



INTERNATIONAL ICE CHARTING WORKING GROUP (IICWG)

June 22, 2016

Mr. Pierre Potin
Sentinel 1 Mission Manager
European Space Agency
8-10 rue Mario Nikis
75738 Paris Cedex 15, France
(Via e-mail: pierre.potin@esa.int)

Dear Mr. Potin;

Re: Sentinel-1 Coverage of the Polar Regions

We are writing as co-chairs of the International Ice Charting Working Group (IICWG) in regard to the Sentinel-1 Mission Synthetic Aperture Radar (SAR) data acquisitions over the Polar Regions.

The IICWG members comprise the major national ice services in the world and have the mandates from their governments to monitor and chart sea ice and iceberg conditions in their respective areas of interest. The group has long been a supporter of ESA's satellite programs for global sea ice and iceberg monitoring and congratulates ESA for the continued successes of ESA's Copernicus programme, including its increasing capacity for ice observations.

We welcome the recent and successful launch of Sentinel-1b that, along with Sentinel-1a, will provide an unprecedented amount of high-spatial resolution, all-weather, day/night SAR coverage. The Sentinel-1 SAR data streams are poised to become a critical component of the ice services' operational sea ice and iceberg analyses in both Polar Regions. Given the high frequency of SAR acquisitions afforded by the Sentinel-1 satellites, IICWG members look forward to exploiting near real-time access to these data as they provide improved products and services.

In particular, increased SAR coverage of the Antarctic Seasonal Sea Ice Zone will provide for better support of operations by national Antarctic programs, including navigation of ships in Antarctic waters and research activities. There has been a significant increase in the number of vessels operating during the summer season, both for tourism and logistical support of Antarctic bases, and of cargo ships sailing through iceberg waters near the sea ice edge year-round. Improved monitoring and characterization of sea ice with routine circumpolar SAR coverage will help us better understand Antarctic sea ice seasonal evolution and reconcile the dramatic contrast observed between the drastic decrease of Arctic sea ice and the slight increase observed around Antarctica, which is considered a polar sea ice paradox in the scientific



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literature. The refinement achieved with these observations will allow for an increased level of confidence on seasonal and climate Antarctic sea ice nowcast and forecast projections as well as improved tracking of sea ice trajectories that capture key dynamic information.

Consistent with the WMO Polar Space Task Group (PSTG) Strategic Priorities 2015-2018 goal aimed at a plan for acquiring contiguous, less-than-3 days repeat SAR coverage of the Polar Regions, we encourage ESA to aim at acquiring the maximum Sentinel-1 coverage possible over sea ice and iceberg impacted regions in both hemispheres. Such an approach will also provide a unique observing capability for input to navigation decision processes that will be required as part of the implementation of the International Maritime Organization mandatory Polar Code.

If there are questions or you would like further information, please do not hesitate to contact us through the IICWG Secretariat noted below.

Sincerely,

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