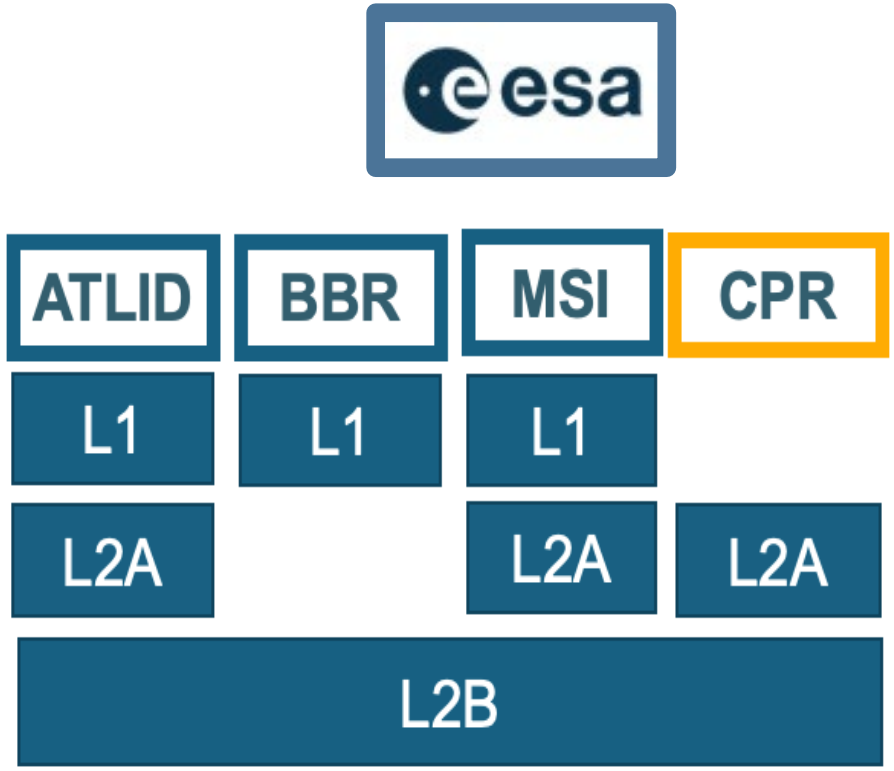
ESA Validation Overview

Rob Koopman, Jonas Von Bismarck, Stephanie Rusli,
Timon Hummel, Vasileios Tzallas, Montserrat Piñol Solé
ESA

2nd ESA-JAXA EarthCARE In-Orbit Validation Workshop
17 – 20 March 2025 | ESA-ESRIN | Frascati (Rome), Italy

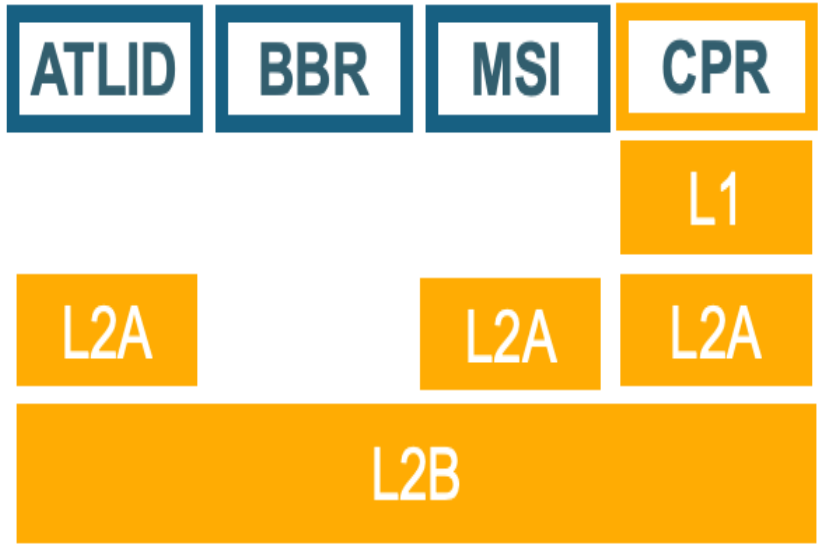
Validation of ESA and JAXA products



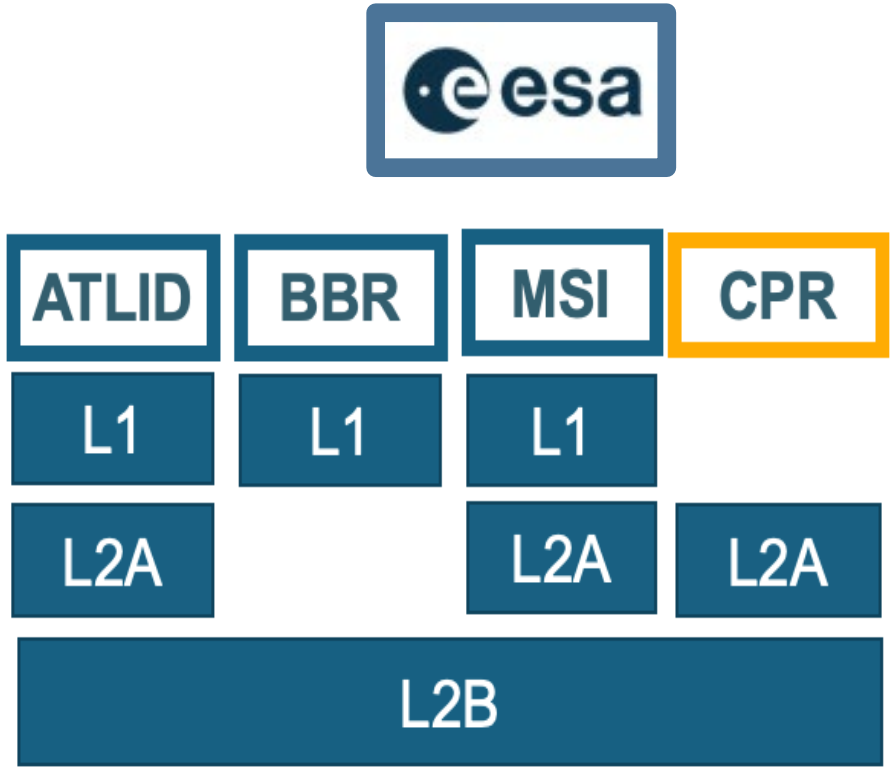
ESA for ESA products
JAXA for JAXA products

- ESA-JAXA Joint Scientific Validation Implementation Plan (2.0)
- ESA-JAXA validation coordination

- ESA-JAXA Joint Validation Workshops
- Interaction between ESA & JAXA algorithm and validation team members



Validation of ESA and JAXA products



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ESA for ESA products
JAXA for JAXA products

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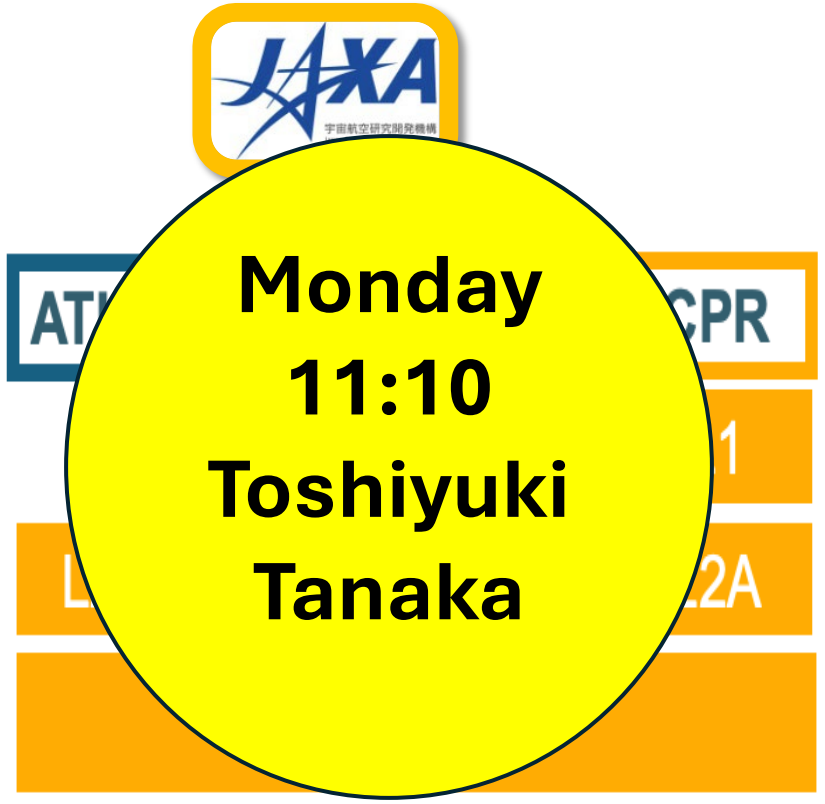
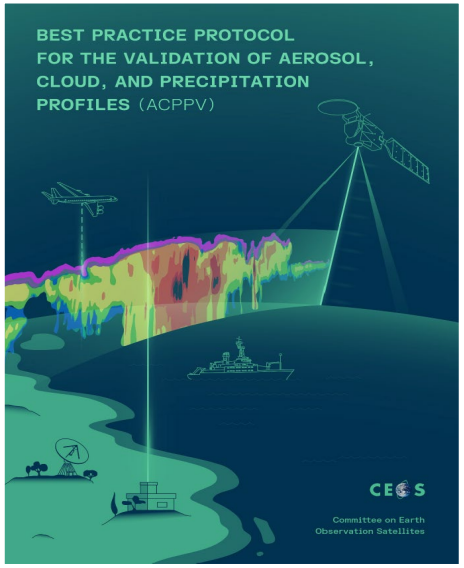
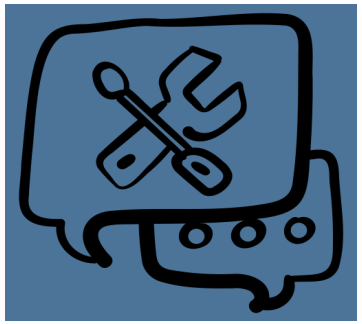


ESA validation preparations

Studies, FRMs Community convergence



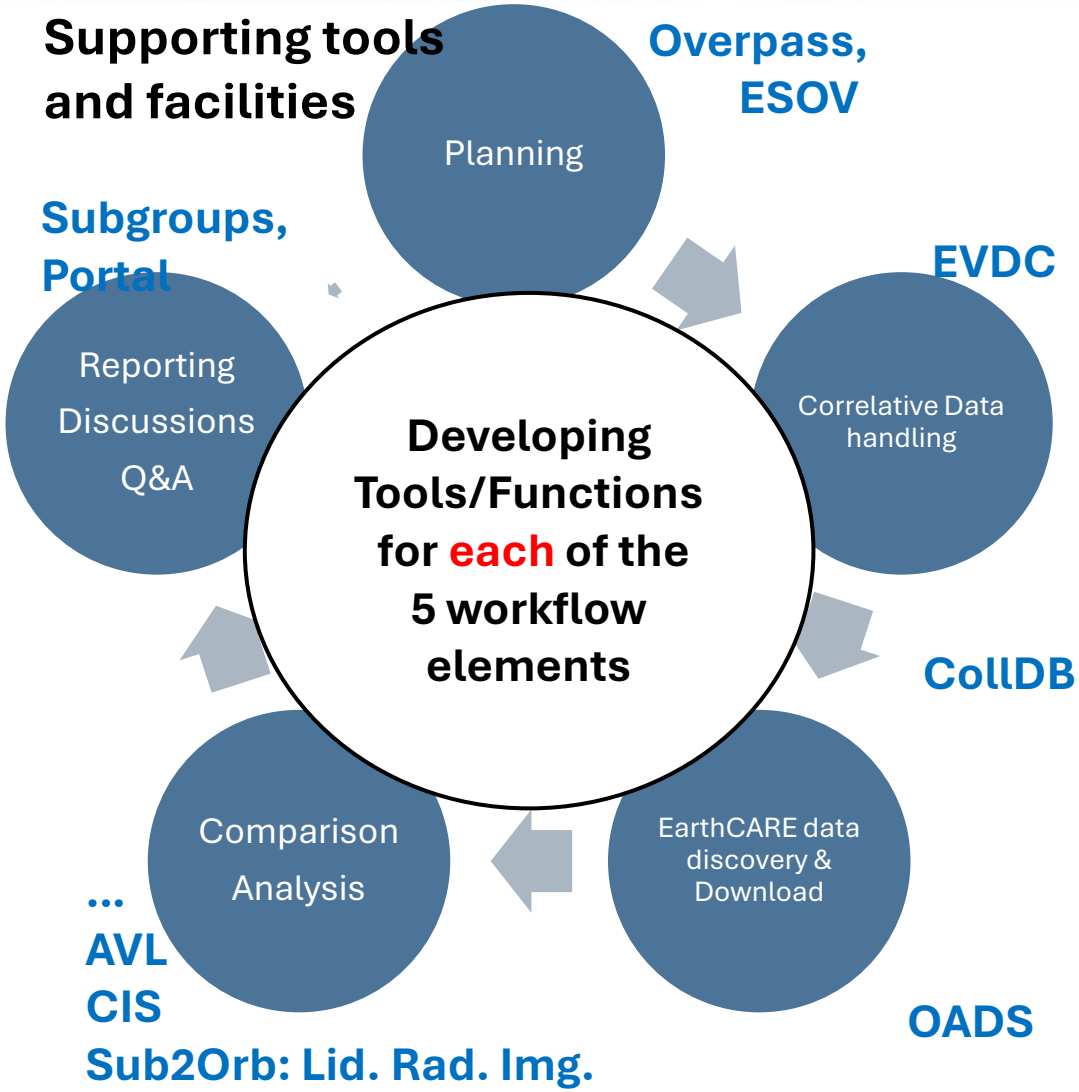
Supporting Pis, Networks



Securing datasets and analyses

Pre-Launch Aircraft Campaigns

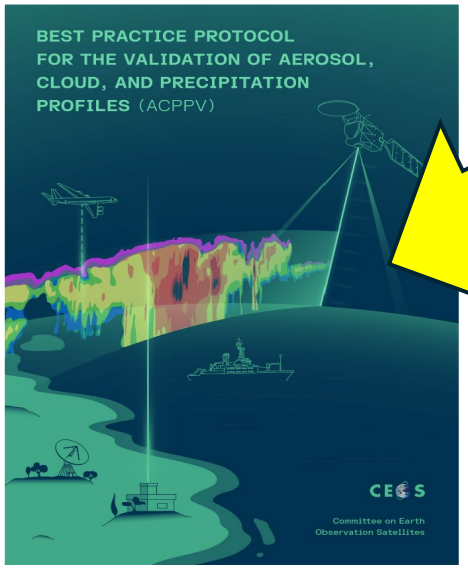
Supporting tools and facilities



ESA validation preparations

Studies, FRMs
Community
convergence

Supp
Pis, N



Tuesday
15:55
Eleni
Marinou

Pre-Launch
Aircraft
Campaigns

Supporting tools
and facilities

Overpass,
ESOV

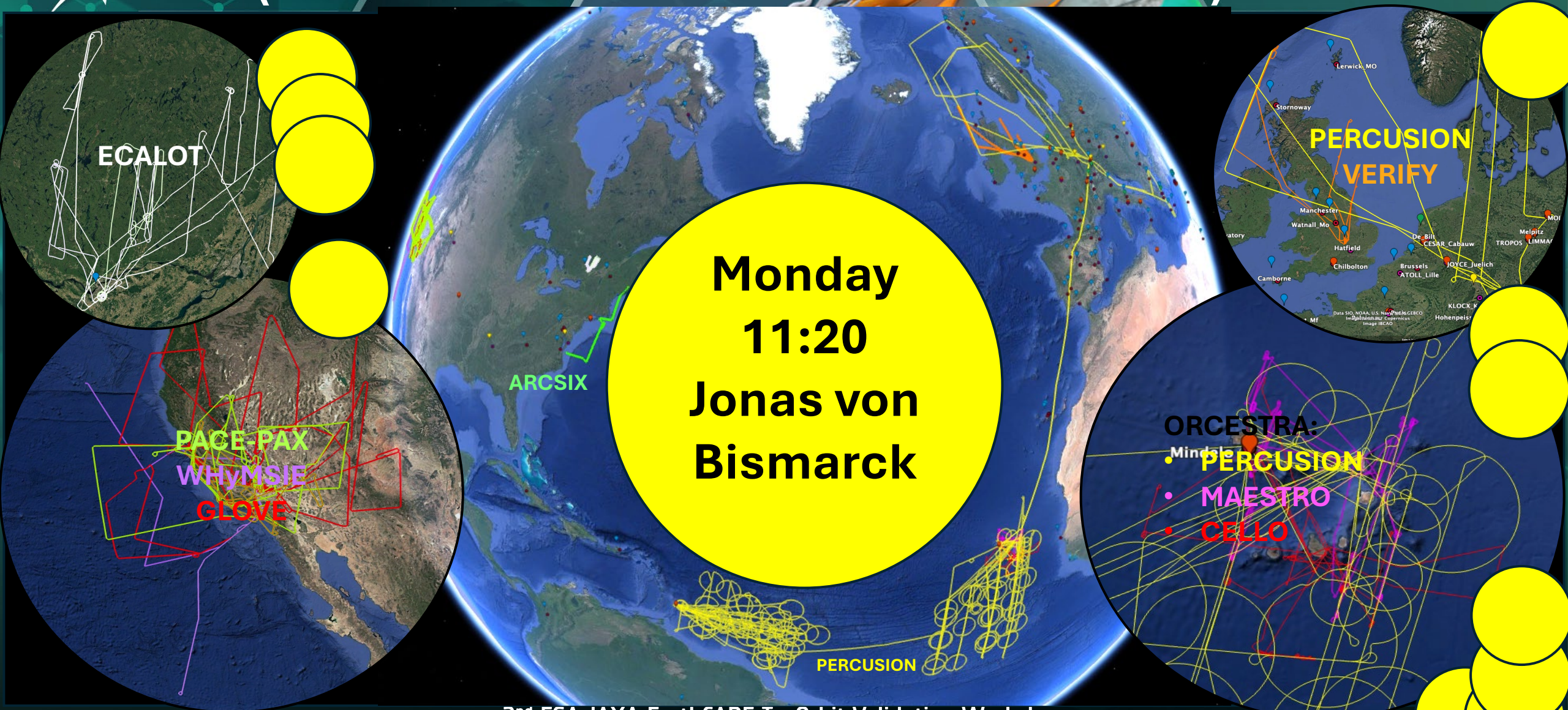
Demonstations in Magellan (*AVL, EVDC, DISC)* and Cook (*MAAP, DIVA)* rooms

Posters 40, 41, 42, 43

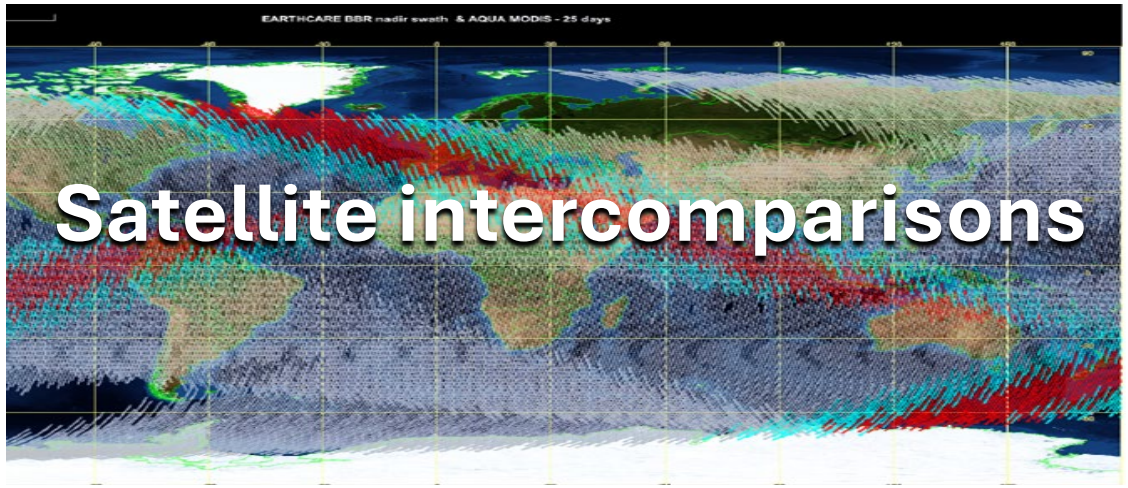
CIS
Sub2Orb: Lid. Rad. Img.

OADS

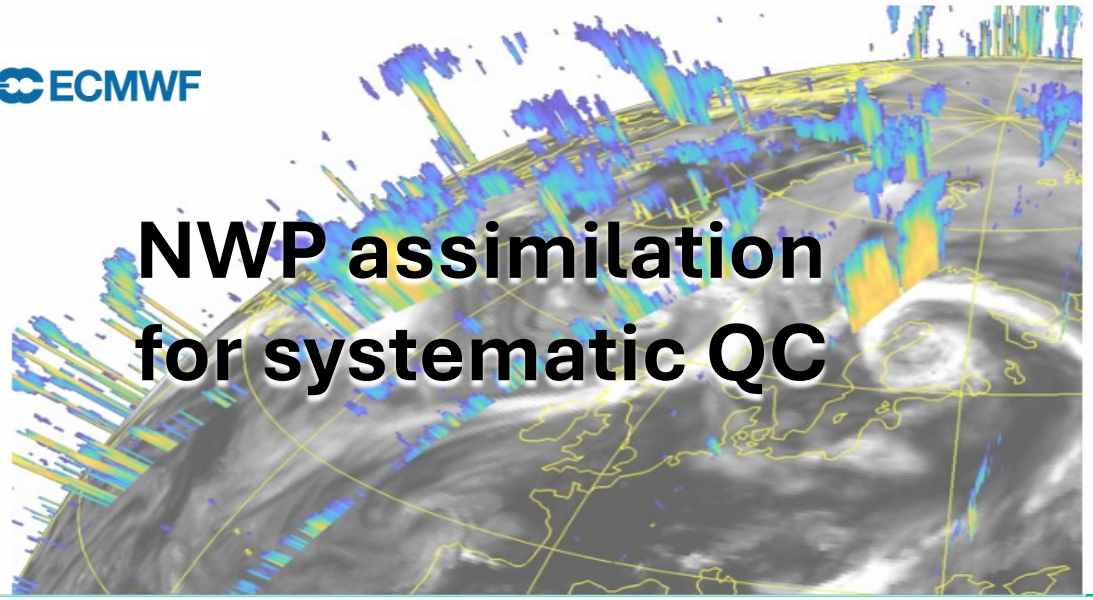
Approach: Intense Airborne campaigns (EarthCARE-dedicated and collaborative)



Validation Approach part 2



Satellite intercomparisons



ECMWF

NWP assimilation for systematic QC

ACTRIS / *ATMO- ACCESS*	63
MPLNET	26
LALINET	10
E-PROFILE	44
ADNET	7
ARM	
WegenerNet	
Other	

Network of Networks

Mobile Systems & Balloons & UAVS

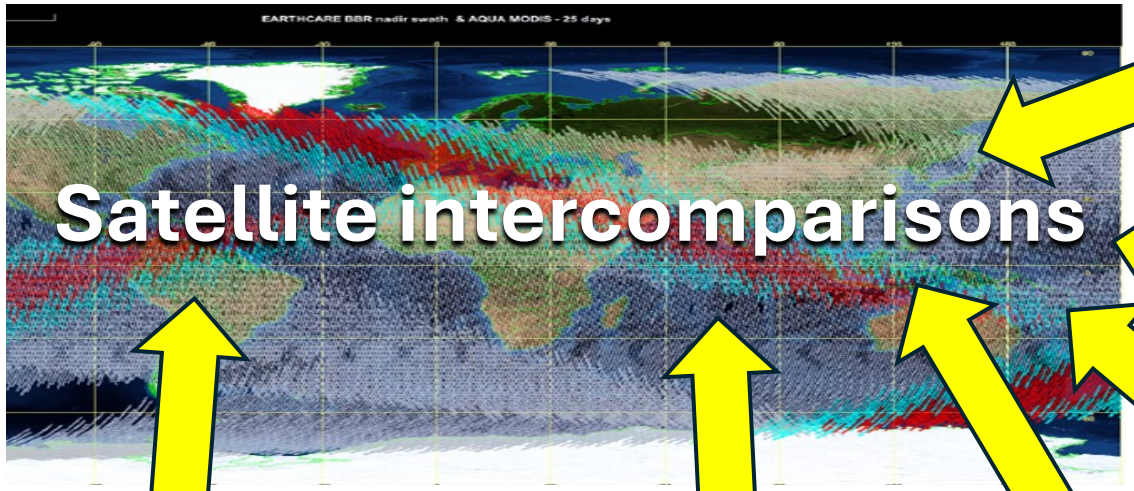
Dedicated Systems

Image: Raymetrics

Observations during Marine Cruises

Image: TU Delft

Validation Approach part 2



Satellite intercomparisons

Poster
#3
Marius
Dahuron

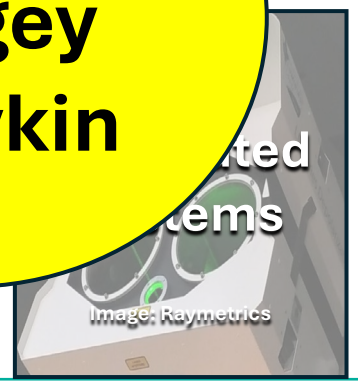
Poster
#25
Konstantinos
Michalidis

Monday
12:10
Nicolas
Clerbaux

Monday
15:55
Sebastian
Bley

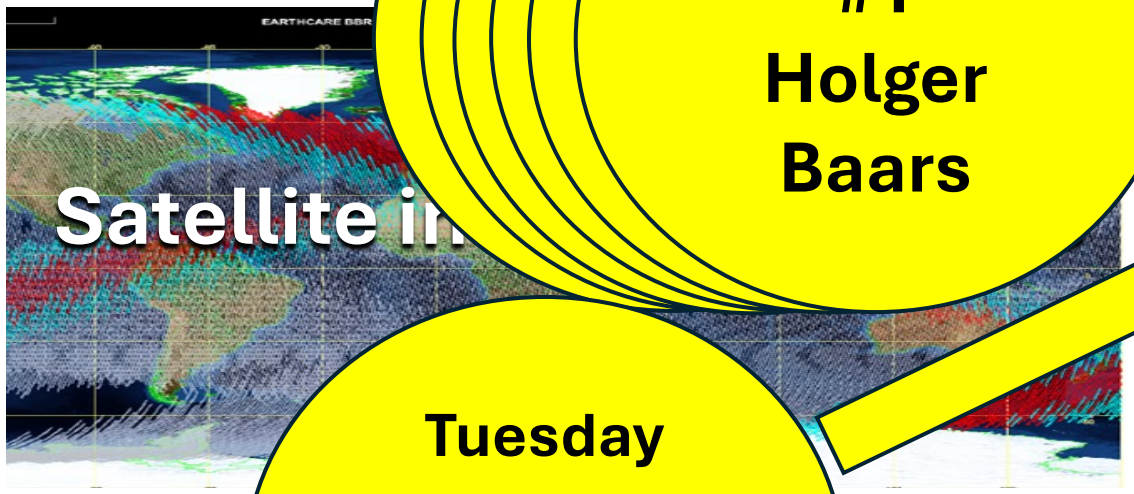
Tuesday
10:35
Minda
Le

Wednes
10:10
Sergey
Khaykin



Validatio

Poster
#1
Holger
Baars



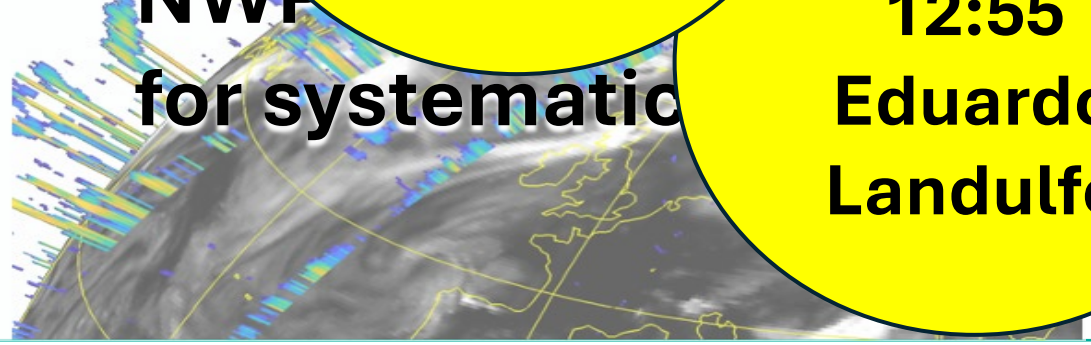
ACTRIS /
ATMO- ACCESS
MPLNET
LALINET
PROFILE
ADNET
ARM
WegenerNet
er

Poster
#21
Onel
Rodriguez
Navarro

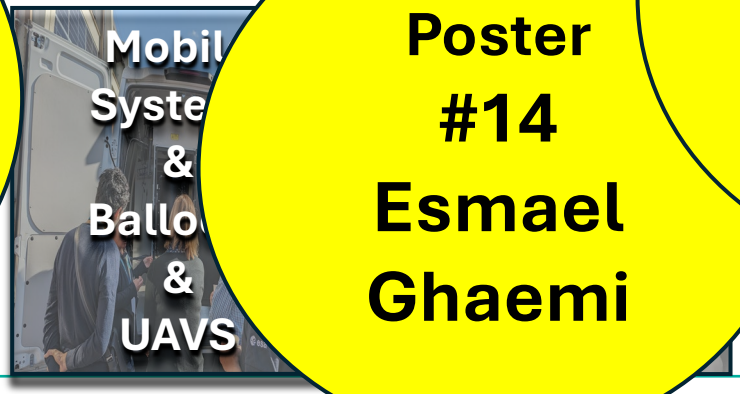
Tuesday
16:25
Jasper
Lewis

ECMWF

NWF
for systematic

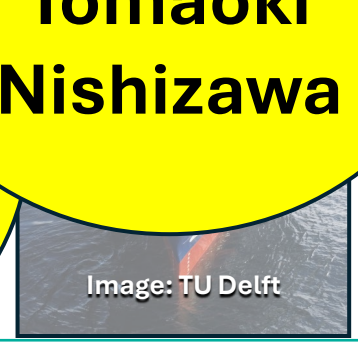


Wednesday
12:55
Eduardo
Landulfo

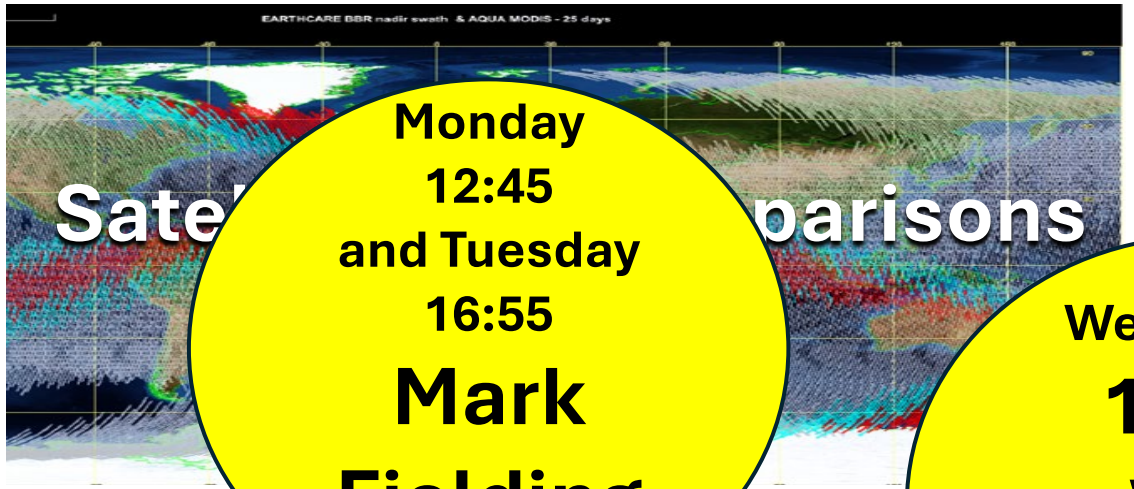


Poster
#14
Esmael
Ghaemi

Poster
#33
Tomaoki
Nishizawa



Validation Approach part 2



Sate… …parisons

Monday
12:45
and Tuesday
16:55
Mark Fielding

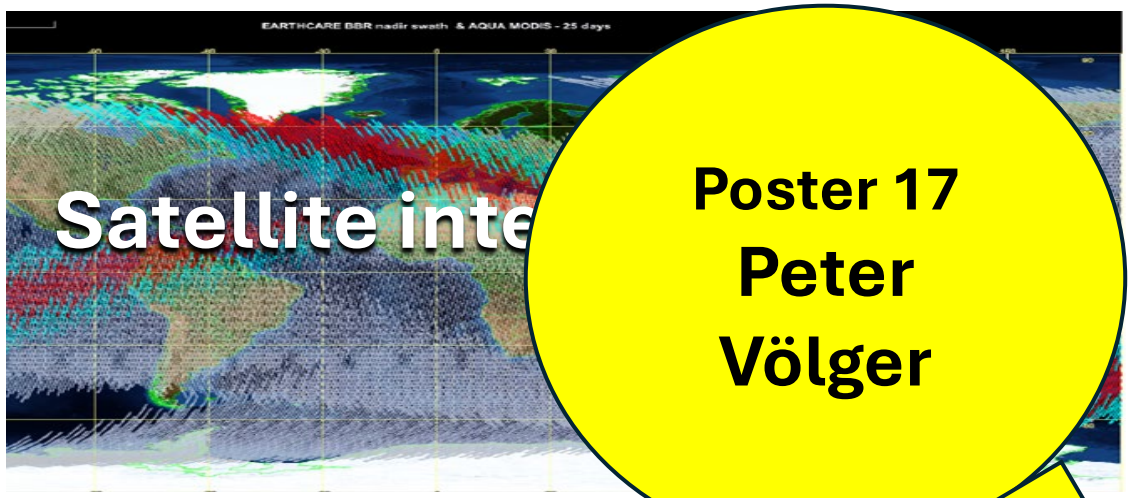
Wednesday
10:00
Will McLean

ECMWF

NWP assimilation for systematic QC

ACTRIS /
ATMO- ACCESS
MPLNET
LALINET
…ROFILE
…ONET
…RM
…Net
…her

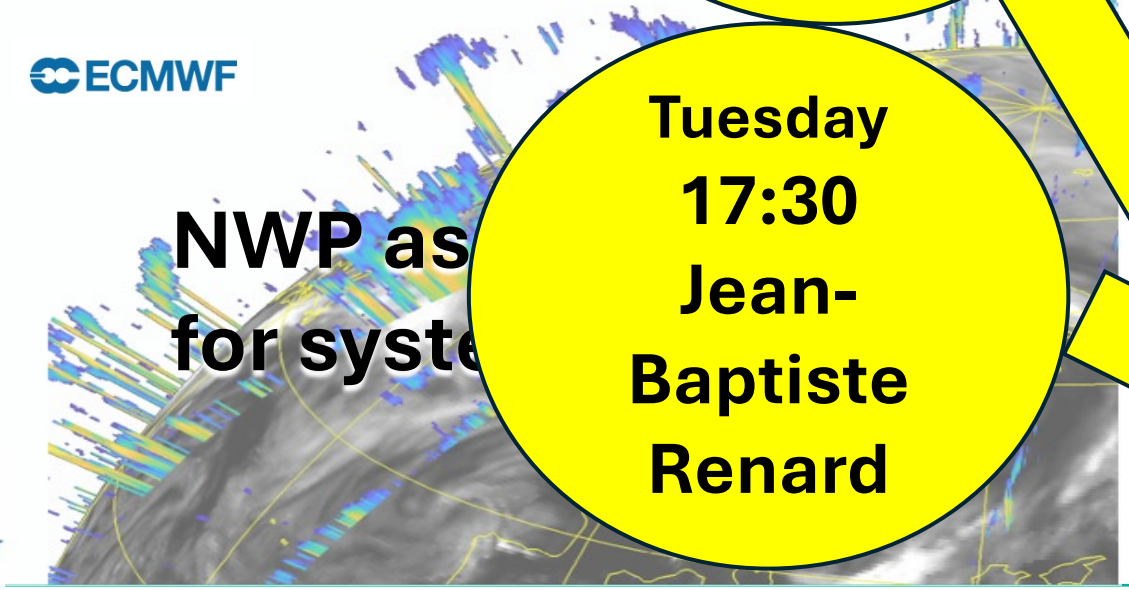
Validation Approach part 2



Poster 17
Peter Völger

ACTRIS / *ATMO- ACCESS*
MPLNET 63
LALINET 26
E-PROFILE 10
ADNET 44
ARM 7
WegenerNet
Other
ADNET

Wednesday
12:15
Iwona Stachlewska



Tuesday
17:30
Jean-Baptiste Renard

Wednesday
12:00
Franco Marenco

Publication of validation results

Inter-journal special issue “Early Results from EarthCARE” (AMT, GMD, and ACP)

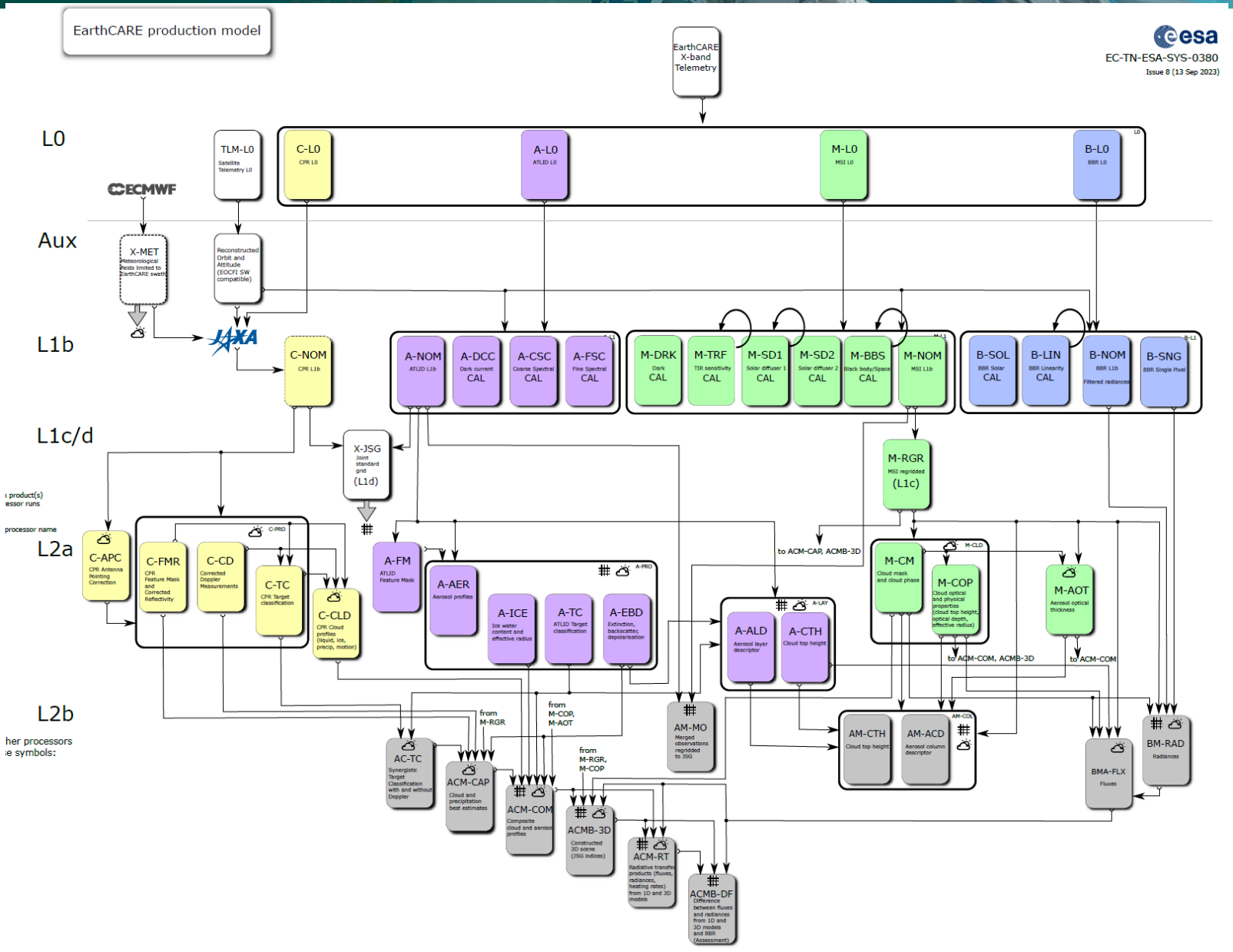
Cal/Val papers for this special issue preferably via AMT:

https://www.atmospheric-measurement-techniques.net/submission.html

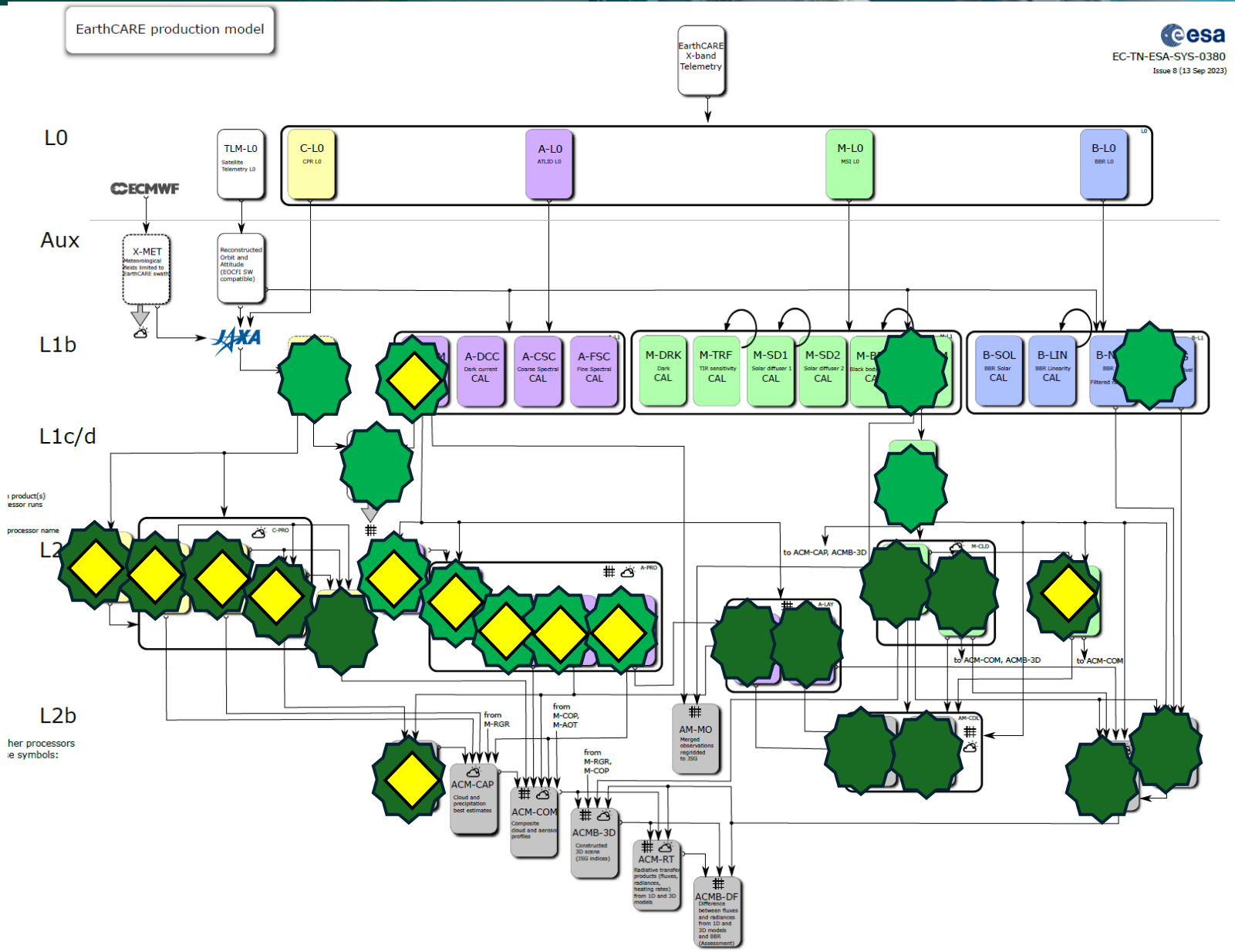
NB. If you use data from pre-operational baselines in your papers, then pre-operational data conditions apply (need to include the related disclaimer).

In general, for each plot, make clear which baseline has been used!

Outlook for validation teams



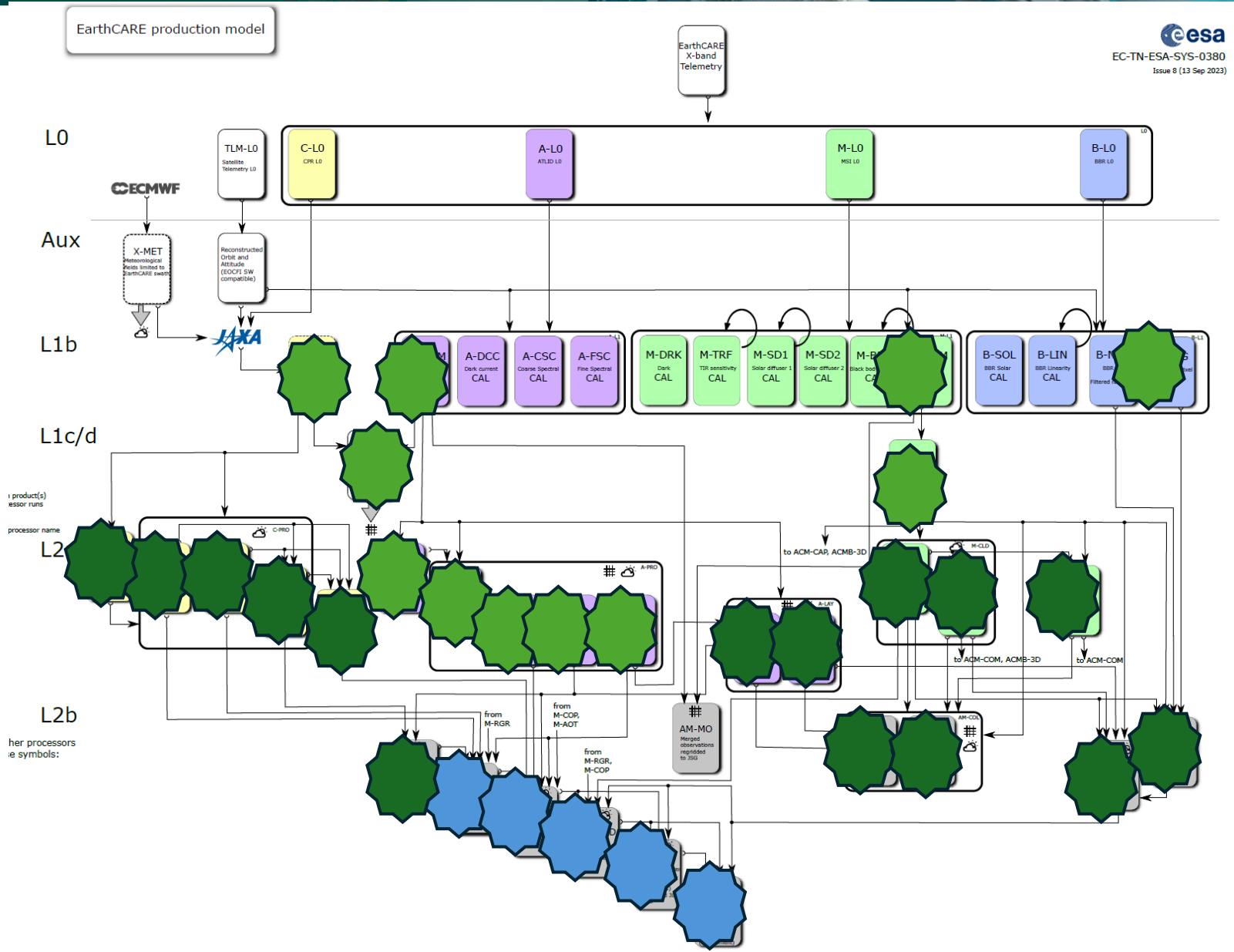
Outlook for validation teams



Already released

- 2024 and 2025
- 2025 post-release only
- Baseline updated last week

Outlook for validation teams



Already available

(ECVT) release next week.
Public release by next Workshop

Outlook for validation teams

Reprocessing of 2024 and 2025 data

- 2024&2025 already reprocessed by JAXA, latest baseline
- 2024&2025 Already reprocessed with older baselines, new reprocessing planned in Spring
- Historic data not yet processed Reprocessing planned in Spring

ESA-JAXA 2025 EarthCARE Workshops

- https://www.earthcare-validation-2025-1.org/
- Level 1 and early level 2 validation results
- Public release of Level 1
- Workshop report available for download
- Recommendation follow-up in progress

- https://www.earthcare-validation-2025-2.org/
- Level 2a and Two-Sensor L2b validation results
- Consolidated level 1 validation results
- Public release of Level 2a and Two Sensor L2b

3 2025 Science and Validation

- **1-5 December 2025, Tokyo, Japan**
- Science and Applications
- Validation of all products
- Public Release of three- and four-sensor products