Validation of downsteam validation P2

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- S2 imagery to detect Brown macro-algae in the Baltic sea using machine learning techniques
  - Demonstration of technique to use single S2 images in combination with S2 image time series to determine threshold for occurance frequency map of Brown algae classification map for habitat extend
- Copernicus Marine High Resolution Service Evolutions
  - Integration of S2C
    - S2C in line with S2A, but slightly different from S2B, based on Hypernets data S2B shows most accurate remote sensing reflectance products
    - More data is needed to decide if vicarious calibration is needed
    - Service aims at integrating SEN2WATER when available
  - Top of atmosphere glint correction removes banding effects in glinted images, but extra approach needed (e.g. ML) to deal with non-glinted images

- Copernicus Water, Snow and Ice (WSI) data from S2 at EU level.
  - Operational products released soon on CDSE, Archive reprocessing for collection 1 planned in Q3 2026
  - Integration of S2 with S1 (E.g. Snow phenology, ice cover)
  - Challenges
    - Upcoming format change
    - NRT production: more than 1 overpass per day S2A extension (additional data load)
  - Fractional Snow Cover improvement through machine learning compared to LIS

Validation of downsteam validation P3

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- Product validation for inland water products
  - User involvment in validation through collection of in situ data and willing to start using EO data in monitoring
  - Use cases of EO data to support WFD, not to replace in situ, working towards combined use
  - In situ data quality also required

- Monitoring dredge plumes in coastal waters
  - Optimization of turbidity algorithms to detect different dredging plumes with specific sediment types using a OWT classification
  - Useful at local scale

- Validation strategy for S2 atmosphere products: CH4 plume detection/ Flaring / NO2
  - S2 detected >3800 plumes in 24 countries, with 9 mitigation cases
  - Validation was performed through controlled CH4 emissions and modelling/simulation activities to optimize the model
  - Uncertainty framework for CH4 flux rates e.g. angular parallax
  - S2 has a greated detection rate for flaring than VIIRS night time observations
  - NO2 detection is possible over bright and homorgeneous surfaces

Validation of downsteam validation P3

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- Unlocking the potential of L1A data for training AI models
  - Better use of raw data to develop applications to directly generate monitoring products which are needed in a timely fashion
  - Request for access to a lot of L1A data