

ASAR acquisition strategy for IPY

- Update -

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3. Summary

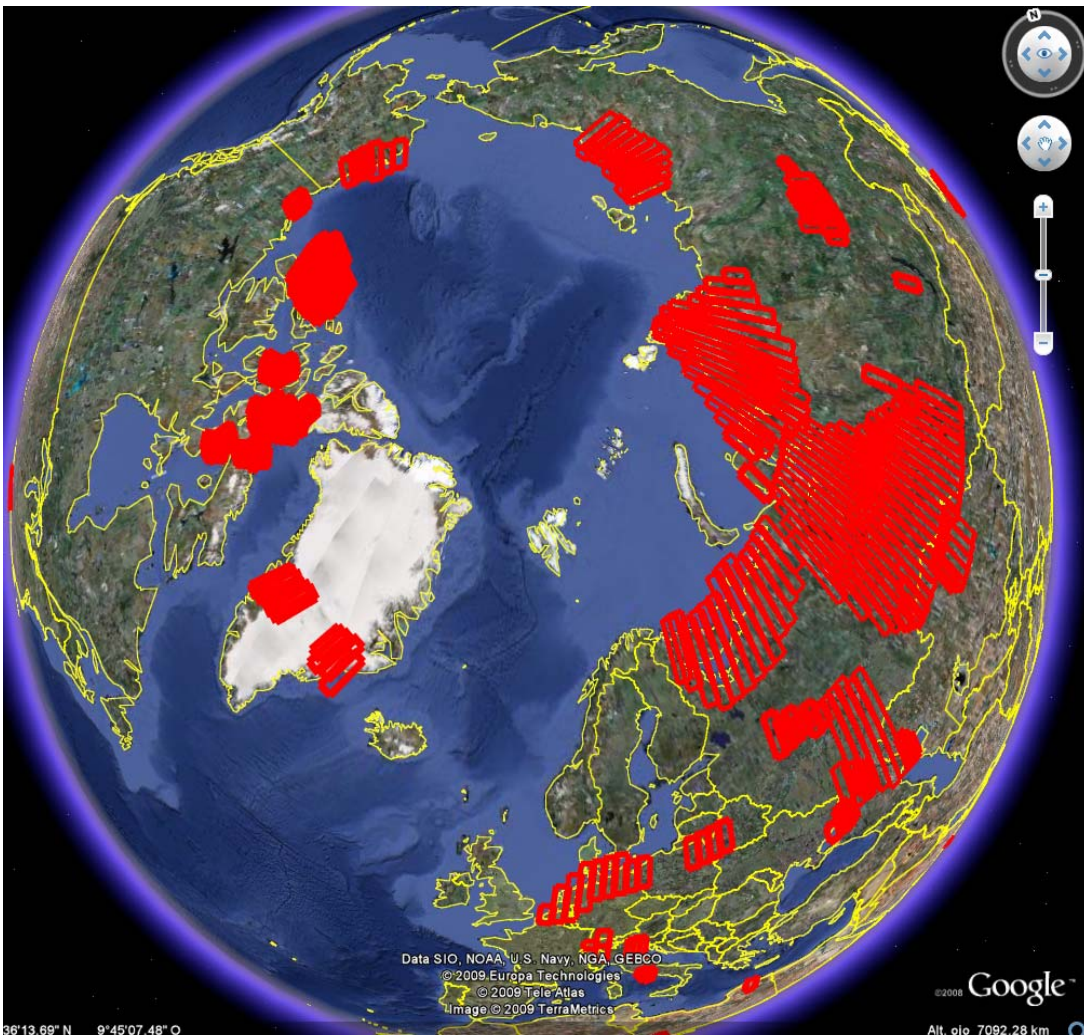
Background - Coordinated Plan

Sensors	3-day Arctic Basin snapshots	Pole to coast InSAR	Greenland - Ice fields	Supersites
PALSAR	Fixed image acquisition plan. New L-band mosaic of sea ice. Systematic NRT direct in-mask downlink requests to ASF.	Fixed image acquisition plan. New L-band mosaic being prepared. South pole hole not covered. Repeat fine beam cycles ~ 76 degrees	Partial InSAR coverage in fine beam and pol mode. JAXA would entertain a proposal.	Robust proposal required for augmentation of the basic observation plan. Action GIPSY.
ASAR	Systematic wide swath coverage – C-Band complementary to RSAT. Acquisition limitation in Chukchi Sea and East Siberian Shelf. See Ken's presentation. Action ESA and CSA background mission managers - define optimal mission coverage.	Already intense InSAR acquisition plan for regions north of about 78 degrees S. Continue doing this through the IPY. Plans beyond IPY to be discussed.	Greenland: already intense acquisition plan. Reception hole central Greenland. Continue doing this through IPY period. 2 nd Tandem campaign ERS and ASAR over large supersites (list to be provided by ESA).	A available for supersites – prefers systematic coverage??? Multi-pol capabilities not exploited (LARGE SITES)
RSAT 1	Requires the participation and agreement of ASF and KSAT. Canadian and Norwegian waters well covered under background and operational missions. Back-up in case of conflicts.	Not possible due to lack of receiving station. Presence of NASA and KSAT station in area. No rotation planned.	Not possible without the participation of foreign receiving stations – requires \$\$\$ contribution. Historical coverage – covered 2-times in InSAR – data are in ASF archive. 2007 coverage.	A available for supersite monitoring under the Canadian mask – should not be in conflict with the operational users and thus avoid the coastal areas.
RSAT 2	Planned background mission. 8 times 3-day snapshot over 24-day cycle. Action ESA and CSA background mission managers - define optimal mission coverage.	Current plan is to acquire entire continent left-looking in cycle 12 (wide asc) starting Oct 14. Plan to acquire pole hole interferometrically left looking cycle 16 starting Jan 18 and cycle 17 starting Feb 11. Use Standard mode for interferometry except for EH4 in areas that cannot be reached with Standard. MDA to check cycle 18.	Background mission planning. InSAR coverage. 3 cycles in Fine mode in descending orbits in Nov-Dec. Could end after Dec (to Feb).	Sites may require polarimetric capabilities of R2. Need input from Pls. See SOAR reference.
Terrasar X	N-A	Primary contribution to the ASAR pole hole gap will be the acquisitions planned in Transantarctic Mountains, Filchner Ice Streams & Coats Land.	Margins and coastal areas. InSAR coverage, minimum 2 cycles. Need a proposal to DLR.	Ideal sensor for this application. Supersites already identified in Antarctic. Proposal submitted for 2 regions. Possibility for interferometry at Greenland glaciers matching SPOT supersites. See below for list. Proposal required for Greenland and Canadian super-sites.
Cosmo-Skymed	N-A	TBD	TBD	Ideal sensor for this application.
Action	Look at a coordinated acq plan between ESA and CSA. For R1 – how can receiving station contribute?	Consolidate acquisition planning to distribute imaging load and meet the requirement. Task C-Band missions.		Select the supersites; Based on science activities and other missions calval; identify Pls as poc for agencies. Distribute the supersites in-between missions. Identify agencies for supersite monitoring.
	The mission is not appropriate for achieving this particular requirement.			
	The mission is ideal for achieving this particular requirement.			
	The mission is not optimum for achieving this particular requirement.			

Earth Observation Missions Management Office

J.D.R., H.L.. - IPY SAR Coordination Group 2009, 23-24 June 2009

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Tandem Acquisitions 2008-2009:

- Due to success of Tandem 2007, Tandem 2008 has been extended.
- Supplementary coverage requested by CSA
- Contracts for processing KO yesterday and today.

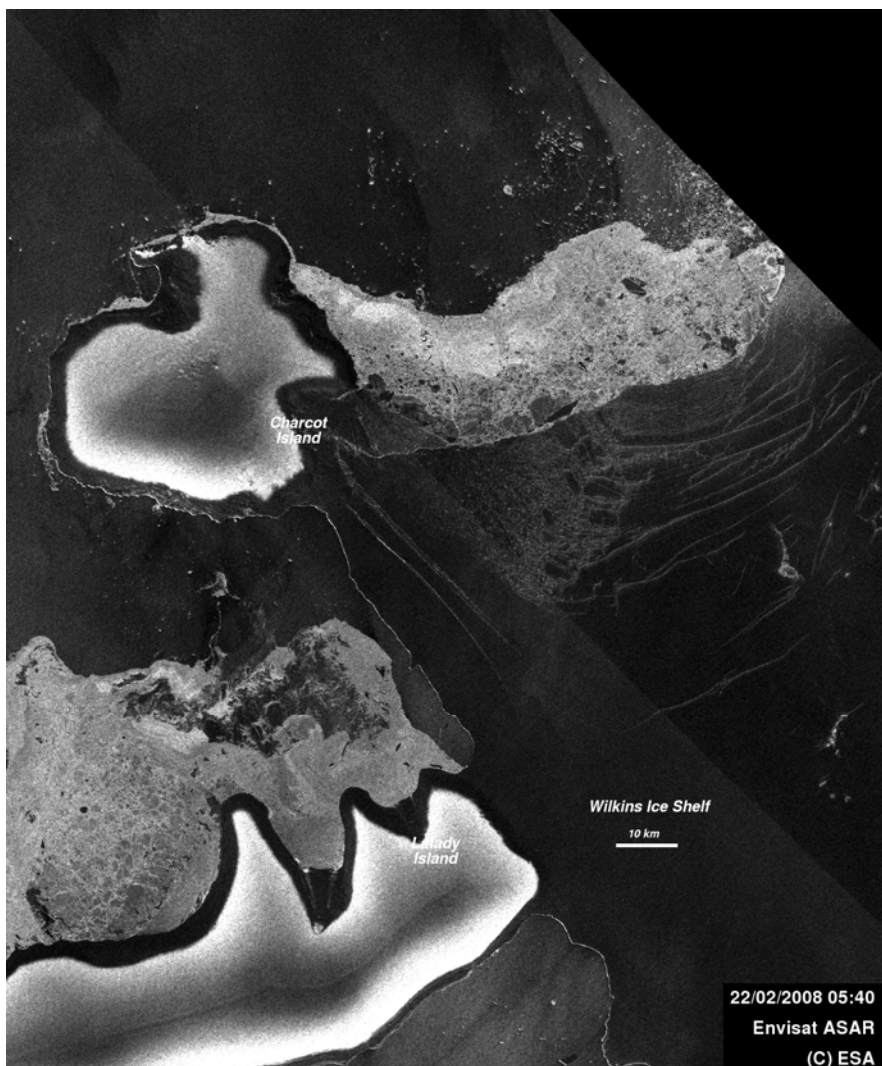
Figure 1.- Envisat/ERS-2 Acquisition targets



Figure 2.- Acquisitions performed during the ICESat underflight campaign

ICESat NASA/NOAA ICESat underflight campaign:

- ASAR Data was requested by NOAA in order to have additional information to support ICESat + Envisat altimeter together with airplane measurements.
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- ASAR request partially covered by the already existing planning for IPY
- Additional acquisitions were planned.



Webcam from Space acquisitions:

- ASAR Image Mode daily acquisitions over Wilkins Ice Shelf
- Images are available in the Rolling Archive within 3 hours after acquisition.
- Images are published in the ESA Portal

http://www.esa.int/esaEO/SEMYBBSTGOF_index_0.html

- Media gets attracted

• Reuters

<http://www.reuters.com/article/newsOne/idUSTRE50I4G520090119?pageNumber=2&virtualBrandChannel=0>

• National Geographic

<http://news.nationalgeographic.com/news/2008/06/080616-ice-shelf-photo.html>

• CNN

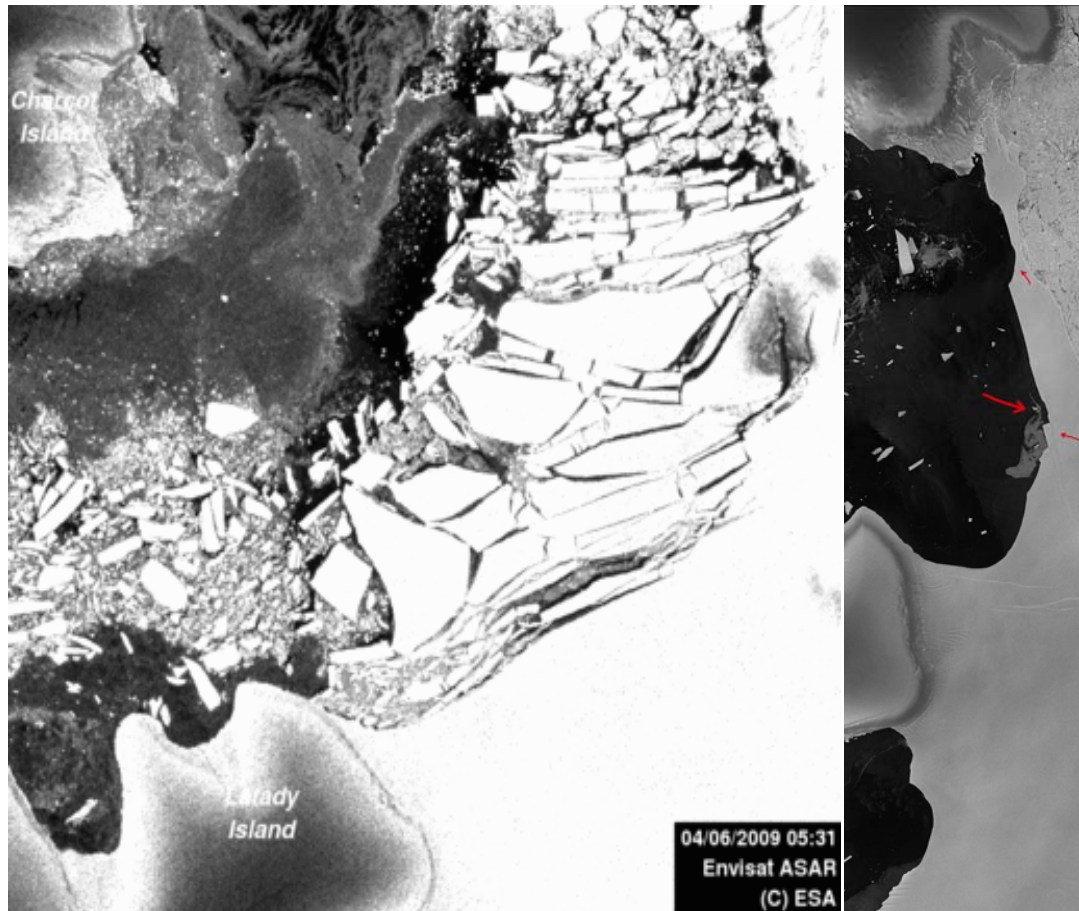
<http://edition.cnn.com/2008/WORLD/asiapcf/11/29/antarctic.ice.shelf.collapse/index.html>

• ScienceDaily

<http://www.sciencedaily.com/releases/2008/11/081128132029.htm>

- *Many others...*

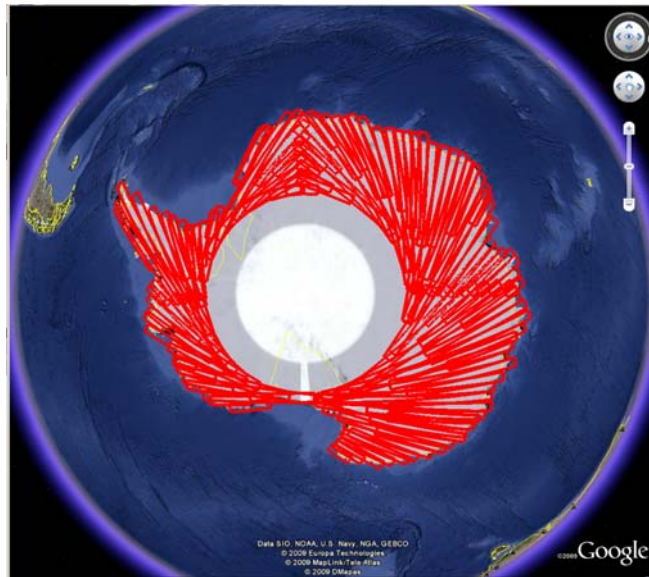
Figure 3.- Webcam from Space over Wilkins



Coordination between DLR and ESA:

- TerraSAR-X acquisitions helped to understand when the collapse will take place (Angelika Humbert – Muenster Univ)
- Envisat acquisitions following the collapse of the Ice Shelf

Figure 4.- Webcam from Space over Wilkins (last weeks) + TerraSAR-X acquisition



InSAR Coverages Greenland+Ellesmere Island+Antarctica during the summer:

- Envisat will stop interferometry in October 2009 due to an orbital change
- Last opportunities to get interferometric coverages over certain areas. Campaign started end of May and will last until beginning of September.
- Coverage proposed by Eric Rignot and Bojan Bojkov.
- Agreement was done with GMES MyOcean Sea Ice services

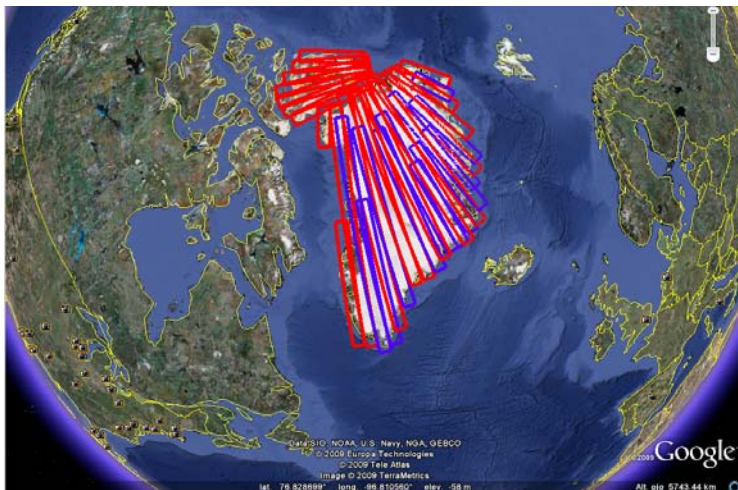


Figure 5.- Interferometric coverages over Antarctica and Greenland
Tracks in blue were conflicting with MyOcean and agreement was found

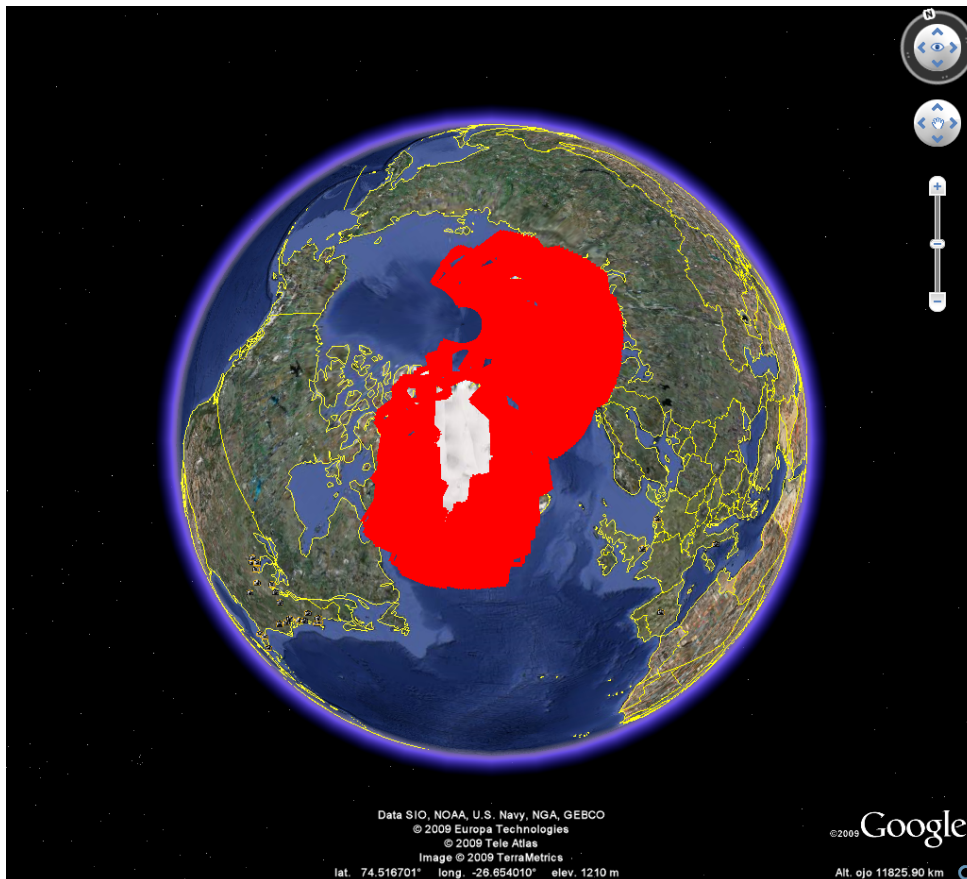
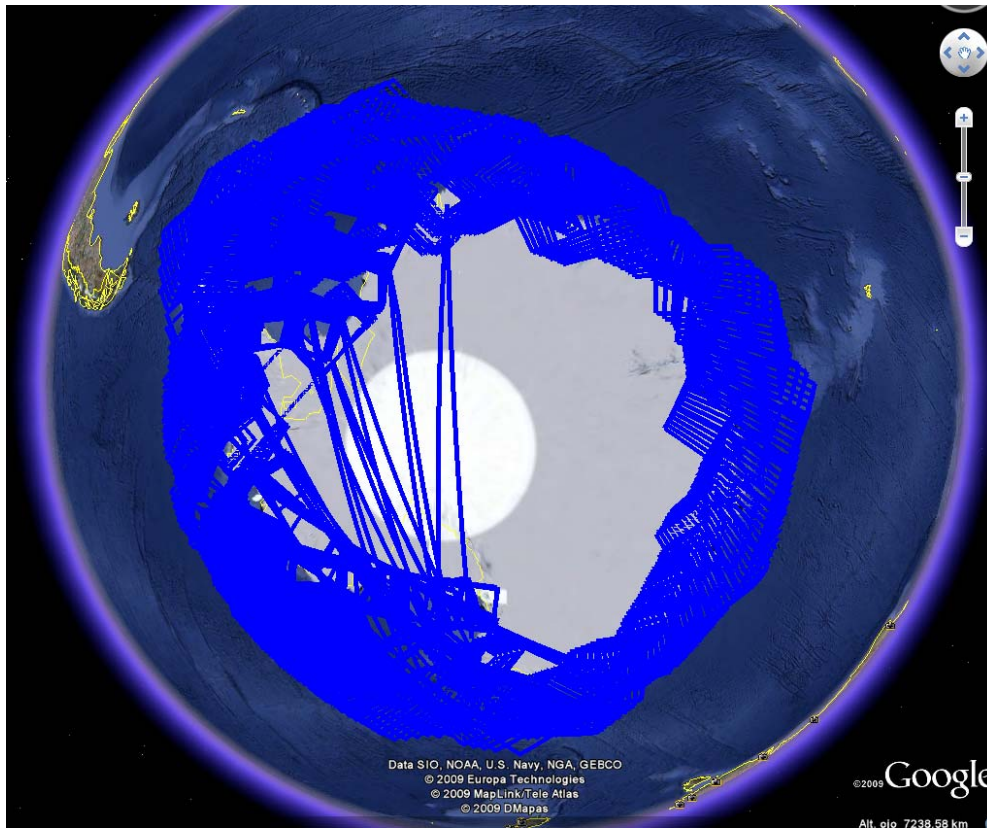


Figure 6.- GMES MyOcean Coverage - Arctic

GMES MyOcean - Arctic:

- Requirement ASAR WS HH with a revisit time of (maximum) three days.
- For some areas every opportunity acquisitions are performed (MyOcean requirement)
- Coverage has been on-going since end of December 2008.
- Coverage to be adapted to include seasonal variations in Sea Ice.



GMES MyOcean - Antarctic:

- Requirement ASAR WS HH with a revisit time of (maximum) three days.
- Coverage will start after the summer
- Coverage includes seasonal variations of Sea Ice

Figure 7.- GMES MyOcean Coverage - Antarctica

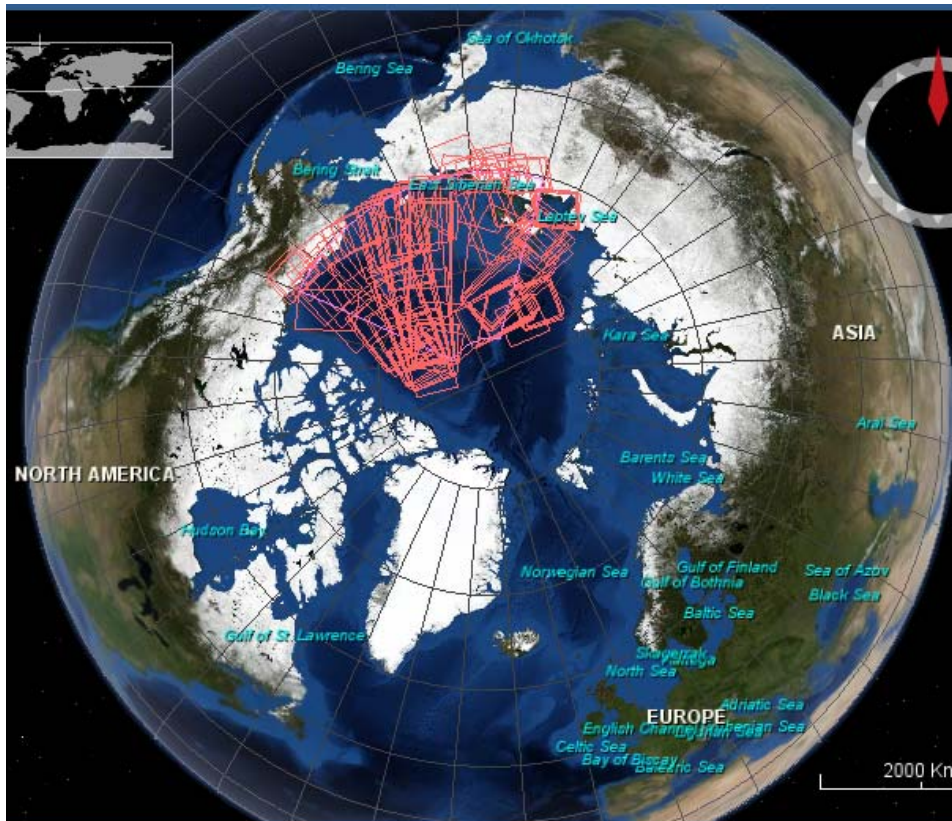


Figure 8.- Background acquisitions over Chukchi Sea

Background acquisitions:

- Background acquisitions are done when satellite resources are available and no other planning activity is on-going
- Background acquisitions are also a way of anticipating user requests or serving user needs

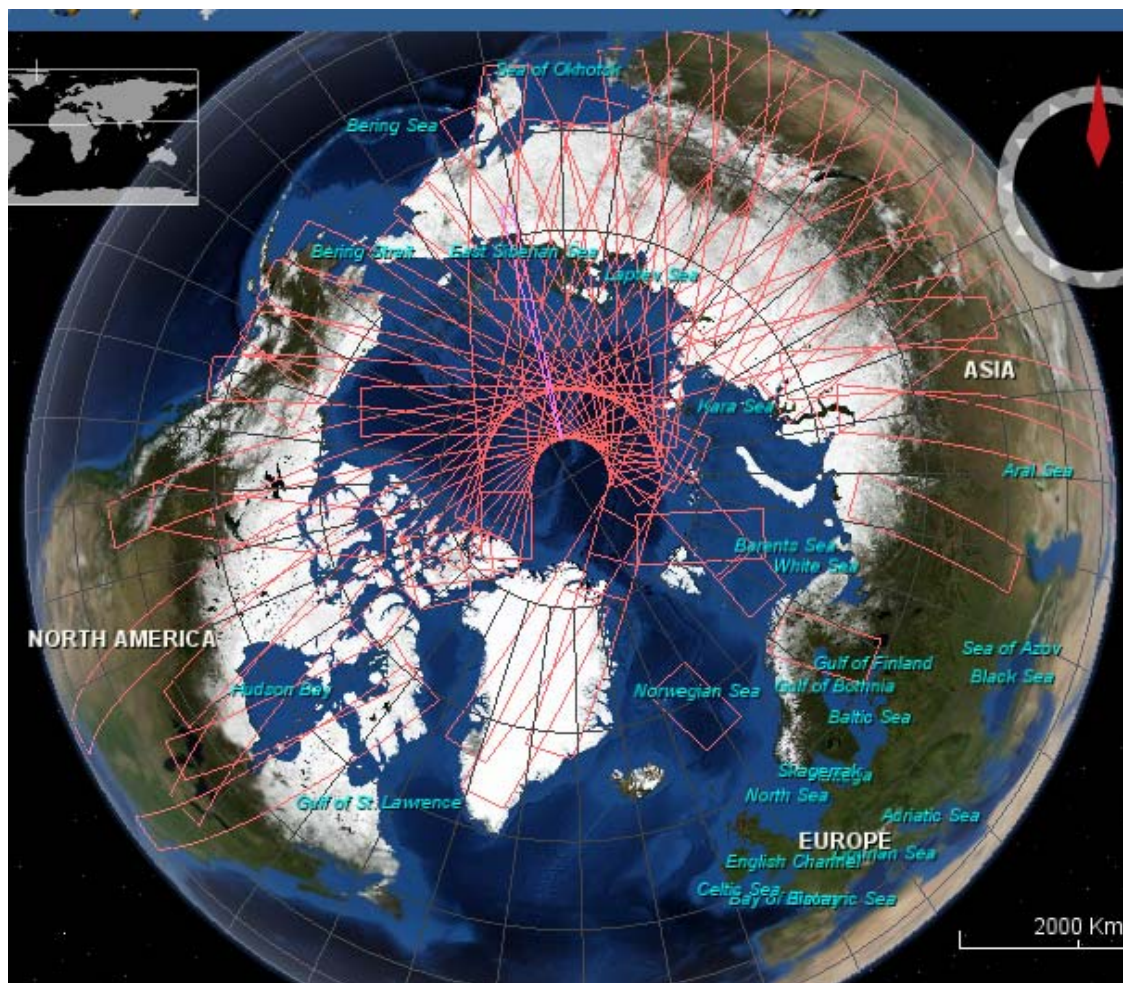


Figure 9.- Global Monitoring mode is acquired when no ASAR High Rate mode is acquired. Figure shows three days of acquisitions.

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All datasets have been addressed by Envisat ASAR