

Declaration of CryoClim product compliance with the GCOS climate monitoring principles

for the Monthly/Yearly Aggregated Global Sea Ice Concentration products provided by MET Norway

Latest update of document: 24 October 2013

The Global Climate Observing System (GCOS) provides recommendations for satellite-based observations of the climate in support of the United Nations Framework Convention on Climate Change (UNFCCC) (see GCOS report no. 107, Systematic observation requirements for satellite-based products for climate). The ten basic principles were adopted by the Conference of the Parties (COP) to UNFCCC through decision 5/CP.5 at COP-5 in November 1999. The complete set of 20 principles was adopted by COP through decision 11/CP.9 at COP-9 in December 2003.

The CryoClim service aims at adhering to the climate monitoring principles as far as practical feasible. To assist the provision of information to users about the current level of adherence to the principles for each product type, this compliance declaration is provided and updated following algorithm updates and other changes affecting the product content and quality.

GCOS' principles no. 11–20 are specific to satellite-based systems for climate monitoring. The principles are provided below together with statements on CryoClim product adherence:

- 11. Constant sampling within the diurnal cycle (minimizing the effects of orbital decay and orbit drift) should be maintained.*

Not necessarily fulfilled since polar orbital data is used.

- 12. A suitable period of overlap for new and old satellite systems should be ensured for a period adequate to determine inter-satellite biases and maintain the homogeneity and consistency of time-series observations.*

For the reprocessed sea ice concentration dataset OSI SAF has used overlapping periods where available in the SSM/I program. The CryoClim datasets are directly based on this OSI SAF dataset.

- 13. Continuity of satellite measurements (i.e. elimination of gaps in the long-term record) through appropriate launch and orbital strategies should be ensured.*

Not applicable.

- 14. Rigorous pre-launch instrument characterization and calibration, including radiance confirmation against an international radiance scale provided by a national metrology institute, should be ensured.*

OSI SAF has used the best available SSM/I data record at that time: Version 6 of the Remote Sensing System (RSS) SSM/I dataset (Wentz, F. J. User's Manual, SSM/I Antenna Temperature, Version 6. RSS Technical Memo 082806, 2006).

15. On-board calibration adequate for climate system observations should be ensured and associated instrument characteristics monitored.

See 14.

16. Operational production of priority climate products should be sustained and peer reviewed new products should be introduced as appropriate.

Both time series will be updated regularly with new monthly/yearly products when new daily input products from EUMETSAT OSI SAF are available. The input dataset has undergone scientific review at EUMETSAT.

17. Data systems needed to facilitate user access to climate products, metadata and raw data, including key data for delayed-mode analysis, should be established and maintained.

The CryoClim System will be maintained on a best-effort basis.

18. Use of functioning baseline instruments that meet the calibration and stability requirements stated above should be maintained for as long as possible, even when these exist on de-commissioned satellites.

Yes, the best available SMMR and SSM/I instruments are used.

19. Complementary in situ baseline observations for satellite measurements should be maintained through appropriate activities and cooperation.

Regional ice charts for the Greenland Sea and Barents sea are produced daily (on working days) by the Ice services at the Norwegian and Danish meteorological institutes. These are used instead of in situ observations.

20. Random errors and time-dependent biases in satellite observations and derived products should be identified.

The OSI SAF reprocessed sea ice concentration products have been validated against navigational ice charts originating from the ice charting division at the Danish Meteorological Institute (Tonboe, R., and E. Nielsen 2011: OSI SAF Global Sea Ice Concentration Reprocessing Validation Report).