

AVAILABILITY OF DATA FOR SYNERGY BETWEEN HYPERSPECTRAL SPACE MISSIONS

**2nd EnMAP User Workshop, 2 – 4 April 2025
Munich, Germany**

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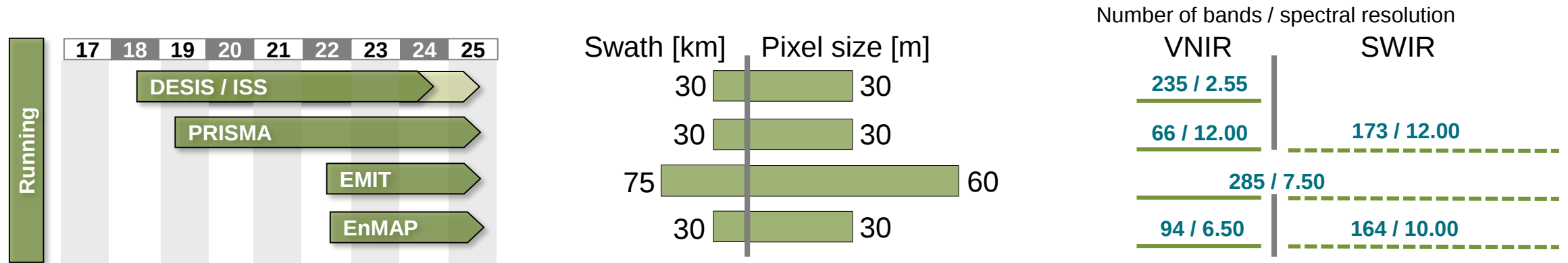
News about the DESIS mission



- DESIS@Teledyne – no further news, tasking and archive service has paused @Teledyne, but sensor is still alive, is quality controlled and delivers data for the RadCalNet sites
 - Science archive at DLR available (~ 12 % of the full archive)
- DESIS is now listed as CEOS ARD data set
- DESIS L2A data now available via EOC Geoservice:
 - STAC catalogue
 - Bulk download possible
 - DOI: [10.15489/hxom21uqeo90](https://doi.org/10.15489/hxom21uqeo90)
 - From 2018 – 2021
- Currently recalibration ongoing for data starting from 2022, will be added to Geoservice catalogue



Overview of current hyperspectral spaceborne missions (selective)



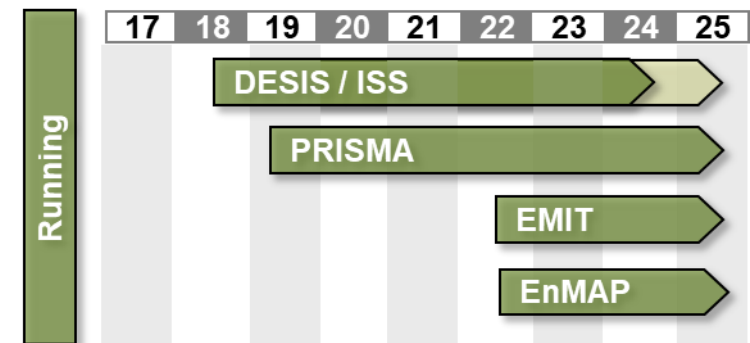
- All on-demand missions -> user driven, no regular and area-wide mapping possible
- High-temporal availability for certain sites is limited, realized for rare cases
- Monitoring of Earth system processes require high temporal resolution
- First attempts to use different sensors for e.g. soil parameter mapping, monitoring of vegetation traits
- Discussions about „data harmonisation“ versus „data characterisation“
- To support these developments -> analysis for DESIS, EnMAP, PRISMA and EMIT:
 - Time series per sensor (same area at different times -> heatmaps)
 - Matchups between sensors (same area **and** same time -> polygons)

Time series and matchups of hyperspectral missions

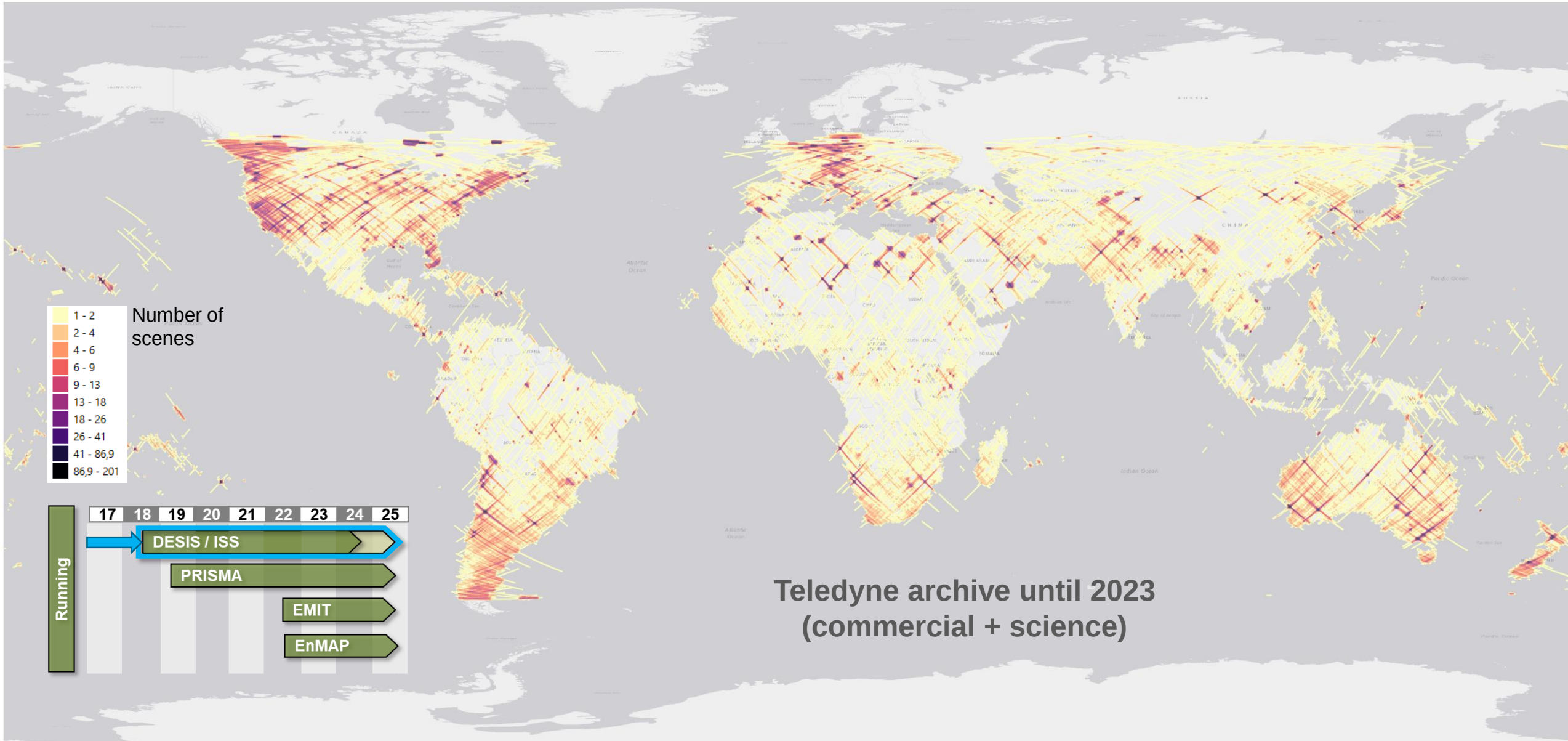


Mission	Footprints extracted	Time range	Archive
DESI	24.03.2025	09/2018 – 03/2025	DLR archive only (~12 % of the full archive @Teledyne)
PRISMA	25.03.2025	04/2019 – 03/2025	Full
EMIT	25.03.2025	08/2022 - 03/2025	Full
EnMAP	29.03.2025	04/2022 – 03/2025	Full

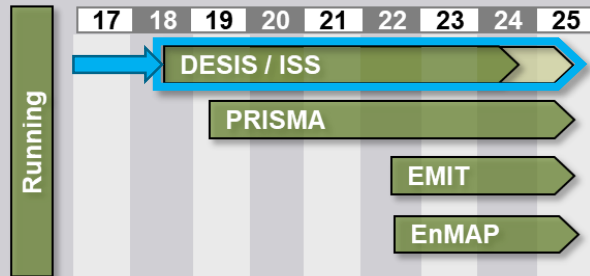
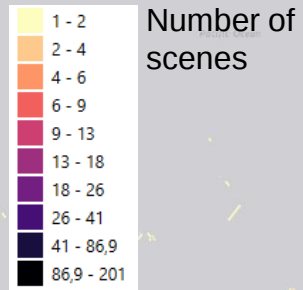
- Matchup areas covered within 1 day by two / several sensors
- Cloud information is neglected
- The original scene information + metadata is preserved



Time series of hyperspectral missions – DESIS@Teledyne

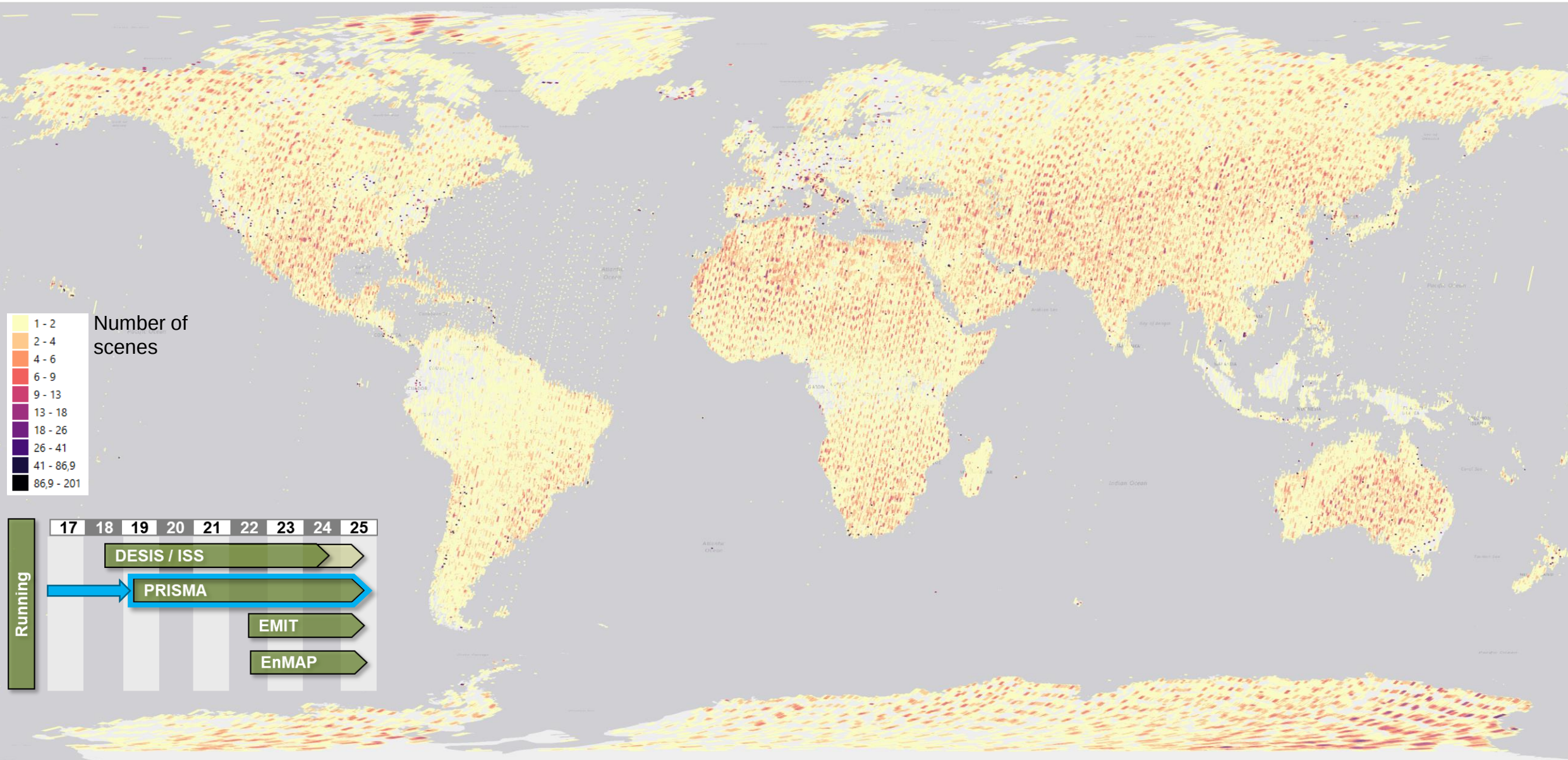


Time series of hyperspectral missions - DESIS@DLR

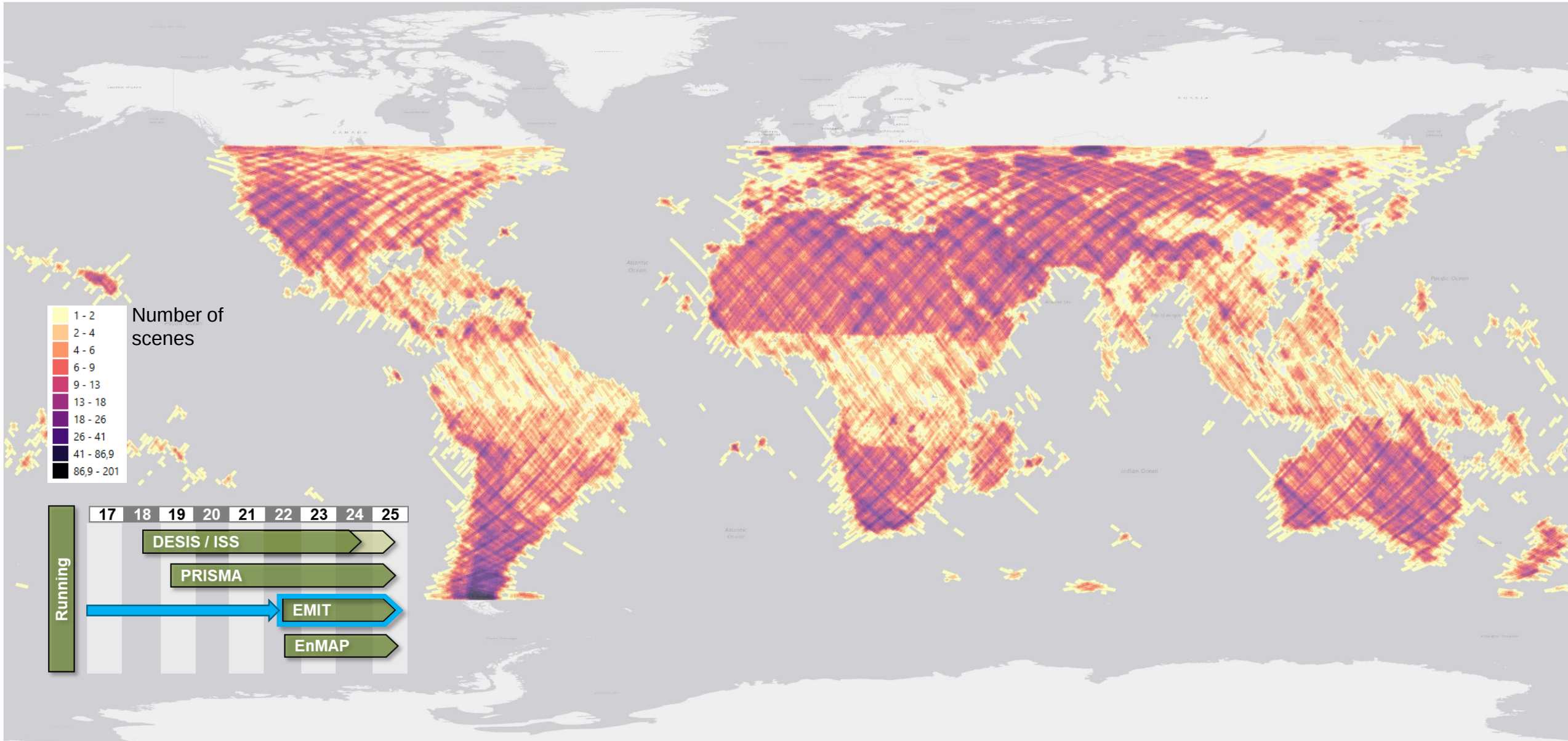


DLR archive
(science)

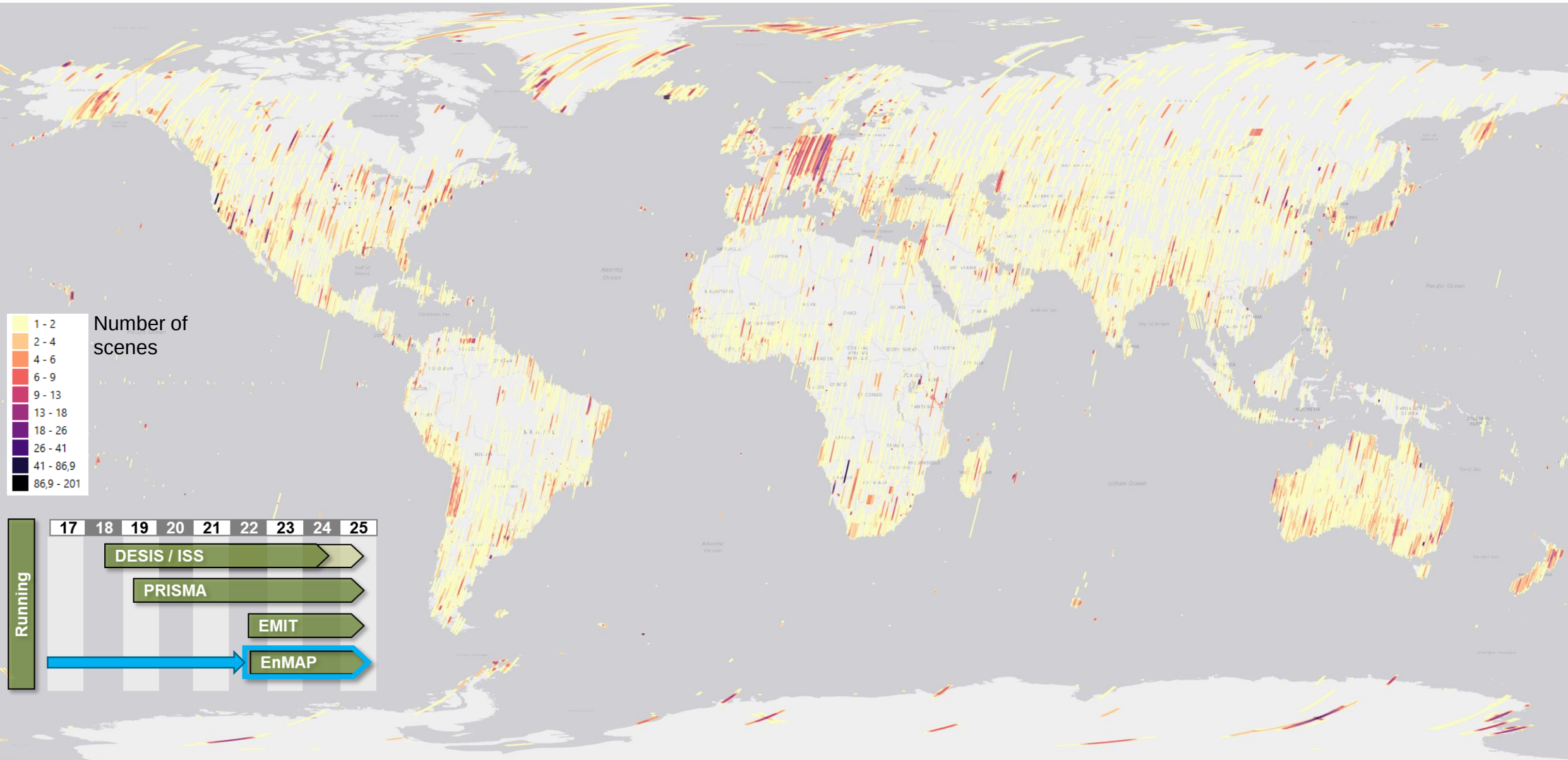
Time series of hyperspectral missions - PRISMA



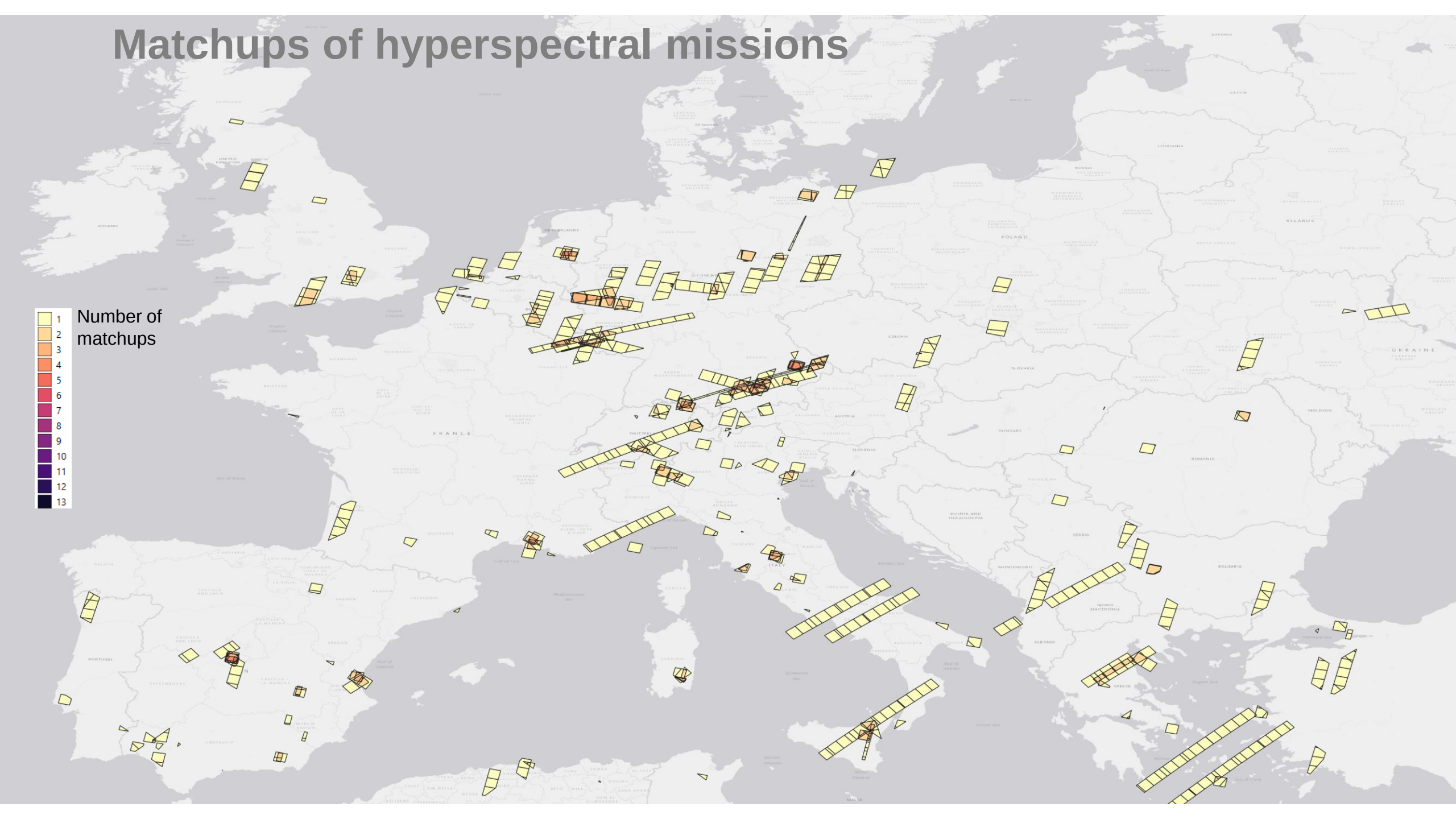
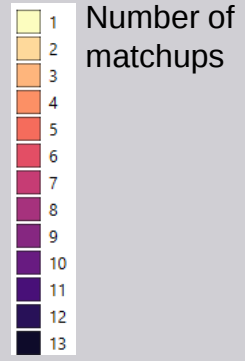
Time series of hyperspectral missions - EMIT



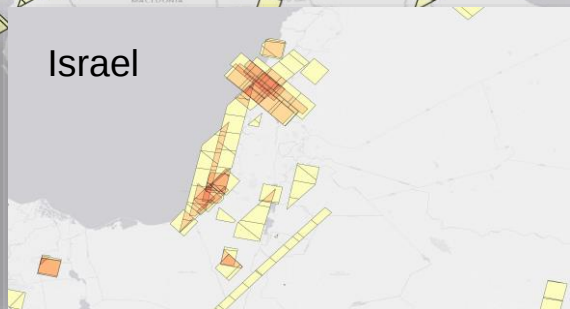
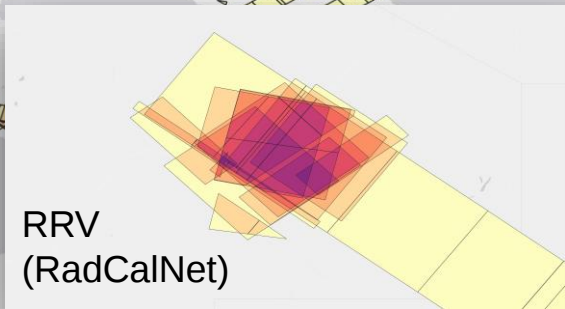
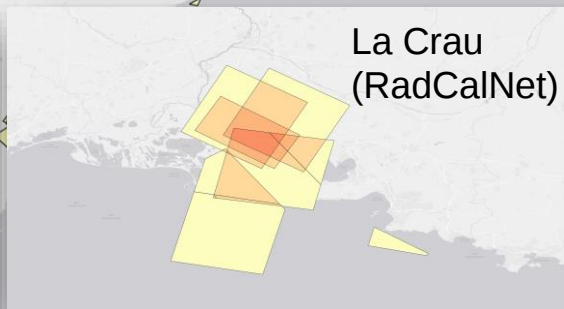
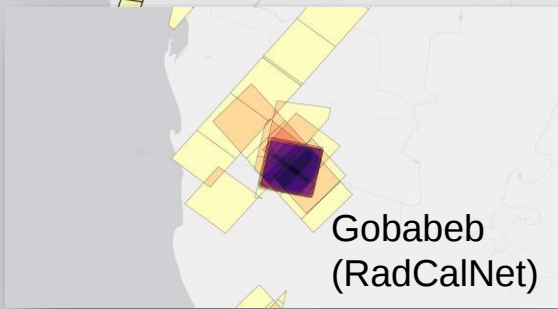
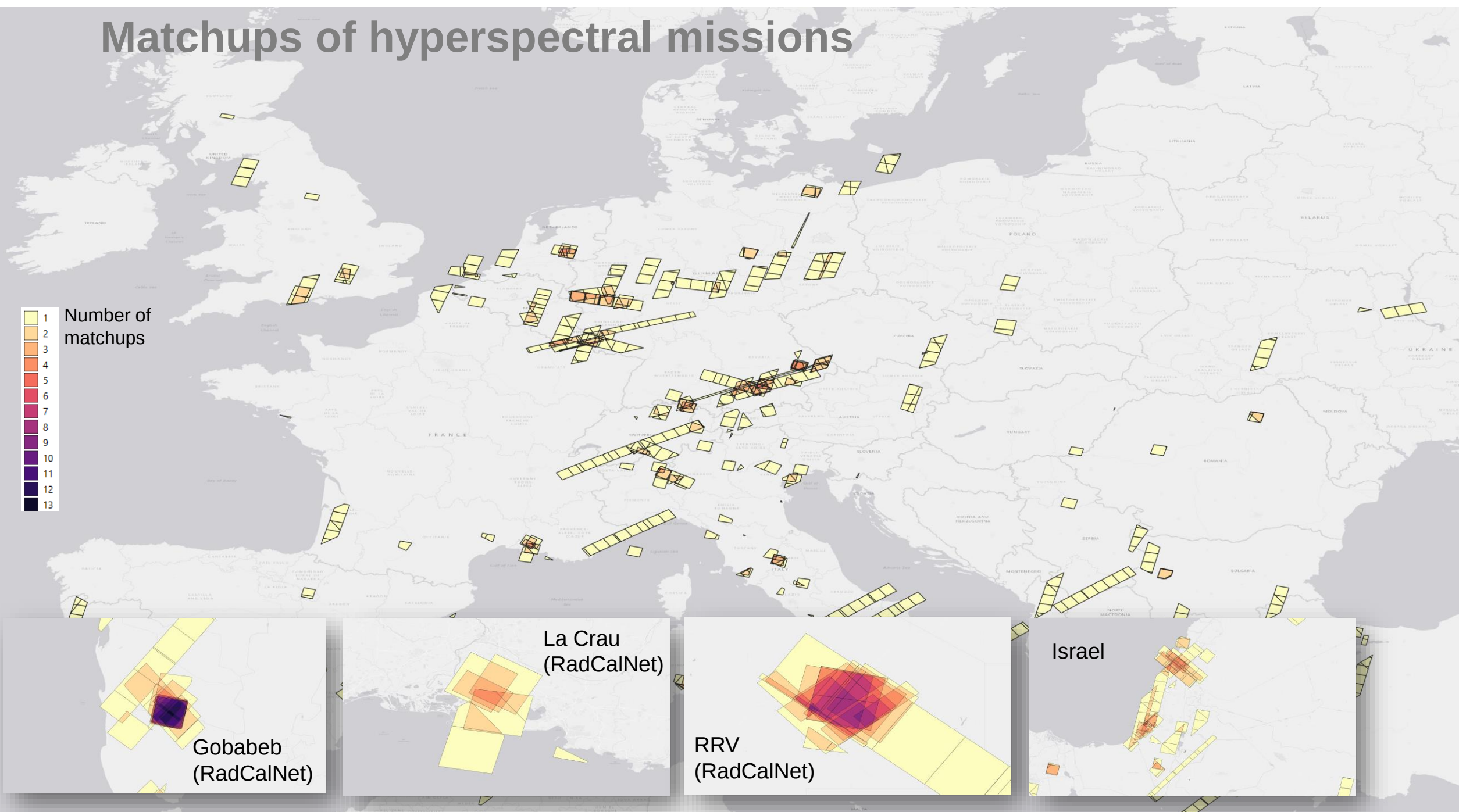
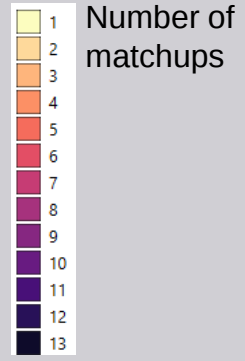
Time series of hyperspectral missions - EnMAP



Matchups of hyperspectral missions

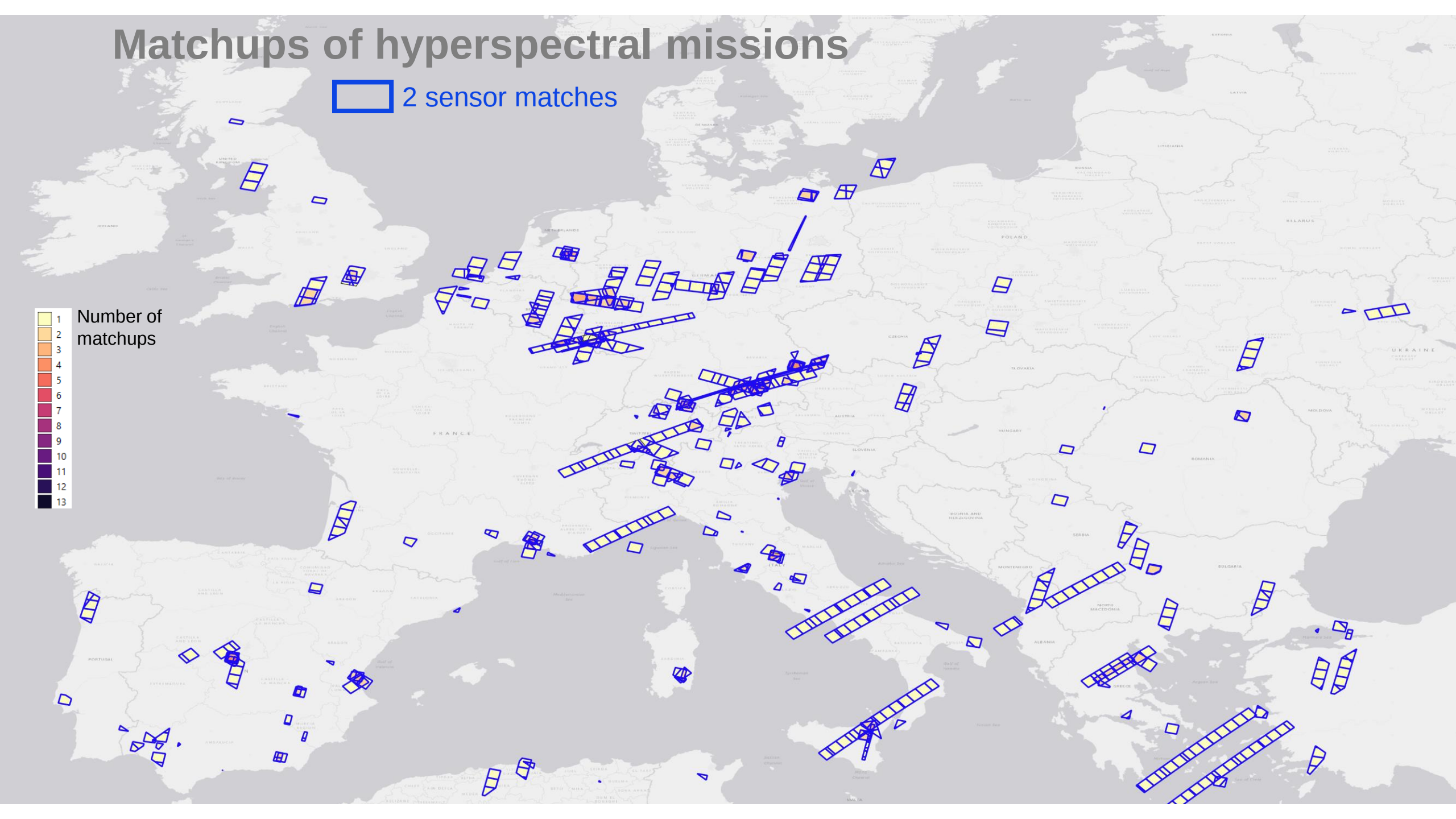
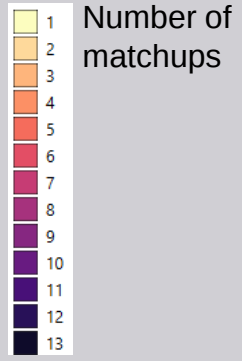


Matchups of hyperspectral missions



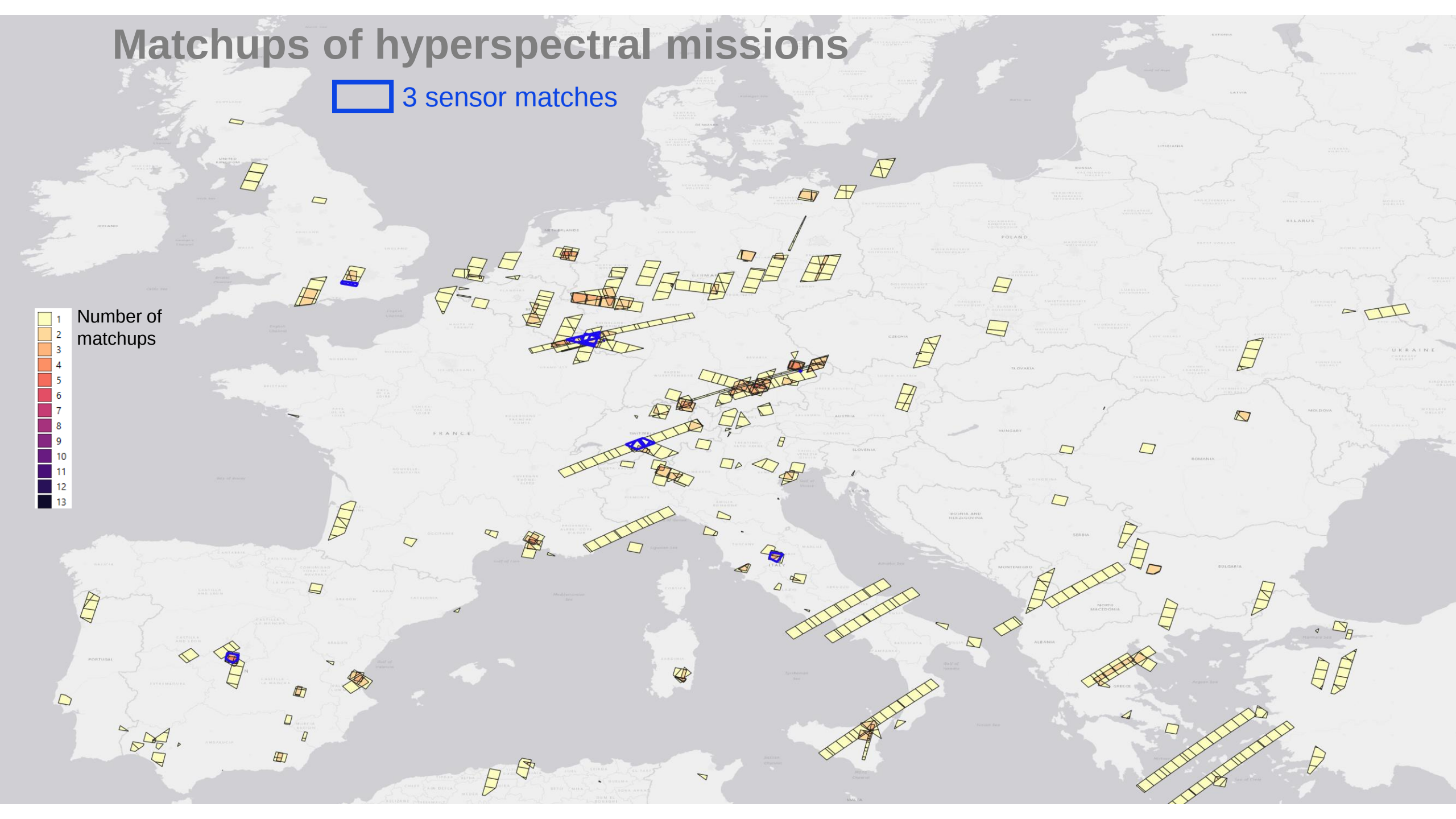
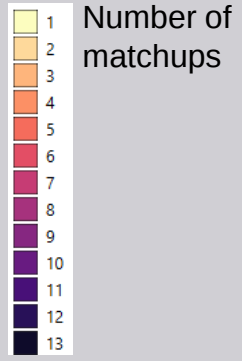
Matchups of hyperspectral missions

 2 sensor matches



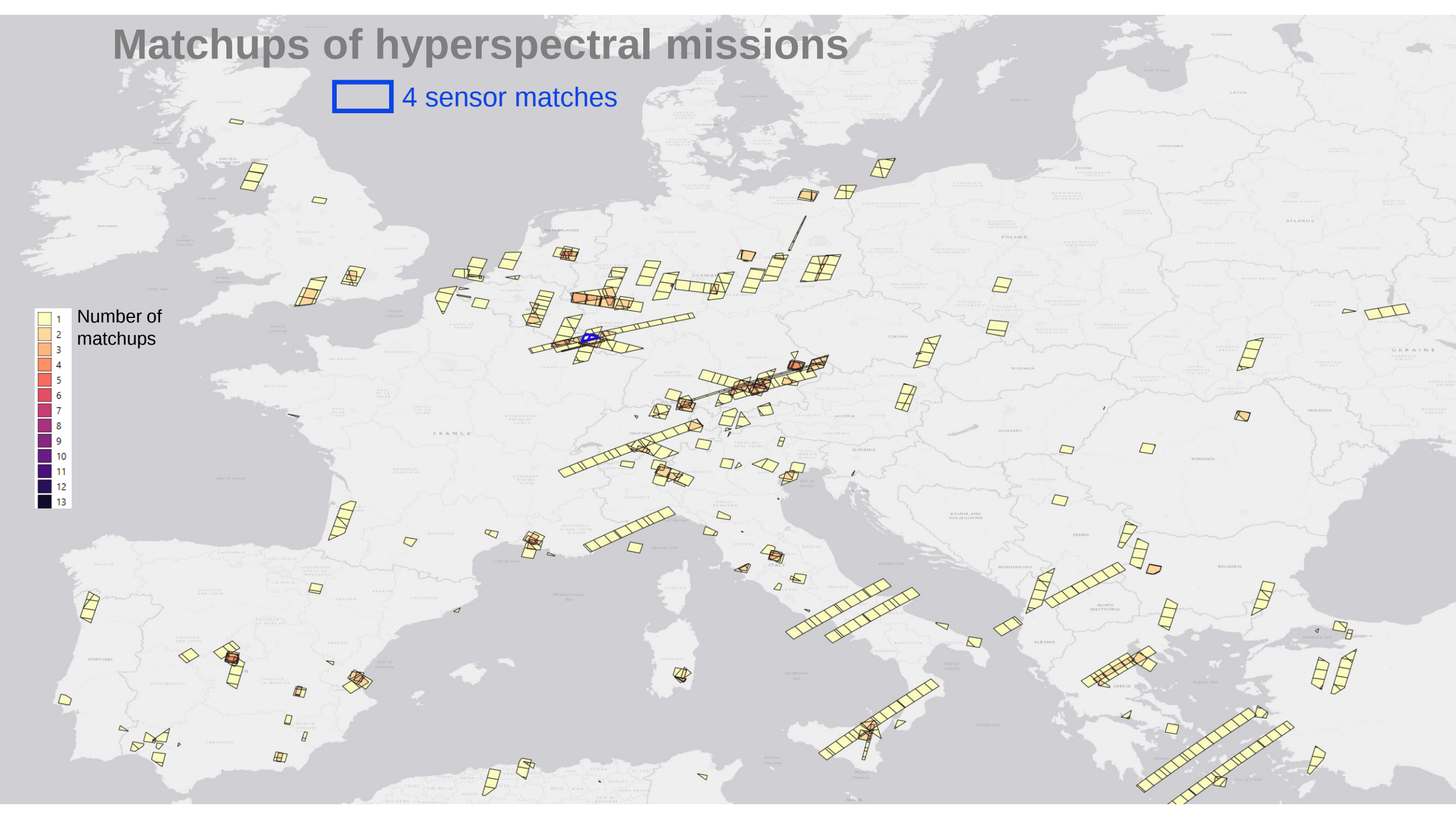
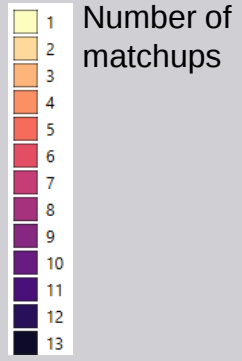
Matchups of hyperspectral missions

 3 sensor matches



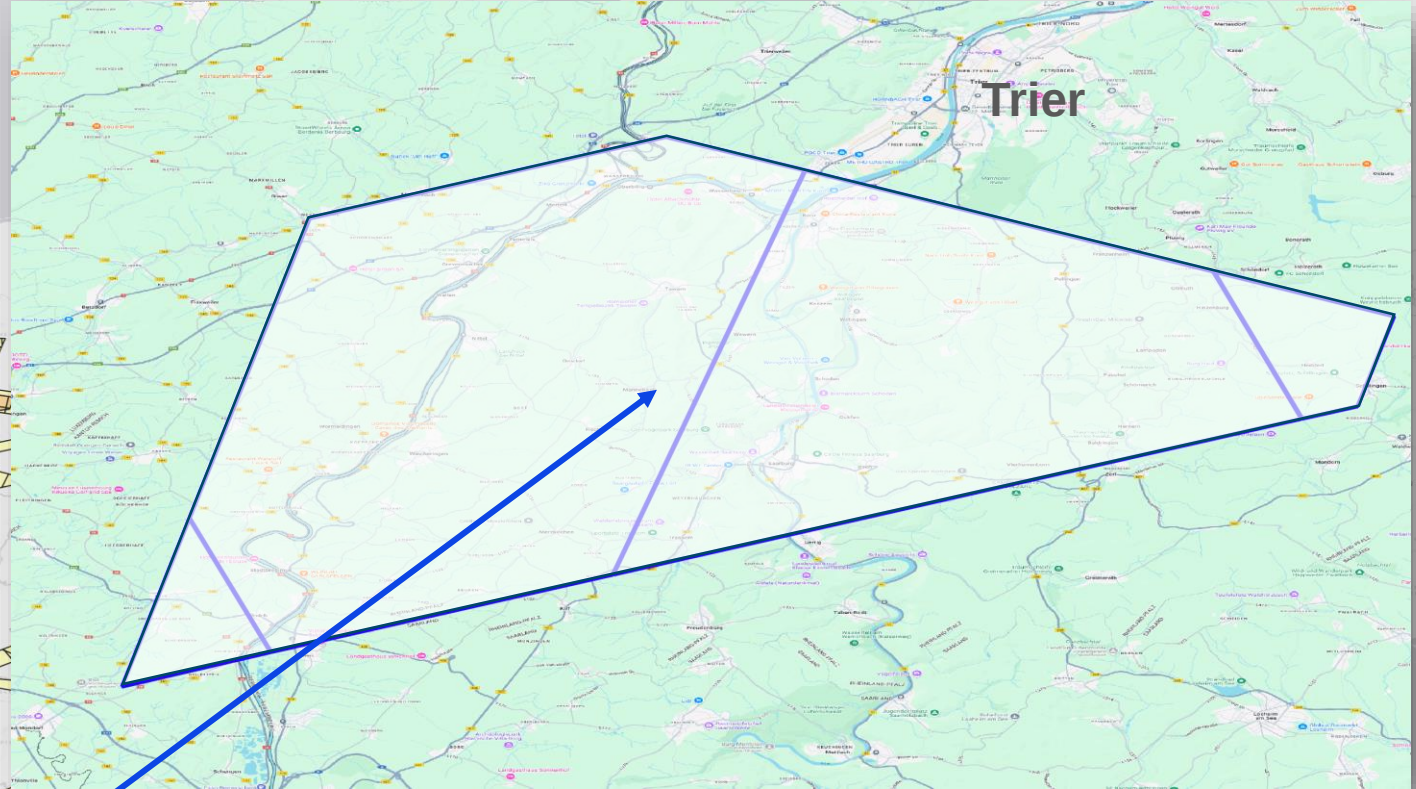
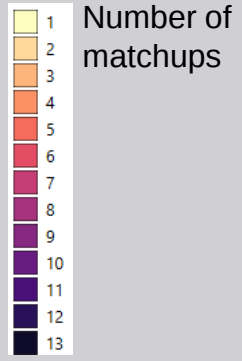
Matchups of hyperspectral missions

 4 sensor matches



Matchups of hyperspectral missions

 4 sensor matches



DESI: 11:41 UTC
DESI: 14:50 UTC
EMIT: 11:41 UTC
EnMAP: 11:11 UTC

ESA AGRIROSE-L Campaign - Potential for matchups



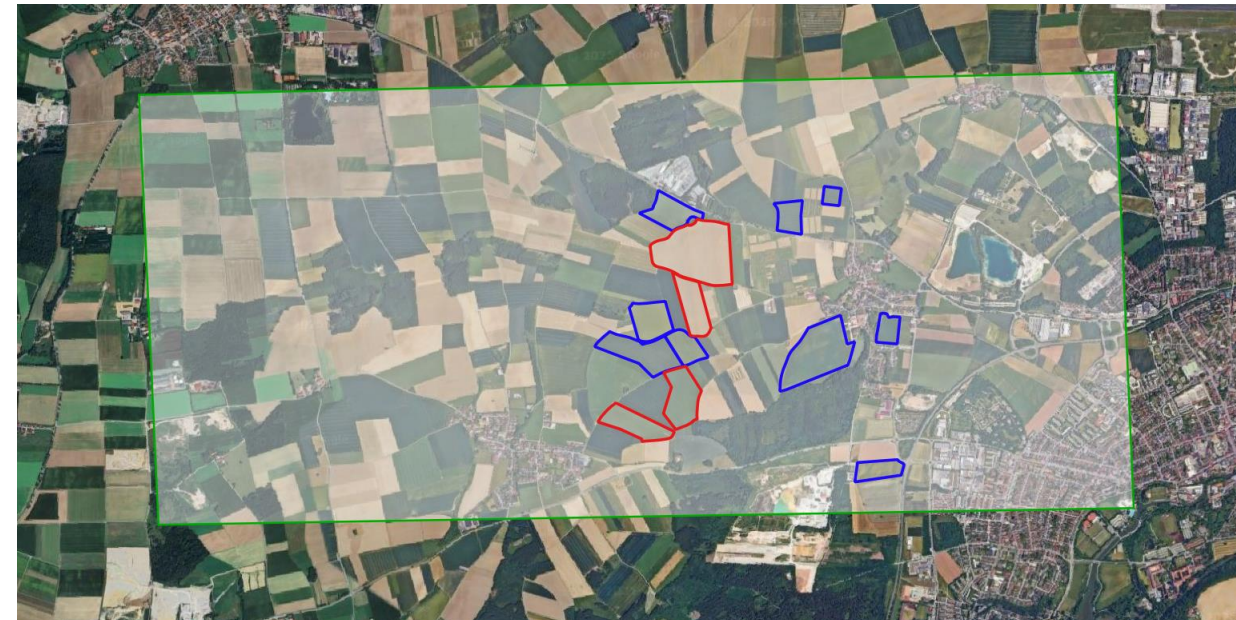
- ESA campaign in support of ROSE-L and CHIME missions
- Agricultural area Northwest of Munich, Germany
- Observed between 22 April – 21 July 2025
- With several instrumentations:
 - Laboratory + Field (soil + vegetation traits)
 - UAV (fractional vegetation cover)
 - Airborne (F-SAR + HySPEX)
 - Spaceborne (DEGIS, EnMAP, PRISMA)
 - (1) Time series
 - (2) Sensor matchups
- Information about the hyperspectral acquisitions and matchups will be publish @ ...



Partner:



7 km
3 km

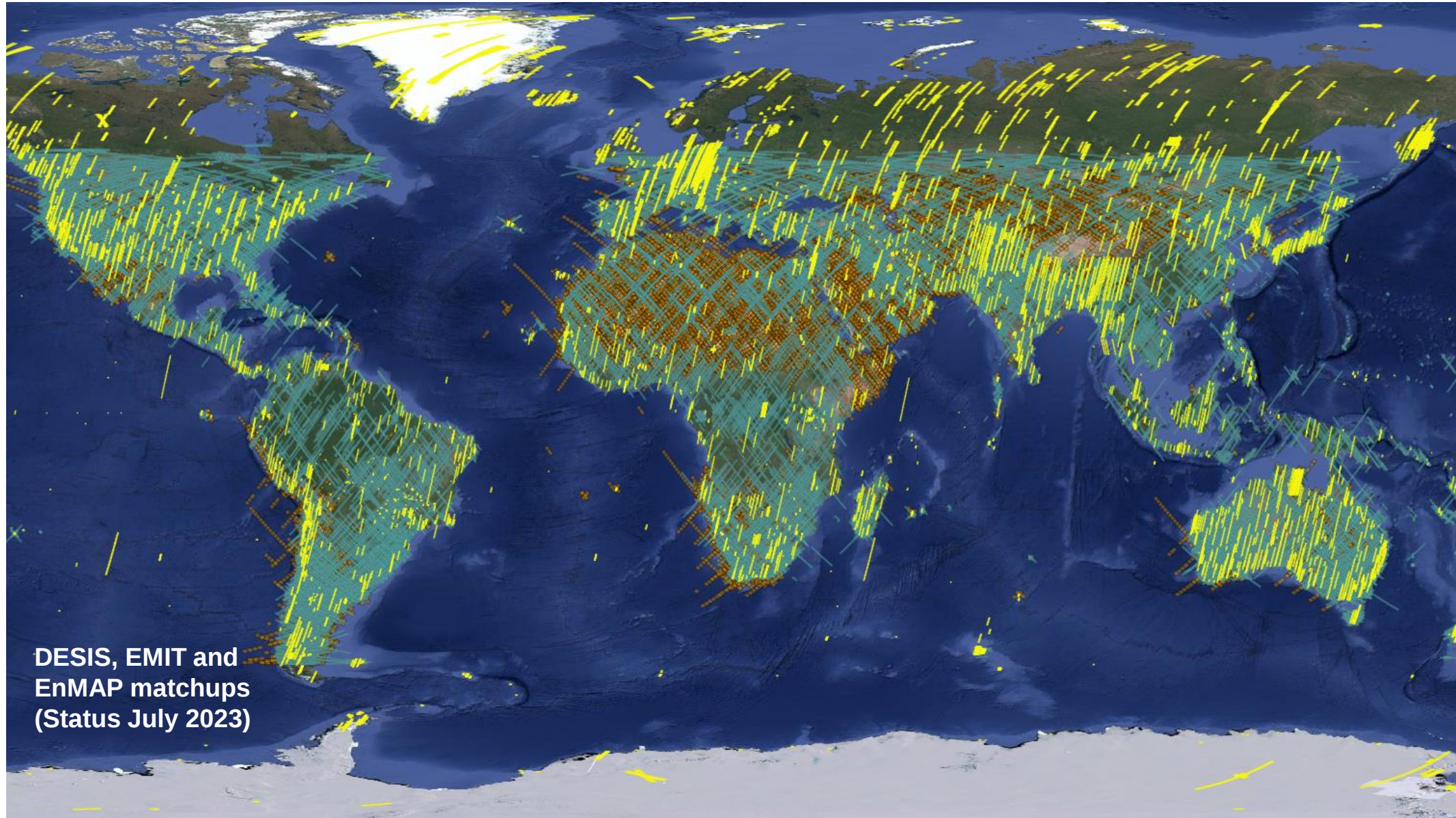


Thank you for your attention!

DESIS Points of contact:

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DESIS, EMIT and
EnMAP matchups
(Status July 2023)

