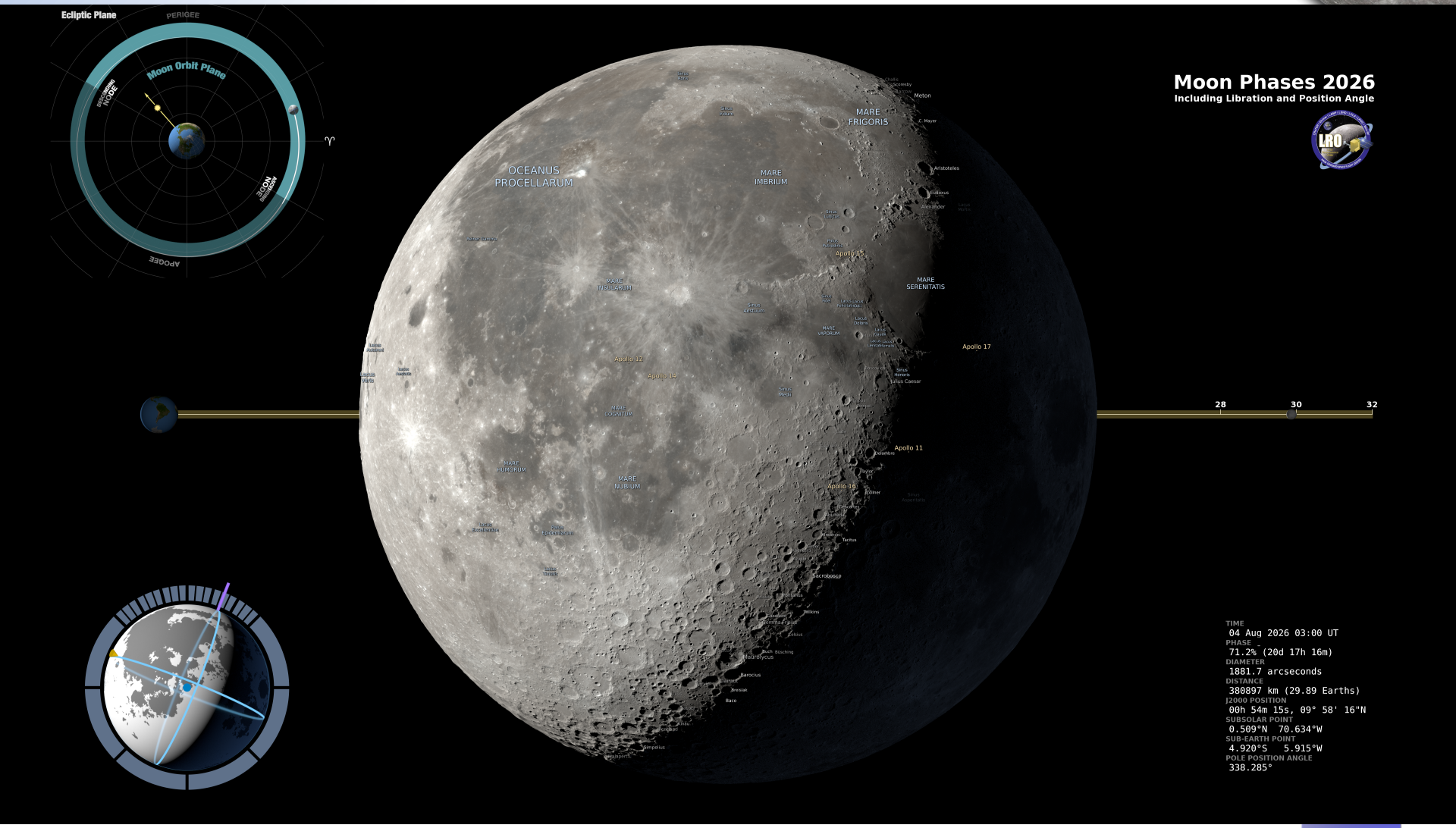
Joint Ensemble-Satellite Selenic Campaign (JESSC 1)



Thijs Krijger (ESS)

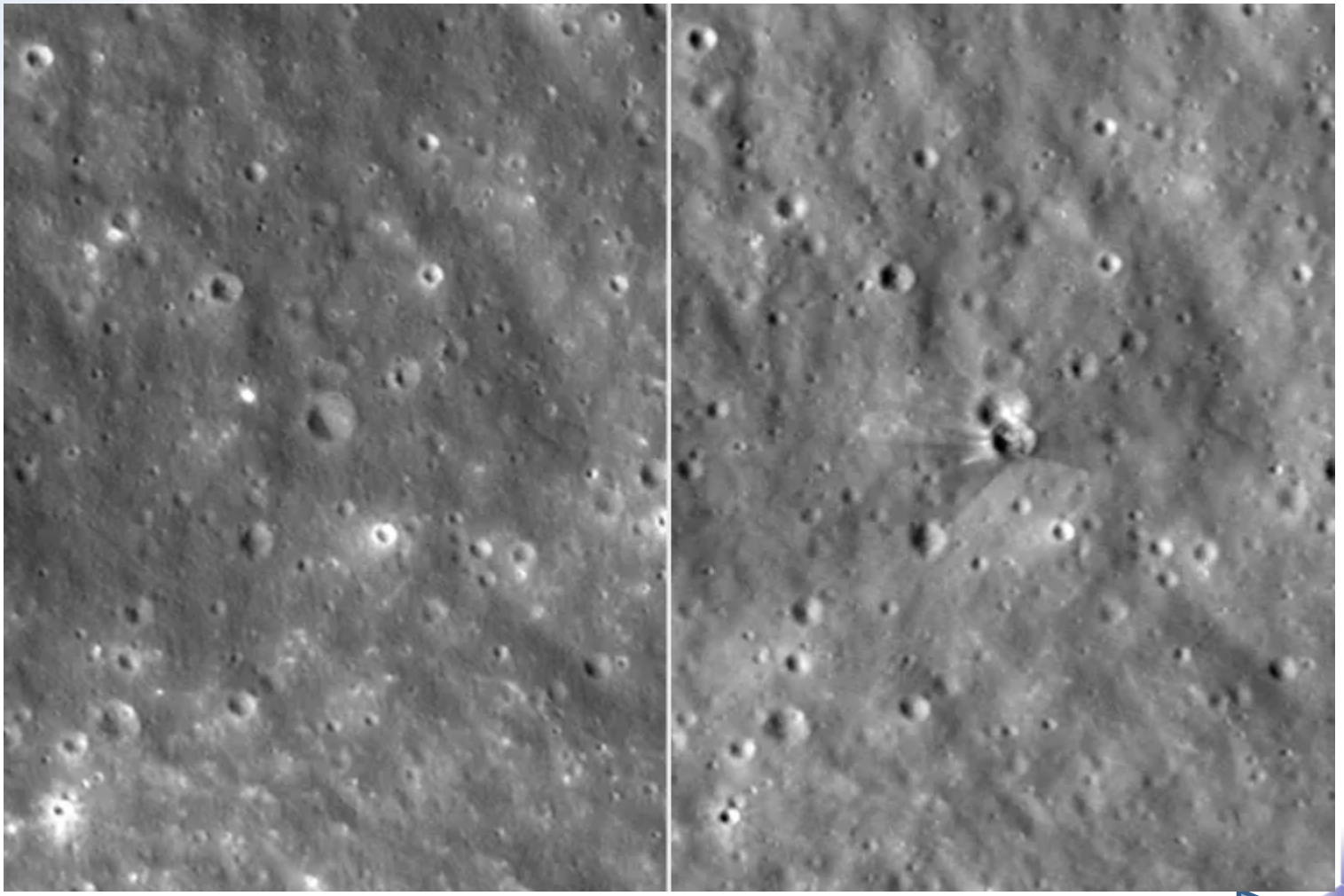
EARTH SPACE SOLUTIONS


Ecliptic Plane
PERIGEE
Moon Orbit Plane
APOGEE
Moon Phases 2026
Including Libration and Position Angle
LRO
OCEANUS PROCELLARUM
MARE IMBRIUM
MARE FRIGORIS
MARE SERENITATIS
MARE TRANQUILLITATIS
MARE NUBIUM
MARE HUMORUM
MARE INSULARUM
MARE COGNITUM
Aristoteles
Eudoxus
Apollo 11
Apollo 12
Apollo 14
Apollo 15
Apollo 16
Apollo 17
28
30
32
TIME
04 Aug 2026 03:00 UT
PHASE
71.2% (20d 17h 16m)
DIAMETER
1881.7 arcseconds
DISTANCE
380897 km (29.89 Earths)
J2000 POSITION
00h 54m 15s, 09° 58' 16"N
SUBSOLAR POINT
0.509°N 70.634°W
SUB-EARTH POINT
4.920°S 5.915°W
POLE POSITION ANGLE
338.285°

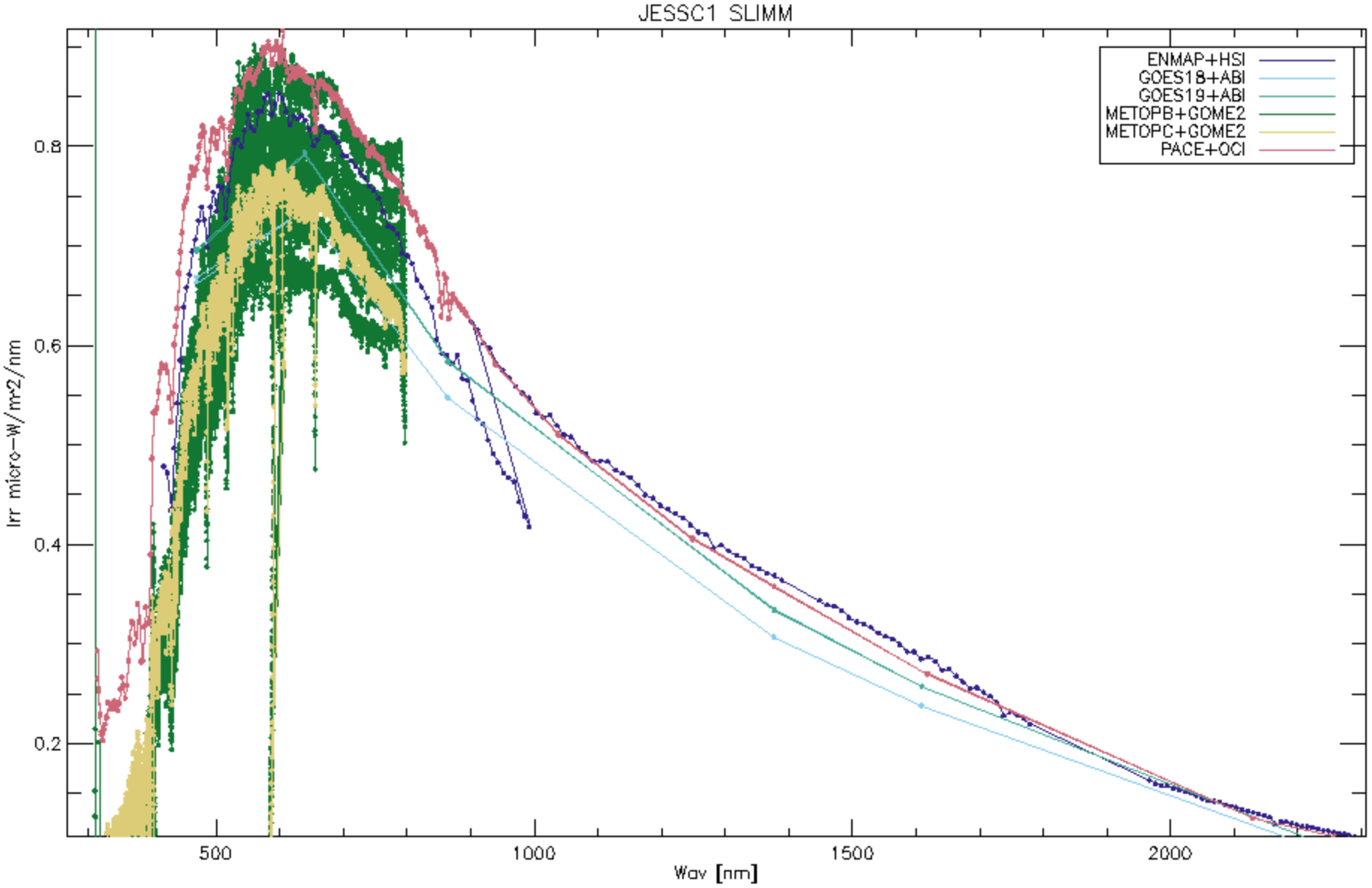
JESSC1

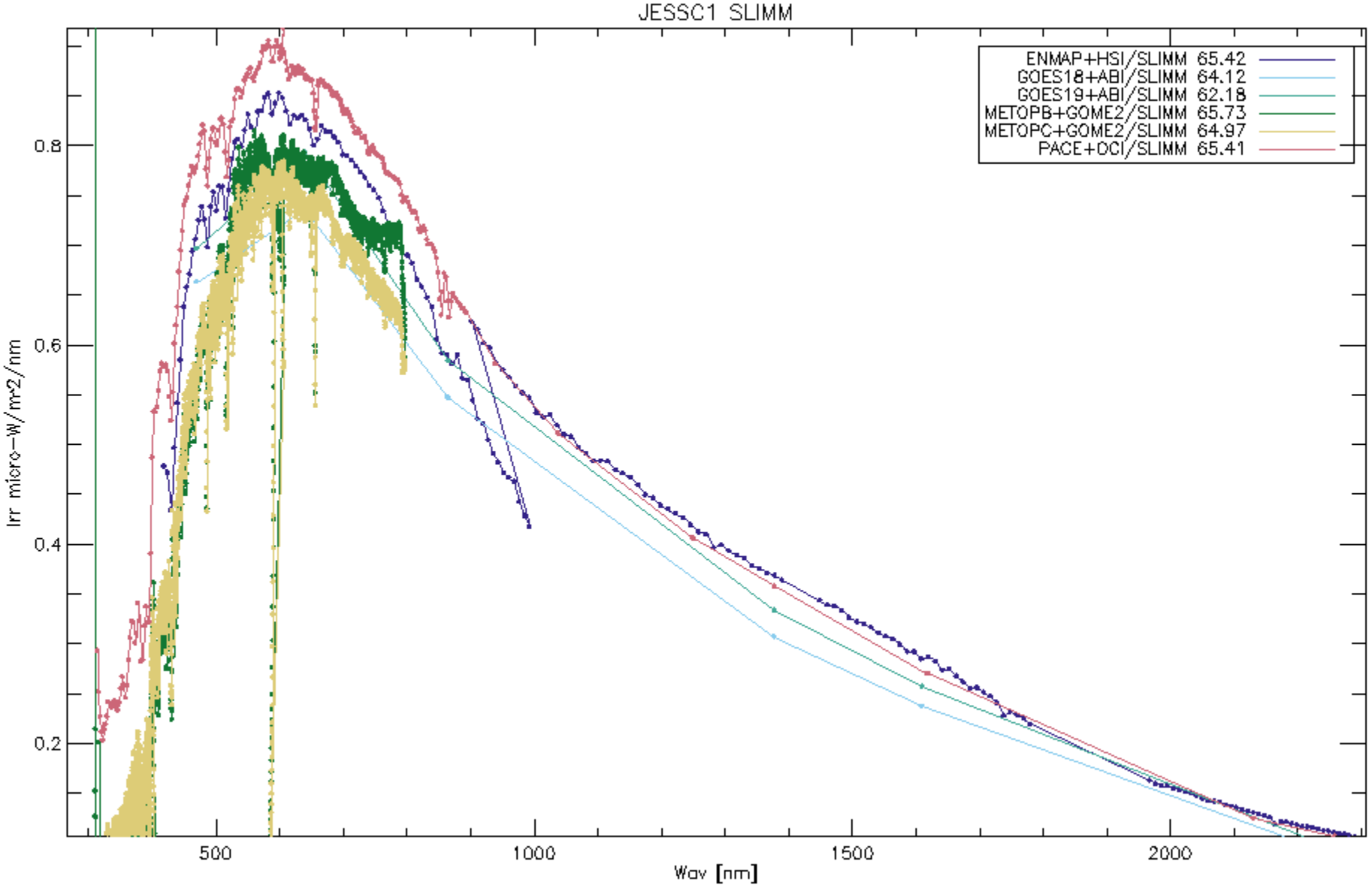
Metop-B	Metop-C	Tanager-1	EnMAP	OCI	IPERLITE	ARCSTONE	GOES-19	GOES-18
2026-08-03T16:22:37Z		2026-08-03T16:58:23Z			2026-08-03T15:48:01Z			
					2026-08-03T17:22:53Z			
					2026-08-03T18:57:44Z			
2026-08-03T19:45:21Z		2026-08-03T20:19:37Z			2026-08-03T20:32:36Z		2026-08-03T20:25:56Z	
					2026-08-03T22:07:28Z		2026-08-03T21:18:56Z	
2026-08-03T23:08:05Z		2026-08-03T23:23:47Z			2026-08-03T23:42:20Z			
					2026-08-04T00:00:00Z			
		2026-08-04T01:50:19Z			2026-08-04T01:17:12Z			2026-08-04T00:49:55Z
2026-08-04T02:30:49Z	**2026-08-04T01:15:04Z**	**2026-08-04T03:02:44Z**	**2026-08-04T02:44:33Z**	**2026-08-04T03:58:54Z (65.371 degrees)**	**2026-08-04T02:52:04Z**	**2026-08-04T01:48:24Z**		**2026-08-04T01:27:55Z**
		2026-08-04T06:24:33Z			2026-08-04T04:26:55Z			
					2026-08-04T06:01:47Z			
2026-08-04T05:53:34Z					2026-08-04T07:36:39Z	2026-08-04T06:08:03Z		

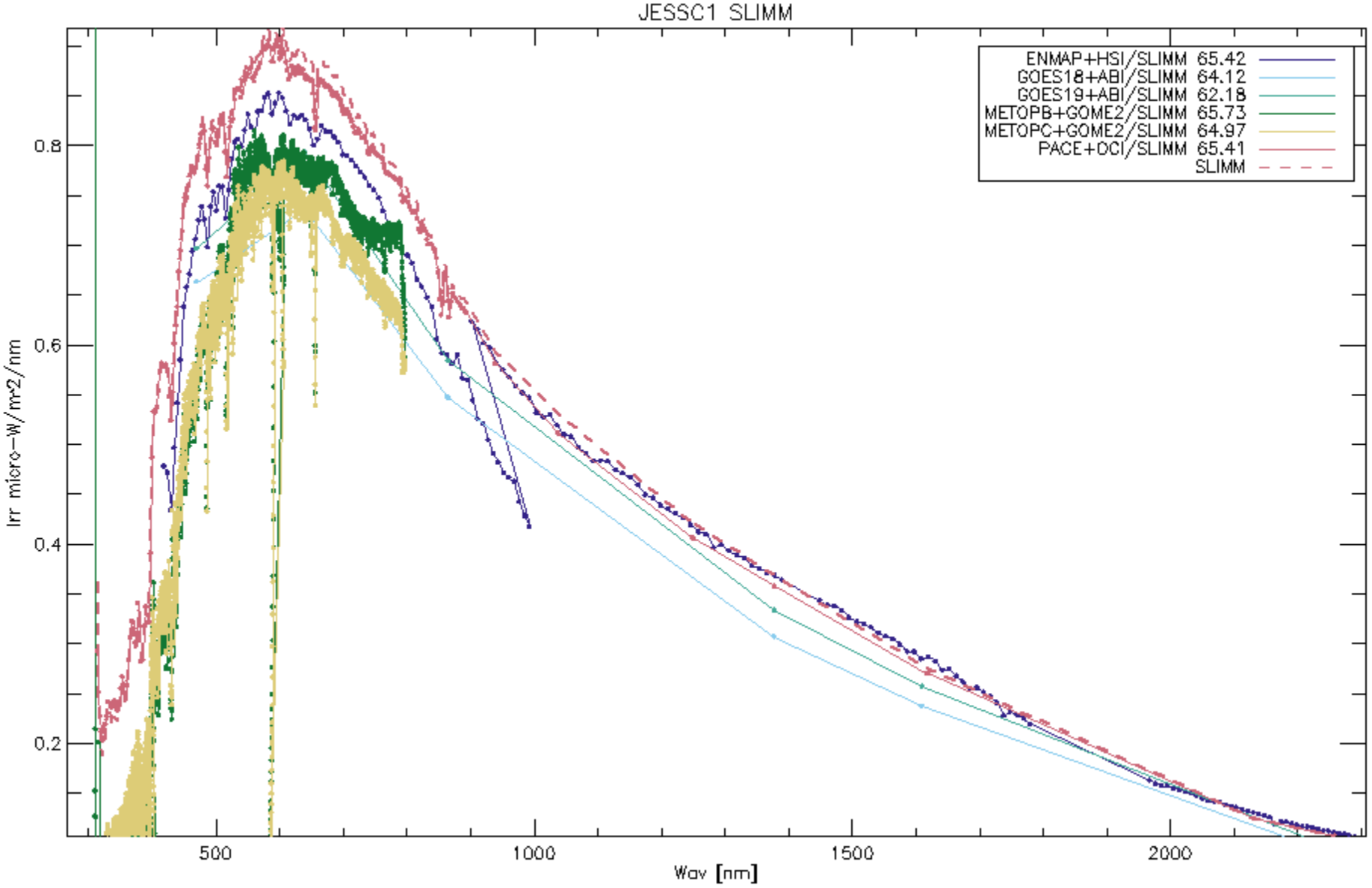
SpaceX in-situ measurement

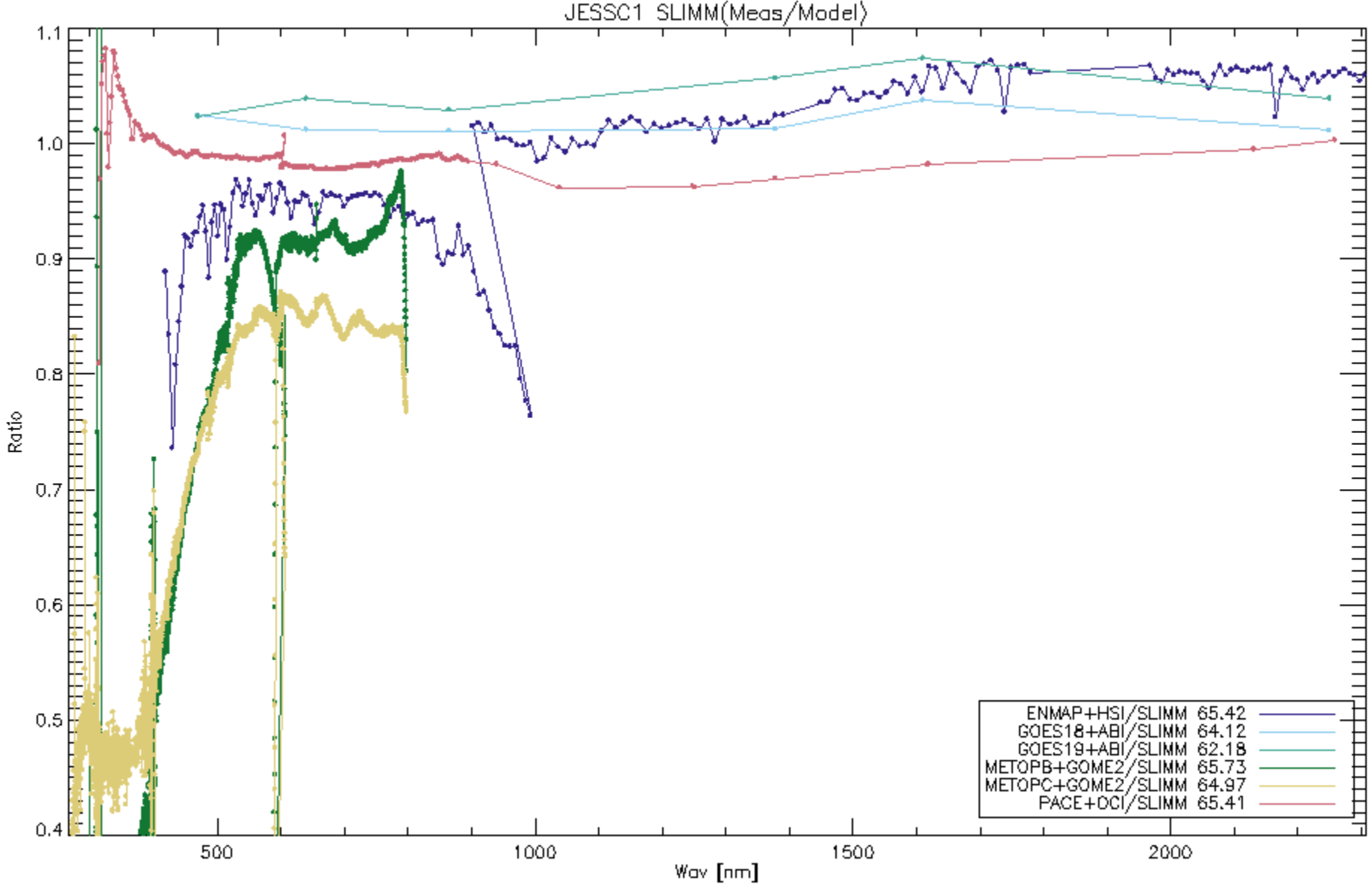


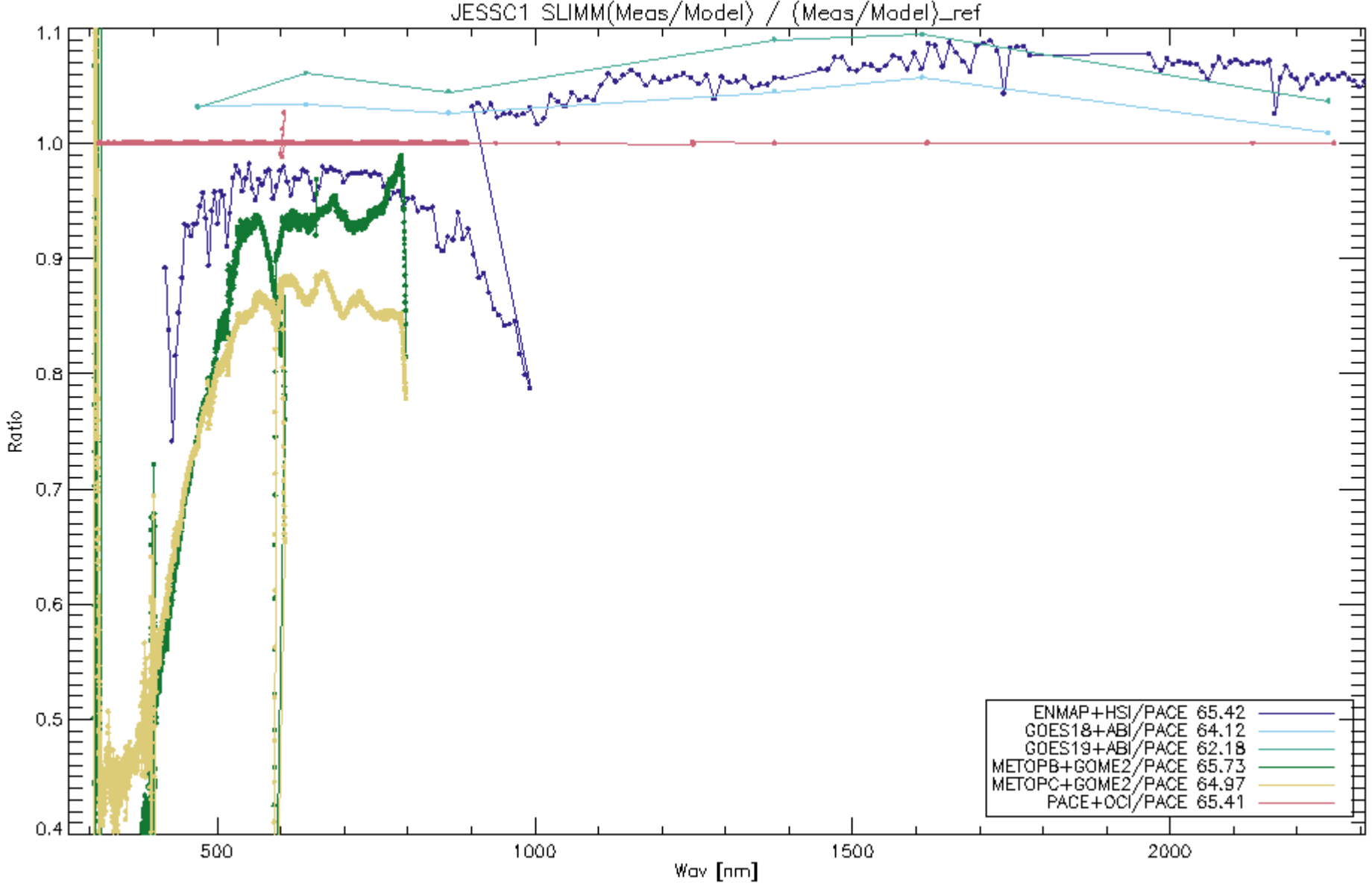

DRAFT
CONFIDENTIAL
ALL DATA IS PRELIMINARY
LUNAR SATELLITE SPECTRAL ANALYSES
SUBJECT TO FURTHER REVIEW AND CALIBRATION
DATA STREAM
ANALYSIS
DATA STREAM
ANALYSIS
DRAFT
CONFIDENTIAL

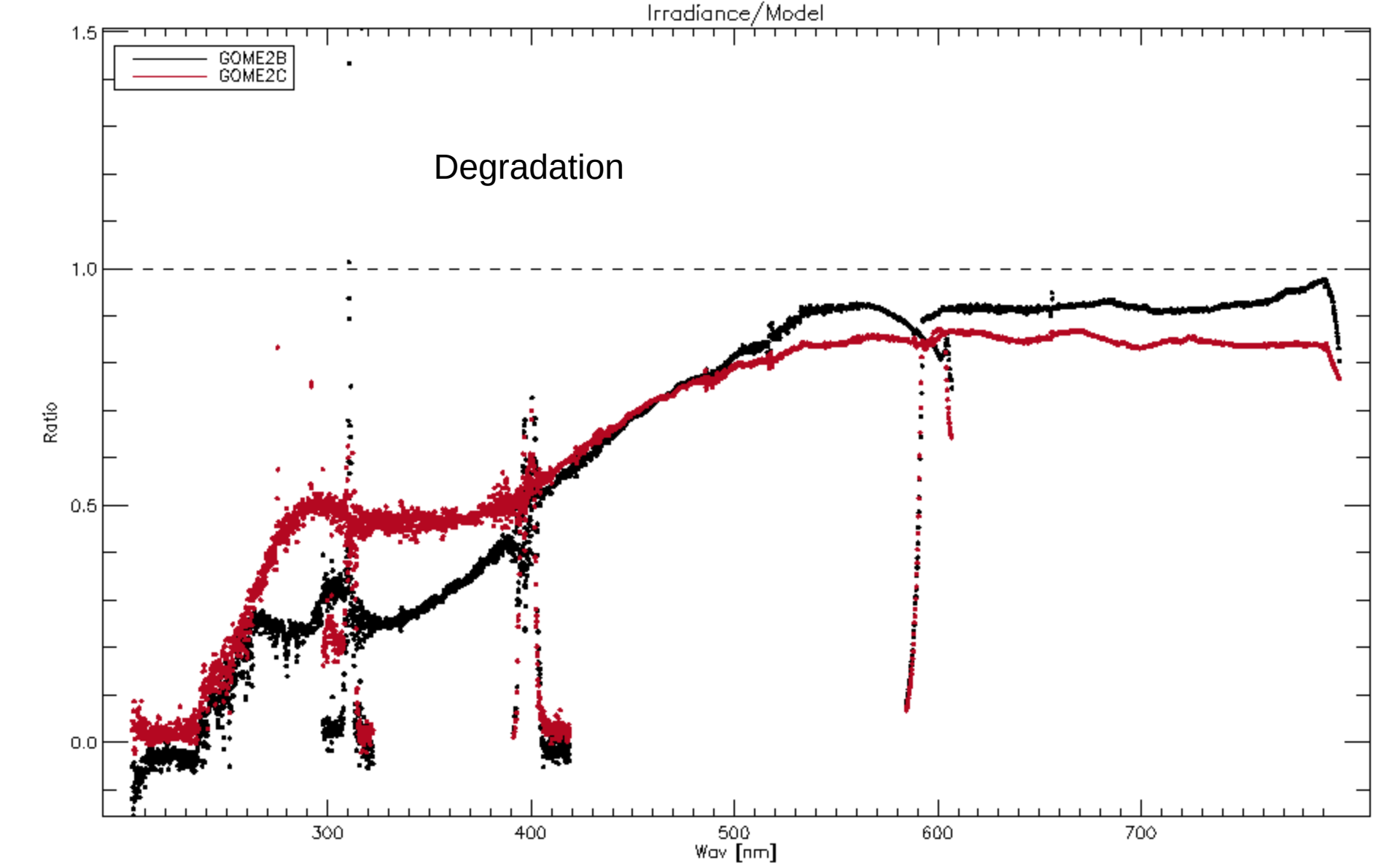

JESSC1 SLIMM
ENMAP+HSI
GOES18+ABI
GOES19+ABI
METOPB+GOME2
METOPC+GOME2
PACE+OCI
Irr micro-W/m^2/nm
0.8
0.6
0.4
0.2
500
1000
1500
2000
Wav [nm]

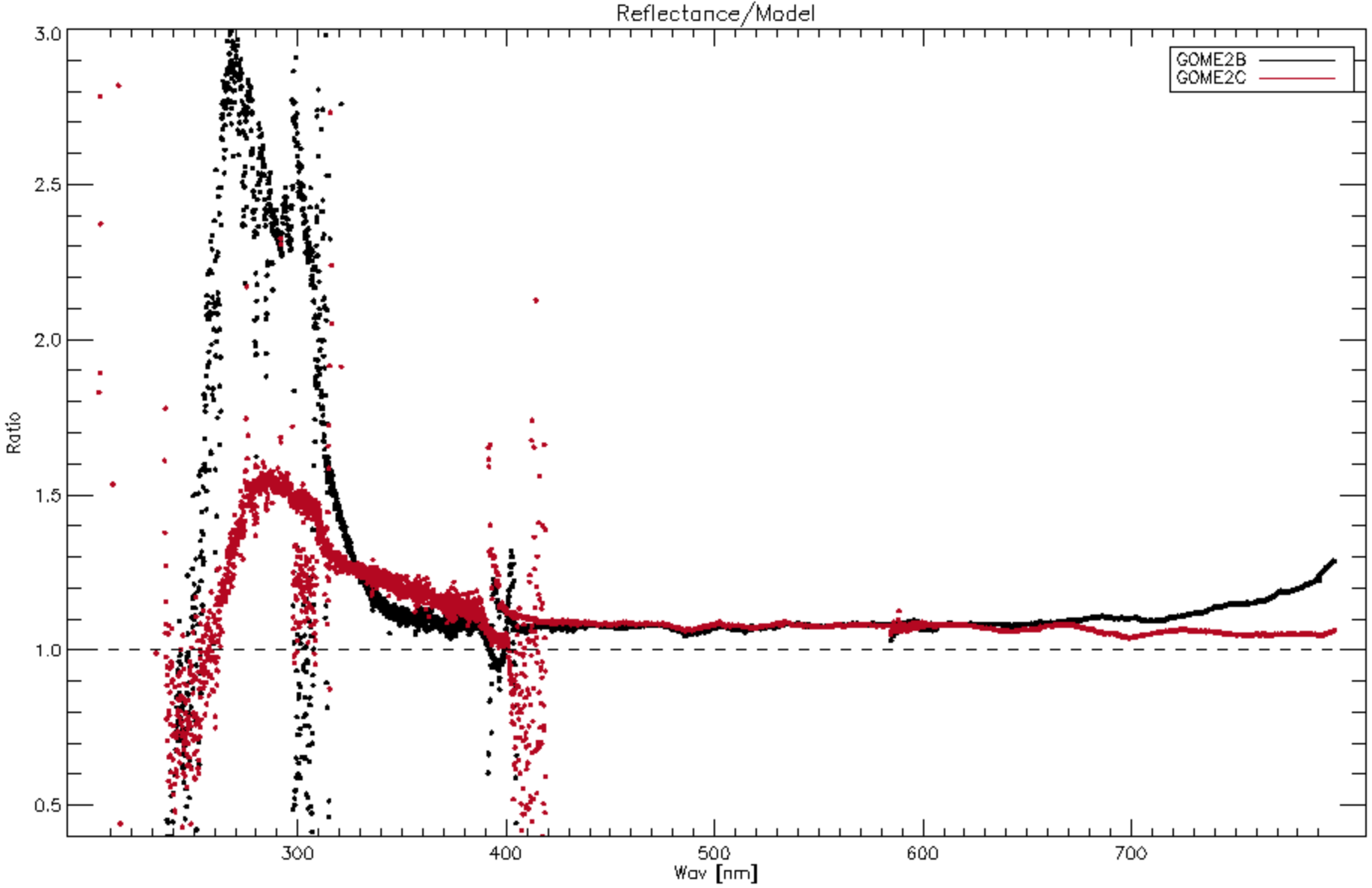

JESSC1 SLIMM
ENMAP+HSI/SLIMM 65.42
GOES18+ABI/SLIMM 64.12
GOES19+ABI/SLIMM 62.18
METOPB+GOME2/SLIMM 65.73
METOPC+GOME2/SLIMM 64.97
PACE+OCI/SLIMM 65.41
Irr micro-W/m^2/nm
0.8
0.6
0.4
0.2
500
1000
1500
2000
Wav [nm]

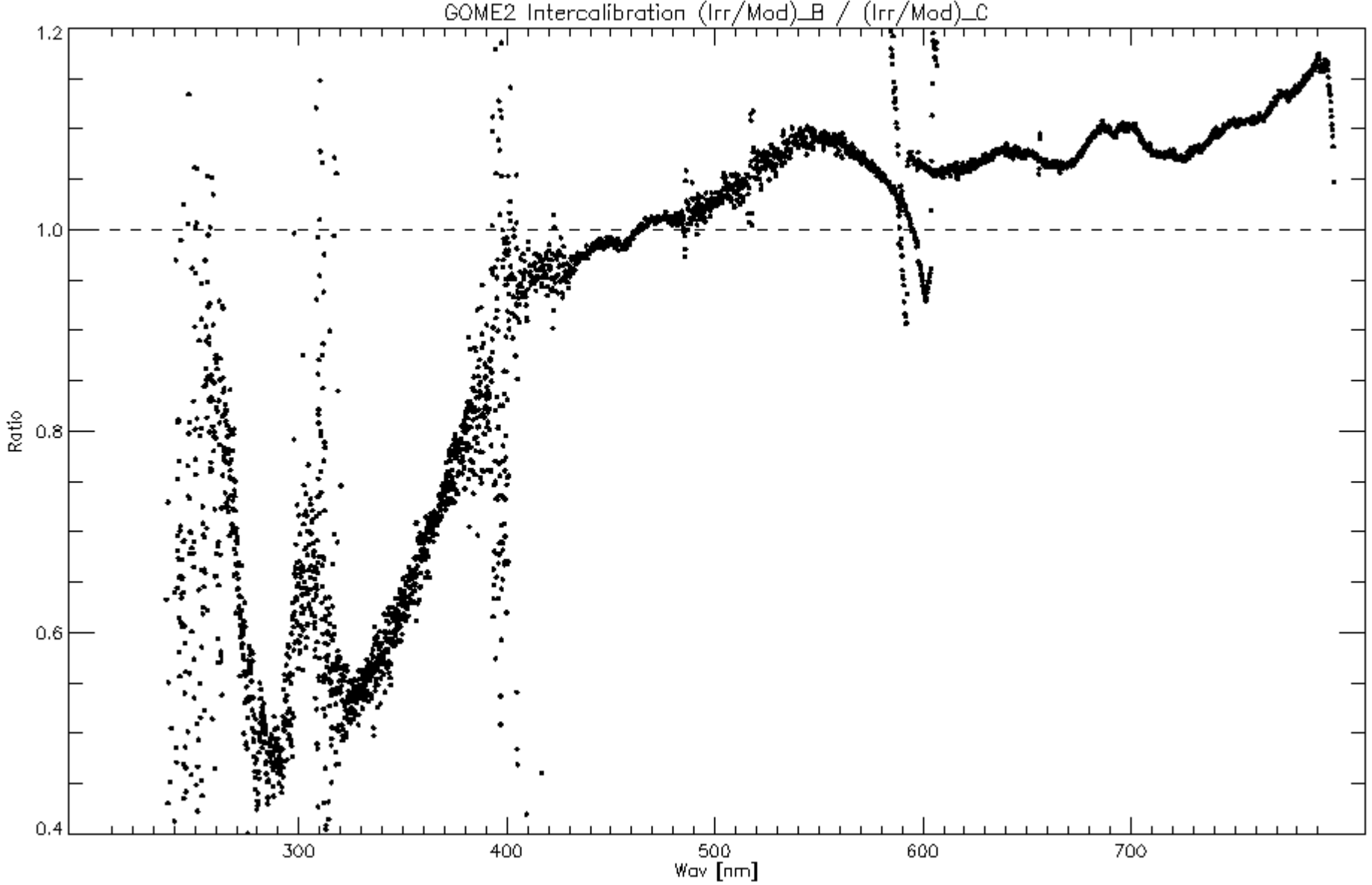

JESSC1 SLIMM
ENMAP+HSI/SLIMM 65.42
GOES18+ABI/SLIMM 64.12
GOES19+ABI/SLIMM 62.18
METOPB+GOME2/SLIMM 65.73
METOPC+GOME2/SLIMM 64.97
PACE+OCI/SLIMM 65.41
SLIMM
Irr micro-W/m^2/nm
0.8
0.6
0.4
0.2
500
1000
1500
2000
Wav [nm]

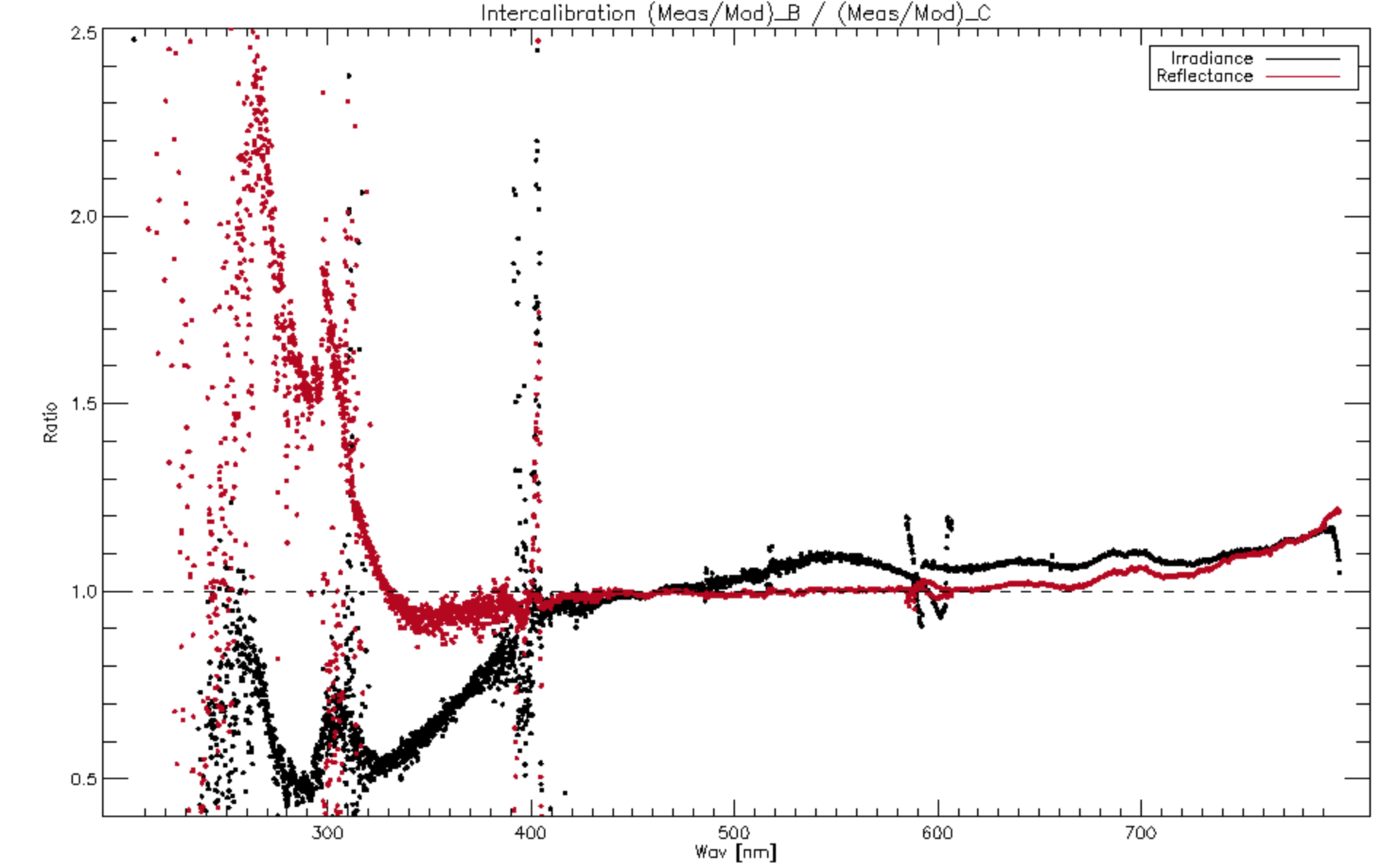

JESSC1 SLIMM(Meas/Model)
Ratio
Wav [nm]
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
500
1000
1500
2000
ENMAP+HSI/SLIMM 65.42
GOES18+ABI/SLIMM 64.12
GOES19+ABI/SLIMM 62.18
METOPB+GOME2/SLIMM 65.73
METOPC+GOME2/SLIMM 64.97
PACE+OCI/SLIMM 65.41


JESSC1 SLIMM(Meas/Model) / (Meas/Model)_ref
Ratio
Wav [nm]
1.1
1.0
0.9
0.8
0.7
0.6
0.5
0.4
500
1000
1500
2000
ENMAP+HSI/PACE 65.42
GOES18+ABI/PACE 64.12
GOES19+ABI/PACE 62.18
METOPB+GOME2/PACE 65.73
METOPC+GOME2/PACE 64.97
PACE+OCI/PACE 65.41


Irradiance/Model
GOME2B
GOME2C
Degradation
Ratio
1.5
1.0
0.5
0.0
300
400
500
600
700
Wav [nm]


Reflectance/Model
GOME2B
GOME2C
Ratio
3.0
2.5
2.0
1.5
1.0
0.5
300
400
500
600
700
Wav [nm]


GOME2 Intercalibration (Irr/Mod)_B / (Irr/Mod)_C
Ratio
1.2
1.0
0.8
0.6
0.4
300
400
500
600
700
Wav [nm]


Intercalibration (Meas/Mod)_B / (Meas/Mod)_C
Irradiance
Reflectance
Ratio
2.5
2.0
1.5
1.0
0.5
300
400
500
600
700
Wav [nm]

Next steps

- Collect data….
- GOME2 degradation
- LSICS format template
- Conversion to LSICS format
- Run LSICS for all observations
- Compare in iteration instrument-teams

JESSC steps

* Collection of planned/orbit-fixed observations times
* Coordination of flexible observations times
* Collection of data
* Conversion of data to LSICS-ingestible (GIRO/LSICS)
* LSICS processing
* Data analysis
* Reporting

Questions

- Need for web-service of planned lunar observations?
- Need for more JESSC campaigns
  - Brighter phase (less noise)
  - Negative phase (LESSRv3)
  - Model-measurement comparison → Uncertainties
  - Inter-calibration

JESS2

- At this moment:
  - 2026-11-21T19:00:00Z (-38°)
  - 2026-12-28T01:00:00Z (+55°)
- https://docs.google.com/spreadsheets/d/1oMFuUVavW-x682nXjq4mEwvToa9BXRvS3Nld-QCmAHA

UTC (ISO 8601)	Satellite	Lunar Ph	Minutes	Joined (	Average UTC (Co-Obs Wi
2026-08-03T16:58:25Z	Metop-B	+59.7°	201	0	-
2026-08-03T20:19:40Z	Metop-B	+61.4°	201	0	-
2026-08-03T23:41:07Z	Metop-B	+63.1°	129	0	-
2026-08-04T01:50:22Z	Metop-C	+64.3°	72	1	2026-08-04T02:26:34Z
2026-08-04T03:02:47Z	Metop-B	+64.9°	202	1	2026-08-04T02:26:34Z
2026-08-04T06:24:35Z	Metop-B	+66.6°	202	0	-
2026-08-04T09:46:31Z	Metop-B	+68.4°	40222	0	-
2026-09-01T08:08:12Z	Metop-B	+51.1°	514	0	-
2026-09-01T16:41:55Z	Metop-B	+55.6°	204	0	-
2026-09-01T20:05:42Z	Metop-B	+57.5°	203	0	-
2026-09-01T23:29:09Z	Metop-B	+59.3°	11	1	2026-09-01T23:34:40Z
2026-09-01T23:40:11Z	Metop-C	+59.4°	192	1	2026-09-01T23:34:40Z
2026-09-02T02:52:25Z	Metop-B	+61.1°	15	1	2026-09-02T03:00:07Z
2026-09-02T03:07:49Z	Metop-C	+61.2°	188	1	2026-09-02T03:00:07Z
2026-09-02T06:15:33Z	Metop-B	+62.9°	203	0	-
2026-09-02T09:38:37Z	Metop-B	+64.7°	31991	0	-