

CryoLand

Copernicus Snow and Land Ice Service

Dissemination Workshop
4 December 2014
Innsbruck, AUSTRIA



CRYOLAND DISSEMINATION WS

AGENDA Morning



9:00 - 9:10	Welcome Thomas Nagler (ENVEO), Antonia Zeidler (BFW)
9:10 - 9:20	Project Overview, <i>Thomas Nagler, ENVEO</i>
9:20 - 9:50	CryoLand Snow Services and Products, <i>Gabriele Bippus, ENVEO</i>
9:50 - 10:05	CryoLand Glacier Services and Products, <i>Elisabeth Ripper, ENVEO</i>
10:05 - 10:15	CryoLand Lake and River Ice Services, <i>Kari Luojus, FMI</i>
10:15 - 10:35	ESA Earth Observation missions for snow and land ice services, <i>Josef Aschbacher, ESA</i>
10:35 - 11:00	Coffee Break
11:00 - 11:20	Snow and Land Ice Prototype Products from Sentinel Data, <i>Andreas Wiesmann, GAMMA</i>
11:20 - 11:40	CryoLand Geoportal and System, <i>Christian Schiller, EOX</i>
11:40 - 11:55	Future Continuation of CryoLand Services, <i>Thomas Nagler, ENVEO</i>
11:55 - 12:15	Integration of CryoLand snow data into hydrological modelling, <i>David Gustafsson, SMHI</i>
12:15 - 12:30	Experience and validation of snow products provided by CryoLand, <i>Georg Raffeiner, HD Tirol</i>
12:30 - 14:00	Lunch Break

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AGENDA Afternoon



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|---------------|---|
| 14:00 - 14:15 | Capabilities of satellite data for regularly updated inventories of glacier parameters, <i>Bernhard Hynek, ZAMG</i> |
| 14:15 - 14:30 | Snow and glacier services for geotechnical and hydropower applications, <i>Martin Fuchs, Pöyry Energy GmbH</i> |
| 14:30 - 14:45 | Experience of the Romanian National Hydrological Forecast Center in using CryoLand Snow services, <i>Marius Matreata, National Institute for Hydrology and Water Management</i> |
| 14:45 - 15:00 | The use of satellite snow products in EFAS & EDO, <i>Peter Salamon and Jürgen Vogt, JRC (given by David Gustafsson)</i> |
| 15:00 - 15:15 | Use of CryoLand snow products for spatial validation of an operational snow cover model at ZAMG, <i>Marc Olefs, ZAMG</i> |
| 15:30 - 16:00 | Coffee Break |
| 15:45 - 16:00 | Assessing satellite-derived snow cover products over the UK for use in NWP, <i>Samantha Pullen, MetOffice UK (given by Gabriele Bippus)</i> |
| 16:00 - 16:15 | Examples of CryoLand data Utilization at the Romanian Meteorological Administration, <i>Alina Ristea, Romanian Meteorological Administration</i> |
| 16:15 - 16:45 | Discussion |
| 16:45 | Closing of the Meeting |

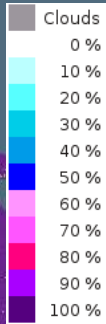
CryoLand

Copernicus Snow and Land Ice Service 2011-2015

Dissemination WS, 4 December 2014
Innsbruck, AUSTRIA

Thomas Nagler
ENVEO IT GmbH

CryoLand is a Collaborative Project (2011-2015) funded by EU under the 7th Framework Programme (No:262925), Theme SPA.2010.1.1-01– Stimulating the development of downstream GMES services.



CryoLand – (FP7 Project 2011-2015)

Copernicus Services Snow and Land Ice



OBJECTIVE

CryoLand developed, implemented and validated operational services for monitoring snow, glaciers and lake / river ice as Downstream Services within the Copernicus Initiative of EC and ESA.

The project prepares the basis for the cryospheric component of the EC Copernicus Land Monitoring Services primarily using Sentinel data.

SUB-OBJECTIVES

- Integrate and operationalise existing snow and land ice services
- Utilization of data from the Copernicus Sentinel Satellites for snow and land ice applications.
- Products are conform to INSPIRE/GEOSS standards
- Full verification and real time demonstration of services
- Tools developed to offer snow and land ice services world-wide.
- Products are made available via state-of-the-art online services
- Guidelines for stakeholders and for service operations

CryoLand Project Partners



10 Partners from Austria, Finland, Norway, Romania, Sweden, Switzerland



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Finnish Meteorological Institute
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<http://www.fmi.fi>



GAMMA Remote Sensing
Gümlingen, Switzerland
<http://www.gamma-rs.ch>



Kongsberg Satellite Services
Tromsø, Norway
<http://www.ksat.no>



Swedish Meteorological &
Hydrological Institute
Norrköping, Sweden
<http://www.smhi.se>

Approach for Product and Service Development Towards User Needs



1. User requirements / dialogue for improved product requirements and specification

User Requirements for Products and Services

- 2011 Collecting user requirements for snow, glacier and lake / river ice products. Workshops in Vienna, Oslo, Bucharest and Web Questionnaire
- 2012 Consolidation of product and service specifications at User Workshop, Stockholm
- 2013 Interim Validation Workshop, Copenhagen
User trainings for CryoLand Services during Demonstration Phase
- 2014 Dissemination Workshop – Nordic Countries, Oslo (8 Oct 2014)
Dissemination Workshop – Central Europe, Innsbruck (4 Dec 2014)

fully validated products and services

validated Products and Services

CryoLand Snow Products and Services



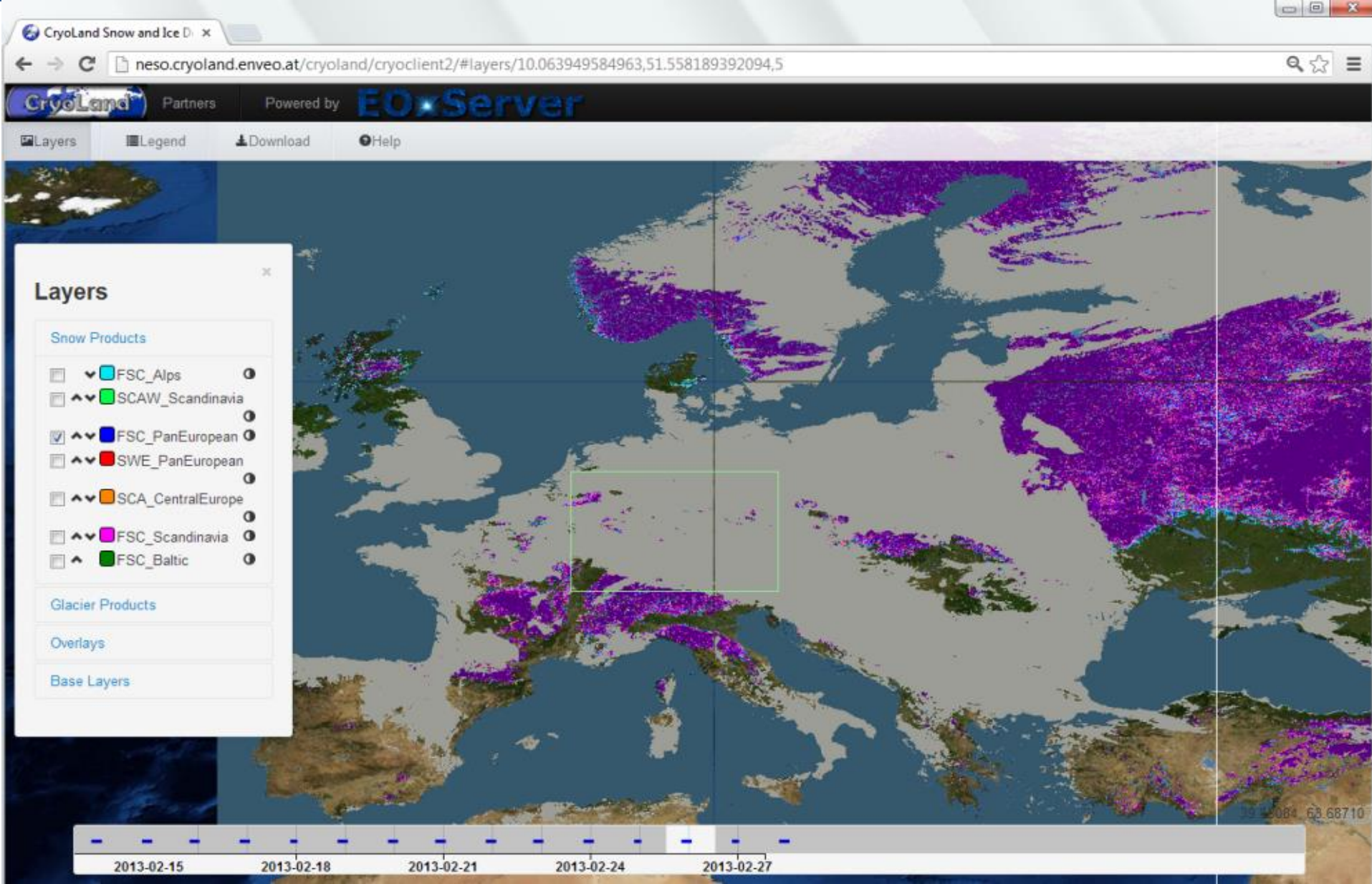
Product type	Spatial resolution	Temporal Coverage	Coverage	Latency time	EO sensors
Snow extent, Pan-European	500 m	Daily, full year 2000 -> Today NRT since 2012/13	35N – 72 N 11W – 50E	<1 day	MODIS, Sentinel S3
Snow Water Equivalent Pan-European	25 km	Daily, dry snow season 2011→ Today	35N – 72 N 11W – 50 E	<2 day	SSM/I/S, AMSR2
Snow extent, regional	250 m 500 m 500 m	Daily, full year	Alps, Scandinavia Baltic Sea area	<1 day	MODIS Sentinel S1, S3
Melting snow area	100 m	Daily, Spring / Summer	Alps Scandinavia	<1 day	Sentinel S1 Radarsat-2 (ASAR archived),
Snow Surface Wetness	1000 m	Daily	Southern Norway	<1 day	MODIS, Sentinel S3
Snow Surface Temperature	1000 m	Daily	Southern Norway	<1 day	MODIS, Sentinel S3

Glacier and Lake / River Ice Products



Product type	Coverage	Grid / Projection	Latency time	Sensor
Glacier outlines	Local, regional (on user request)	Lat/Lon / WGS84, UTM / WGS84	-	High resolution Optical, SAR
Snow/ice area on glaciers	Local, regional (on user request)	Lat/Lon / WGS84, UTM / WGS84	-	High resolution Optical, SAR
Glacier Ice velocity	Local (on user request)	Lat/Lon / WGS84, UTM / WGS84	-	SAR
Glacier lakes	Local (on user request)	Lat/Lon / WGS84, UTM / WGS84	- quick analysis, hours (emergency)	High resolution Optical, SAR
Lake ice extent (4 classes)	Baltic Sea area (operational)	Lat/Lon / WGS84	3 days	MODIS/Terra, Sentinel-3
River ice jam, flood inundation area	Scandinavia (on user request / emergency)	Lat/Lon / WGS84	3 days	High res. SAR (1-30 m)

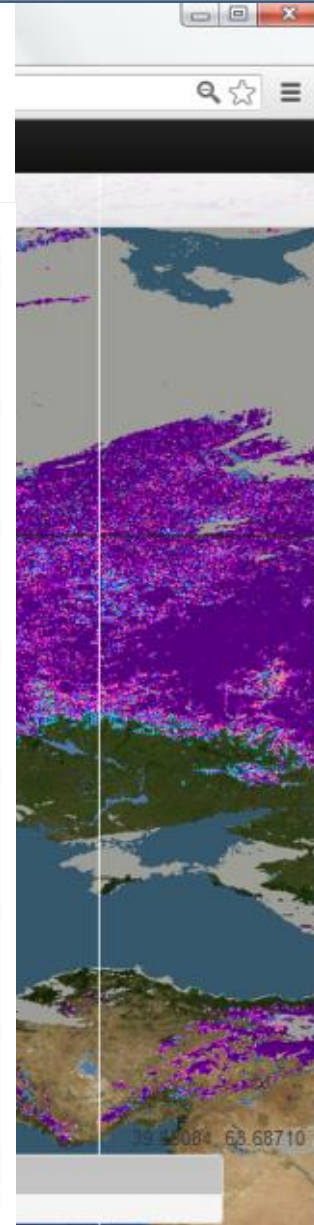
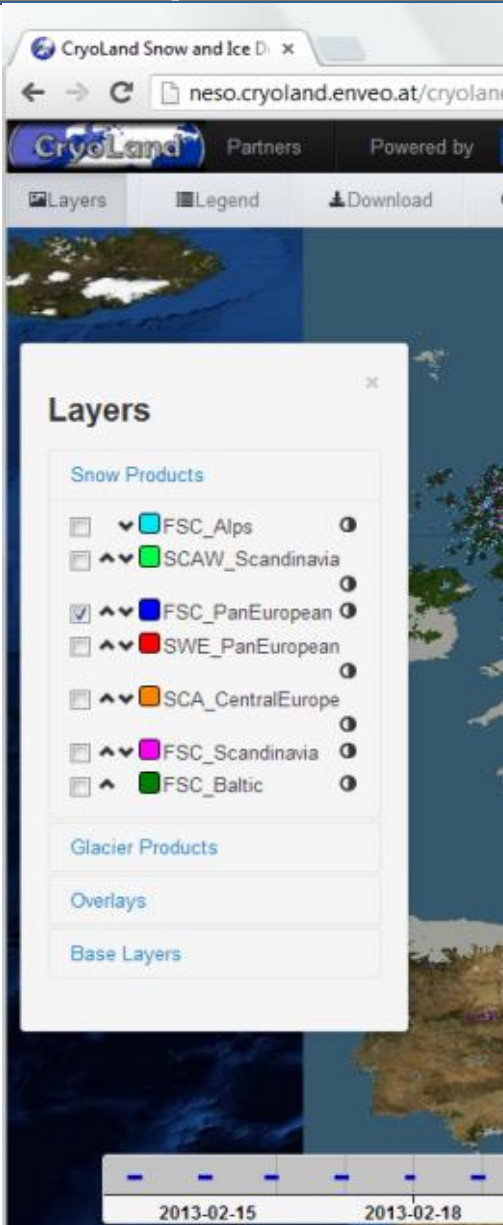
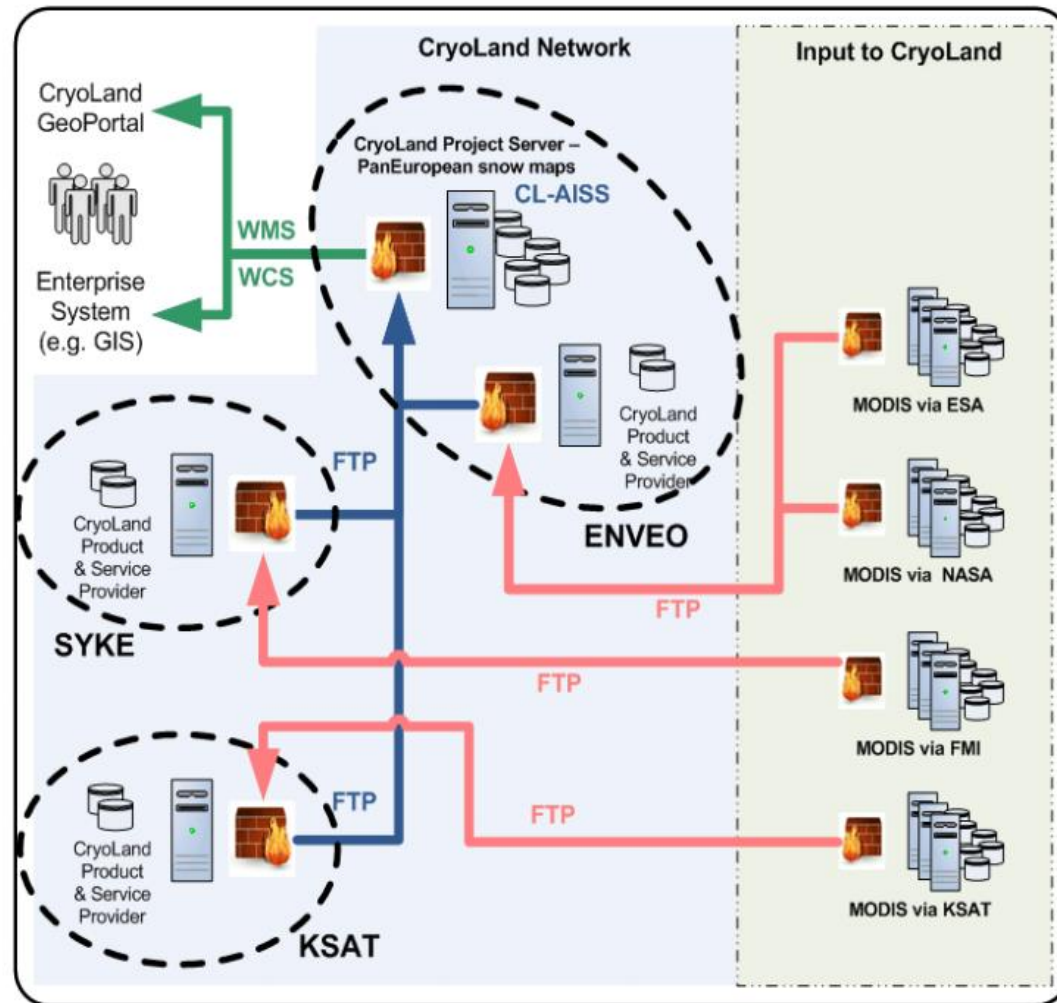
CryoLand Geoportal @ <http://www.cryoland.eu>



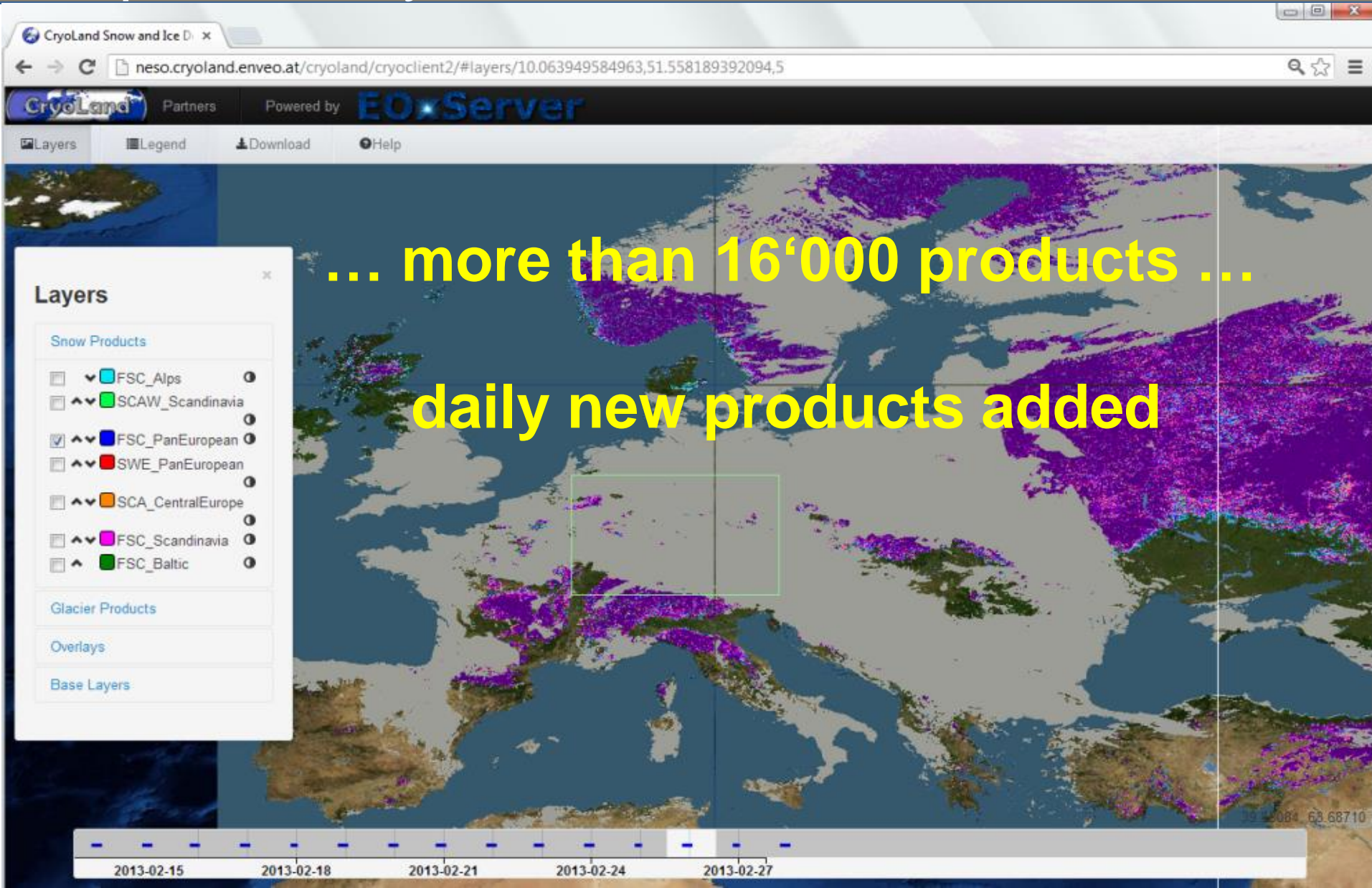
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Implemented Service Network for the operational CryoLand services, utilizing a central data provisioning node.

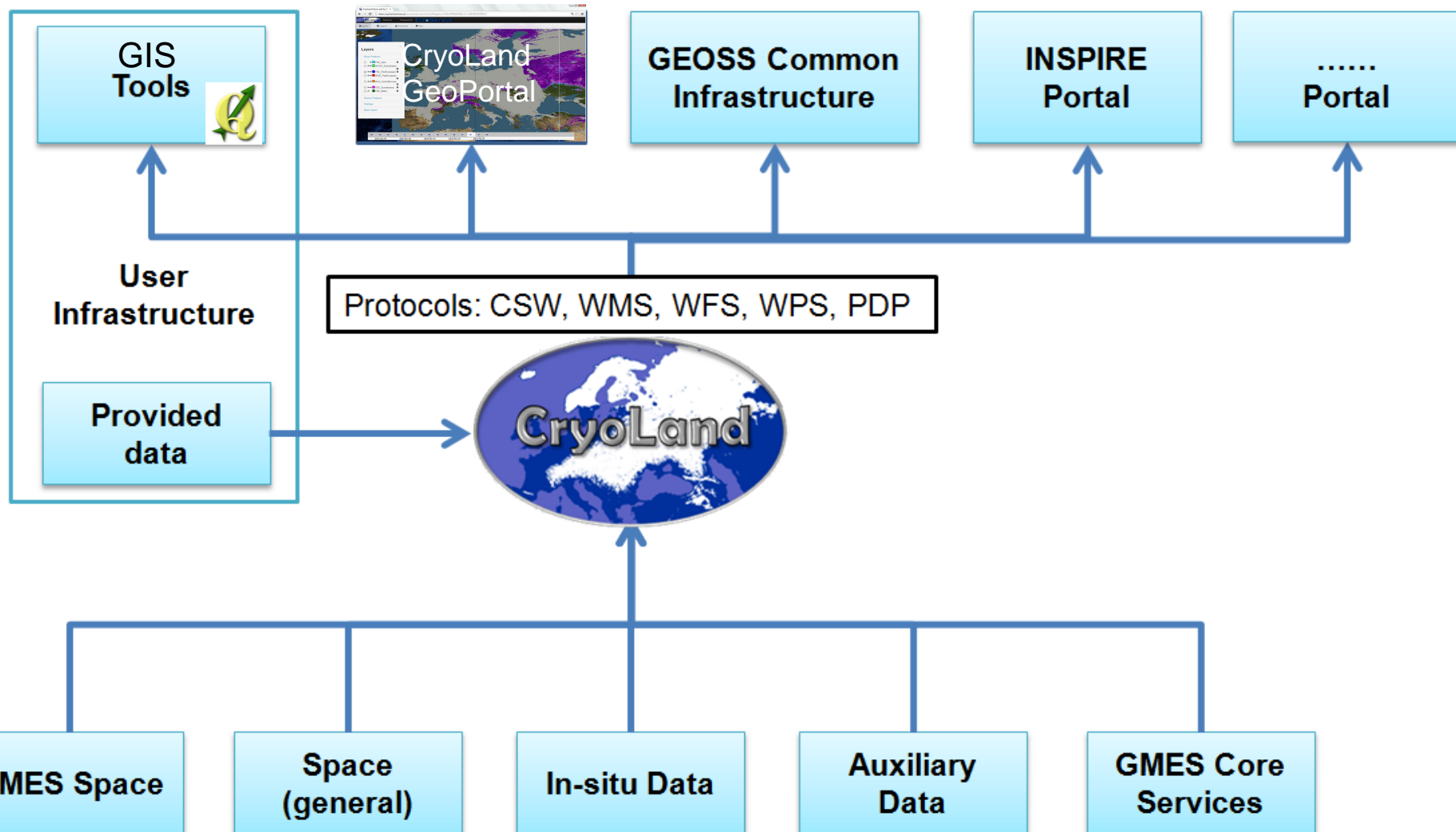


CryoLand Geoportal @ <http://www.cryoland.eu>



CryoLand Geoportal @

<http://www.cryoland.eu>



Aim of this Workshop



- Introduce CryoLand snow, glacier and lake / river ice products and services to a wider user community
- Show how to access and download products and time series of products from the CryoLand Geoportal
- Demonstrate the use of CryoLand products and services for different applications (presented by members of the CryoLand User Group)
- Give an outlook for the continuation of CryoLand Snow and Land Ice Services as downstream services or as part of the Copernicus Land Monitoring Services using Sentinel satellite data