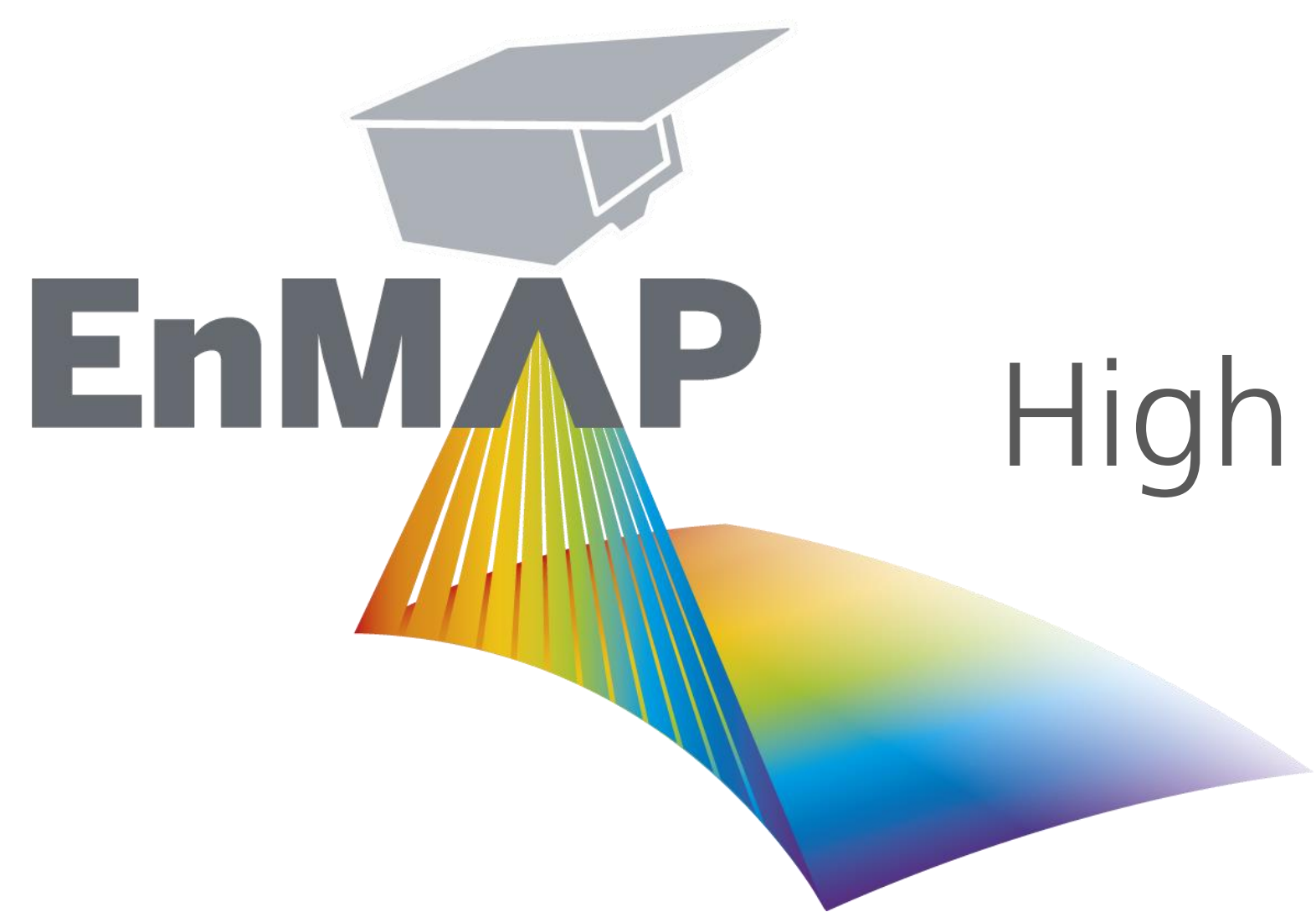




The EnMAP Foreground Mission – High priority acquisitions for enhanced science and synergies

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¹ German Aerospace Center (DLR), German Remote Sensing Data Center, Oberpfaffenhofen, Germany

² German Aerospace Center (DLR), Remote Sensing Technology Institute, Oberpfaffenhofen, Germany

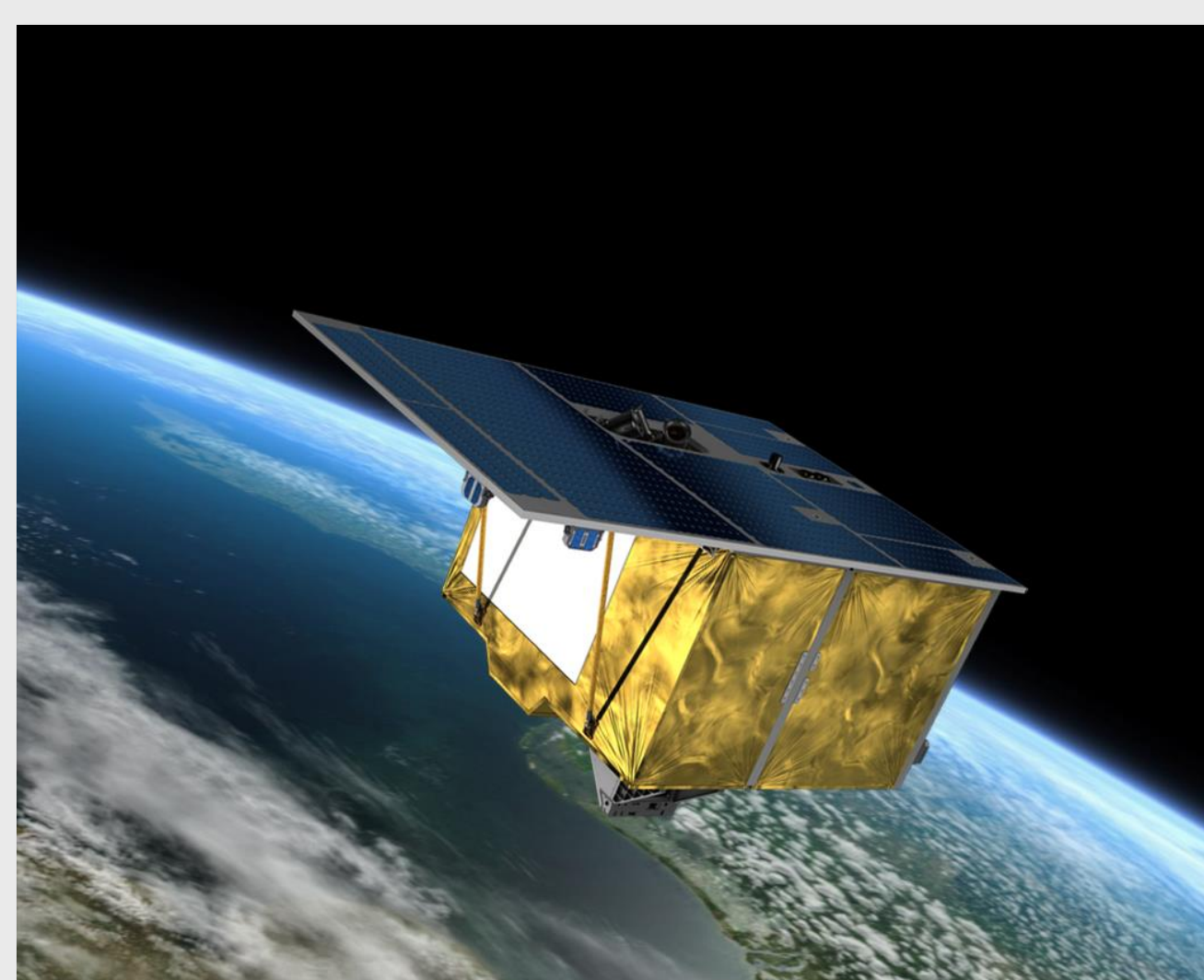
³ German Aerospace Center (DLR), German Space Operations Center, Oberpfaffenhofen, Germany

⁴ German Research Center for Geosciences (GFZ), Potsdam, Germany

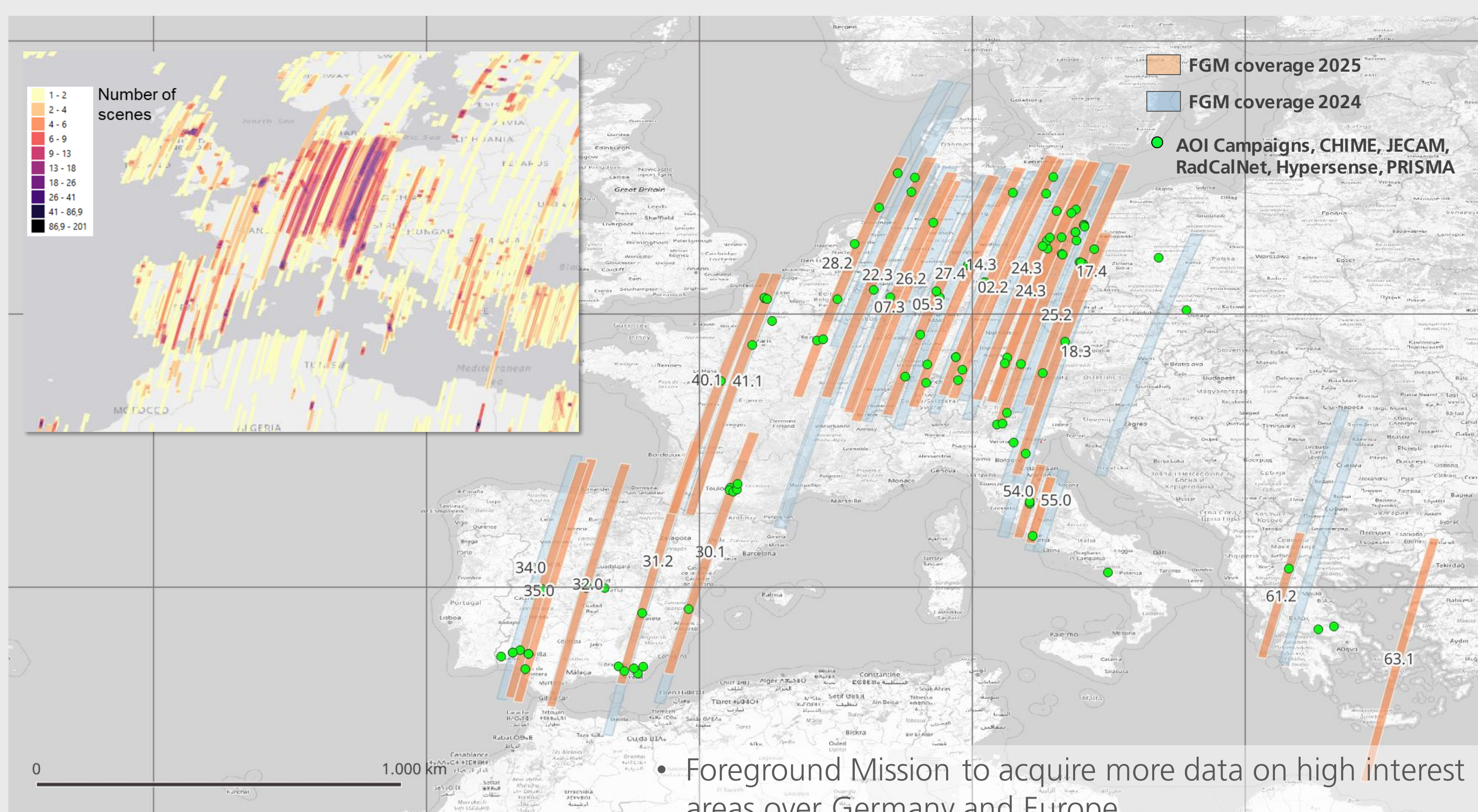
⁵ Leibniz University Hannover, Institute of Soil Science, Hannover, Germany

⁶ German Aerospace Center (DLR), Space Administration, Bonn, Germany

The German satellite mission **EnMAP (Environmental Mapping and Analysis Program; www.enmap.org)** was launched in April 2022. It is an optical remote sensing mission that uses visible, near-infrared, and shortwave infrared (VNIR/SWIR) sensors with high spatial resolution (30 m ground sampling distance) and high spectral resolution (with a full width at half maximum of about 6-12 nm). To enhance data coverage, a Foreground Mission was launched, acquiring high priority (990 km) flightlines over key areas in Europe to create consistent time series during the growing season. The foreground mission acquisition plan is updated monthly, taking into account factors like ground activities and weather conditions. Users can access recent information about upcoming high-priority observations at https://www.enmap.org/data_tools/foreground_mission



Foreground Mission and Campaign Activities

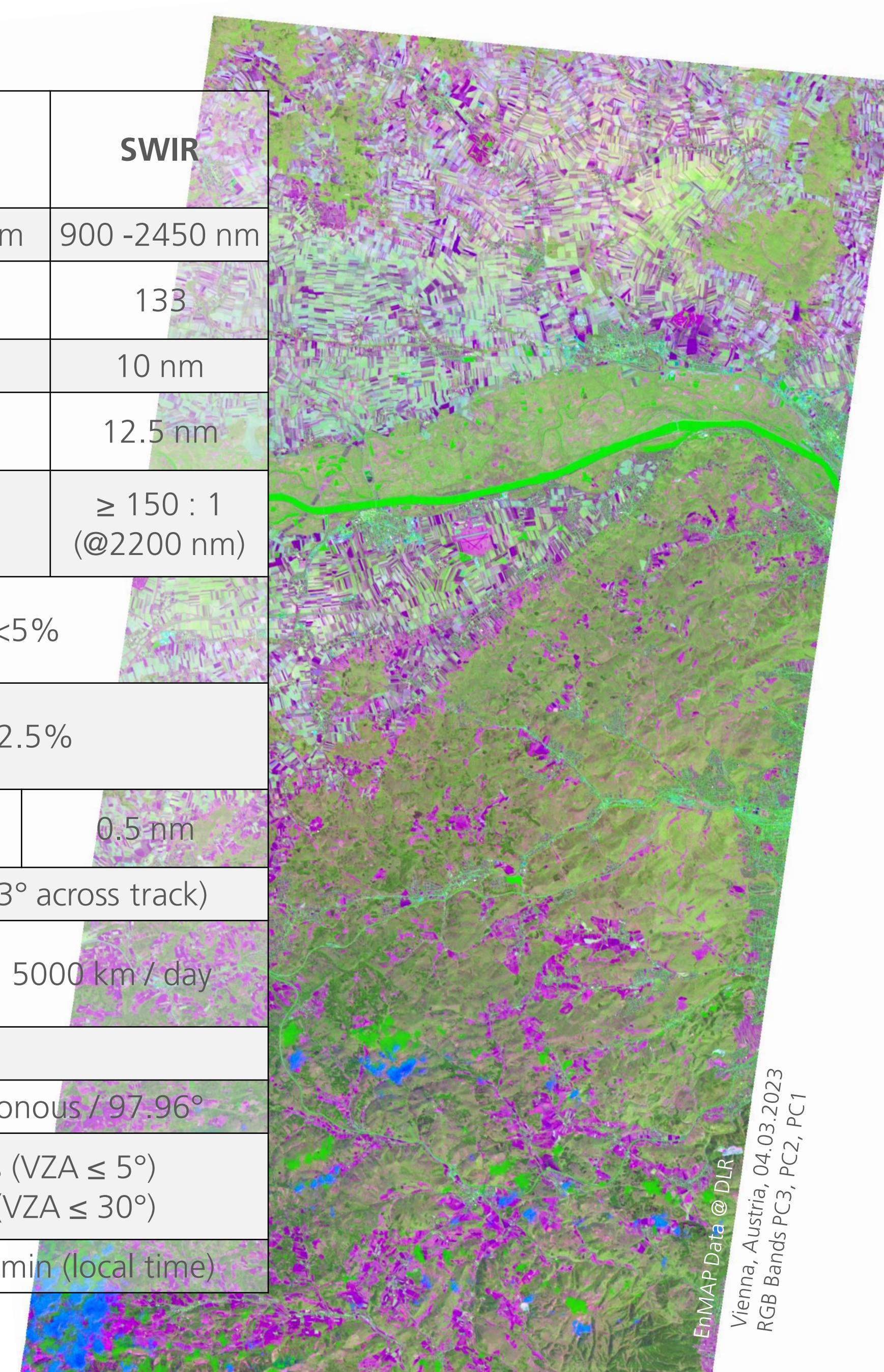


Foreground mission flightlines and campaign activities in 2024 (light blue) and 2025 (orange)

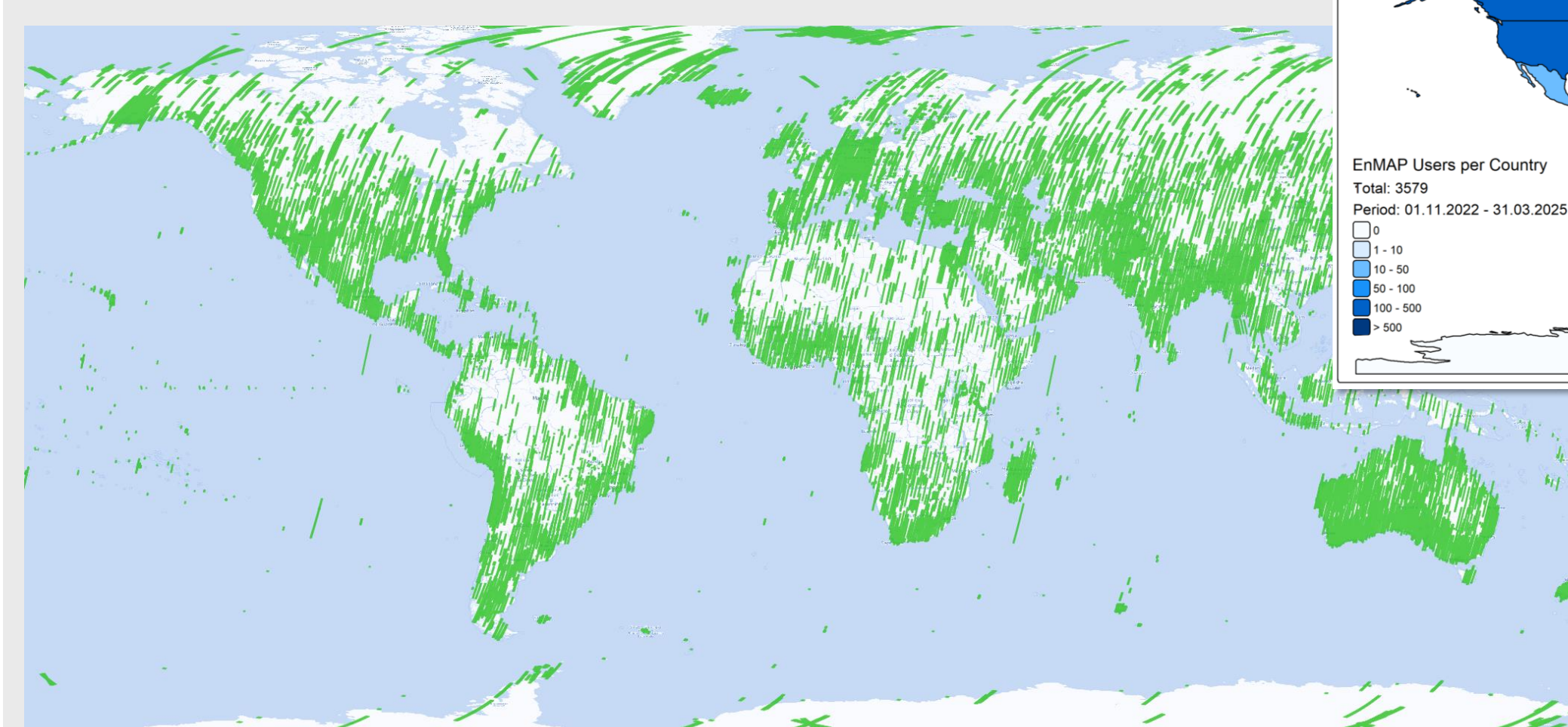
- Foreground Mission to acquire more data on high interest areas over Germany and Europe
- 990-kilometer flightlines commanded of high priority
- Time series and pre-defined flightlines
- Cloud check over Europe and comparison with different cloud prediction models
- Contact: enmap_application_sp@dlr.de

Instrument characteristics and requirements	VNIR	SWIR
Spectral range	420 – 1000 nm	900 -2450 nm
Number of spectral channels	91	133
Spectral sampling interval	6.5 nm	10 nm
Spectral bandwidth (FWHM)	8.1 nm	12.5 nm
Signal to Noise ratio (SNR)	≥ 500 : 1 (@500 nm)	≥ 150 : 1 (@2200 nm)
Radiometric accuracy (absolute)	<5%	
Radiometric stability (between calibrations)	<2.5%	
Spectral accuracy (absolute)	0.5 nm	0.5 nm
Swath width	30 km (2.63° across track)	
Swath length - Max. length / day	1000 km - 5000 km / day	
Orbit characteristics		
Orbit / Inclination	sun-synchronous / 97.96°	
Target revisit time	27 days (VZA ≤ 5°) 4 days (VZA ≤ 30°)	
Equator crossing time	11:00 ± 18 min (local time)	

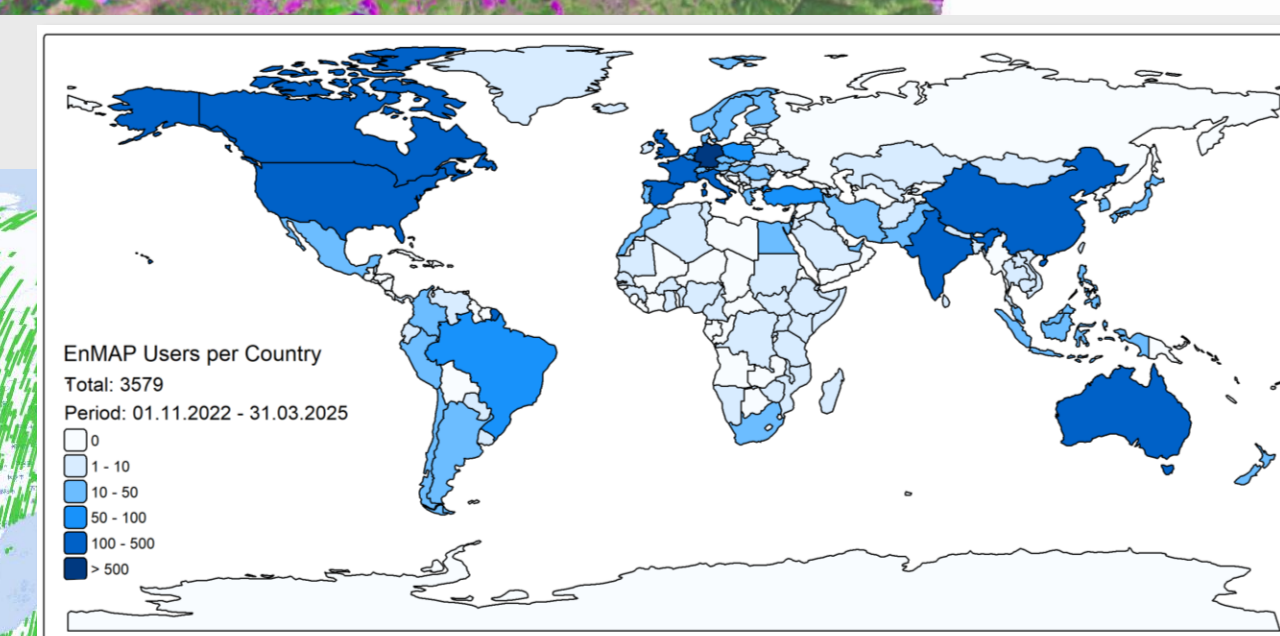
Instrument and Orbit characteristics



EnMAP Acquisitions



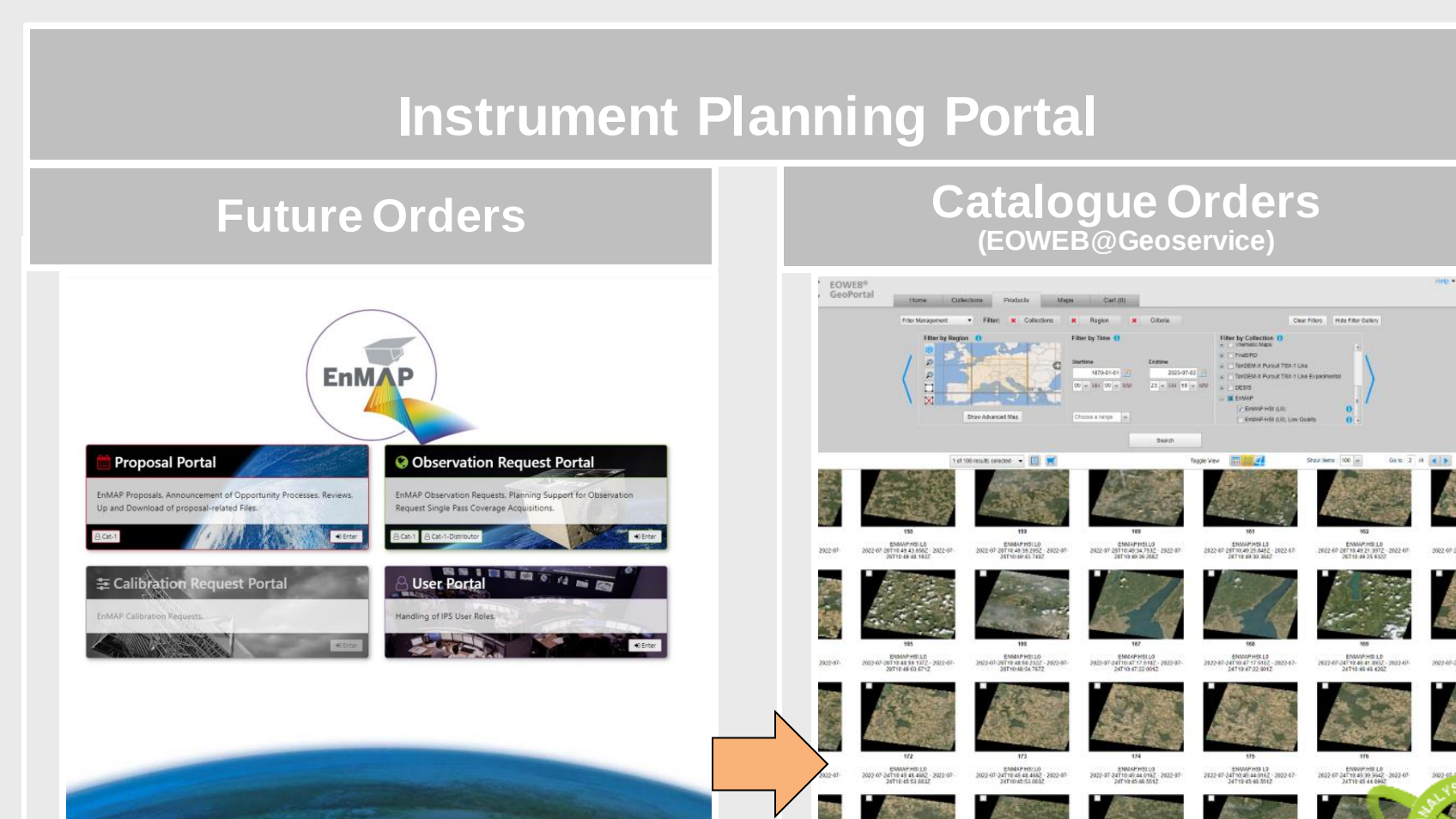
Global map of EnMAP data acquisitions :
173 503 L0 products were acquired and archived (04.2022-03.2025)



Global Map of number of registered users (with active user role) per country

Chabrillat, S. et al, 2024,
<https://doi.org/10.1016/j.rse.2024.114379>

EnMAP Data Access



- User registration updates
- User role assignments for Cat-1, Cat-2, Cat1-distributor(Catalogue)
- Proposal submission
- Planning and tasking of future orders
- Observation requests
- Link to EOWEB Archive

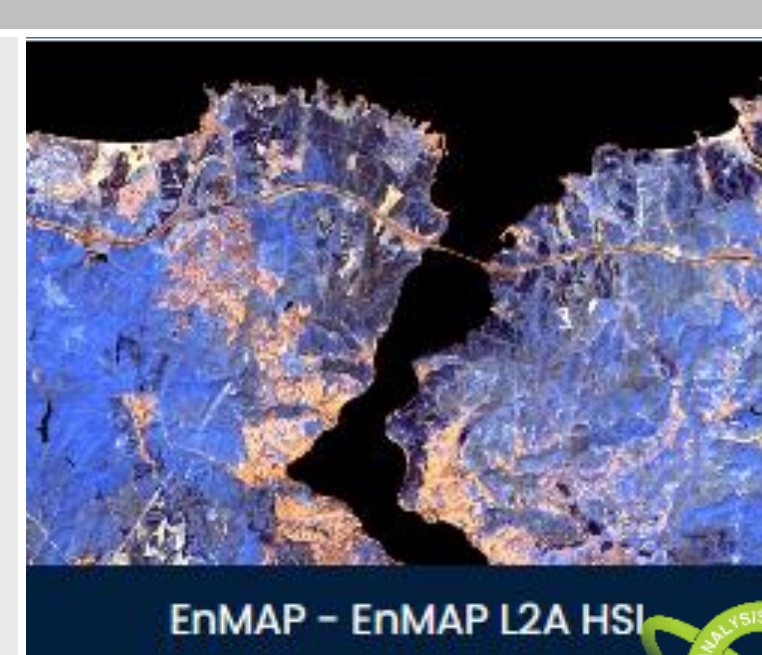
- Access to full EnMAP Data Archive
- User specific on demand processing
- L1B, L1C, L2A products for land and water
- Product is 30 km x 30 km and delivered via FTPS (FTP with SSL)



Free and open data policy
<https://planning.enmap.org/>



L2A ARD Data via STAC-API



- Direct download of L2A Analysis Ready Data (ARD) for Land
- Default settings
- L0 Quicklooks
- Download via STAC API



How to find more information about EnMAP ?



The EnMAP website (www.enmap.org) provides general mission information:

- Data Access
- Regular updates on Foreground Mission
- News, Mission Quarterly Reports, Processor change log, ATBD's, Ground Tracks, FAQ, Manuals, Screencasts, Image Gallery etc..



www.enmap.org/data_tools/foreground_mission/

A collection of all planned acquisition strips can be found here: [GeoJSON](#)

ID	MDY Time [UTC]	Center [Lat, Lon]	Duration [sec]	Off-Nadir Angle [°]	Path direction	Status	Data
1	22/02/2025, 10:44:41 AM	51.188, 12.447	146.922	-6.268	descending	acquired	GeoJSON
2	23/02/2025, 11:10:04 AM	50.803, 7.219	146.922	-0.532	descending	acquired	GeoJSON
3	23/02/2025, 11:10:04 AM	39.825, 21.279	75.69	0.741	descending	acquired	GeoJSON
4	23/02/2025, 11:10:04 AM	51.188, 12.447	146.922	-0.923	descending	acquired	GeoJSON
5	23/02/2025, 11:10:04 AM	36.392, 25.343	146.92	-1.912	descending	planned	GeoJSON
6	23/02/2025, 11:10:04 AM	36.1, 6.410	146.922	0.38	descending	unplanned	GeoJSON
7	26.5, 11.942	146.922	1.246	descending	planned	GeoJSON	
8	37.1, 5.356	146.922	-0.532	descending	planned	GeoJSON	
9	25.0, -5.361	146.922	-3.21	descending	planned	GeoJSON	
10	20.0, 11.066	146.922	1.272	descending	planned	GeoJSON	
11	26.8, -5.670	142.47	1.098	descending	planned	GeoJSON	
12	47, 12.101	44.522	-7.563	descending	planned	GeoJSON	
13	42.6, 10.768	146.92	4.56	descending	planned	GeoJSON	
14	47.0, 11.40	146.922	-4.988	descending	planned	GeoJSON	
15	47.2, 13.705	146.922	-9.212	descending	unplanned	GeoJSON	
16	18.3, 4/10/2025, 10:38:10 AM	48.562, 13.148	146.922	-6.833	descending	unplanned	GeoJSON
17	51.2, 4/10/2025, 10:38:46 AM	46.380, 12.604	146.922	-5.313	descending	planned	GeoJSON
18	27.4, 4/11/2025, 11:02:46 AM	50.995, 9.636	146.922	4.358	descending	planned	GeoJSON