

SnowPEX

THE SATELLITE SNOW PRODUCTS INTERCOMPARISON AND EVALUATION EXERCISE

A contribution to WMO Global Cryosphere Watch and WCRP CLiC

Motivation, Objectives, and Expected Results

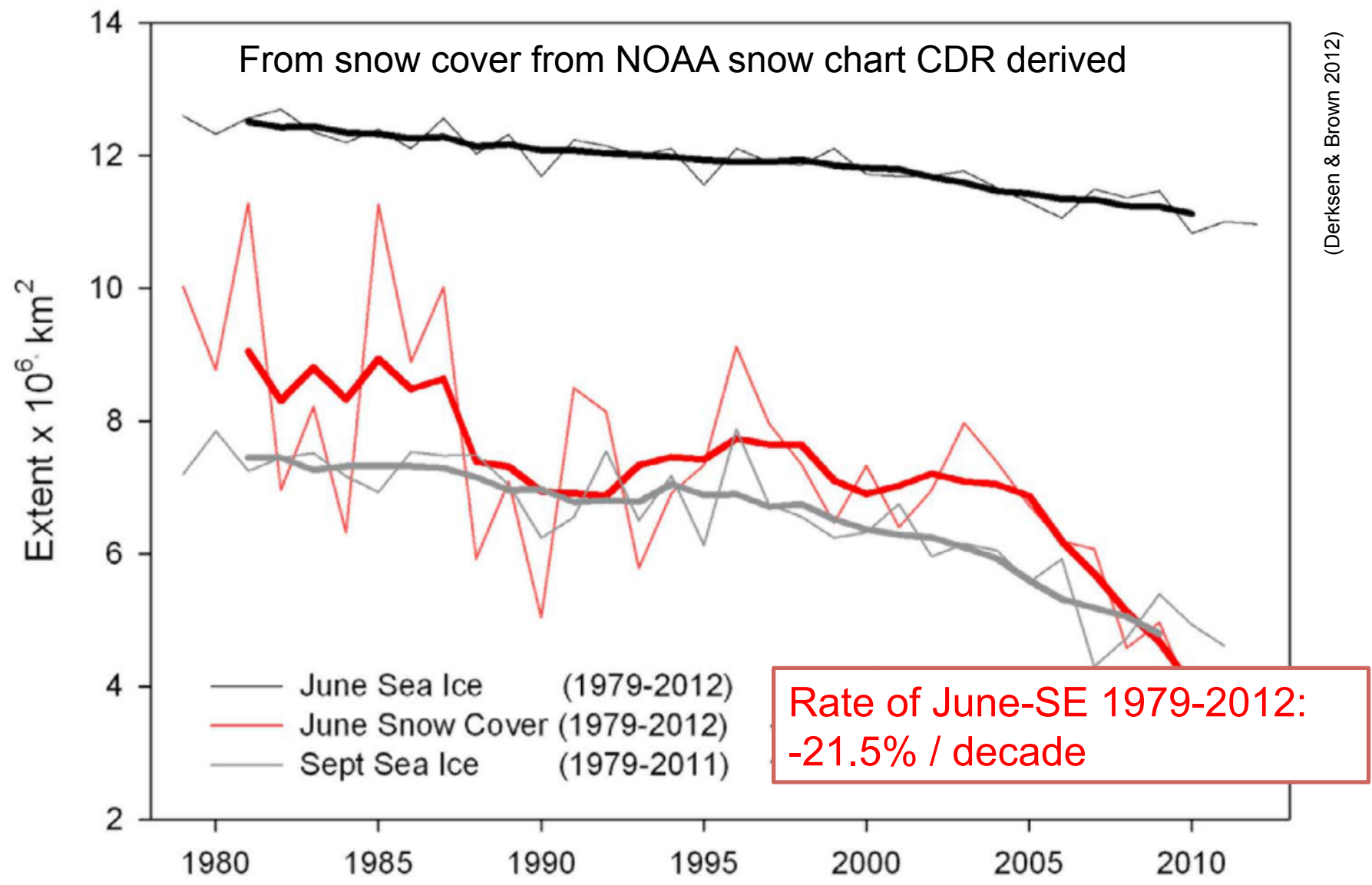
Thomas Nagler / ENVEO

Project Period: 1 June 2014 – May 2016

Consortium:



Trend of June (minimum) NH Snow Extent

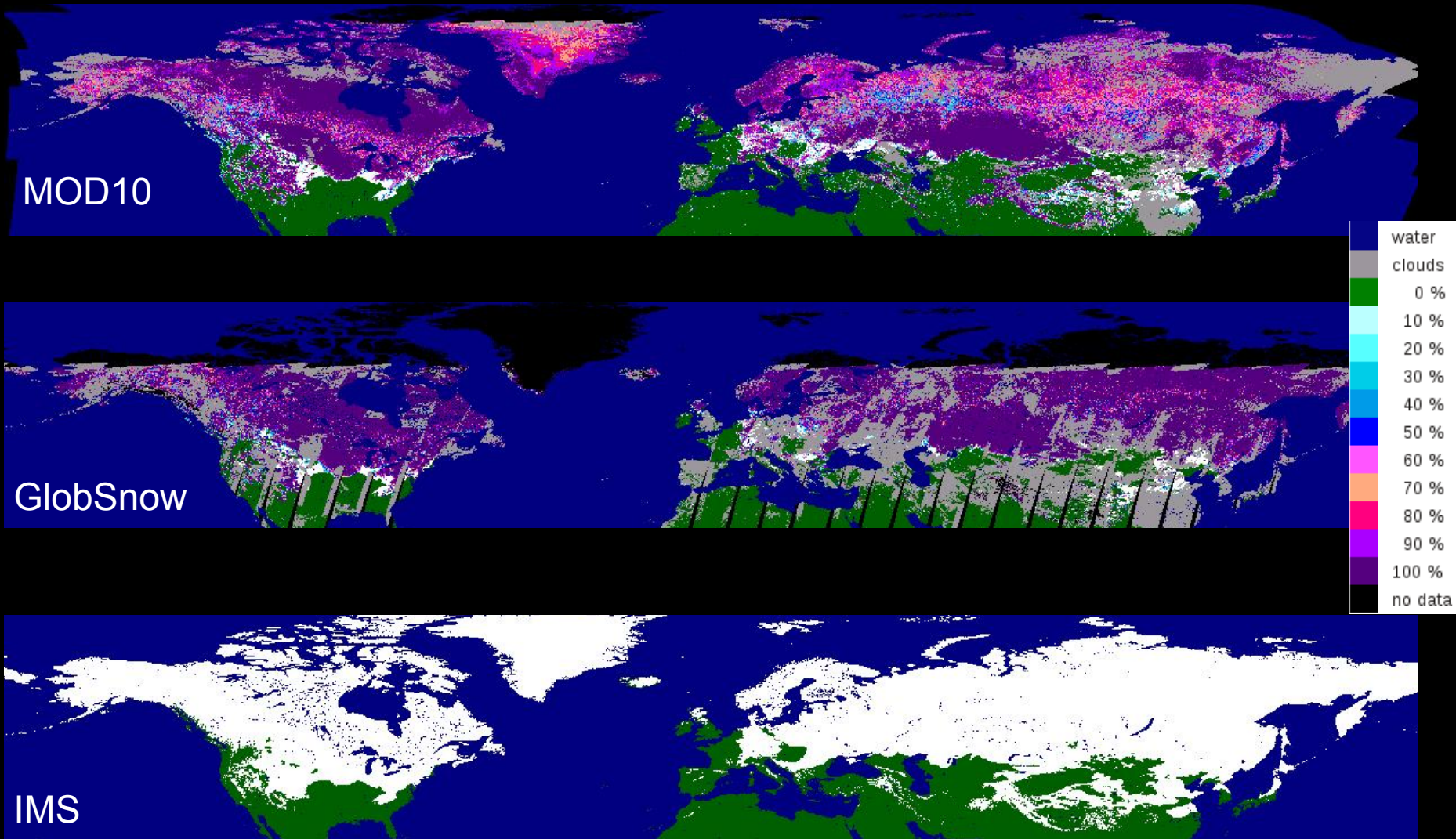


Continental to Hemispheric Satellite Snow Extent Products (not complete)

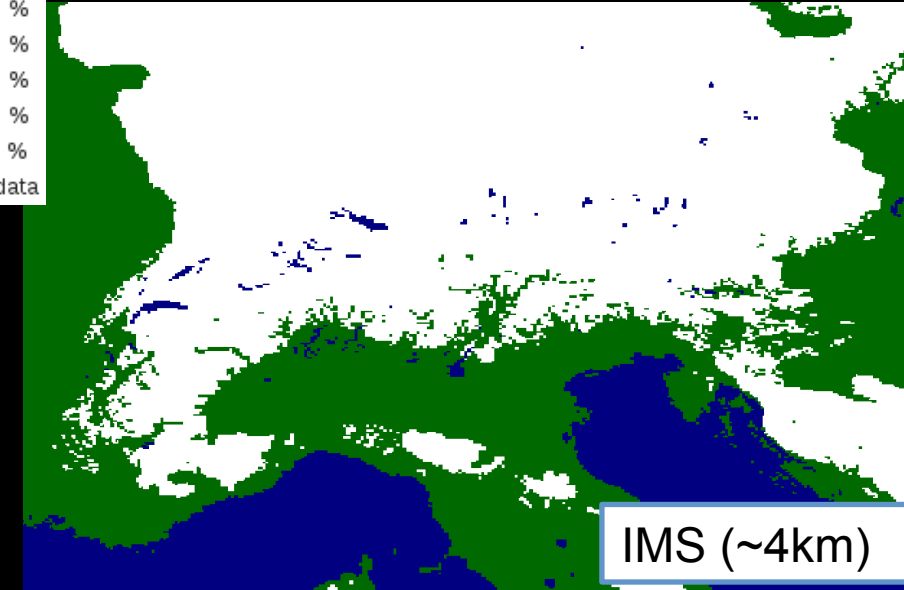
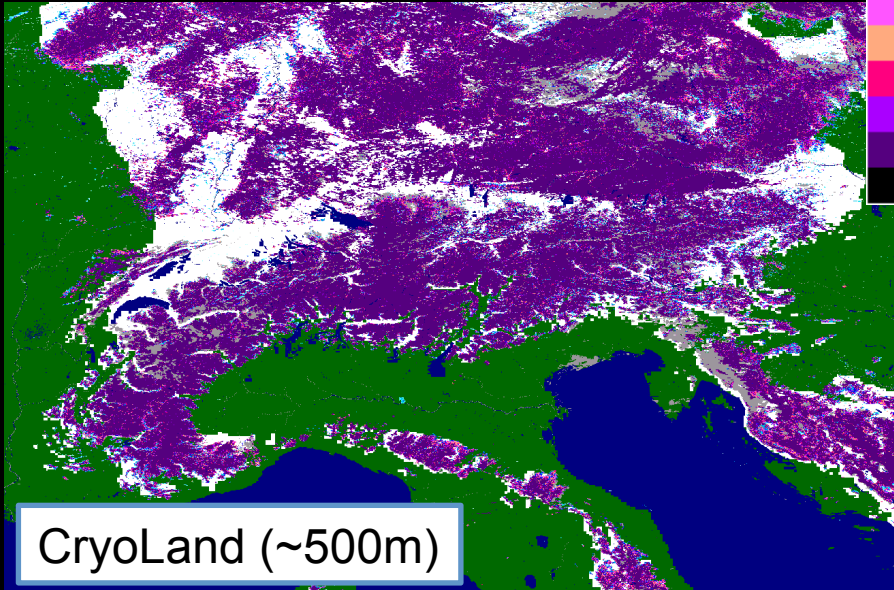
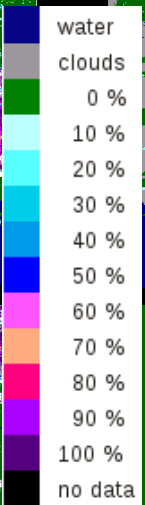
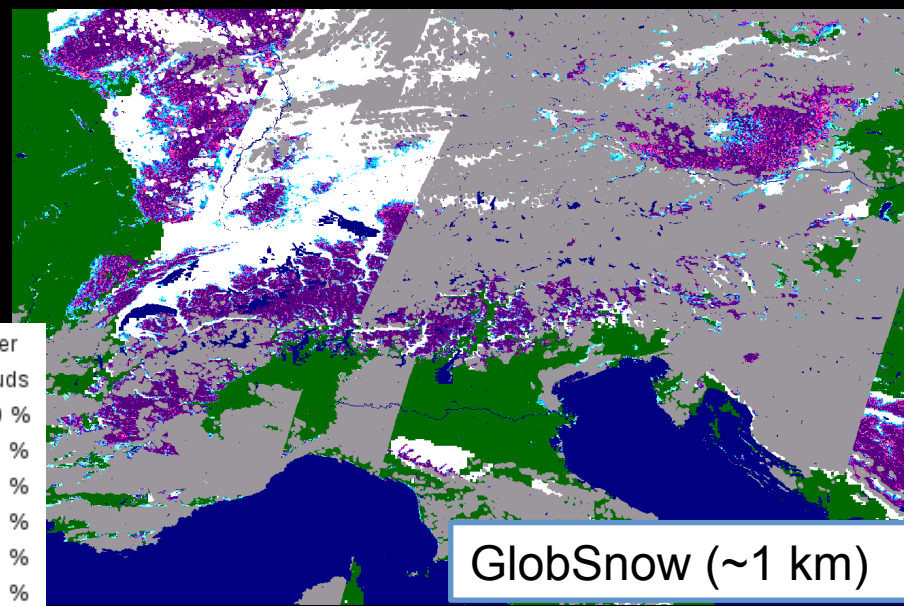
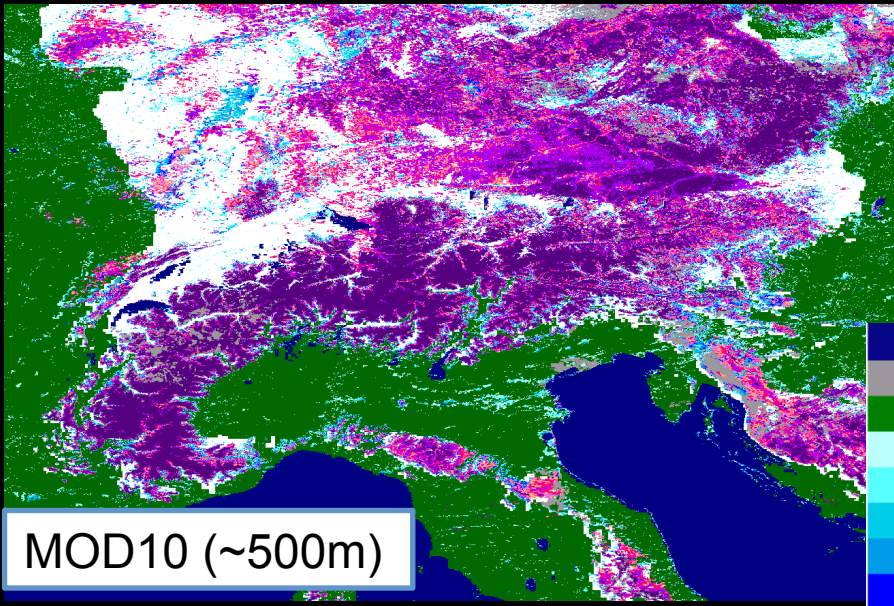


Name	Product type	Pixel Spacing	Frequency	Period	Main Sensor	Organisation
NOAA IMS	Binary	4 km	daily	2004 -	OPT, PMW, + manual	NOAA (Helfrich et al.)
NOAA IMS	Binary	24 km	daily	1997 -2004	OPT, PMW	NOAA
GlobSnow	Fractional	1 km	daily - monthly	1996-2012	ATSR2 AATSR	SYKE et al.
MOD10	Fractional	0.5 km	Daily	2000 -	MODIS	NSIDC (Hall et al.)
AVHRR Pathfinder	Binary	5 km	daily	1992 -2004	AVHRR	CCRS (Zhao, et al)
CryoLand	Fractional (Europe)	0.5 km	daily	2000 -	MODIS	ENVEO / SYKE

Maximum Snow Extent for Period 1-7 Mar 2010

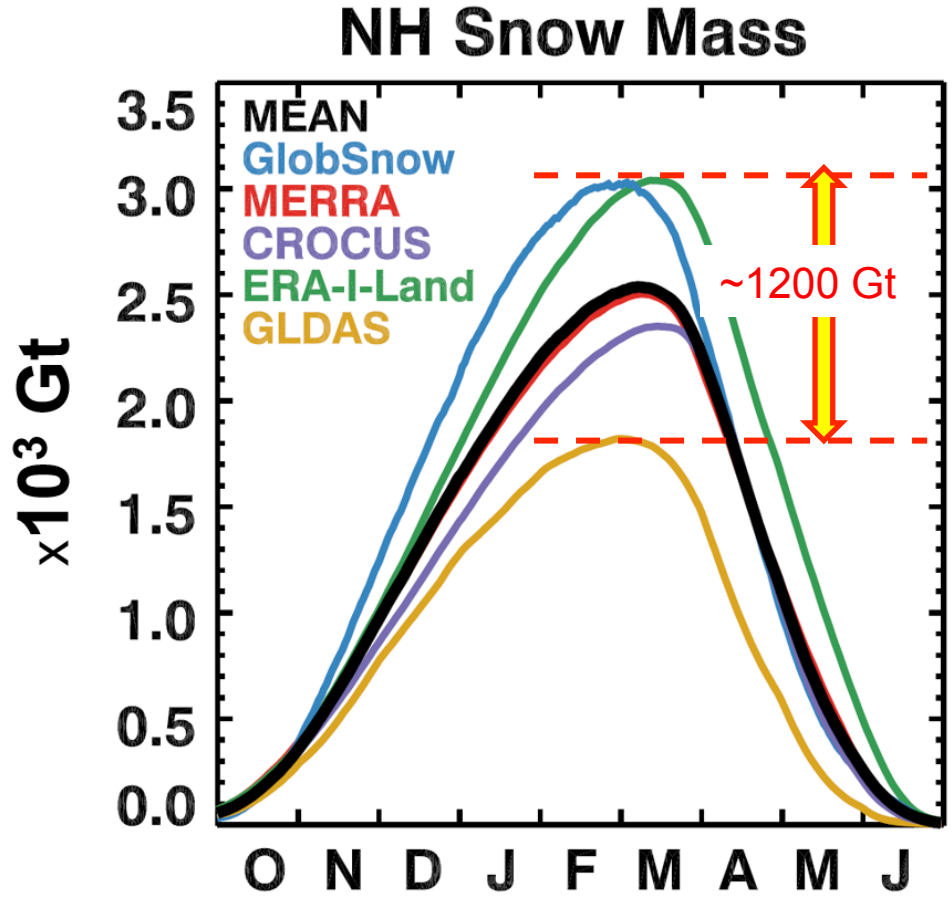
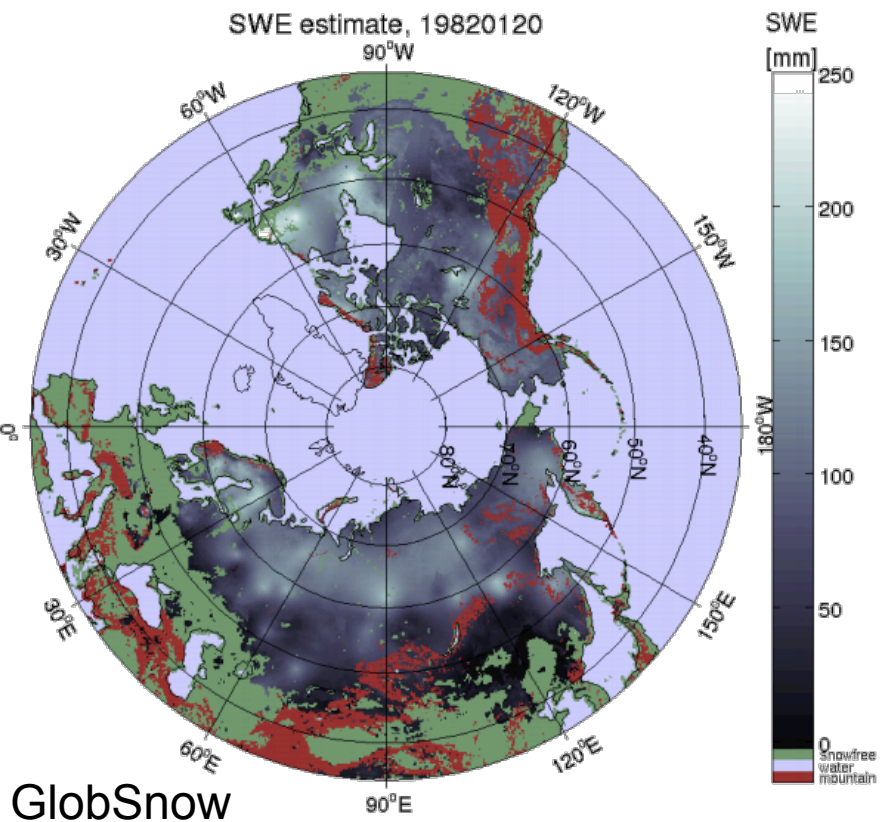


Maximum Snow Extent 1-7 March 2010



Mass of Seasonal Snow

Observation of SWE by means of Passive MW (GlobSnow, NASA Std/Prototype, AMSR-E, CMA, etc.)



The primary objectives are

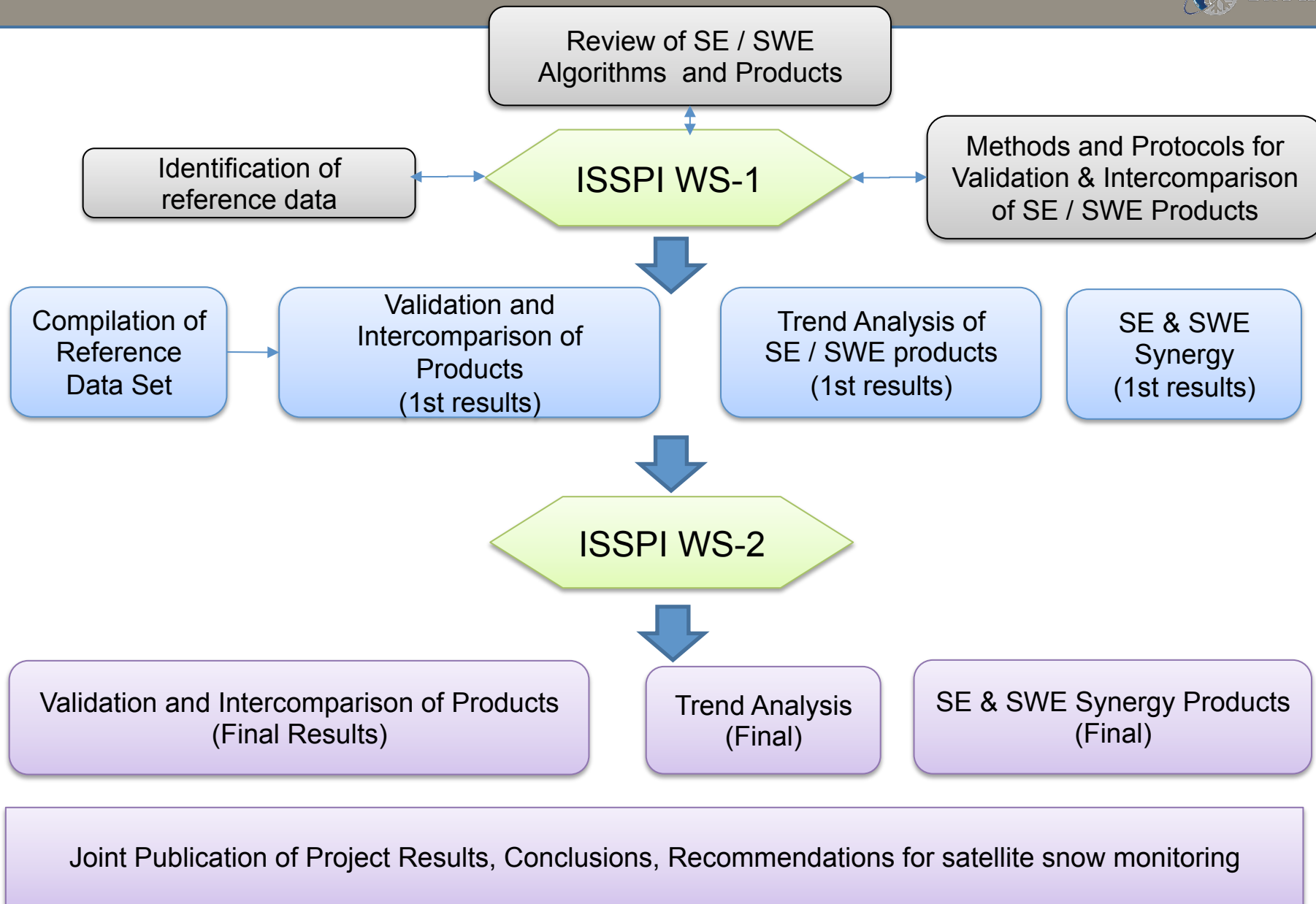
- Intercompare and evaluate global / hemispheric (pre) operational snow products derived from different EO sensors and generated by means of different algorithms, assessing the product quality by objective means.
- Evaluate and intercompare temporal trends of seasonal snow parameters from various EO based products in order to achieve well-founded uncertainty estimates for climate change monitoring.
- Elaborate recommendations and needs for further improvements in monitoring seasonal snow parameters from EO data.

The project will support the setup of a consolidated operational satellite snow observation system for the Global Cryosphere Watch Initiative of the WMO and help to improve the snow cover data base for climate monitoring, as addressed by the WCRP-CliC programme.

Main Tasks within SnowPEX

- Review of Algorithms and products focusing on Snow Extent (SE) and Snow Water Equivalent (SWE)
- Definition of protocols and methods for validation and intercomparison of SE / SWE products
- Definition and compilation of reference data sets for quality assessment of SE and SWE products
- Intercomparison of SE / SWE products from various institutions and the quality assessment against reference data base
- Analysis of Hemispheric/Global SE and Snow Mass Trends and its uncertainty and
- Study the synergy of SE and SWE products
- Conclusion and recommendations for satellite snow monitoring publication of project results

Study Logic



Objectives of ISSPI WS-1

- To review algorithms and satellite products for snow extent and snow water equivalent (continental to global coverage)
- To elaborate guidelines for generation of reference / validation data (i.e. from high resolution satellite images, in-situ data; etc.)
- Definition of key regions and periods for validation and intercomparison
- To elaborate concepts, protocols and guidelines for intercomparison and validation of snow products
- To review and discuss uncertainty characterisation of satellite snow products

ISSPI WS-1 AGENDA



MONDAY, 21 July 2014

Mon-1	09:00	09:50	Opening and Overview	Thomas Nagler / Chris Derksen
Mon-2	09:50	10:10	Protocols for Product Validation and Intercomparison	Thomas Nagler / Chris Derksen
Mon-3	11:00	12:40	Snow Extent Product -1	Richard Fernandes / David Robinson
Mon-4	14:00	16:00	Snow Extent Product -2	Dorothy Hall / Rune Solberg
Mon-5	16:20	17:00	Poster Presentations	Gabriele Bippus / Lothar Schüller
	17:00	19:00	Ice Breaker and Poster Session	

TUESDAY, 22 July 2014

Tue-1	09:00	10:00	Snow Water Equivalent	Chris Derksen / Marco Tedesco
Tue-2	10:00	10:50	Reference Data-1	Bojan Bojkov / Carrie Vuyovich
Tue-3	11:10	12:30	Reference Data-2	Sari Metsämäki / Ludovic Brucker
Tue-4	14:00	15:30	Splinter Session -1 SE SWE	Thomas Nagler / Richard Fernandes Chris Derksen / Kari Luojus
Tue-5	16:00	17:30	Splinter Session -2 SE SWE	Thomas Nagler / Richard Fernandes Chris Derksen / Kari Luojus

WEDNESDAY, 23 July 2014

Wed-1	9:00	9:00	Keynote	Barry Goodison & Jeff Key
Wed-1	9:30	10:30	Splinter Session-3 SE / SWE	Thomas Nagler / Richard Fernandes Chris Derksen / Kari Luojus
Wed-2	11:00	13:00	Summary of Splinter Sessions SE & SWE Discussion and Action Items	Splinter Chairs & Rapporteurs
Wed-3		13:00	Closing of Workshop	Bojan Bojkov, Sean Helfrich, Thomas Nagler

Expected Outcome of ISSPI WS-1

DATE: 21-23 July 2014

VENUE: NOAA / College Park MD

The expected outcome of the International Snow Product Intercomparison Workshop 1

- Description of SE and SWE algorithms and products.
- Agreed concept, protocols and procedures for validating and intercomparing of SE and SWE products
- Definition of key regions and key periods for product validation and quality assessment
- Procedures for generating reference data for product intercomparisons
- Coordinated plan of product validation and intercomparison activities

