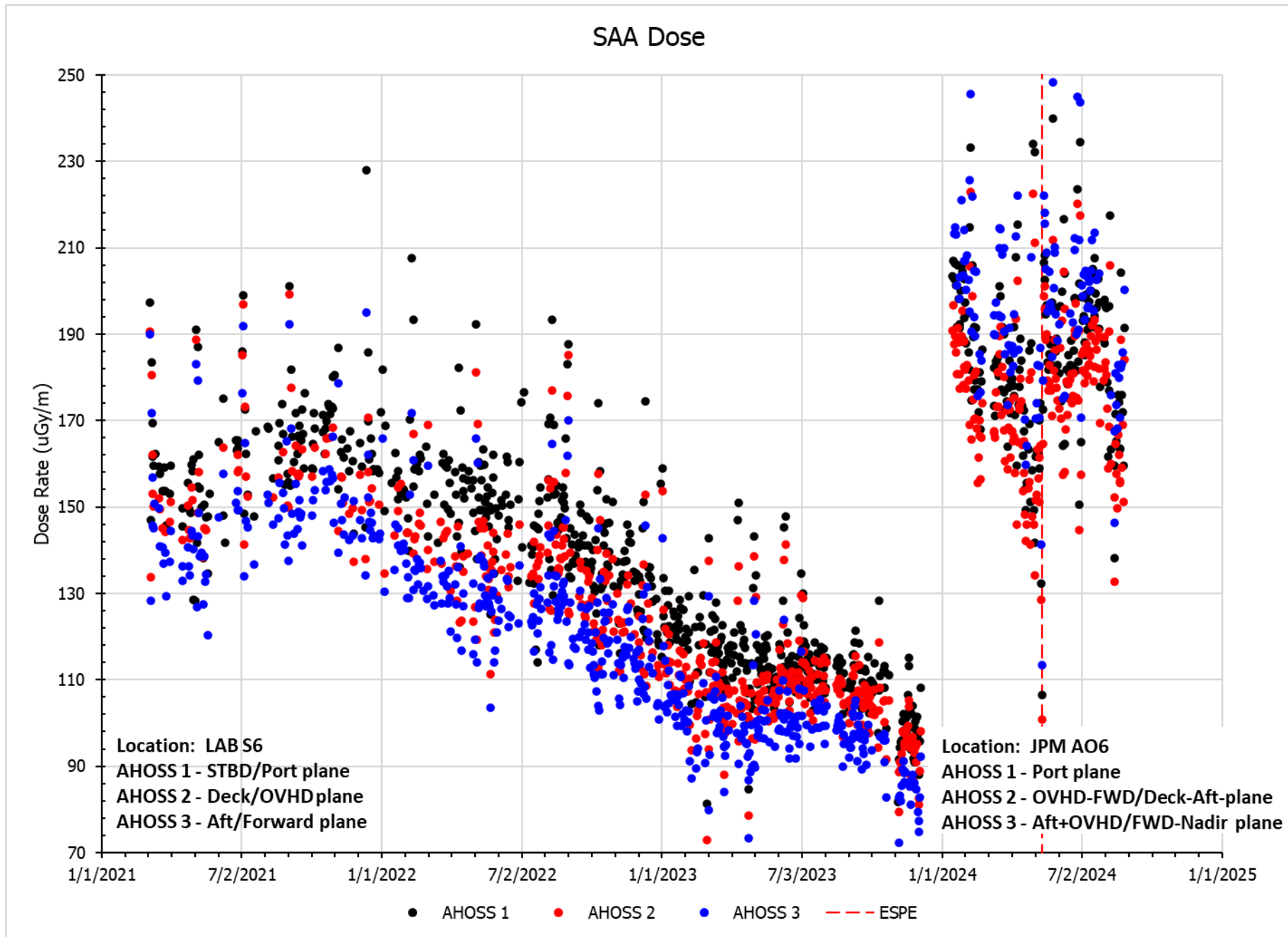
Solar Min
Dec 2019





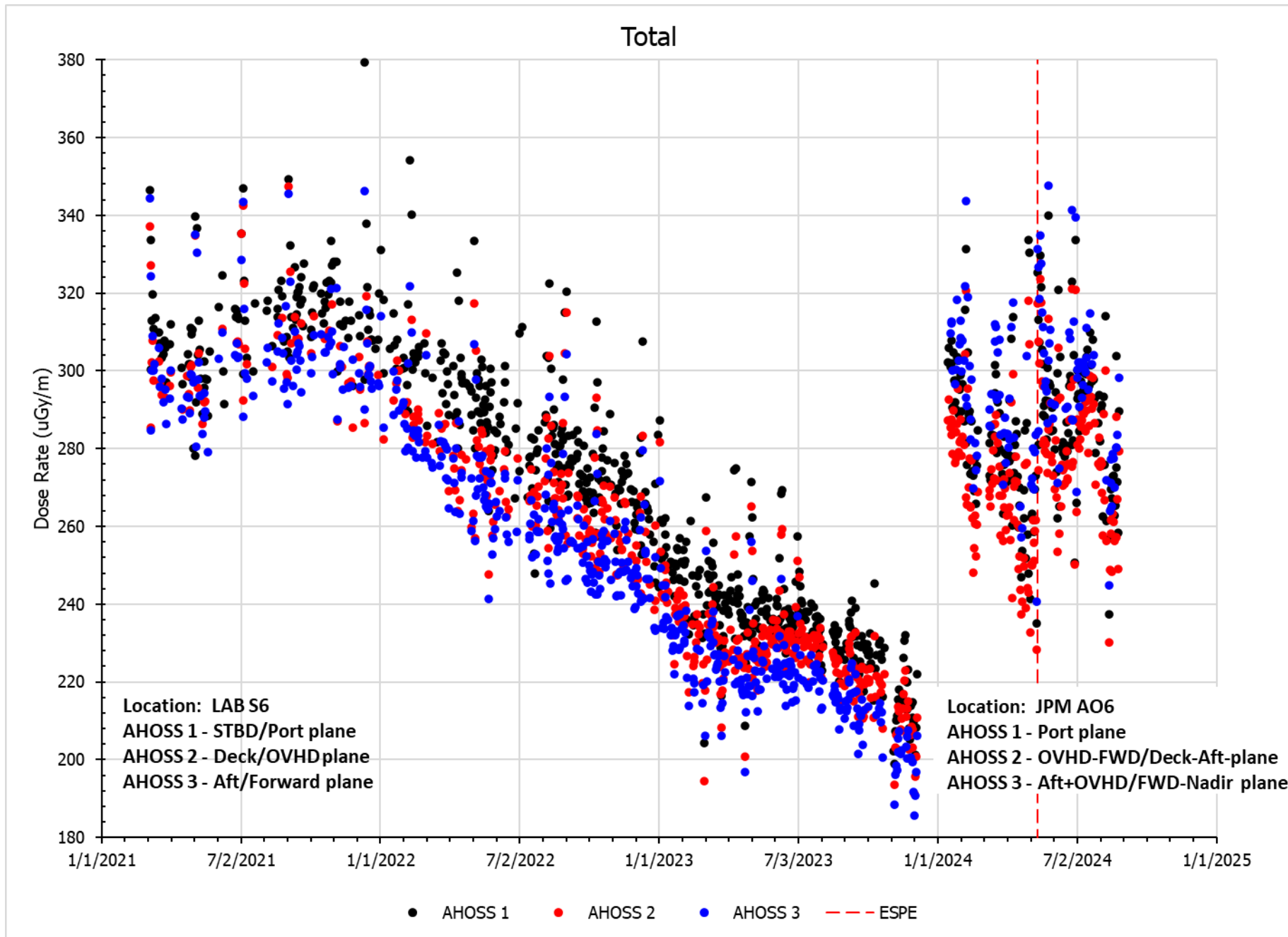
AHOSS

Solar Min
Dec 2019





AHOSS



Solar Min
Dec 2019



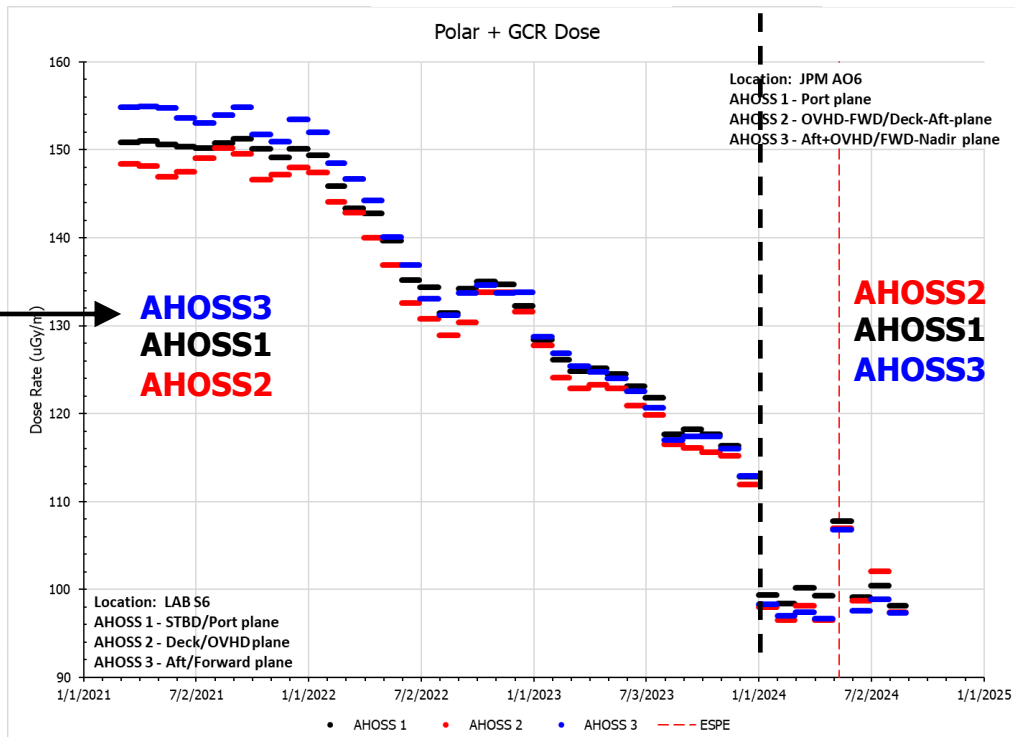
AHOSS

AHOSS1 – HSU1
 AHOSS2 – HSU2
 AHOSS3 – LSU

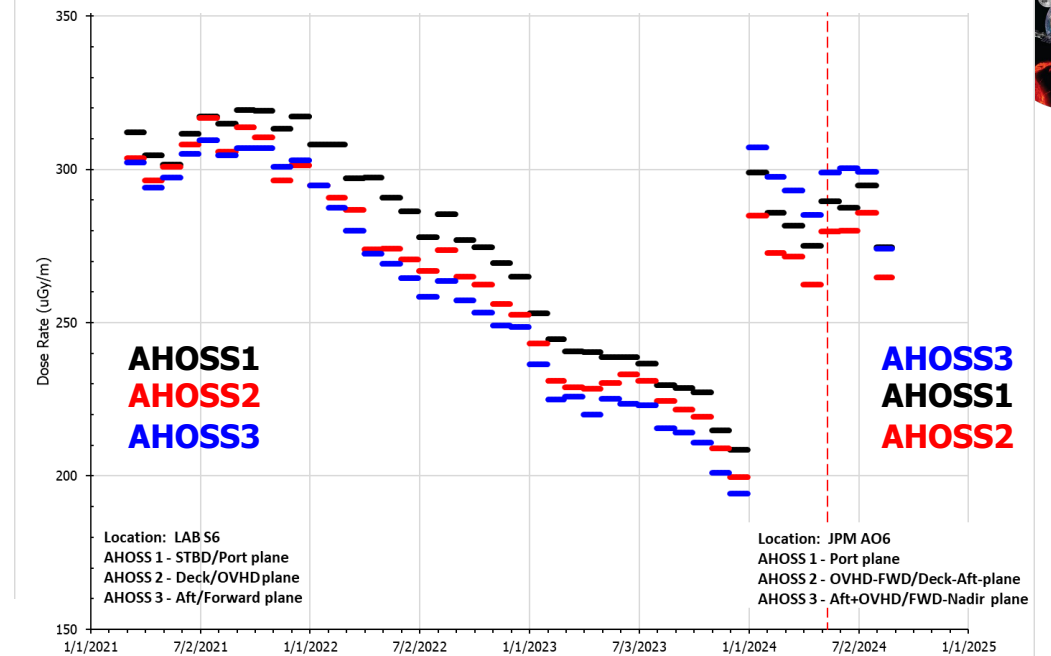


Location LAB S6

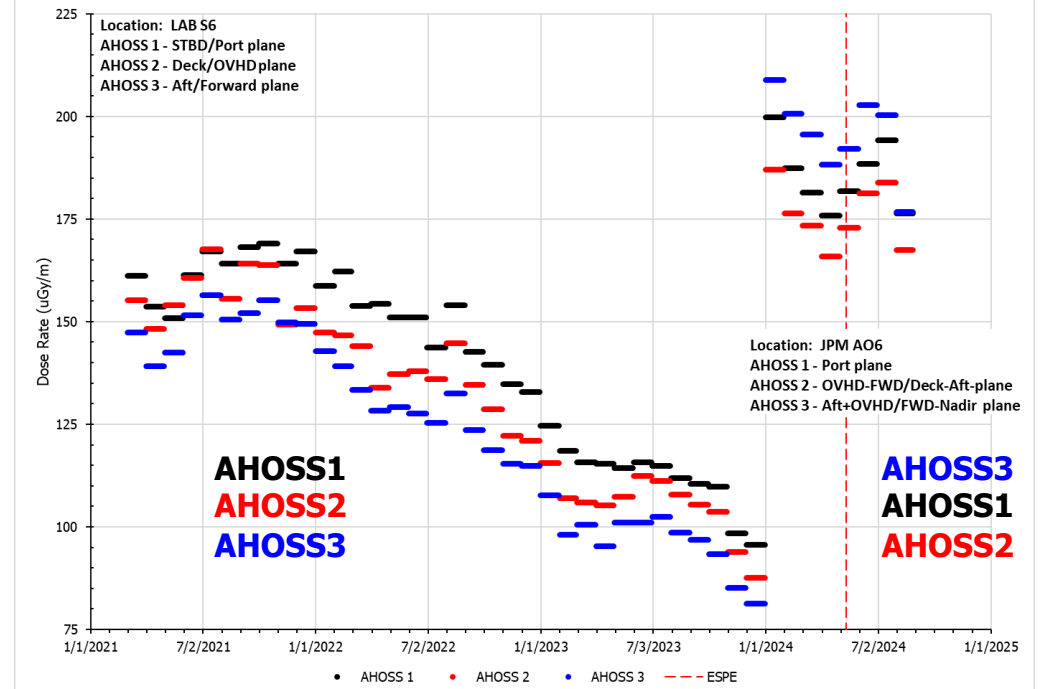
Location JPM A6



Total



SAA Dose

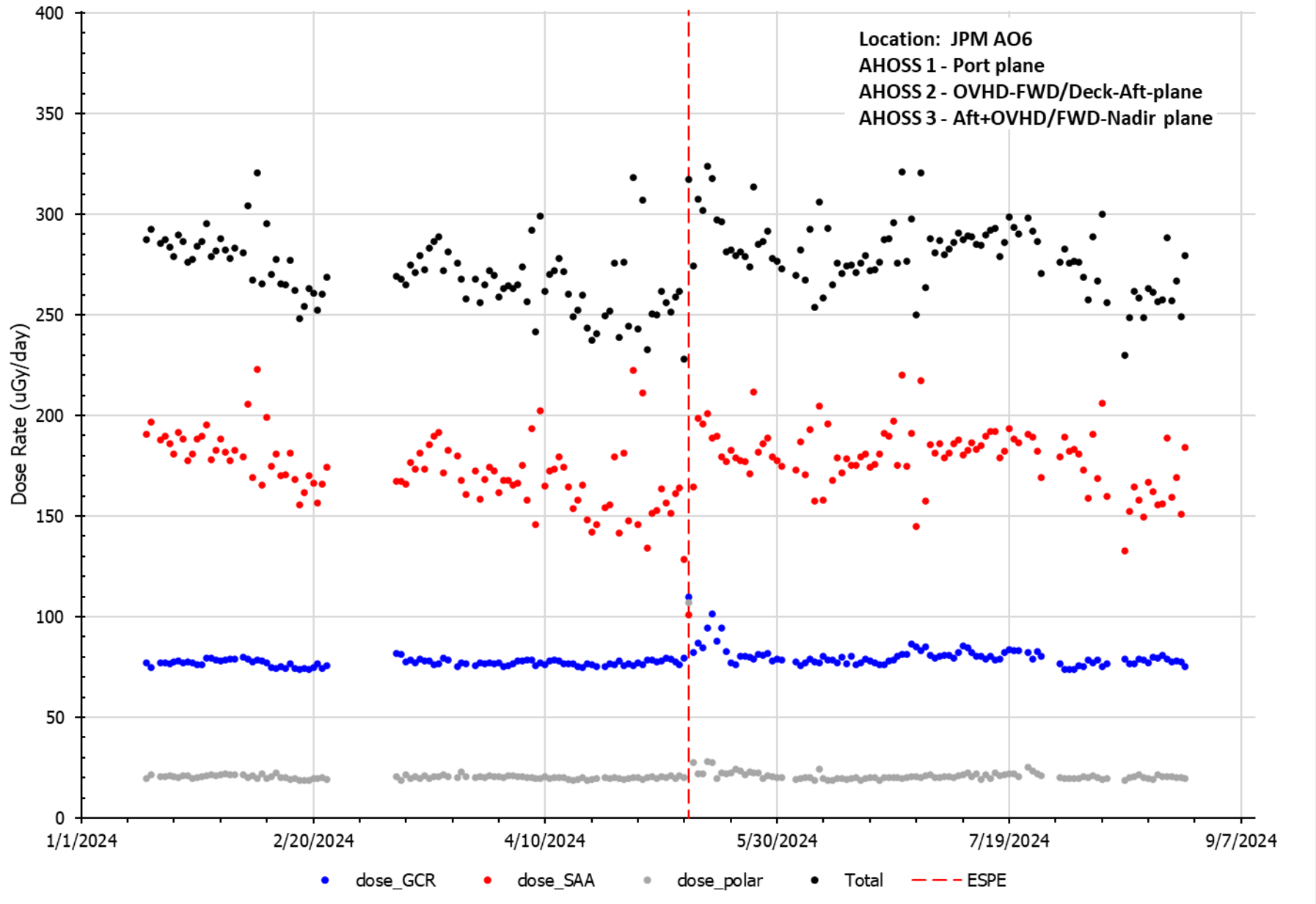




AHOSS



AHOSS-2



ESPE
11May24

Temporary Belt
Enhancement
Primarily Electrons
~ May 12-21

Low Shielded
location

Solar Min
Dec 2019

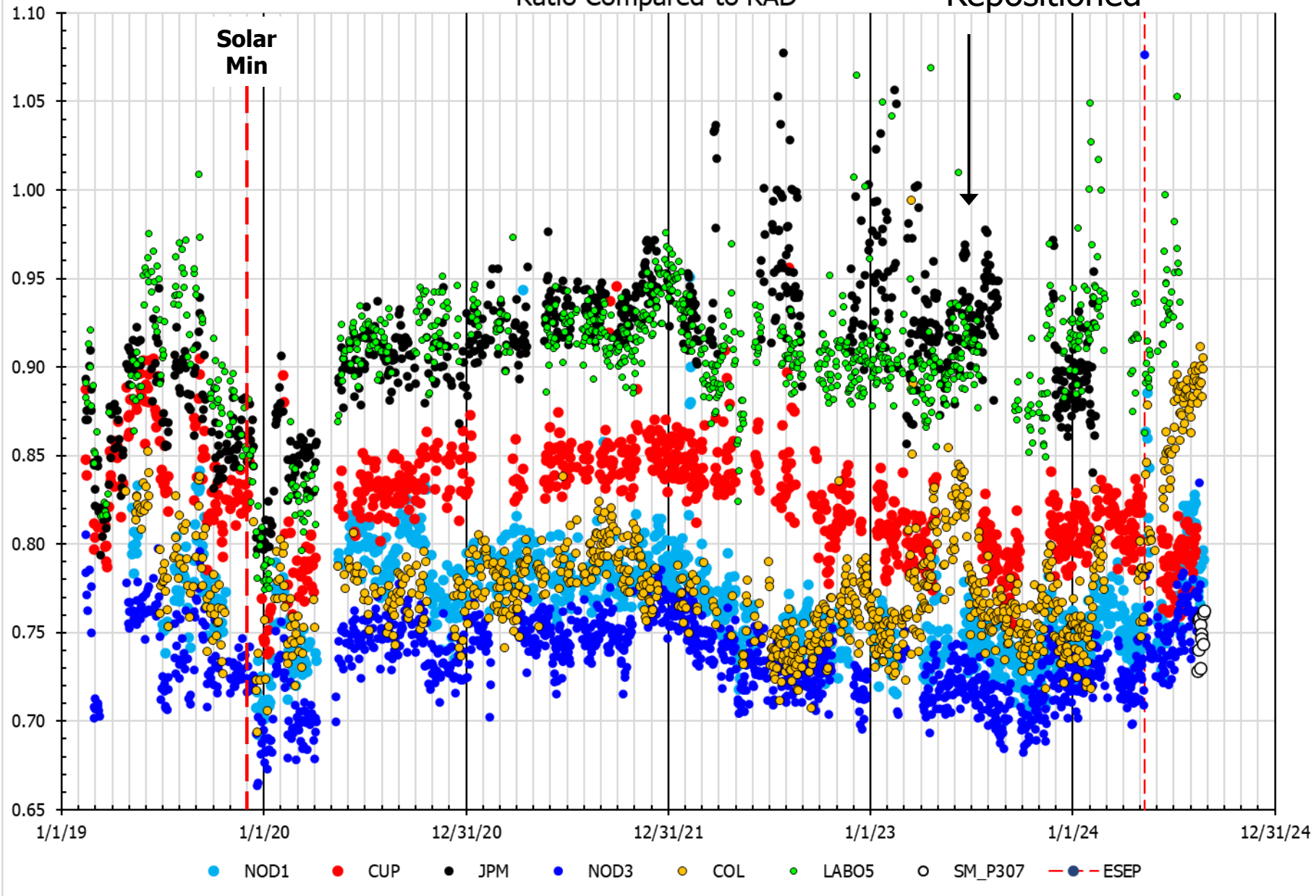


REM



GCR Dose w/ Days at 97% coverage Ratio Compared to RAD

RAD Repositioned



Solar Cycle effects do not show here since data is normalized to RAD

REM2 at LAB PD3 omitted.: Similar to LAB OS5 and frequently no data

Solar Min
Dec 2019

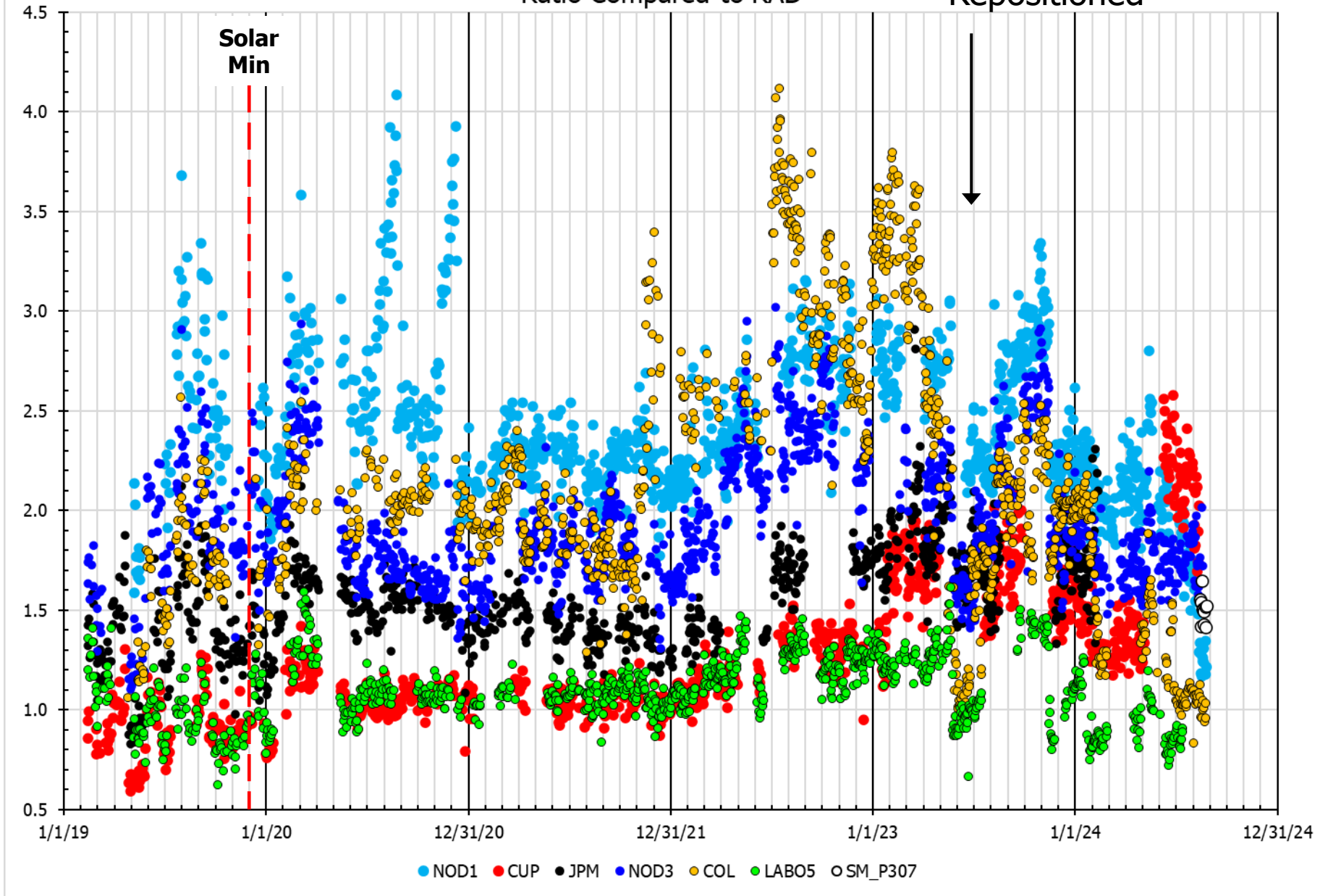


REM



Trapped Dose w/ Days at 97% coverage
Ratio Compared to RAD

RAD
Repositioned



Solar Cycle effects do not show here since data is normalized to RAD

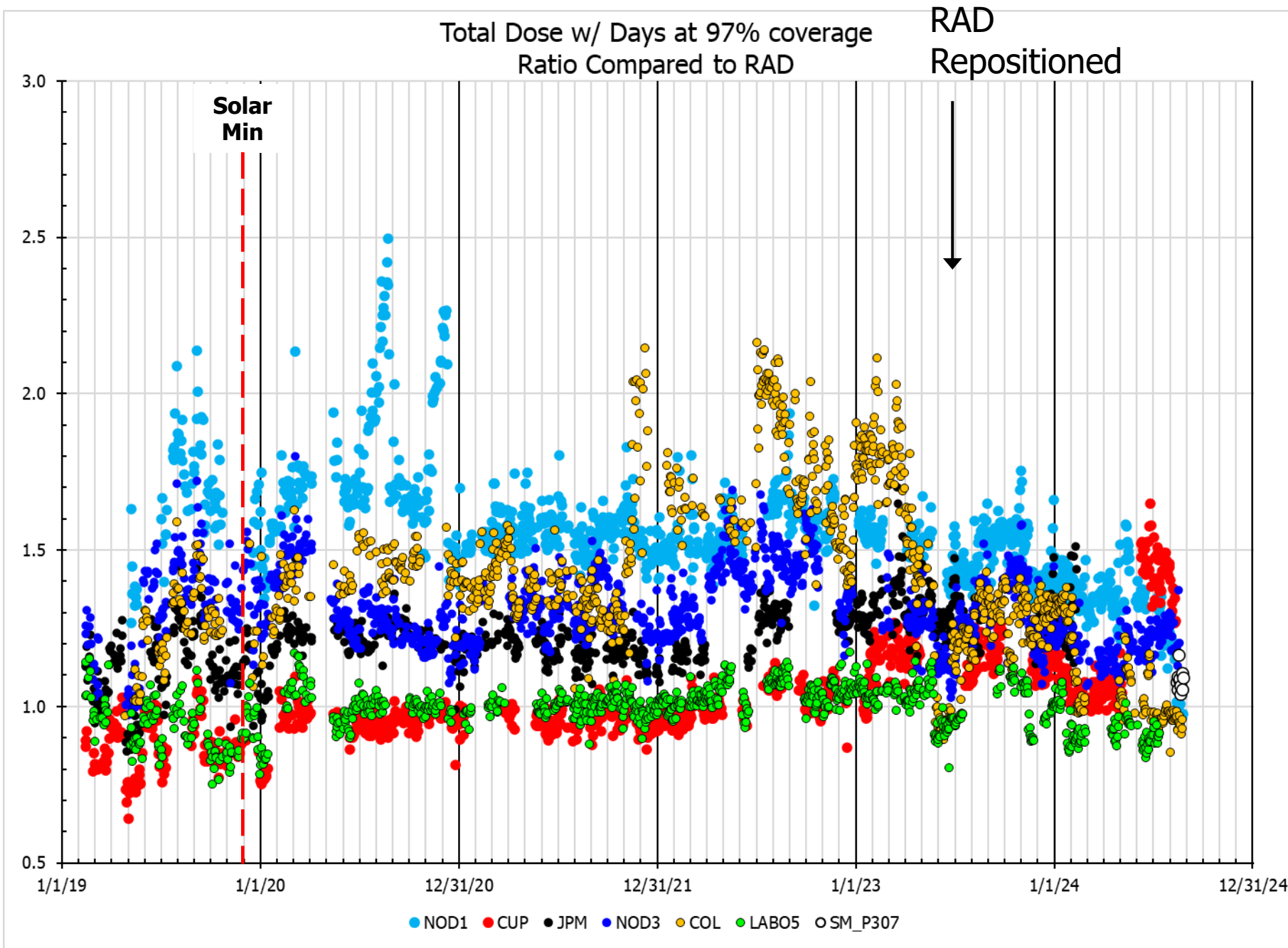
REM2 at LAB PD3 omitted.: Similar to LAB OS5 and frequently no data

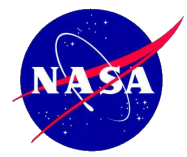
Solar Min
Dec 2019



REM

Solar Min
Dec 2019





Thanks for your attention!