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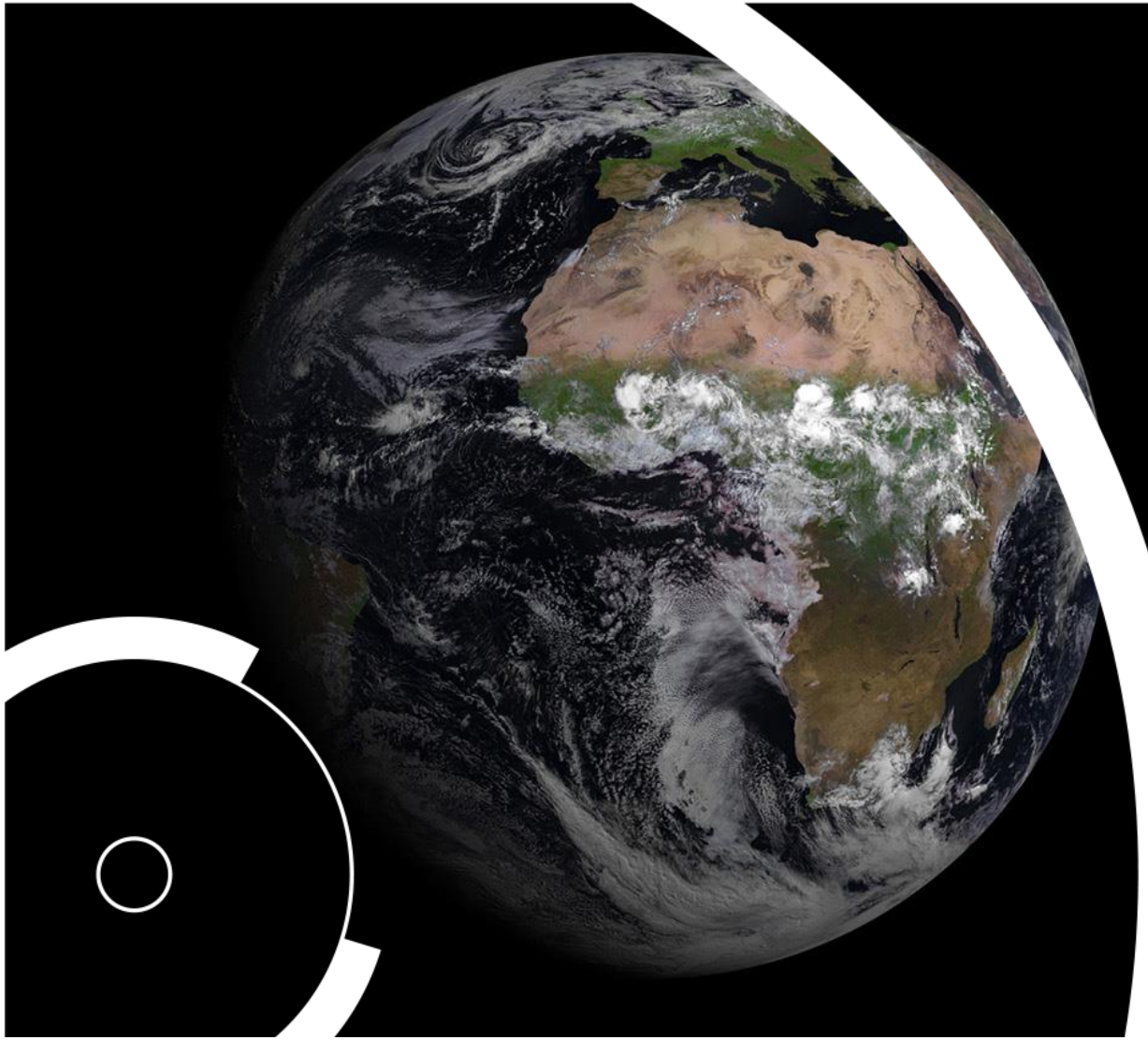

EUMETSAT Status Report: Microwave Missions and Inter-Calibration Plans

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2023-01-23 GSICS Microwave Sub-Group Meeting

Current Missions with Microwave Radiometers

Mission	Satellites	Instrument	Frequencies	Status
EPS (Jointly with NOAA)	NOAA-19	AMSU-A MHS	23.8-89 GHz 89-183 GHz	14 of 15 chs Nominal 4 of 5 chs Nominal
	Metop-B	AMSU-A MHS	23.8-89 GHz 89-183 GHz	11 of 15 chs Nominal Nominal
	Metop-C	AMSU-A MHS	23.8-89 GHz 89-183 GHz	14 of 15 chs Nominal 3 of 5 chs Nominal
Sentinel (Jointly with ESA)	Sentinel-3A	MWR	23.8+36.5 GHz	Nominal
	Sentinel-3B	MWR	23.8+36.5 GHz	Nominal
Copernicus	Jason-3	AMR	18.7-34 GHz	Nominal
Copernicus	Sentinel-6A "JASON-CS-A"	AMR-C	18.7-34 GHz	Nominal

Future Missions with Microwave Radiometers

Mission	Satellites	Instrument	Frequencies	Status
EPS-SG	Metop-SG A1 of3	MWS	23.8-229 GHz	Launch 2025Q1
	Metop-SG B1 of3	MWI ICI	18.7-183 GHz 183-664 GHz	Launch 2025Q4
Copernicus Sentinel (Jointly with ESA)	Sentinel-3C	MWR	23.8+36.5 GHz	Launch 2024Q4
	Sentinel-3D	MWR	23.8+36.5 GHz	Launch 2025Q2
	Sentinel-3 NG	TBD	TBD	TBD
	Sentinel-6B +NG "JASON-CS-B"	AMR-C	18.7-34 GHz	Launch 2025Q4
EPS-Sterna	Sterna	MWR (AWS)	50-325 GHz	Phase B Pending Approval
Copernicus Expansion	CIMR-1/2 (06/18)	CIMR	1.4-36.5 GHz	Launch 2028Q4

Microwave Inter-Calibration Plans

Developments and Cal/Val activities within the PMW Product Dev. Roadmap:

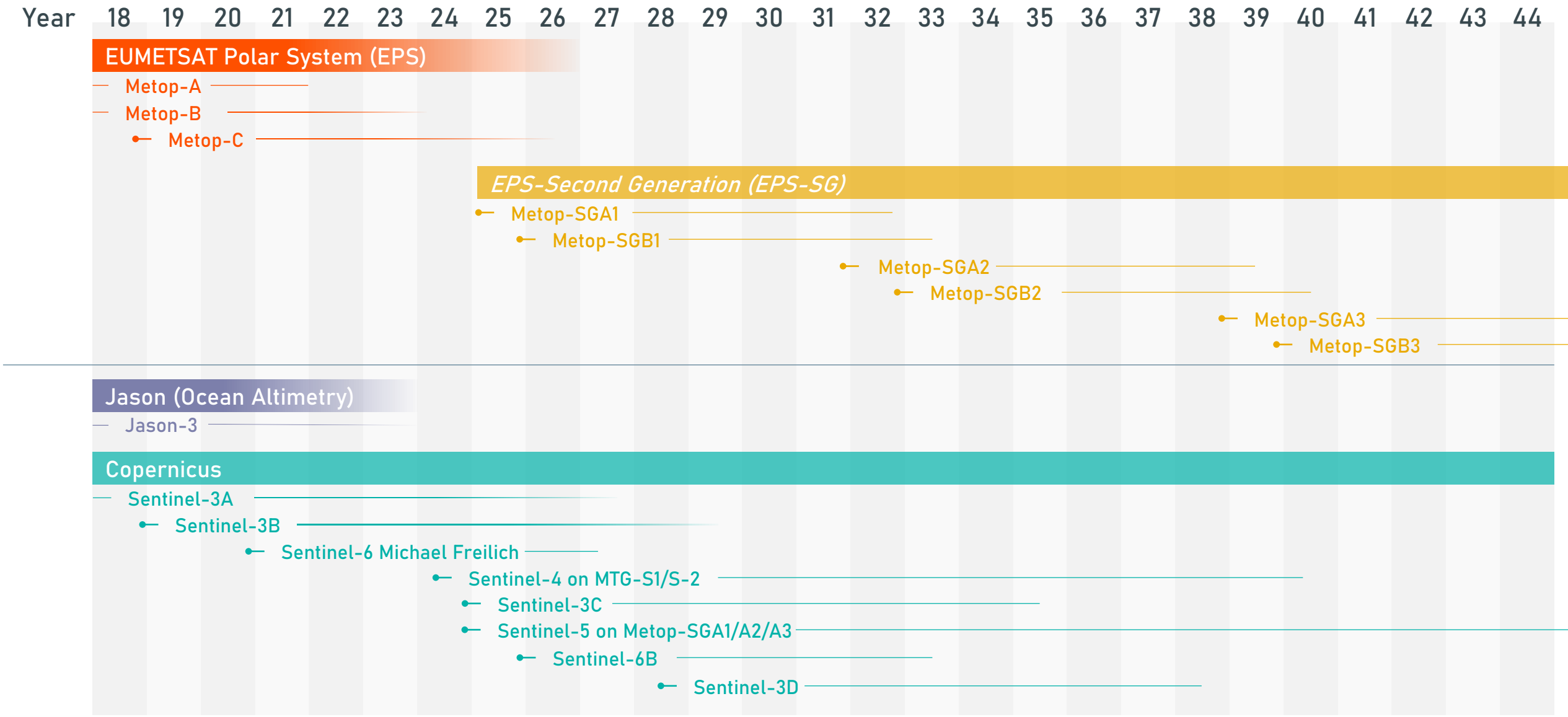
- Simultaneous Nadir Overpass (SNO) method
  - Planned to validate MWS radiances
  - By inter-comparison with AMSU, MHS and ATMS and FY-3/MWTS/MWHS (dependent on LECT)
  - Tandem operations with Metop satellites available

- NWP / Radiosonde / Radio Occultation + RTM methods
  - Key method identified in MWI/ICI and MWS Cal/Val Plans
  - To be initiated during commissioning and continued monitoring during operations
  - Extension to validate potential frequency shifts for MWS
  - MWI: inter-comparison with microwave conical scanners via NWP fields (ECMWF)
    - Possible extension to inter-calibration by double-differencing

- Sterna draft EURD requires inter-calibration monitoring
  - throughout the mission lifetime
  - against a reference – such as another mission (e.g. EPS-SG MWS) or vicarious targets or RO
  - Could benefit from tandem flights

Thank you!

Questions are welcome.

EUMETSAT mission planning

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