CryoLand

Copernicus Service Snow and Land Ice

BRIEFING NOTE FOR POLICY MAKERS

No. 3

AT A GLANCE

Title: CryoLand - GMES Service Snow and Land Ice

Grant Agreement No. 262925

Call: FP7-SPACE-2010-1 Activity 9.1
Theme: SPA.2010.1.1-01 Stimulating Development of Downstream GMES Services

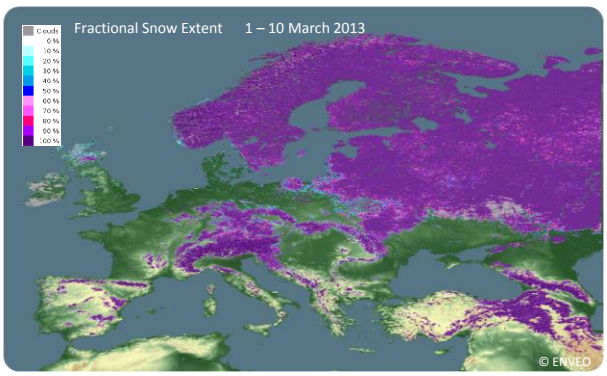
INSTRUMENT: Collaborative Project FP7
TOTAL COSTS: € 2.828.859
EC CONTRIBUTION: € 2.201.182
PERIOD: 1 Feb. 2011 – 31 Jan. 2015
DURATION: 48 Months

CONSORTIUM: 10 Partners from 6 European Countries

PROJECT COORDINATOR:
ENVEO Environmental Earth Observation IT GmbH
Innsbruck, Austria

CONTACT:
Thomas Nagler,
ENVEO IT GmbH
Technikerstrasse 21a, 6020 Innsbruck, Austria
email: thomas.nagler@enveo.at

PROJECT WEB SITE: http://www.cryoland.eu



OBJECTIVES

CryoLand develops and implements snow, glacier and lake / river ice services optimized for matching stakeholder needs, building upon Earth Observation data including the Copernicus Sentinel satellite family. Fully validated snow and land ice products, covering local to continental scales and conforming to the INSPIRE/GEOSS standards, are delivered in near real time to users operating in various application fields. CryoLand prepares for Copernicus Snow and Land Ice services and can be extended to global monitoring of snow and ice.

BENEFITS TO CITIZENS

The CryoLand services on accurate and timely observations of snow and land ice by means of satellites are supporting environmental and resource management activities in Europe. Seasonal snow cover and glaciers are important resources, supplying major parts of Europe with fresh water for human consumption, agriculture, hydropower generation, and other economic activities. On the other hand, various natural hazards are directly or indirectly arising from snow, glaciers and lake / river ice, including avalanches, snow melt floods, water outbreak from glacier lakes, and ice jams on rivers. The users of CryoLand services are organisations operating in the field of water resources management, hydropower production, energy trading, natural hazards mitigation, transportation and construction activities, climate monitoring and modelling, weather prediction, agriculture, tourism, and agencies of the European Commission.

CRYOLAND SERVICE PROVISION

In order to ensure timely and efficient delivery of CryoLand snow and land ice products efficient service infrastructure has been developed and implemented based on interoperable and standardised Web services.
CryoLand products and services are accessible to the public at http://www.crypoland.eu → Geoportal

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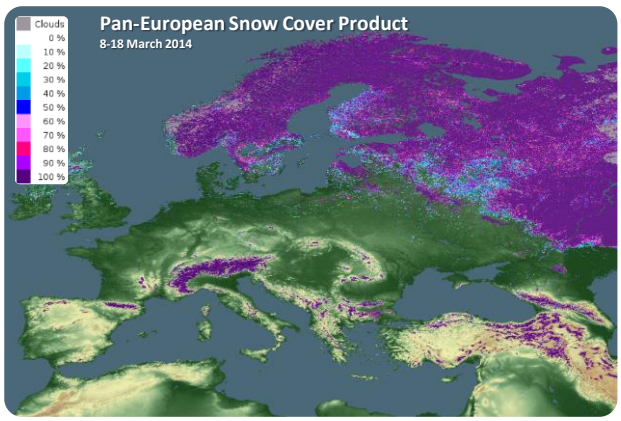
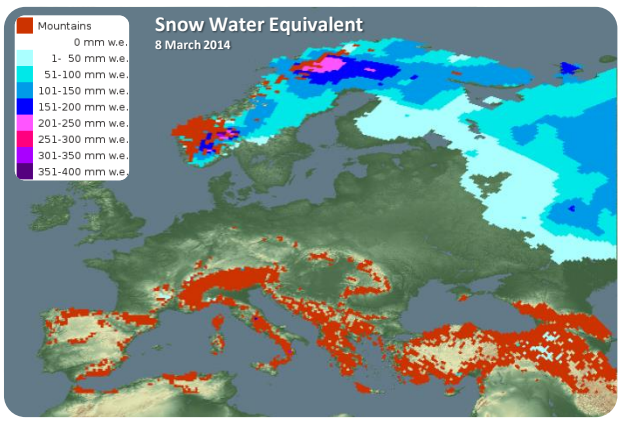
CryoLand Snow, Glacier and Lake/River Ice Product Portfolio

CryoLand Products in Preparation for a Potential Copernicus Snow and Glacier Services

Product Type	Coverage	Spatial Resolution	Temporal Coverage and Availability		EO Sensors	
					current	prepared for
Snow Extent	Pan-European	500 m	NRT[1], daily, full year	2000-present	MODIS	Sentinel-3
Snow Water Equivalent	Pan-European	10 km	NRT[1], daily, dry snow season	2011-present	SSMI/S, AMSR2	-
Melting Snow Areas	Mountain Areas	100 m	NRT[1], daily, melting period	2013-present	RSAT-2	Sentinel-1
Glacier Area Extent	Pan-European	< 10 m	on-demand	-	high resolution optical	Sentinel-2

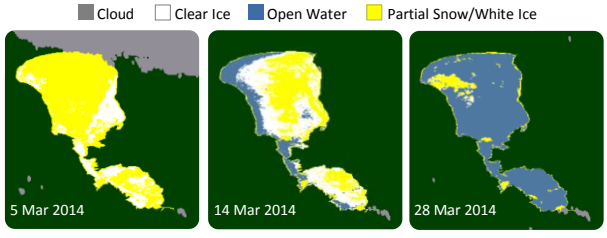




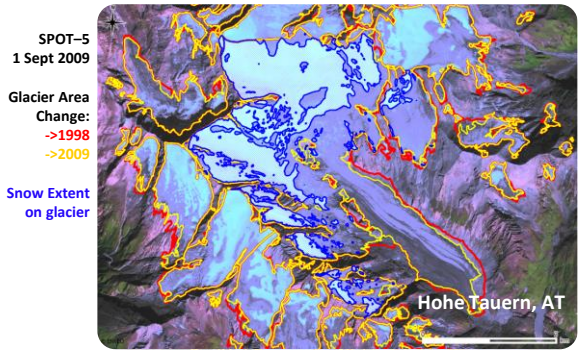
Snow, Glacier and Lake / River Ice Downstream and On-Demand Services

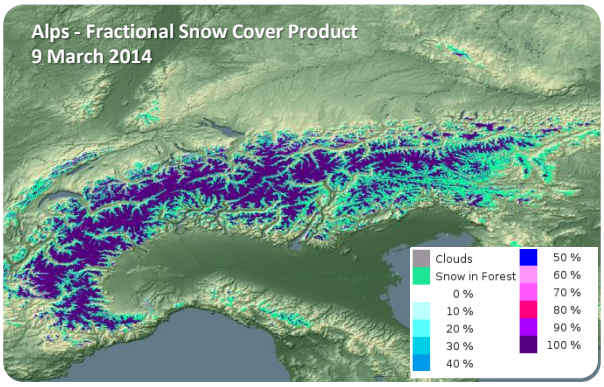
Product Type		Coverage	Spatial Resolution	Temporal Coverage and Availability		EO Sensors	
						current	prepared for
Regional Snow Extent		Alps	250 m	NRT[1], daily, full year	2010-present	MODIS	Sentinel-3
		Scandinavia	1 km	NRT[1], daily, winter / spring	2013-present	MODIS, RSAT-2	Sentinel-1 & -3
		Baltic	500 m	NRT[1], daily, winter / spring	2012-present	MODIS	Sentinel-3
Glacier	Snow/Ice Area	specified by user	20 m	on demand	specified by user	high resolution optical, SAR	Sentinel-1 & -2
	Glacier Lakes	specified by user	< 30 m	on-demand	specified by user	high resolution optical, SAR	Sentinel-1 & -2
	Ice Velocity	specified by user	50 m	on-demand	specified by user	SAR	Sentinel-1

Product Type	Spatial Resolution	Coverage	EO Sensors	
			current	prepared for
Lake Ice	250 m	Baltic area	MODIS	Sentinel-3
River Ice Extent	< 50 m	Selected rivers in Scandinavia and Baltic area	High/Medium res. SAR	Sentinel-1



Thawing of lake ice on Lake Peipus/Estonia, March 2014





Experimental Snow Products

Product Type	Spatial Resolution	Coverage	EO Sensor	
			current	prepared for
Snow Surface Wetness	1 km	Scandinavia	MODIS	Sentinel-3
Snow Surface Temperature	1 km	Scandinavia	MODIS	Sentinel-3

[1] NRT – near real time production

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