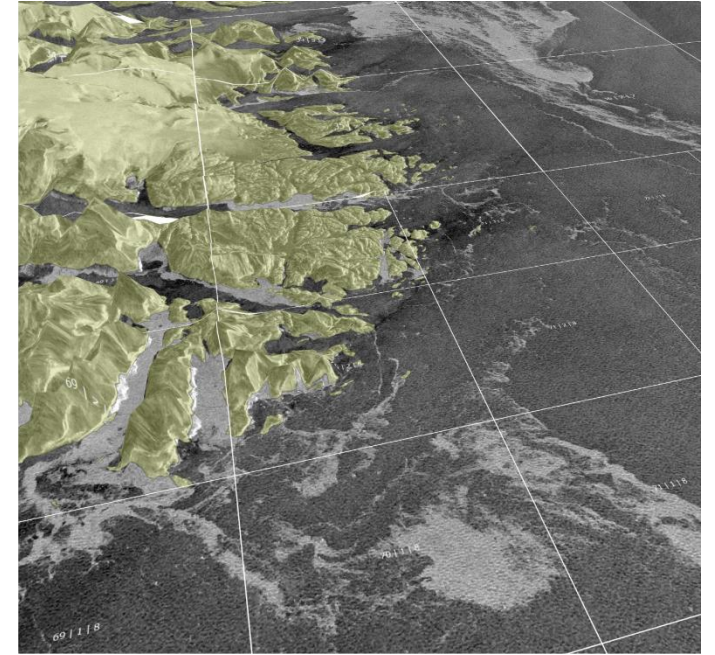
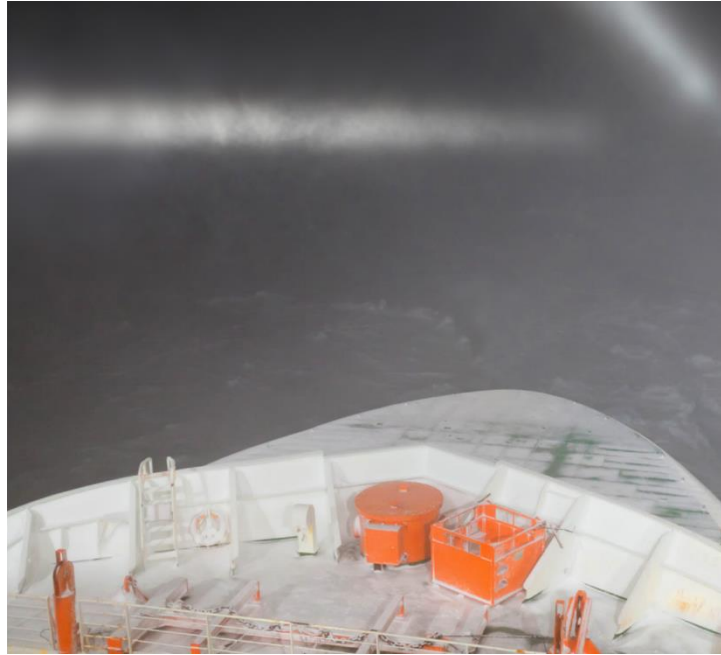




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## Polar Shipping 4.0

Digital Data from Space on Board – Automated





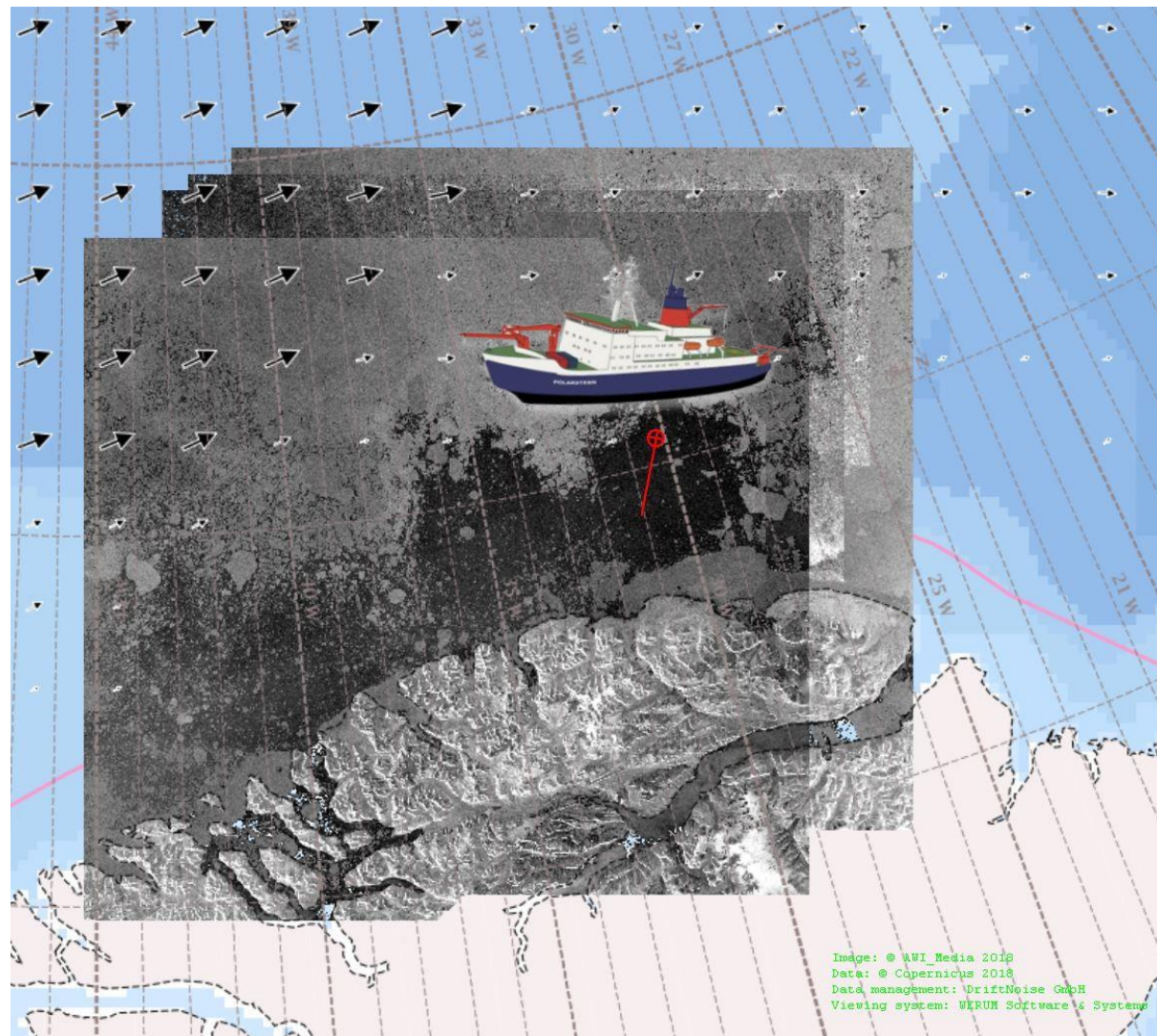
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# Integrated Ice Information

Satellites and models  
provide a wealth of  
sea ice information

PRV Polarstern in polynya north of Greenland  
August 2018  
(onboard viewer)

Radar Images: Sentinel-1  
Ice Drift: CMEMS (TOPAZ4)







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# Challenges

**Overview of data sources**

**Handling of large data sets**

**Process automatization for dynamic targets**

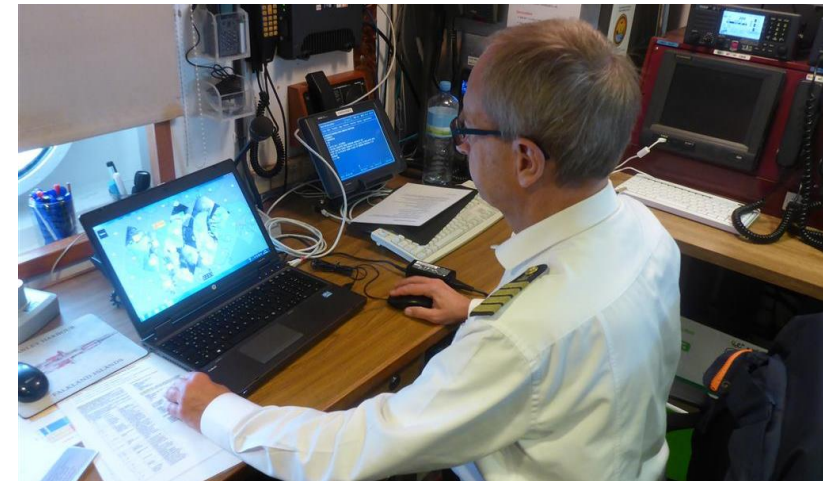
**Information Level (SAR image or polygons?)**

**Data compression for transfer**

**Data visualization**

**Data timeliness**

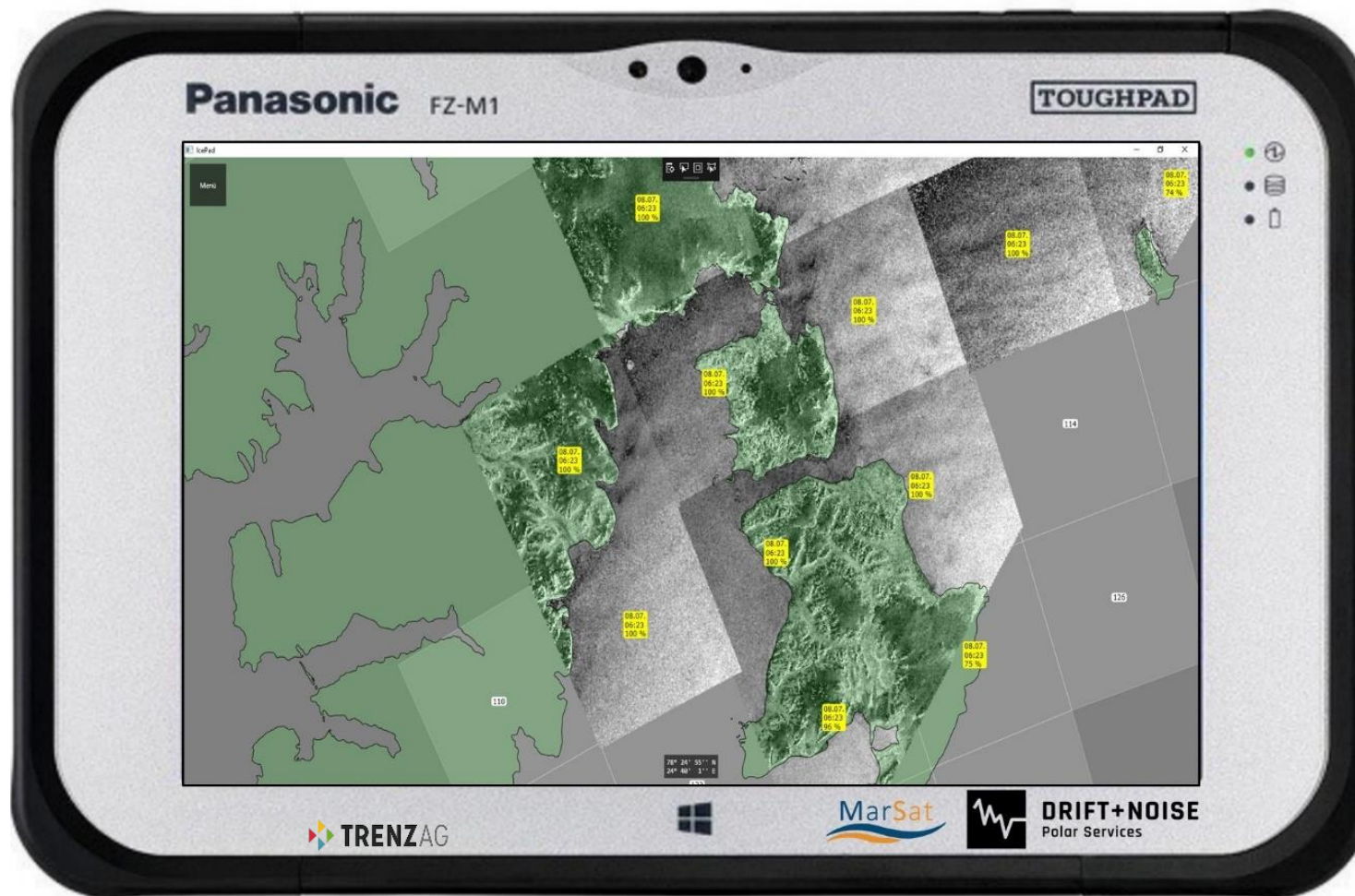
Drift+Noise specialized on custom solutions at the  
interface between users and data providers





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# The Ice-Pad Software

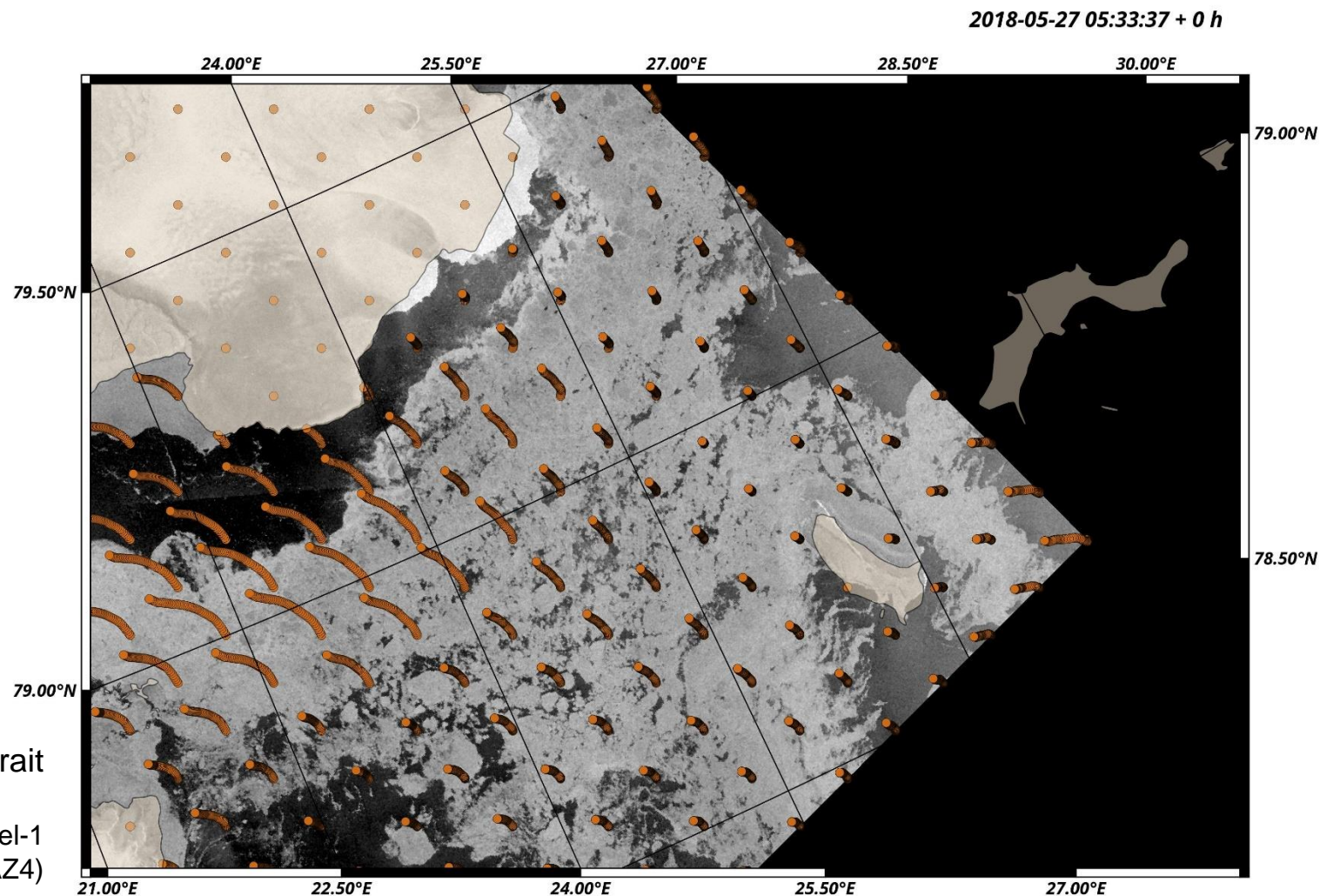




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# Predictive Ice Images (PRIIMA)

Satellite data is old and  
resolution of forecast is low





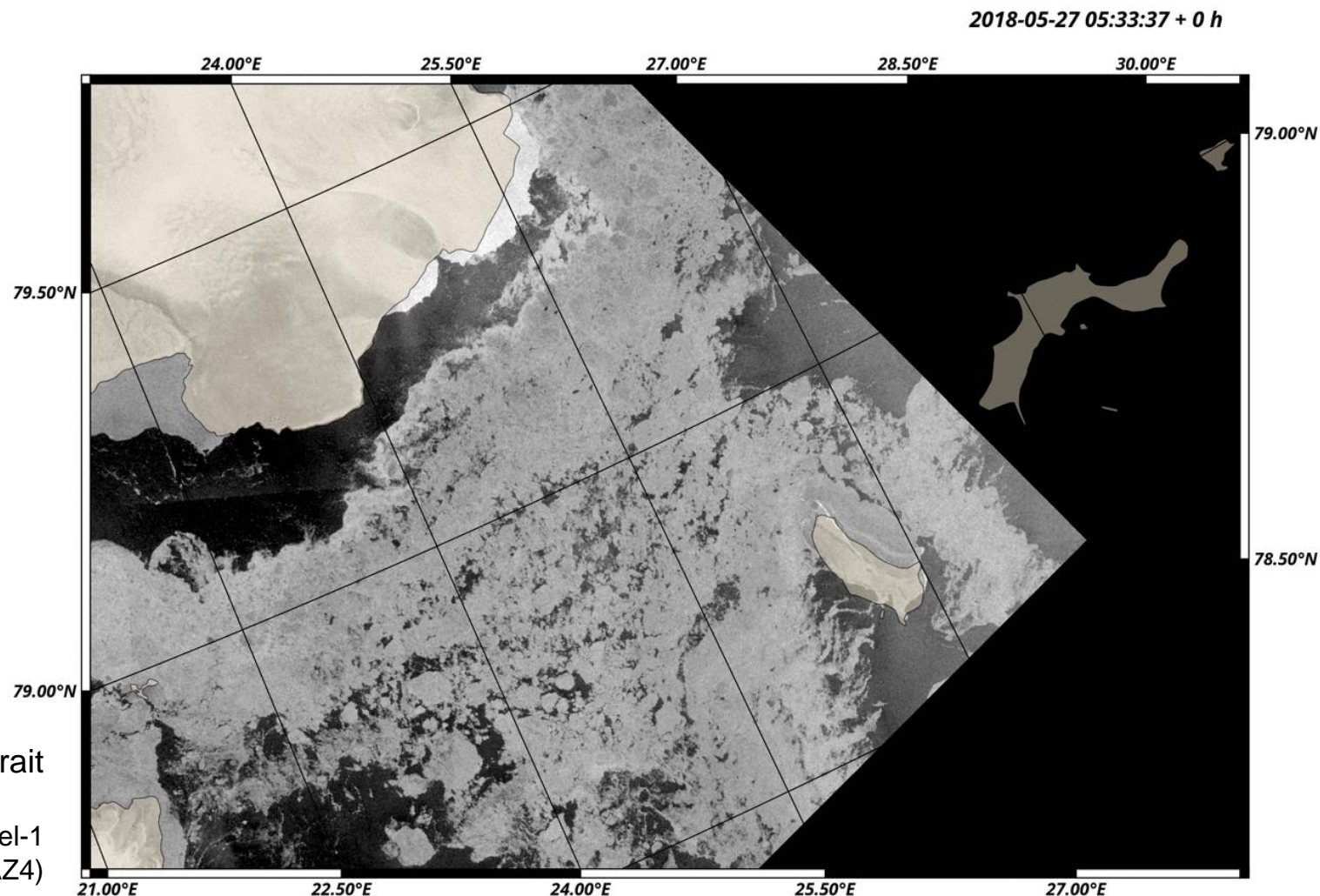


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# Predictive Ice Images (PRIIMA)

Satellite data is old and  
resolution of forecast is low

▷ Forecast of satellite data!



Location: Hinlopen Strait

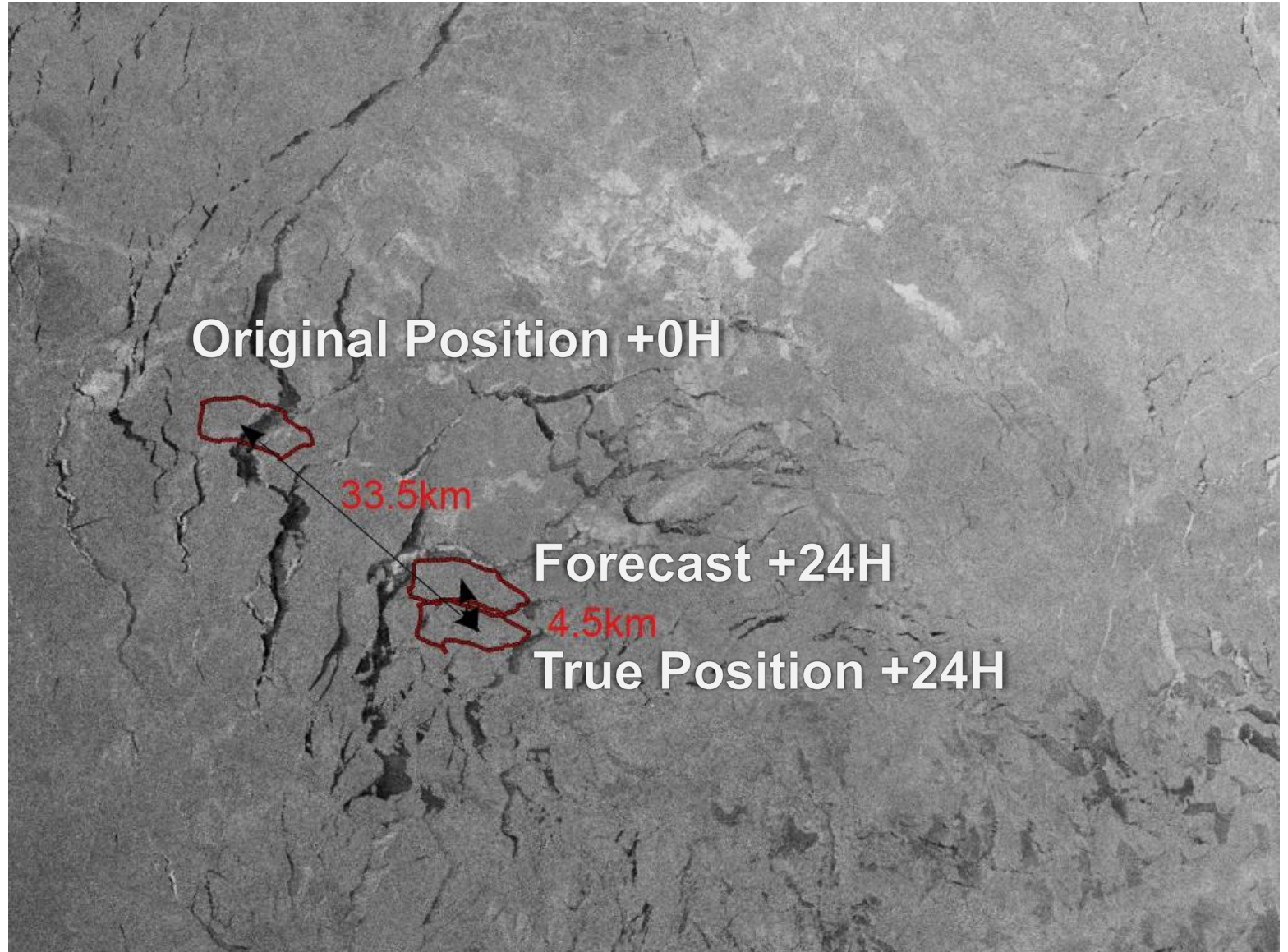
Radar Images: Sentinel-1  
Ice Drift: CMEMS (TOPAZ4)



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# Predictive Ice Images (PRIIMA)

Skill depends on  
ice drift forecast





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## **Service Evolution**

Integration of Earth Observation & Models

EO data : From Nowcast to Forecast

## **Gaps**

Ice Drift: High resolution & High Coverage

Southern Hemisphere

