A The EnMAP Ground Segment **User Services and Products** DLR

⁽¹⁾ Remote Sensing Technology Institute, DLR, Oberpfaffenhofen, 82234 Wessling, Germany

⁽²⁾ German Remote Sensing Data Center, DLR, Oberpfaffenhofen, 82234 Wessling, Germany

E. Carmona¹, M. Habermeyer², H. Mühle², M. Pato¹ and N. Pinnel²





Athens, Greece Oct 31 - Nov 02 2023

13th Workshop on Hyperspectral Image and Signal Processing : Evolution in Remote Sensing

EnMAP Mission



• Total of 1584 users from 83 different countries since beginning of Commissioning Phase until 30.06.2023



Tenie	Proposals (released) since start of Routine Phase (02.11.2022 – 30.09.2023)							
Ιορις	2022		Tatal					
	Q4	Q1	Q2	Q3	IOLdI			
ATMOSPHERE	3	1	5	1	10			
CAL/VAL	6	4	5	4	19			
GEO/SOIL	15	38	32	15	100			
HAZARD/RISK	1	2	1	2	6			
METHODS	1	4	3	3	11			
SNOW/ICE	(-)	4	2	1	7			
URBAN	(-)	2	2	4	8			
VEGETATION	18	61	47	22	148			
WATER	9	16	13	3	41			
Total	53	132	110	55	350 (450 submitted)			

- Launched on 1st April 2022. Dual spectrometer design covering the spectral range 420-2450 nm with 224 bands. Swath width 30 km and maximum swath length per day 5500 km. Revisit time 4 days for ±30° tilt angle (21 days ±5°)
- EnMAP accepts observation proposals from users worldwide. Accepted proposals receive a quota and a priority for their observations. Registration through Instrument Planning Portal
- The Ground Segment provides all services to operate the satellite, acquire and process the data and distribute the products to the user community



Mode:: POINT MULTI PAS

• EnMAP Mission Quarterly reports (available at http://www.enmap.org/mission) provide more details on registered users, registered proposals and acquired data. Other useful contents of the quarterly reports are: calibration performance, processing software updates and data quality checks

lvze EnMAP visibility contact

Tasking EnMAP





Instrument Planning interface allows you to								
create observation requests. Acquire EnMAP								
data as a stripe of 30 km width and a multiple								
of 30 km length, along EnMAP descending								

and quota as well as number of competing requests

 Select tasking parameters (e.g. time window, tilt angle, cloud threshold)

do not return sunglin

×3 m/s ×8 m reshold Type

avoid interfere

• Creating a request does not guarantee entering the satellite schedule. Tasking decision depends on cloud statistics and forecast, satellite restrictions, priority

• EnMAP can perform one observation, up to 1000 km long, every ~7 minutes. Most user requests are 30-90 km, limiting the data volume acquired over highly

requested areas (e.g. Europe). To increase the data volume, high priority observations are being scheduled (Foreground Mission). Unused instrument time is

3.0 2023-11-07 4.0 2023-11-08 5.0 2023-11-11 6.0 2023-11-12 7.0 2023-11-15 8.0 2023-11-16 0 2023-11-16	7T10:56:02.202Z 62 ST11:2:106.994Z 66 IT10:59:37.496Z 62 IT10:59:37.496Z 62 ST11:24:41.528Z 62 ST11:03:12.678Z 62	2.33 descend 2.33 descend 2.33 descend 2.33 descend 2.33 descend	ling -13.539 ling 21.518 ling -8.483 ling 25.71	Leeuwarden	texter understan Groningen Officiality
4.0 2023-11-08 5.0 2023-11-11 6.0 2023-11-12 7.0 2023-11-15 8.0 2023-11-16 0 2023-11-16	37111:21:06.994Z 62 1710:59:37.496Z 62 2711:24:41.528Z 62 5711:03:12.678Z 62	2.33 descend 2.33 descend 2.33 descend	ling 21.518 ling -8.483	Leeuwarden	Groningen Bildenburg Geschool Reiners Carpo
5.0 2023-11-11 6.0 2023-11-12 7.0 2023-11-15 8.0 2023-11-16 0 2023-11-16	IT10:59:37.496Z 63 2T11:24:41.528Z 63 5T11:03:12.678Z 63	2.33 descend 2.33 descend	ling -8.483		Oldenburg
6.0 2023-11-12 7.0 2023-11-15 8.0 2023-11-16 0 2023-11-16	2T11:24:41.528Z 63 5T11:03:12.678Z 63	2.33 descend	ling 25.71		
7.0 2023-11-15 8.0 2023-11-16 0 2023-11-19	5T11:03:12.678Z 62		20.71		Delmanor / Delmanor
8.0 2023-11-16 0 2023-11-19		2.33 descend	ling -3.284		
0 2023-11-19	5T11:28:15.952Z 62	2.33 descend	ling 29.559	Aikmaar	
2020 1110	9T11:06:47.755Z 62	2.33 descend	ling 1.96	Hoom Purmerend Lefystad , Zwoller	dingen (ens)
.0 2023-11-22	2T10:45:15.667Z 62	2.33 descend	ling -27.128	Haarlem	Almos Amount a Wolfsburg
11.0 2023-11-23	3T11:10:22.724Z 62	2.33 descend	ling 7.151	American American Apeldoom	enschede e gestabreg geraunschweig der Havel
12.0 2023-11-26	5T10:48:51.285Z 62	2.33 descend	ling -22.911	Den Haag Utrecht	0:xxx Hildesheim Waltenbüttel
13.0 2023-11-27	7T11:13:57.588Z 62	2.33 descend	ling 12.191	Zoetermeer Rotterdam Ede	Munster
14.0 2023-11-30	DT10:52:26.798Z 62	2.33 descend	ling -18.368	Schledam, Dordrecht Cos en Kleve	Ablen Pessoa
				BRUXELLES BAUSSEL Zoberen Stander Zoberen Stander Mons 12 tander Mons 12 tander Mons 12 tander Mons 12 tander Baum Solution Sol	Reneral Source S

acquisition may exist. Note: with one request you only get one observation. When you want to create a time series, you need to enter several acquisitions for different time windows

EnMAP Instrument Planning Portal (IPP) https://planning.enmap.org/



- Use IPP to register and access EnMAP Ground Segment services
- Proposal handling
- Instrument planning
- Data processing and download
- Available User roles are:
 - Cat-1 (Science). Upon proposal approval the instrument can be tasked (and catalogue orders placed). Three tasking priorities possible for tasking: high (7), normal (6), low (4) when quota consumed
 - Cat-1 Distributor (catalogue orders only). No proposal necessary. Can order any number of products from the Mission data archive

Proposal A00001-P0 XX

			Institutions & Users in Charge	DLR, GFZ		
			PI, Proposal Owner:			
			PI-AO:		1.1	
			Primary Reviewer:			
	(11)		Reviewer:			
	2023-04-03		Observation Parameters			
	2024-04-03		Observation Date Range:	[2023-04-04,2023-06-30]		
agreed:	not agreed		Tiles requested:	40	0	
	sent		Number of Observations:	3	0	
	created		Number of Observation Requests:	59	0	
	12	0				
	-57	0				
	6	0				100 3





Getting User Data Products

• Data archived as L0 products with annotated metadata. Three on-demand processing levels available with a number of selectable options for each level:

- L1B: Radiometrically corrected at-sensor TOA radiance. Includes geometric information as RPCs. Selectable output format
- L1C: Radiometrically corrected orthorectified TOA radiance. Additional options for resampling method and image projection
- L2A: Atmosphercially corrected orthorectified BOA reflectance. Selectable



• German Satellite Data Archive through EOWEB Geoportal:



https://eoweb.dlr.de/egp/

• Browsable data catalogue. Filtering options based on geographic coordinates, date and selected metadata entries. Note: to activate more filtering options, you need to mark only one type of EnMAP product

atmospheric correction for land or water. Additional atmospheric correction options for terrain correction, haze removal, ozone values, season, water turbidity



53	•	ENMAP.HSI.L0	2023-10-11T19:09:15:021Z	2023-10-11T19:09:19.512Z	46281	01	47.233986	0	8227	DESCENDING	01.04.00	ENMAP.HSI.L0:/dims_nz_pl_(
54	•	ENMAP:HSI.L0	2023-10-11717:31:17.0202	2023-10-11717:31:21.4682	45826	01	47.41934	100	8226	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_c	
55	•	ENMAP.HSI.L0	2023-10-11T16.05:53.020Z	2023-10-11T16:05:57.467Z	47185	01	79.22885	12	8225	DESCENDING	01.04.00	ENMAP.HSI.L0:/dims_nz_pl_4	
55	•	ENMAP: HSI L0	2023-10-11T15 57 58.016Z	2023-10-11T15.58:02.464Z	45582	01	62.891148	35	8225	DESCENDING	01.04.00	ENMAP.HSI.L0:/dims_nz_pl_c	
57	•	ENMAP HSI LO	2023-10-11T14:29:07:014Z	2023-10-11T14:29:11.462Z	45600	01	73.755135	34	8224	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_c	
58	•	ENMAP HSI LO	2023-10-11T11:06:21:013Z	2023-10-11T11:06:25.461Z	47263	01	68.06212	0	8222	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_c	
59		ENMAP HSI LO	2023-10-11T10:57:10.434Z	2023-10-11T10:57:14.9252	47045	33	35.784374	1	8222	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_c	
60	•	ENMAP HSI LO	2023-10-11T10 57:05.982Z	2023-10-11T10:57:10.517Z	47045	32	35.51989	4	8222	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_(
61	•	ENMAP.HSI.L0	2023-10-11T10:57:01.530Z	2023-10-11T10:57:06.065Z	47045	31	35.254993	0	8222	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_c	
62	•	ENMAP.HSI.L0	2023-10-11T10:56:57.078Z	2023-10-11T10:57:01.613Z	47045	30	34,990303	0	8222	DESCENDING	01.04.00	ENMAP.HSI.L0:/dims_nz_pl_c	
63	•	ENMAP:HSI.L0	2023-10-11T10:56:52.626Z	2023-10-11T10:56:57.161Z	47045	29	34,72577	1	8222	DESCENDING	01.04.00	ENMAP.HSI.L0./dims_nz_pl_c	
		CHILD INC.		0000 40 44740 FC FO 9007	170.17		51.10405	^	4000	BEOOCHENIO	01 01 00	PARTERINA D. Marca and M.	



• Re-processing of commissioning data on-going. Note: always use highest "Archived Version" products for best VNIR-SWIR co-registration performance when more than one archived version exist for the same image

• By 30.09.2023 there are 39,000 EnMAP products (30×30 km tiles) ready to be ordered and processed on demand. Coverage is shown in the image below:





More information at EnMAP web page https://www.enmap.org/



Contact: Emiliano Carmona Email: Emiliano.Carmona@dlr.de www.dlr.de

