

High Resolution Sea Ice Type Retrieval

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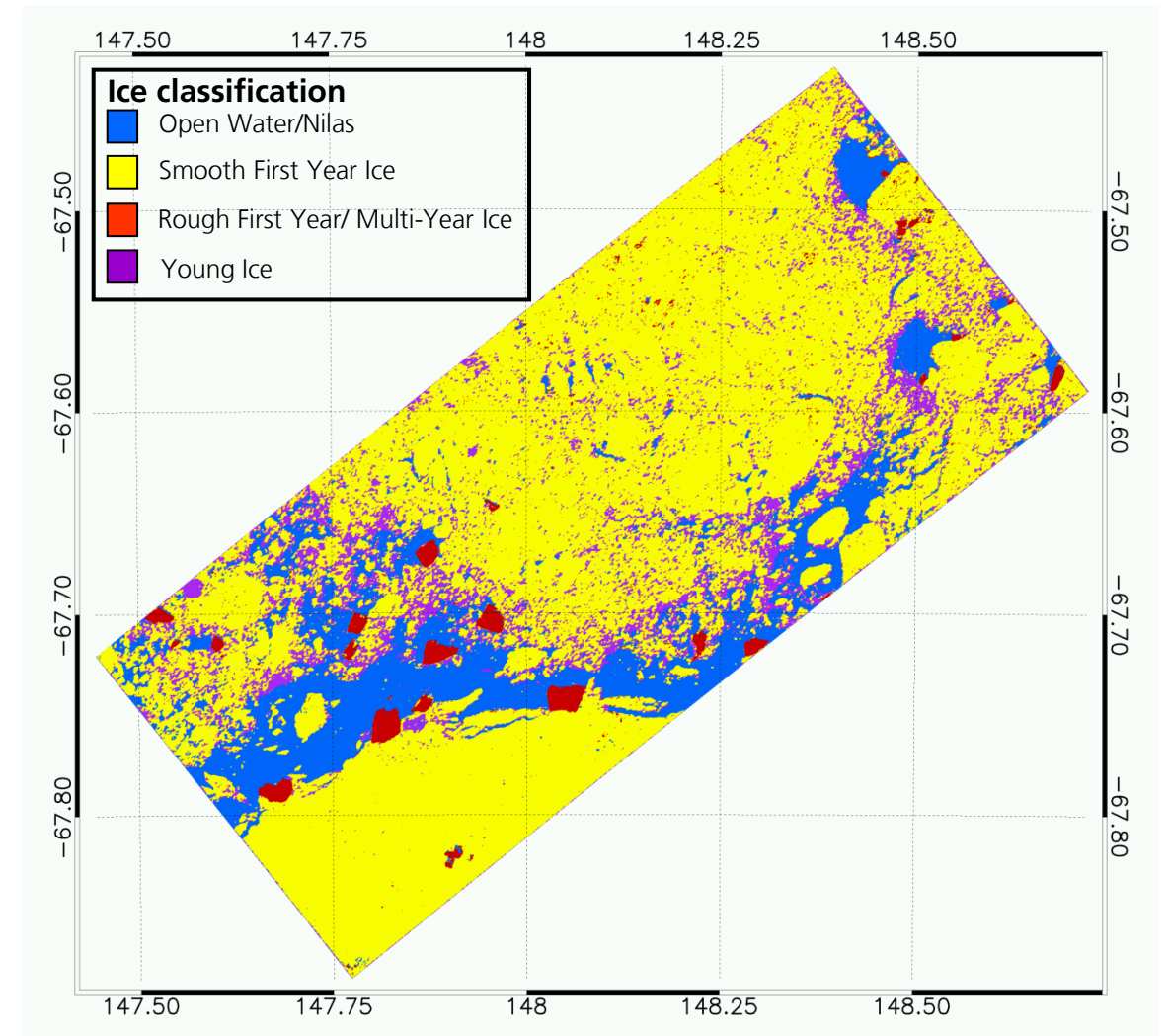
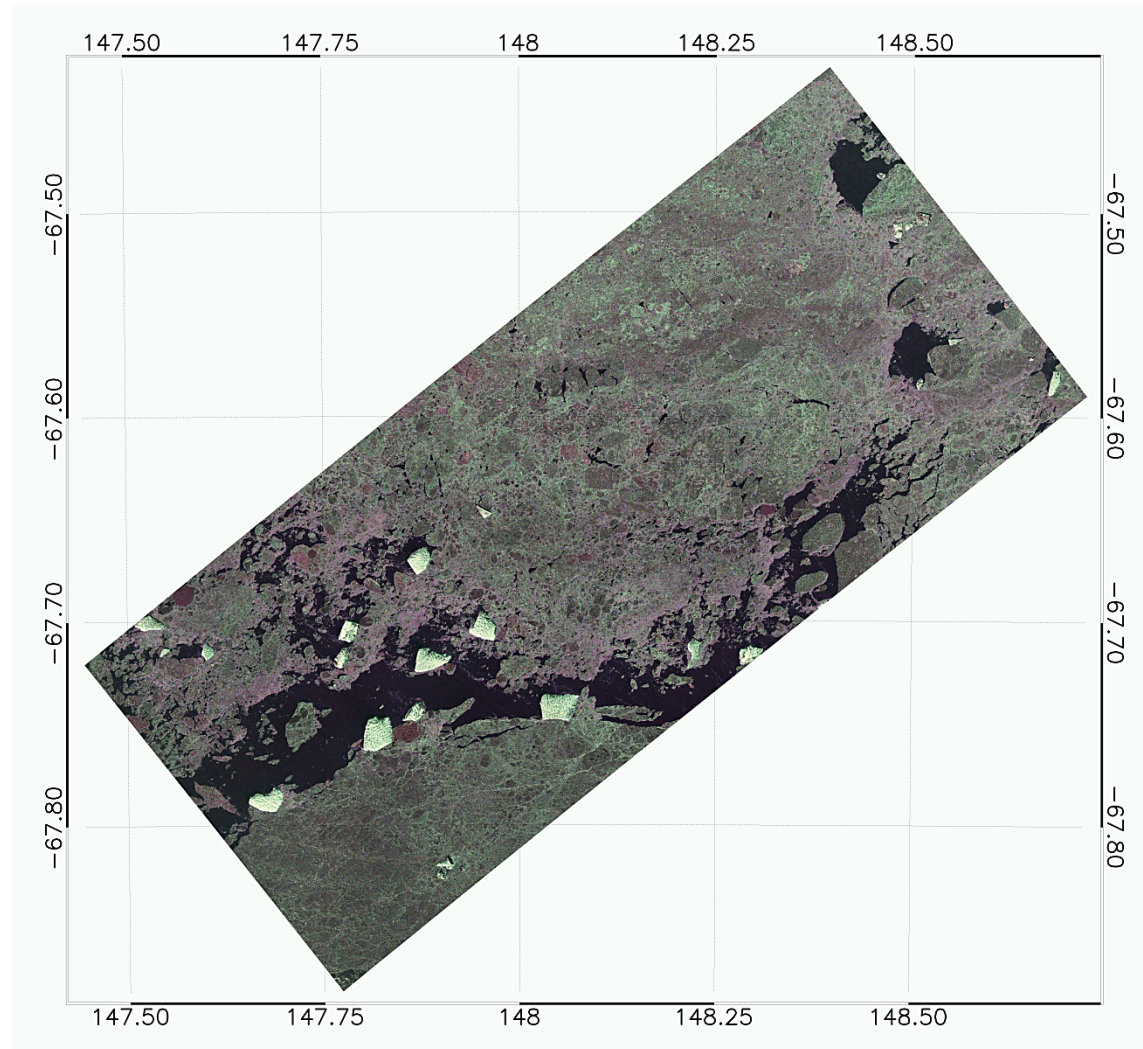
A large, curved image of the Earth from space occupies the bottom right portion of the slide. It shows a view of the Arctic region with a large white ice cap and surrounding blue oceans and green landmasses. The curvature of the Earth is clearly visible.

Knowledge for Tomorrow



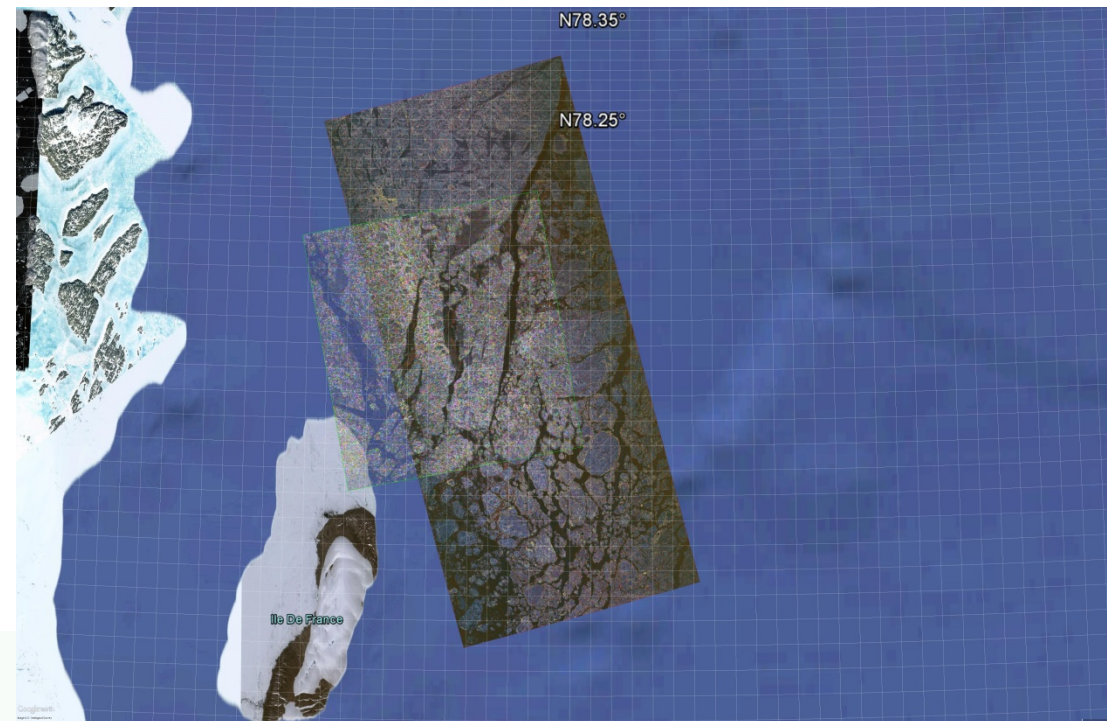
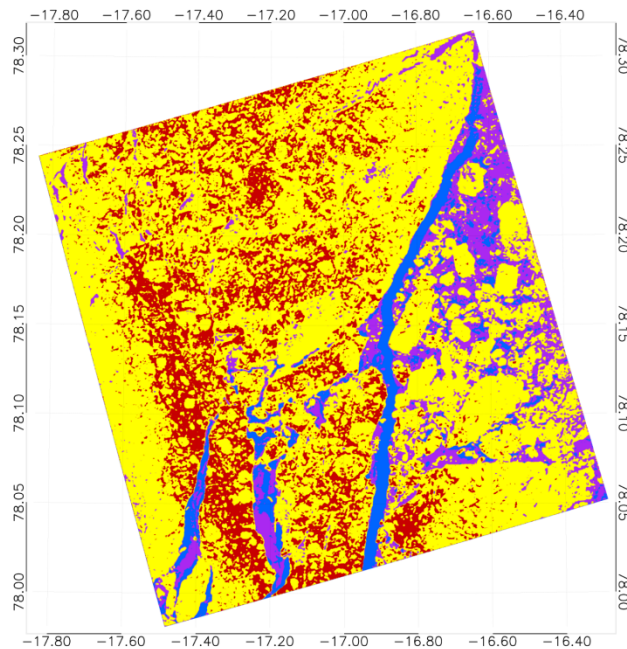
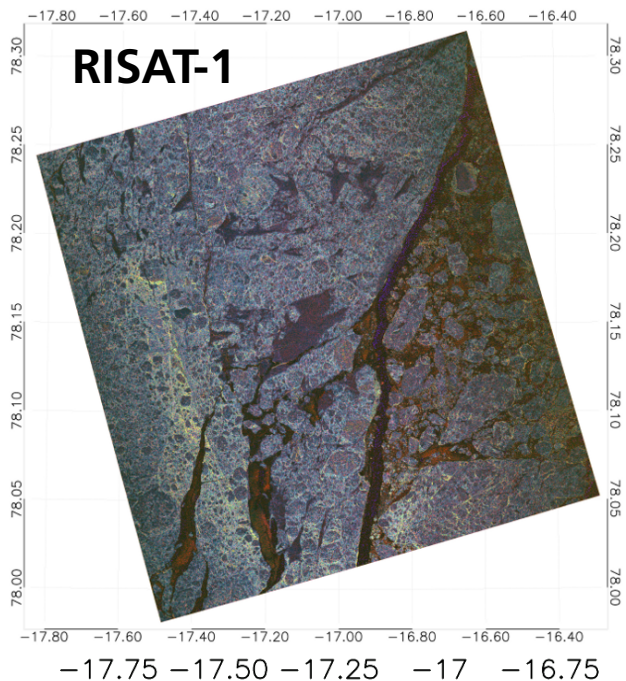


RADARSAT-2 Fine Quad Pol

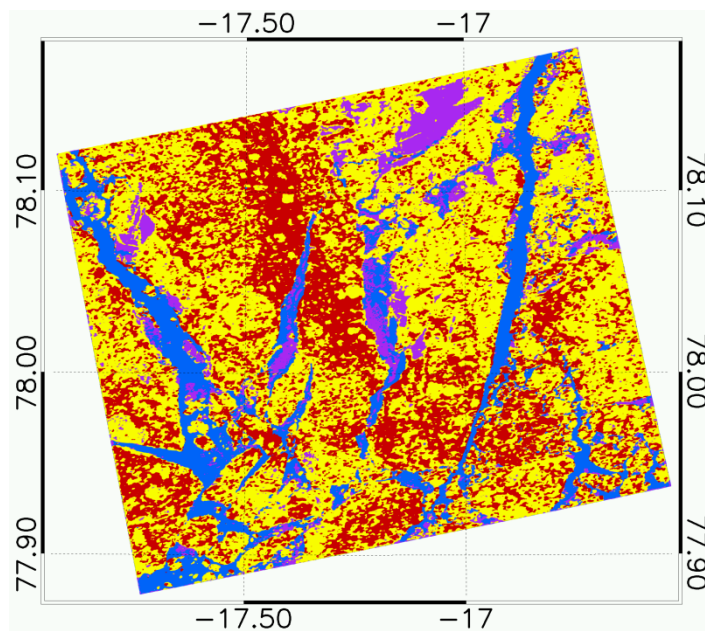
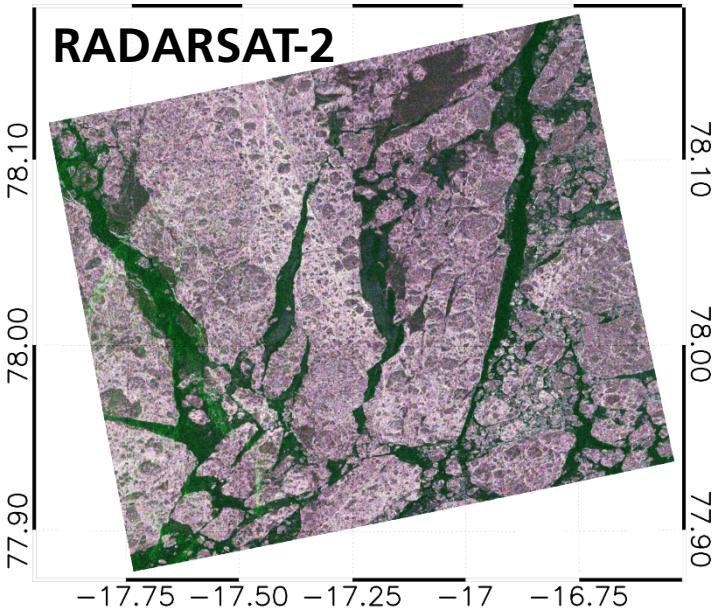


(Left) Geocoded Pauli RGB composite (Red: HH-VV Green: HV+VH Blue: HH+VV) of the RS-2 FQW acquisition on 30 January 2017, 10:36:35 UTC Frame 1. **(Right)** Polarimetric Ice classification. Blue: Open Water/Nilas (OW), Purple: Young Ice (YI), Yellow: First Year Ice (SFYI), Red: Rough First Year Ice/Multi-Year Ice/Ice Berg (RFYMYI).





RISAT-1 FRS-1 Compact Pol
06th September 2015 18:13 UTC
RADARSAT-2 FQ29 QuadPol
06th September 2015 18:35 UTC



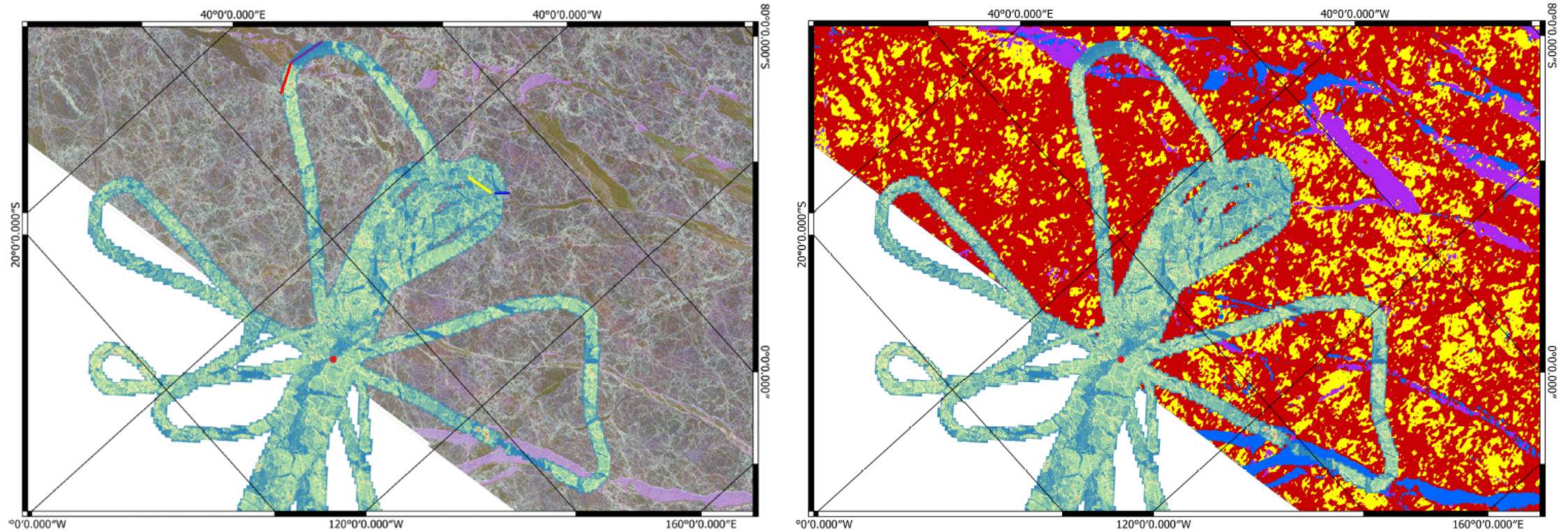
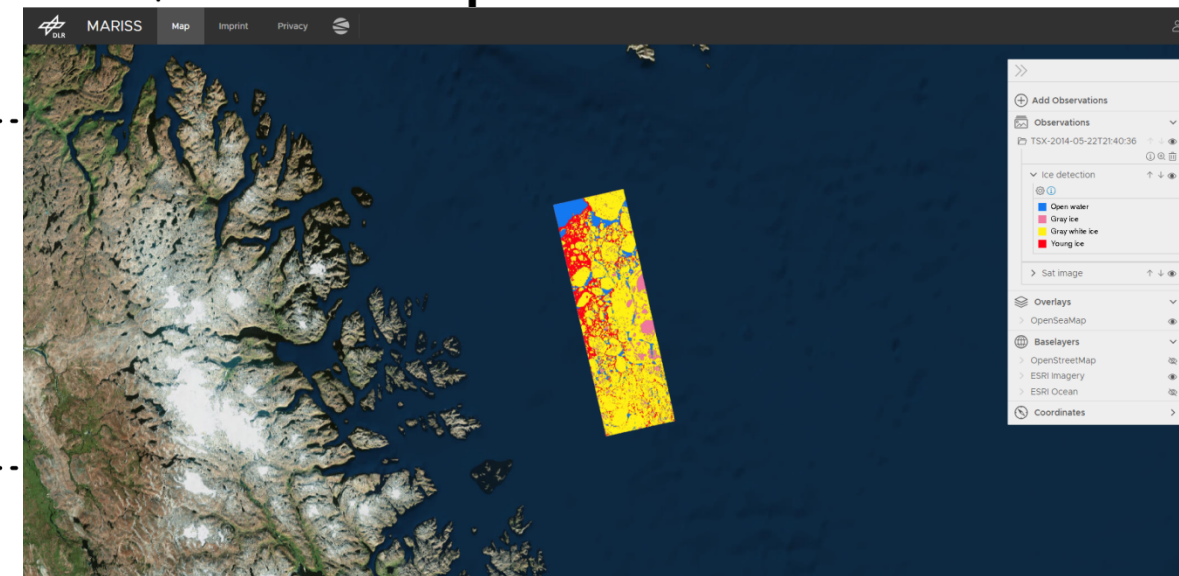
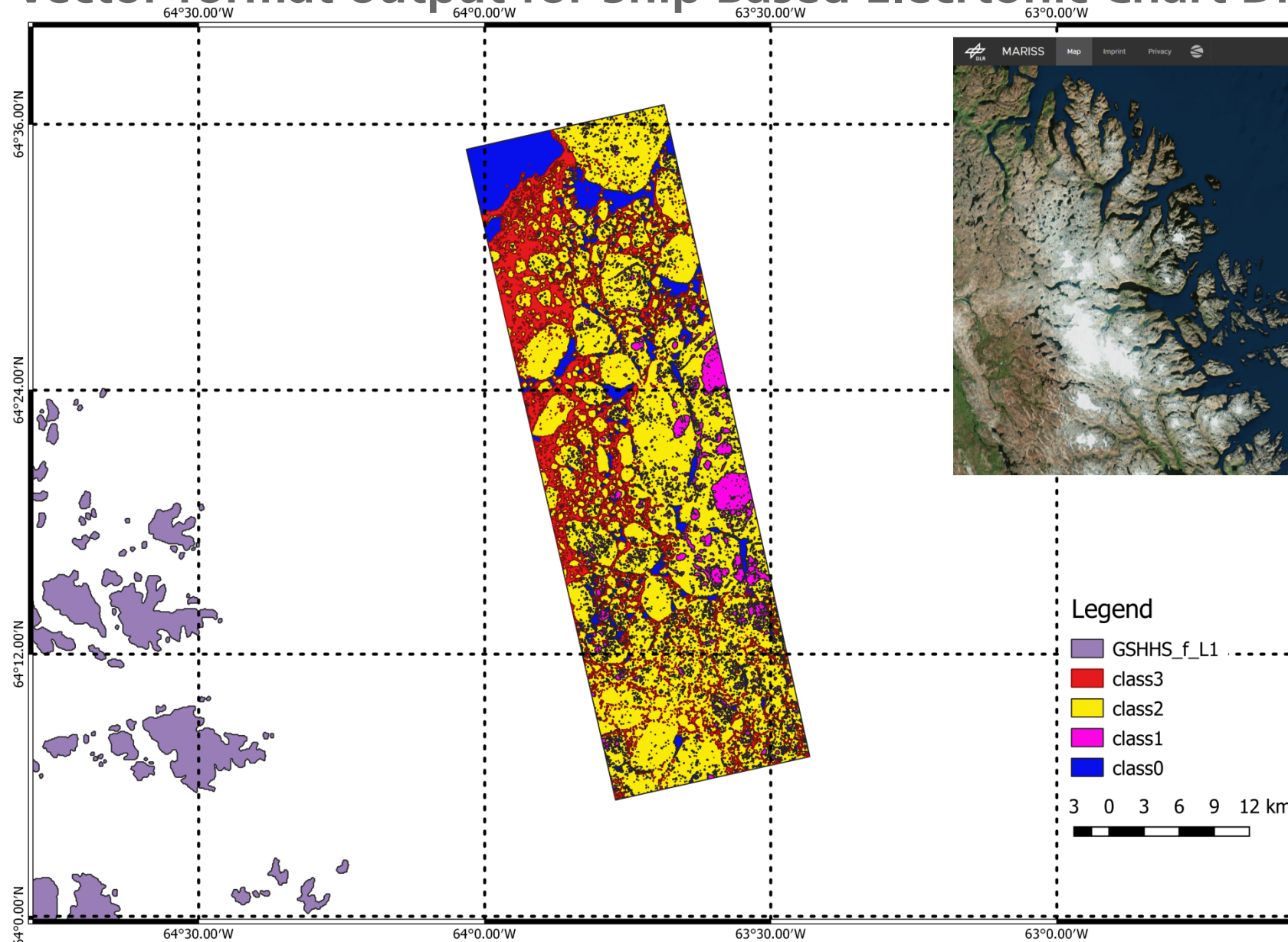


Fig. 14: **Left:** ALS freeboard measurement overlaid on Geocoded Pauli RGB composite (Red: HH-VV Green: HV+VH Blue: HH+VV) of the ALOS-2 acquisition on 23 April 2015; **Right:** ice classification on ALOS-2 acquisition. Blue: open water/nilas (OW), purple: young ice (YI), yellow: smooth first year ice (SFYI), red: rough first year ice/multi-year ice (RFYMYI). ALS freeboard color scale according to Fig. 4

Source: S. Singha, A.M. Johansson, N. Hughes, S. M. Hvidegaard, "Multi Frequency Fully Polarimetric Sea ice classification and validation using Airborne Laser Scanner", *IEEE Transaction on Geoscience and Remote Sensing*, 2018



Vector format output for Ship Based Electronic Chart Display System



Legend

- GSHHS_f_L1
- class3
- class2
- class1
- class0

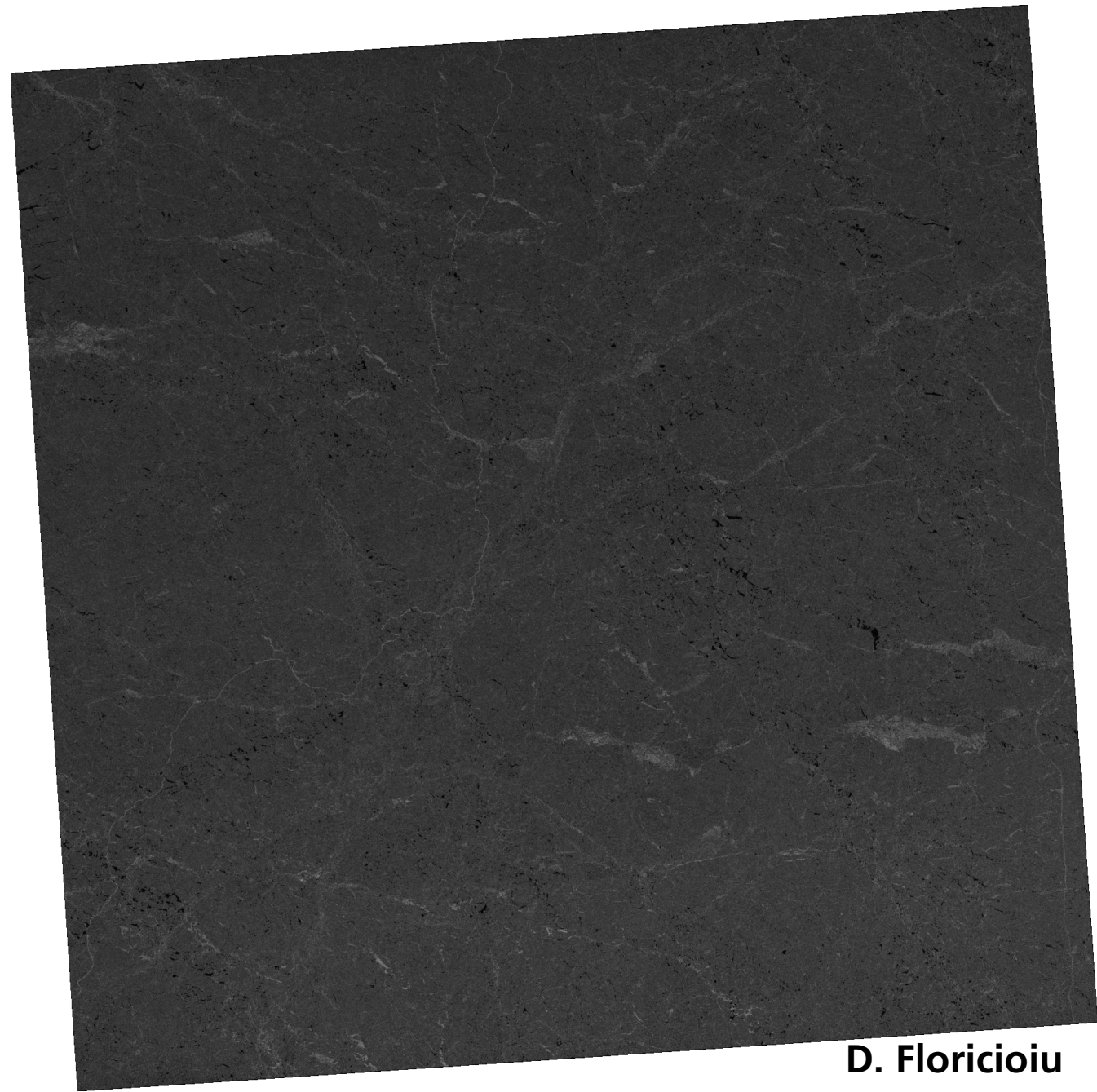
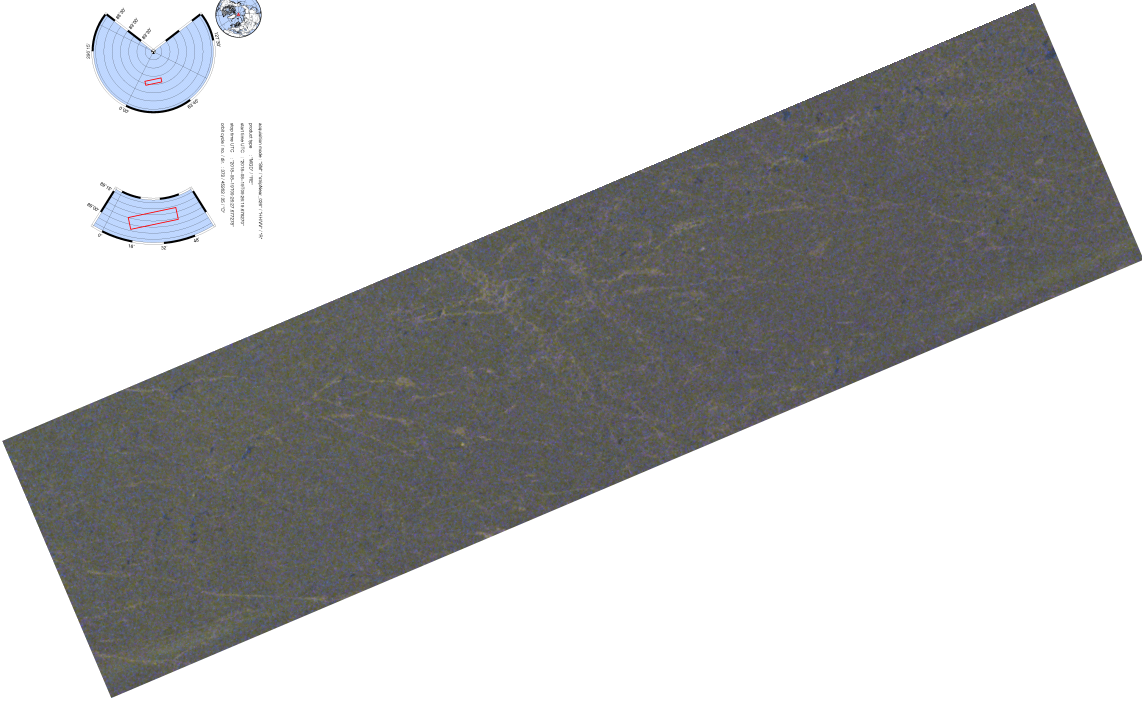
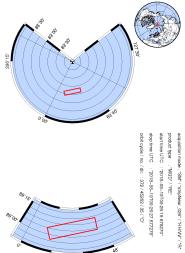
3 0 3 6 9 12 km



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Polar Gap with TerraSAR-X

- TSX/TDX Background Mission
- Coverage upto 89.30 North
- High IA – Out Side Full Performance
- Suitable for Navigation



D. Floricioiu

Sea-Ice Information Requirements

- **Ice Type** Ice Thickness
- **Ice Edge** Melt Pond fraction
- **Ice Concentration**
- **Ice Drift Vector**
- **Iceberg**
- **Floe Size Distribution**



Planned DLR Contribution for MOSAiC

- **Near Real Time and Scientific Acquisitions from TerraSAR-X/TanDEM-X Mission**
(PI: Suman Singha, OCE3562)
- **Centralized Tasking (DLR) - 48 Hours window or 18 Hours window for airborne and field campaign**
- **Regular NRT delivery to PS Mapviewer (Quicklook + Ice Classification products)**
- **Coordination with other SAR providers (RADARSAT-2, RCM, ALOS-2, COSMOS-Skymed, PAZ)**
- **Coordination with in-situ and airborne Data acquisitions**
- **Special acquisitions over Polar Hole (currently at testing phase, not conformed)**

