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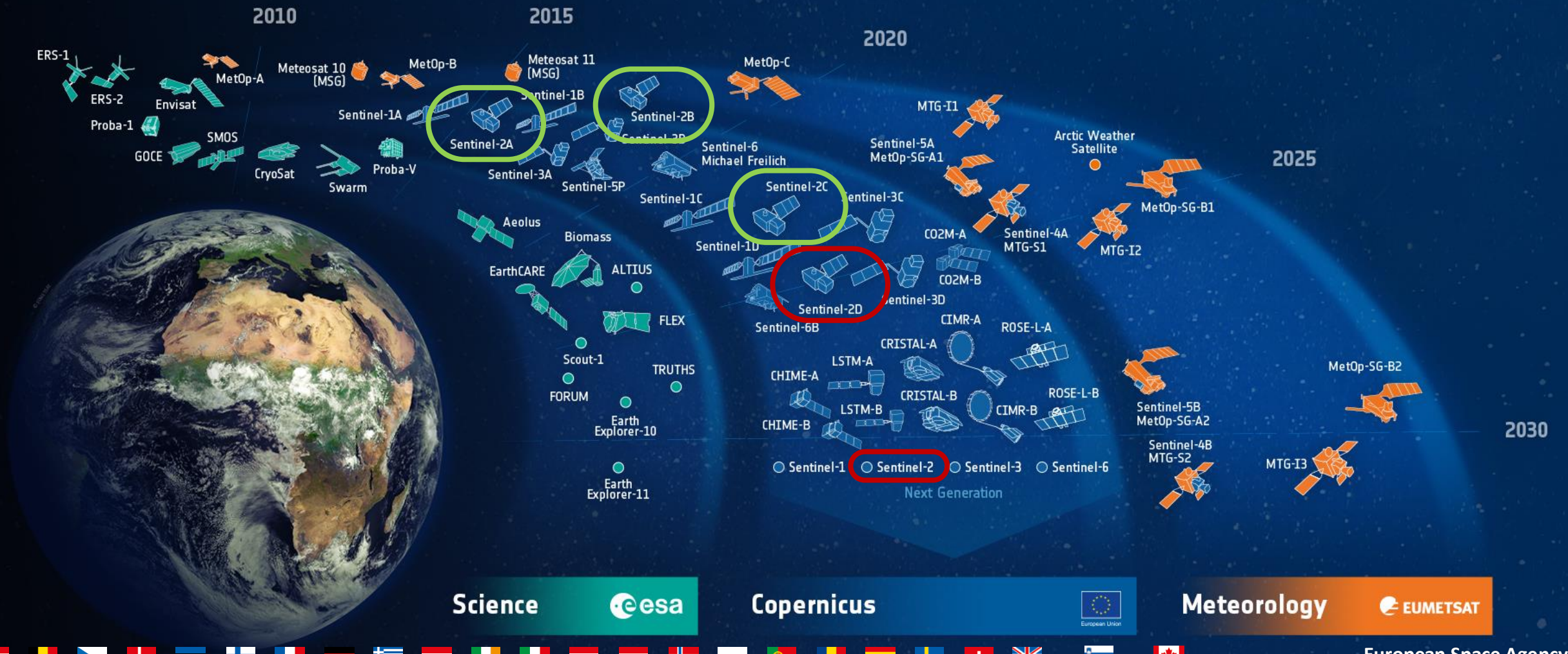
Sentinel-2 Mission Status



07 September 2026

Ferran Gascon
Sentinel-2 Mission Manager

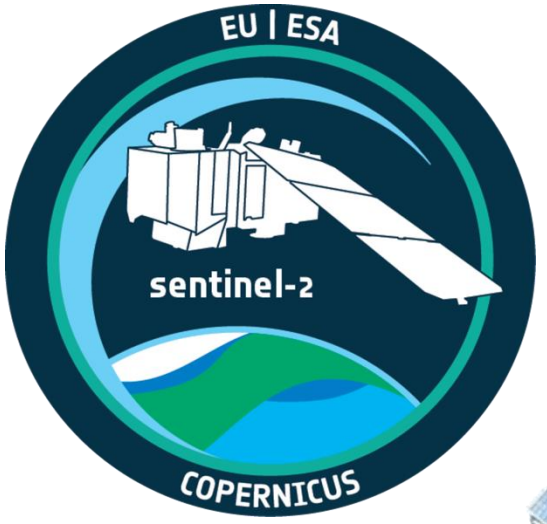
ESA-DEVELOPED EARTH OBSERVATION MISSIONS

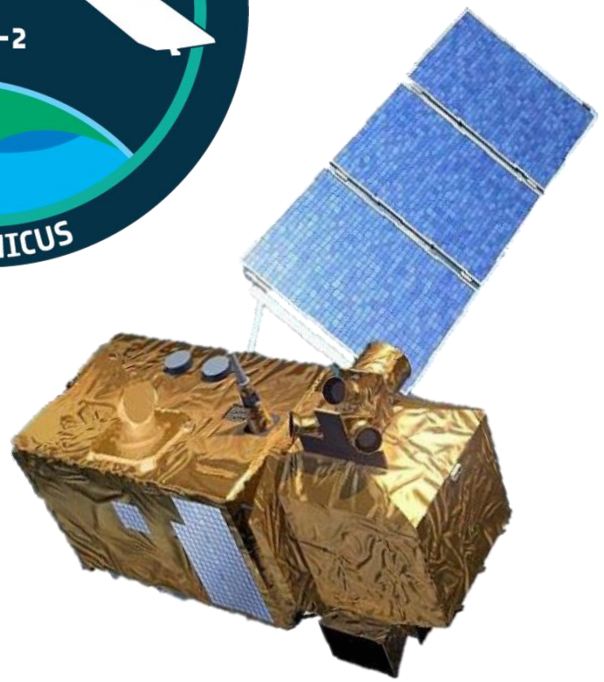


Sentinel-2 Mission Key Features

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Optical multi-spectral sensor for monitoring land & coastal areas

- Geometrical revisit: 5 days (at the Equator) with 2 satellites
- Spectral Bands: 13 spectral bands in the VNIR and SWIR
- Spatial Resolution: 10 m, 20 m, 60 m
- Nominal swath: 294 km, at 786 km altitude
- Acquisition system: Pushbroom scanner
- Local Time: 10:30 a.m. descending node
- Data Access: Free & open for a large range of applications

Sentinel-2 Products

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User Products

Level-1B

Top-of-atmosphere radiances in sensor geometry

Level-1C

Top-of-atmosphere reflectances in cartographic geometry

Level-2A

Surface reflectances in cartographic geometry



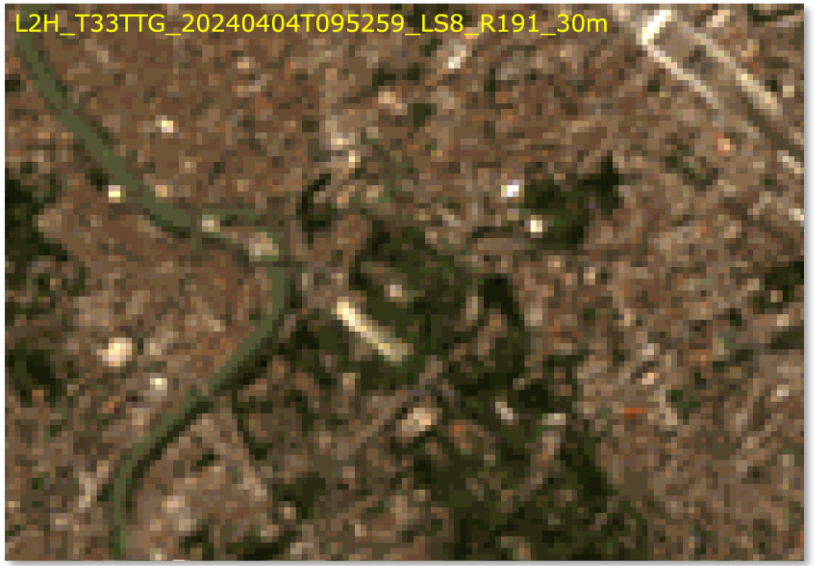
Pilot Products

Level-2H

Harmonised Sentinel-2 + Landsat-8/9 surface reflectances in cartographic geometry

Level-2F

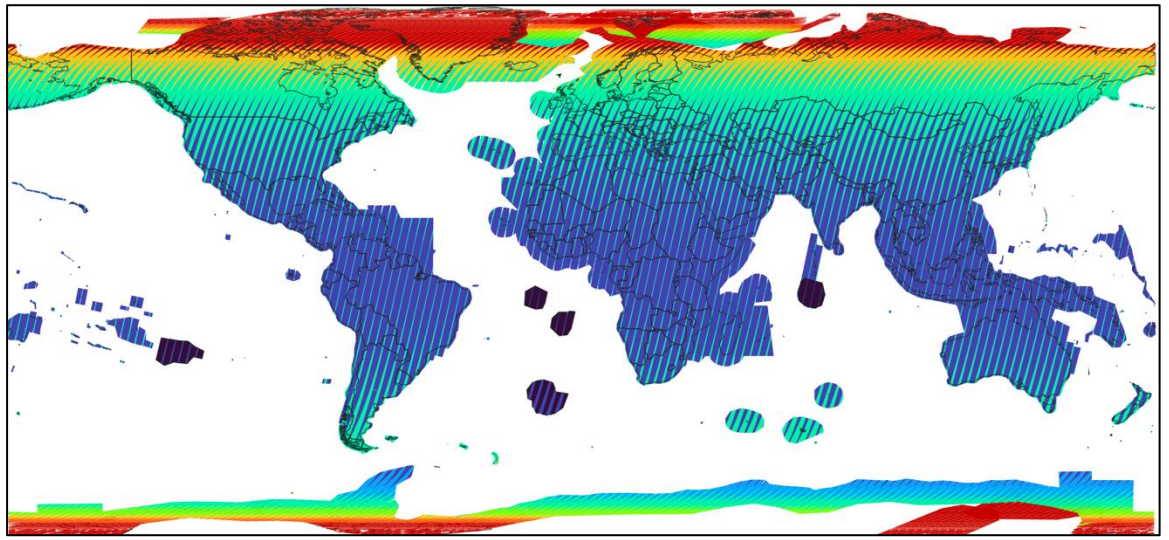
Fused Sentinel-2 + Landsat-8/9 surface reflectances in cartographic geometry



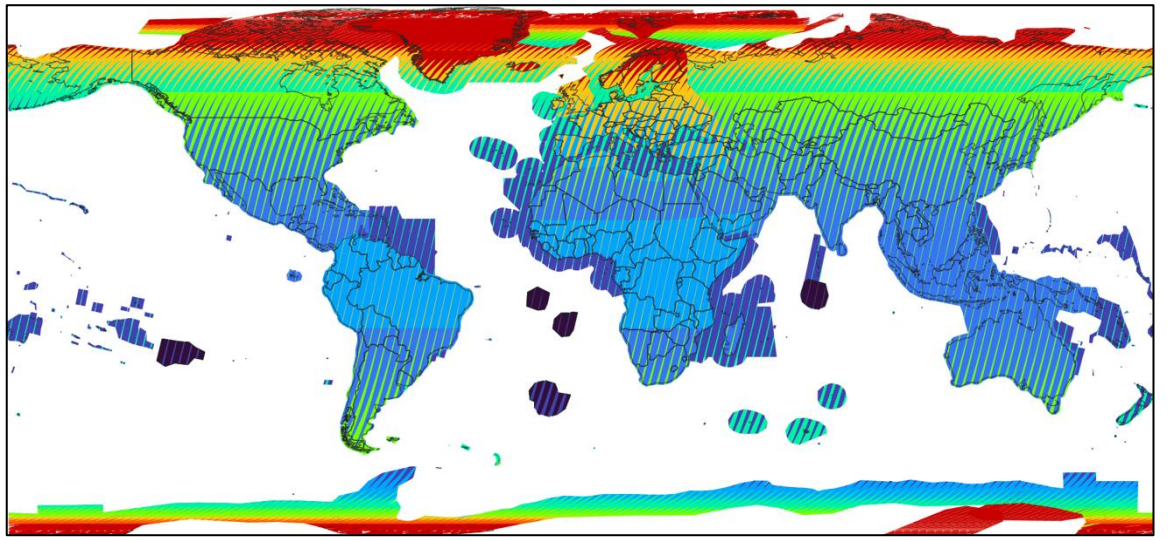
Observation Scenario

- The revisit from from plots in the previous slide translate in the number of acquisitions shown below (over a 20-day period) when considering the overlap between swathes.
- Particularly over Europe, the third satellite unit brings a significant improvement in terms of number of acquisitions.

Baseline Scenario (S2B + S2C)



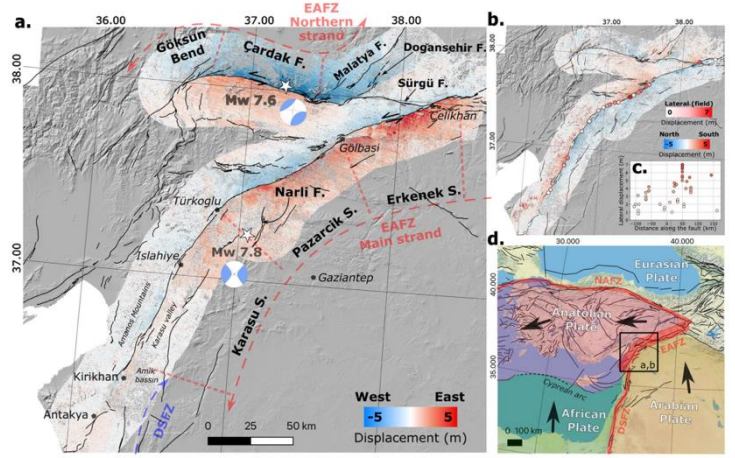
Extended Scenario (S2B + S2C + S2A)



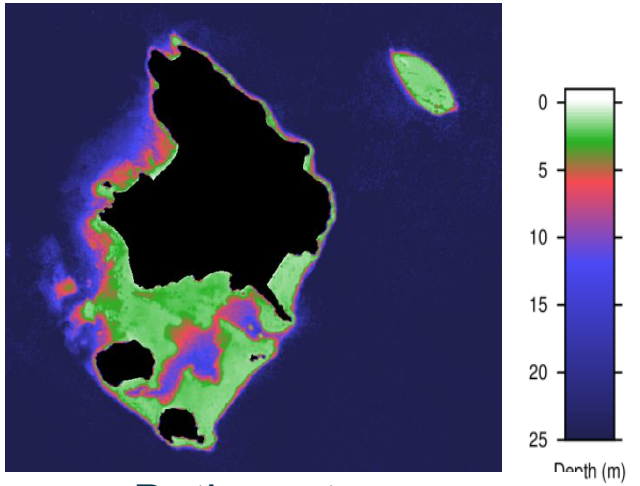
Number of acquisitions for Sentinel-2A/B/C MSI in 20 days period

Large Range of Applications

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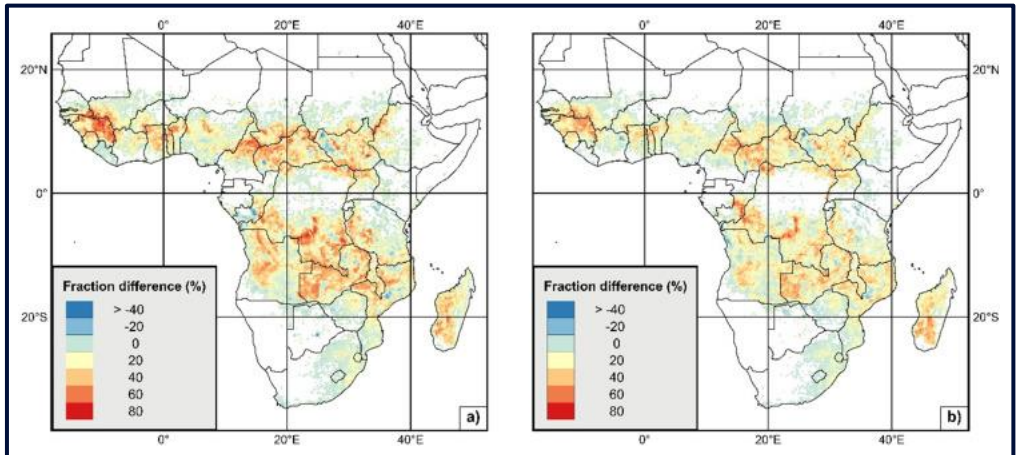
Ground Motion Mapping



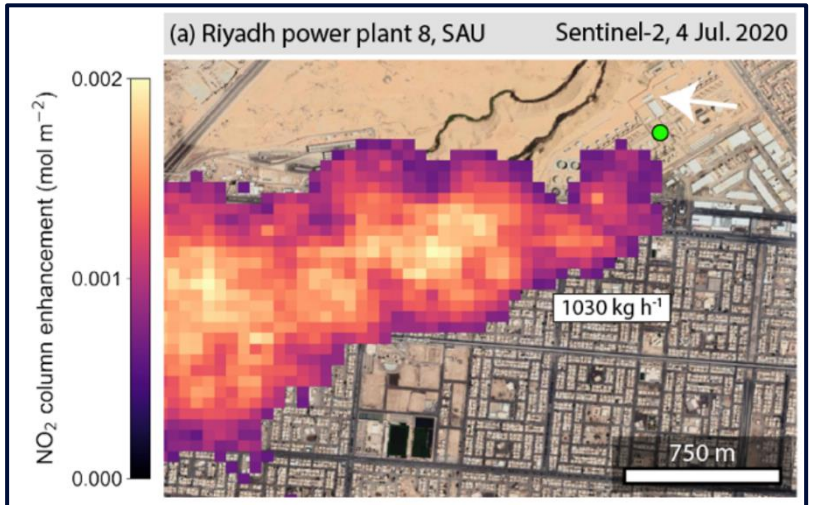
Bathymetry



Methane Emissions Monitoring



Accurate Mapping of Burnt Areas



NO_2 Emissions Monitoring

Large Range of Applications

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1. Surface Water Body & Extent Dynamics

- **Mapping Lakes, Rivers, and Reservoirs:** High spatial resolution (10 m) enables tracking small inland water bodies, narrow rivers, and reservoirs that were previously undetectable with coarse-resolution satellites like MODIS or Sentinel-3.
- **Seasonal Surface Water Variation:** Provides tracking of seasonal drying and filling of wetlands, ephemeral lakes, and seasonal rivers.

2. Evapotranspiration & Agricultural Water Management

- **Vegetation Stress & Water Content Monitoring:** Using Short-Wave Infrared (SWIR) and Red-Edge bands, Sentinel-2 estimates indices like the Normalized Difference Water Index (NDWI), Normalized Difference Moisture Index (NDMI), and Leaf Area Index (LAI).
- **Precision Irrigation:** Helps monitor crop water demand and soil moisture proxies to optimize agricultural water use.

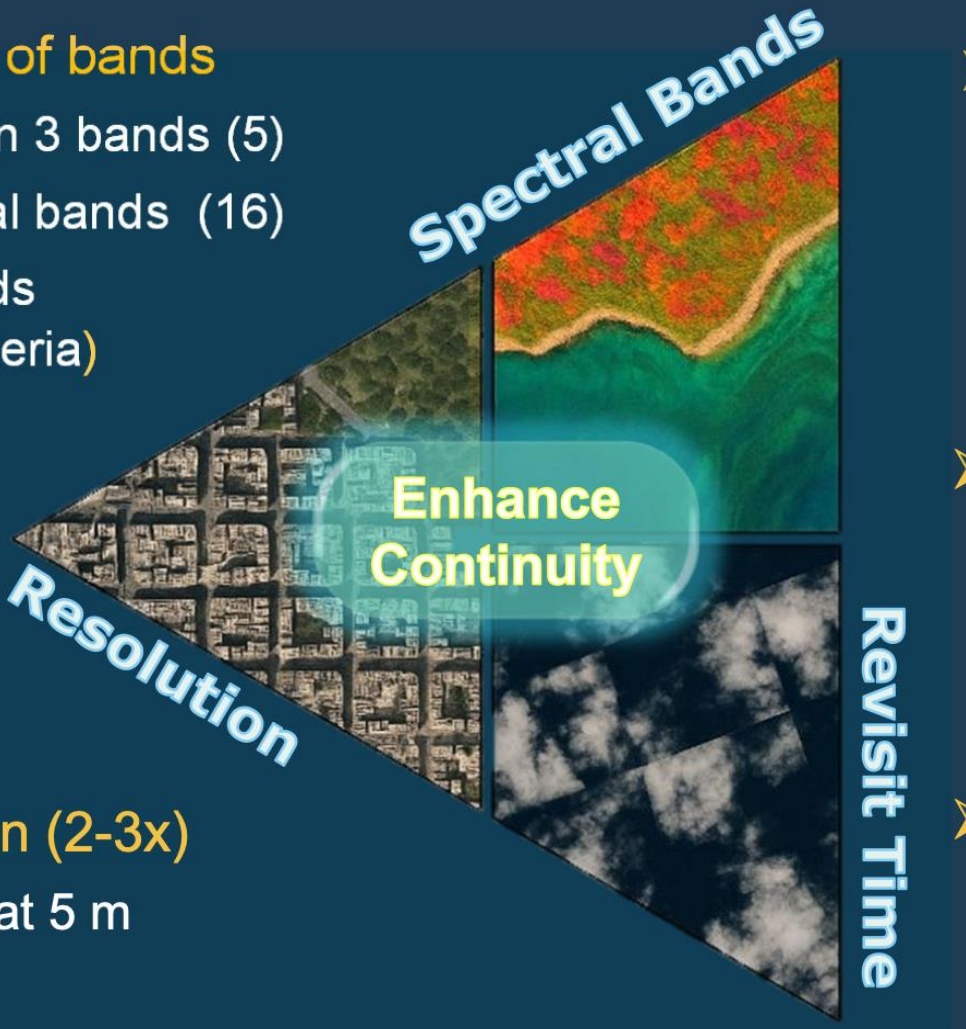
3. Cryosphere & Snow/Ice Hydrology

- **Snow Cover Mapping:** Sentinel-2's SWIR channels distinguish clearly between snow and clouds, enabling cloud-free fractional snow cover mapping in mountain watersheds.
- **Glacier Dynamics & Meltwater Tracking:** Monitors glacier extent, retreat, supraglacial lakes, and seasonal snowline elevation, contributing to meltwater yield estimates.

Sentinel-2 Next Generation

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- Increased number of bands
  - ✓ SWIR: B12 split in 3 bands (5)
  - ✓ VNIR: 6 additional bands (16)
    - Water bands (cyanobacteria)



- Improved resolution (2-3x)
  - ✓ B2, B3, B4 & B8 at 5 m

- Expanded coverage mask
  - ✓ Maritime Exclusive Economic Zone
  - ✓ Night-time observations
  - ✓ Twilight (ice / snow monitoring)

- Revisit time
  - ✓ 5 days globally with 2-satellites
  - ✓ 3 days at European latitudes with 3-sat
  - ✓ Synergy with Landsat-next

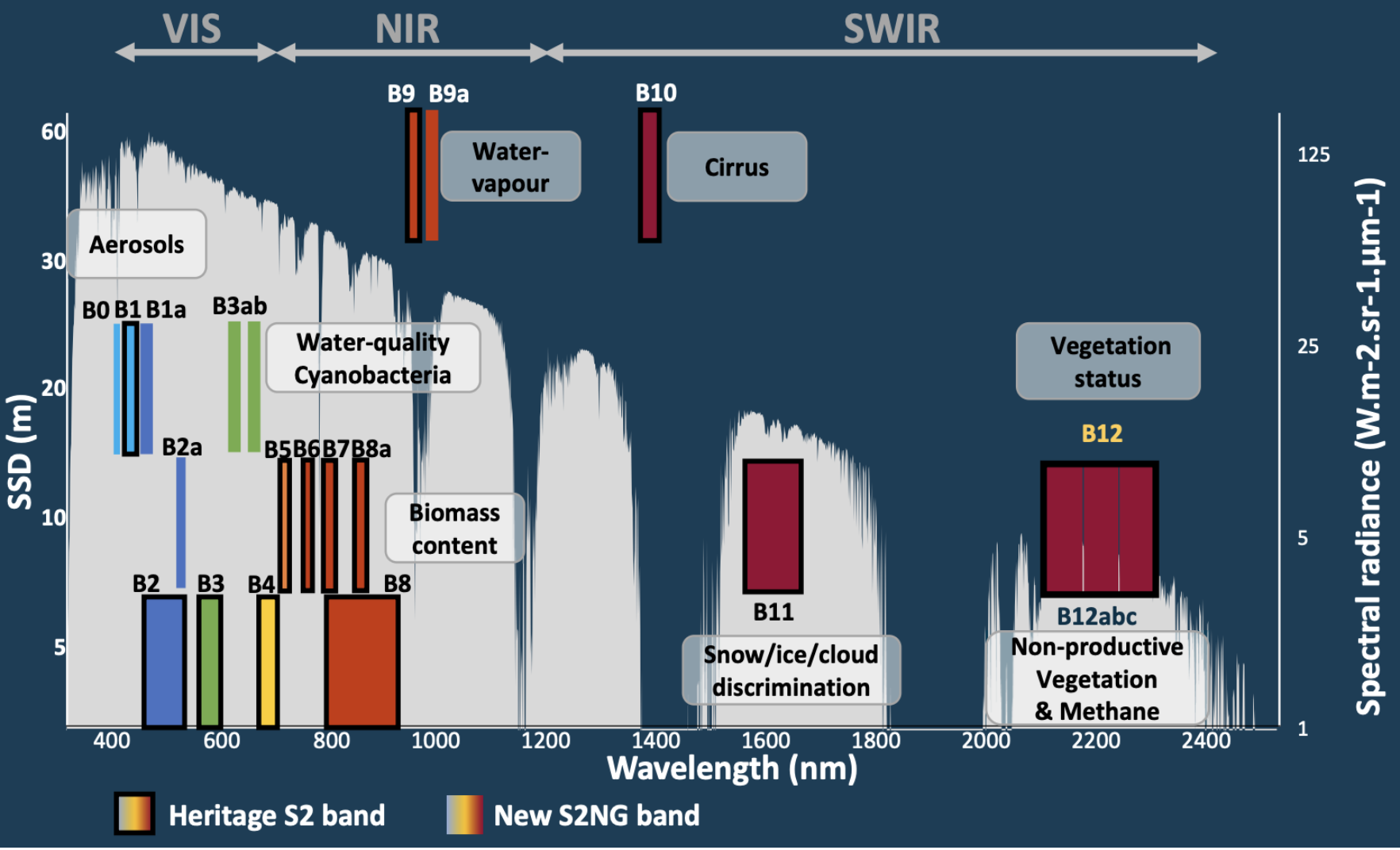
- Improved data latency
  - ✓ L1C products from 6 hours to 3 hours
  - ✓ L2A products in less than 4 hours

Sentinel-2 Next Generation

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Band	S2 SSD [m]	SSD S2NG [m]	*Primary Use*
O		20	Water color (CDOM)
1 (H)	60	20	Atmospheric correction
1a		20	Carotenoid
2 (H)	10	5	Vegetation properties
2a		10	Vegetation health
3 (H)	10	5	Vegetation properties
3a		20	Cyanobacteria
3b		20	Cyanobacteria
4 (H)	10	5	Vegetation properties
5 (H)	20	10	Leaf area index
6 (H)	20	10	Leaf area index
7 (H)	20	10	Chlorophyl
8 (H)	10	5	Vegetation indices
8a (H)	20	10	Vegetation properties
9 (H)	60	60	Water vapor retrieval
9a		60	Water vapor reference
10 (H)	60	60	Cloud screening
11 (H)	20	10	Soil properties
12a	20	10	Non-productive veg
12b		10	Non-productive veg
12c		10	Non-productive veg

Thank you for your attention

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