The EUMETSAT Network of Satellite Application Facilities

OSI SAF
Ocean and Sea Ice

OSI SAF CDOP

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QUARTERLY OPERATIONS REPORT

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2nd quarter 2012

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Apr 2013

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version 1_1

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Table of contents

1 Introduction

1.1 Scope of the document

The present report covers 2nd quarter 2012, i.e. from 1st of April to 30 June 2012.
The objective of this document is to provide EUMETSAT and users, in complement with the Web Site, www.osi-saf.org , with an overview on O&SI SAF products availability and quality, main anomalies and events, product usage, users' feedback, and updated available documentation.

SS1 is the Production Sub-system 1, involving M-F/CMS, met.no and DMI, under M-F/CMS responsibility. It concerns SST and Radiative Fluxes products.
SS2 is the Production Sub-system 2 which involves met.no and DMI, under met.no responsibility. It concerns the Sea Ice products.
SS3 is KNMI. It concerns the Wind products.

1.2 Products characteristics

The characteristics of the current products are recalled in the following table, extracted from the Service Specification Document (SESP, [AD-1]).

Product Name	Product acronym	Characteristics and Methods	Input Satellite data	Format	Timeliness	spatial coverage	generation frequency	spatial resolution	target accuracy	Verification method
ASCAT 25 km Winds	ASCAT25	wind speed (m/s) and direction (degrees). Sigma0's and swath winds	ASCAT	BUFR via EUMETCAST, on FTP server and EDC; NetCDF on FTP server, EDC and NAIAD	2 h 45	Global	Continuous	25 km	Better than 2 m/s in wind component RMS with a bias of less than 0.5 m/s in wind speed	Triple collocation with NWP and buoys
ASCAT 12.5 km Winds	ASCAT12	wind speed (m/s) and direction (degrees). Sigma0's and swath winds	ASCAT	BUFR via EUMETCAST, on FTP server and EDC; NetCDF on FTP server and EDC	2 h 45	Global	Continuous	12.5 km	Better than 2 m/s in wind component RMS with a bias of less than 0.5 m/s in wind speed	Triple collocation with NWP and buoys
ASCAT coastal Winds	ASCAT12 +	wind speed (m/s) and direction (degrees). Sigma0's and swath winds	ASCAT	BUFR, NetCDF	2 h 45	Global	Continuous	12.5 km	Better than 2 m/s in wind component RMS with a bias of less than 0.5 m/s in wind speed	Triple collocation with NWP and buoys
SeaWinds 100km Wind	*SeaW100*	*Sigma0's and swath winds*	*SeaWinds*	*BUFR and NetCDF (Only archive)*	*N..A. only archive available*	*Global*	*Continuous*	*100 km*	*Better than 2 m/s in wind component RMS with a bias of less than 0.5 m/s in wind speed*	*Triple collocation with NWP and buoys*
SeaWinds 25km Wind	*SeaW025*	*Sigma0's and swath winds*	*SeaWinds*	*BUFR and NetCDF (Only archive)*	*N..A. only archive available*	*Global*	*Continuous*	*25 km*	*Better than 2 m/s in wind component RMS with a bias of less than 0.5 m/s in wind speed*	*Triple collocation with NWP and buoys*
NAR Sea Surface Temperature	NAR SST	multispectral algorithm	NOAA –18 and then 19, Metop AVHRR	NetCDF on IFREMER FTP server. GRIB2 via EUMETCast and UMARF	4 h	European Seas	6 h	polar stereogr. 2 km	monthly bias : 0,5°c, Sdt Deviation : 0,8°c	Comparison with buoy observations
GLB Metop Sea Surface Temperature	GLB SST	underskin temperature (°K). multispectral algorithm	Metop/ AVHRR	GRIB ed2 via EUMETCast and EDC NetCDF on IFREMER FTP server	6h	global	12h	0.05° lat-lon	monthly bias : 0,5°c, Sdt Deviation : 0,8°c	Comparison with buoy observations

Full resolution Metop Sea Surface Temperature metagranules	MGR SST	underskin temperature (°K). multispectral algorithm	Metop/ AVHRR	NetCDF L2P on IFREMER FTP server and NAIAD	4 h	Global	continuous	1 km	monthly bias : 0,5℃, Sdt Deviation : 0,8℃	Comparison with buoy observations
AHL Sea Surface Temperature	AHL SST	underskin temperature (°K). multispectral algorithm	AVHRR, NPP/ VIIRS	GRIB NetCDF HDF5	3 h 30	Atlantic High Latitude	12 h	5 km	monthly bias : 0,5℃, Sdt Deviation : 0,8℃	Comparison with buoy observations
METEOSAT Sea Surface Temperature	MET SST	underskin temperature (°K). multispectral algorithm	MET	GRIB ed 2 and NetCDF L2P through EUMETCast and EDC. NetCDF L2Pon IFREMER FTP server	3 h	60S-60N 60W-60E	1h	0,05°lat-lon	Bias : 0,5℃, sdt Deviation : 1℃	Comparison with buoy observations
GOES-E Sea Surface Temperature	GOES-E SST	underskin temperature (°K). multispectral algorithm	GOES-E	GRIB ed 2 and NetCDF L2P through EUMETCast and EDC. NetCDF L2Pon IFREMER FTP server	3 h	60S-60N 135W-15W	1h	0,05°lat-lon	Bias : 0,5℃, sdt Deviation : 1℃	Comparison with buoy observations
AHL Downward Longwave Irradiance	AHL DLI	W/m^2. Bulk parameterization	NOAA/ AVHRR, MetOp/ AVHRR	GRIB NetCDF HDF5	3 h 30	Atlantic North of 50N	12 h	5 km	monthly relative bias : 5%, monthly relative Std. Deviation :10%	Comparison with Pyrgeometers measurement
AHL Short-wave Solar Irradiance	AHL SSI	W/m^2. physical parameterization	NOAA/ AVHRR, MetOp/ AVHRR	GRIB NetCDF HDF5	3 h 30	Atlantic North of 50N	12 h	5 km	monthly relative bias : 10%, monthly relative Std. Deviation :30%	Comparison with Pyranometers measurement
METEOSAT Downward Longwave Irradiance	MET DLI	W/m^2. Bulk parameterization	MET	GRIB NetCDF	2 h	60S-60N 60W-60E	1 h + daily integrated	0.05°lat-lon	monthly (TBC) relative bias : 5%, monthly relative Std. Deviation :10%	Comparison with Pyrgeometers measurement
GOES-E Downward Longwave Irradiance	GEOS-E DLI	W/m^2. Bulk parameterization	GOES-E	GRIB NetCDF	2 h	60S-60N 135W-15W	1 h + daily integrated	0.05°lat	monthly (TBC) relative bias : 5%, monthly relative Std. Deviation :10%	Comparison with Pyrgeometers measurement
METEOSAT Short-wave Solar Irradiance	MET SSI	W/m^2. physical parameterization	MET	GRIB NetCDF	2 h	60S-60N 60W-60E	1 h + daily integrated	0.05°lat	monthly (TBC) relative bias : 10%, monthly relative Std. Deviation :30%	Comparison with Pyranometers measurement
GOES-E Short-wave Solar Irradiance	GOES-E SSI	W/m^2. physical parameterization	GOES-E	GRIB NetCDF	2 h	60S-60N 135W-15W	1 h + daily integrated	0.05°lat-lon	monthly (TBC) relative bias : 10%, monthly relative Std. Deviation	Comparison with Pyranometers measurement

									:30%	
GBL Sea Ice Concentration	GBL SIC	Fractional ice cover in percentage. Multisensor analysis.	SSM/I	EUMETCast: and EDC : GRIB1 FTP: GRIB1, NetCDF3,HDF5	5 h	Global	1 day	polar stereogr. 10km	10% for NH-product. 15% for SH-product (yearly average)	Comparison with high resolution manual ice charts
GBL Sea Ice Edge	GBL SIE	Discrimination Open ice/Closed ice/No ice. Multisensor analysis	SSM/I, Metop/ASCAT	EUMETCast: and EDC : GRIB1 FTP: GRIB1, NetCDF3,HDF5	5 h	Global	1 day	polar stereogr. 10 km	20 km (yearly average)	Comparison with high resolution manual ice charts
GBL Sea Ice Type	GBL SIT	Discrimination First year, Multi year. Multisensor analysis	SSM/I, Metop/ASCAT	EUMETCast: and EDC: GRIB1 FTP: GRIB1, NetCDF3,HDF5	5 h	Global	1 day	polar stereogr. 10 km	TBD	Comparison with high resolution manual ice charts
Low Resolution Sea Ice Drift	GBL LR SID	km. Single and multi sensor analysis. Displacement after 48 hours.	SSM/I, Metop/ASCAT,	NetCDF	6 h	Global	1 day	polar stereogr. 10km	5 km yearly std deviation after 48 hours displacement	Collocation with buoys
Global reprocessed Sea Ice Concentration	*GBL REP SIC*	*Fractional ice cover in percentage. Period 1978-2009*	*SMMR, SSM/I*	*NetCDF on FTP server*	*N.A. Data set availabl e off line.*	*Global*	*Daily*	*10km*	*10% for NH-product. 15% for SH-product (yearly average)*	*Comparison with high resolution manual ice charts*

table 1 : Characteristics of the products.

1.3 Reference and applicable documents

1.3.1 Applicable documents

[AD-1] : Service Specification Document, SESP.

1.3.2 Reference documents

[RD-1] : Surface Solar Irradiance Product User manual.
[RD-2] : Downward longwave Irradiance Product User manual.
[RD-3] : Atlantic Sea Surface Temperature Product User manual.
[RD-3] : North Atlantic Regional Sea Surface Temperature Product User manual.
[RD-4] : OSI SAF Sea Ice Product User Manual.
[RD-5] : SeaWinds Wind Product User Manual.
[RD-6] : ASCAT Wind Product User Manual.
[RD-7] : Low Earth Orbiter Sea Surface Temperature Product User Manual.
[RD-8] : Low Resolution Sea Ice Drift Product User's Manual.

1.4 Definitions, acronyms and abbreviations

AHL	Atlantic High Latitude
AMS	American Meteorological Society
ASCAT	Advanced scatterometer
ATL	Atlantic low and mid latitude
AVHRR	Advanced Very High Resolution Radiometer
BUFR	Binary Universal Format Representation
CDOP	Continuous Development and Operations Phase
CMS	Centre de Météorologie Spatiale
DLI	Downward Long wave Irradiance
DMI	Danish Meteorological Institute
DMSP	Defence Meteorological Satellite Program
ECMWF	European Centre for Medium range Weather Forecasts
EPS	European Polar System
FAQ	Frequently Asked Question
FTP	File Transfer Protocol
GLB	Global oceans
GOES	Geostationary Operational Environmental Satellite
GOES-E	GOES-East, nominal GOES at 75°W
GRIB	GRIdded Binary format
GTS	Global Transmission System
HIRLAM	High Resolution Limited Area Model
HL	High Latitude
HRIT	High Rate Information Transmission
IFREMER	Institut Français de Recherche pour l'Exploitation de la MER
IOP	Initial Operational Phase
KNMI	Koninklijk Nederlands Meteorologisch Instituut
LEO	Low Earth Orbiter
LML	Low and Mid Latitude

MAP	Merged Atlantic Product
MET	Nominal Meteosat at 0°longitude
Met.no	Norwegian Meteorological Institute
Metop	METeorological OPerational Satellite
M-F	Météo-France
MGR	Metagranule
MSG	Meteosat Second Generation
NAR	Northern Atlantic and Regional
NCEP	National Centre for Environmental Prediction
NESDIS	National Environmental Satellite, Data and Information Service
NetCDF	Network Common Data Form
NMS	National Meteorological Service
NOAA	National Oceanic and Atmospheric Administration
NPP	NPOESS Preparatory Project
NPOESS	National Polar-orbiting Operationnal Environmental Satellite System
NRT	Near Real-Time
NWP	Numerical Weather Prediction
OSI SAF	Ocean and Sea Ice SAF
QC	Quality Control
R&D	Research and Development
RMDCN	Regional Meteorological Data Communication Network
RMS	Root-Mean-Squared
SAF	Satellite Application Facility
Std Dev	Standard deviation
SEVIRI	Spinning Enhanced Visible and Infra-Red Imager
SMHI	Swedish Meteorological and Hydrological Institute
SSI	Surface Short wave Irradiance
SSMI	Special Sensor Microwave Imager
SSMIS	Special Sensor Microwave Imager and Sounder
SST	Sea Surface Temperature
TBC	To Be Confirmed
TBD	To Be Defined
UMARF	Unified Meteorological Archive & Retrieval Facility
WMO	World Meteorological Organisation
WWW	World Wide Web

table 2 : Definitions, acronyms and abbreviations.

2 OSI SAF products availability and timeliness

As indicated in the table 1, extracted from the Service Specification Document [AD-2], operational OSI SAF products are expected to be available for distribution within the specified time in more than 95% of the cases where input satellite data are available with the nominal level of quality, on monthly basis.
In section 2.1 the above specifications are matched with the measured availability on the local FTP servers.
In section 2.2 the above specifications are matched with the measured availability via EUMETCast.
The dissemination of the OSI SAF products via EUMETCast implies an additional step, not under the strict OSI SAF responsibility, but general EUMETSAT's one.
The timeliness of the wind products on the KNMI FTP server is not measured separately and therefore the figures in table 2 are copied from table 3 for the wind products. Since the EUMETCast transmission is known to add only a very small delay to the timeliness, the availabilities on the KNMI FTP server are very close to or slightly better than the figures measured via EUMETCast.

2.1 Availability on FTP servers

The following table indicates the percentage of the products that have been made available within the specified time on the local FTP servers.

Percentage of OSI SAF products available on the FTP servers within the specified time over 2nd quarter 2012																			
Month	ASCAT 25 km Wind	ASCAT 12.5 km Wind	ASCAT Coastal Wind	GLB SST	NAR SST	AHL SST	MGR SST	METEOSAT SST	GOES-E SST	AHL DLI	AHL SSI	METEOSAT DLI	GOES-E DLI	METEOSAT SSI	GOES-E SSI	GBL Sea Ice Concentration	GBL Sea Ice Edge	GBL Sea Ice Type	GBL Low Res. Sea Ice Drift
Apr. 2012	100	100	99,6	100	100	96,70	99,69	100	100	96,70	96,70	100	100	100	100	93,30	93,30	93,30	86,60
May 2012	99,9	99,9	99,2	83,87	83,87	100	83,87	83,74	83,60	100	100	82,19	82,19	82,19	82,19	100	100	100	100
June 2012	100	100	99,8	100	100	100	99,74	100	100	100	100	100	100	100	100	100	100	100	100

table 3 : **Percentage of OSI SAF products available on the FTP servers within the specified time over 2nd quarter 2012.**

Note : The timeliness of the wind products on the KNMI FTP server is not measured separately and therefore the figures in table 3 are copied from table 4 for the wind products. Since the EUMETCast transmission is known to add only a very small delay to the timeliness, the availabilities on the KNMI FTP server are very close to or slightly better than the figures measured via EUMETCast.

Comment :

The requirement was not met in April for Sea Ice products and in May for products on IFREMER FTP server.

See anomaly details in section 3.

The following graphs illustrate the evolution of the products availability over the past six months.

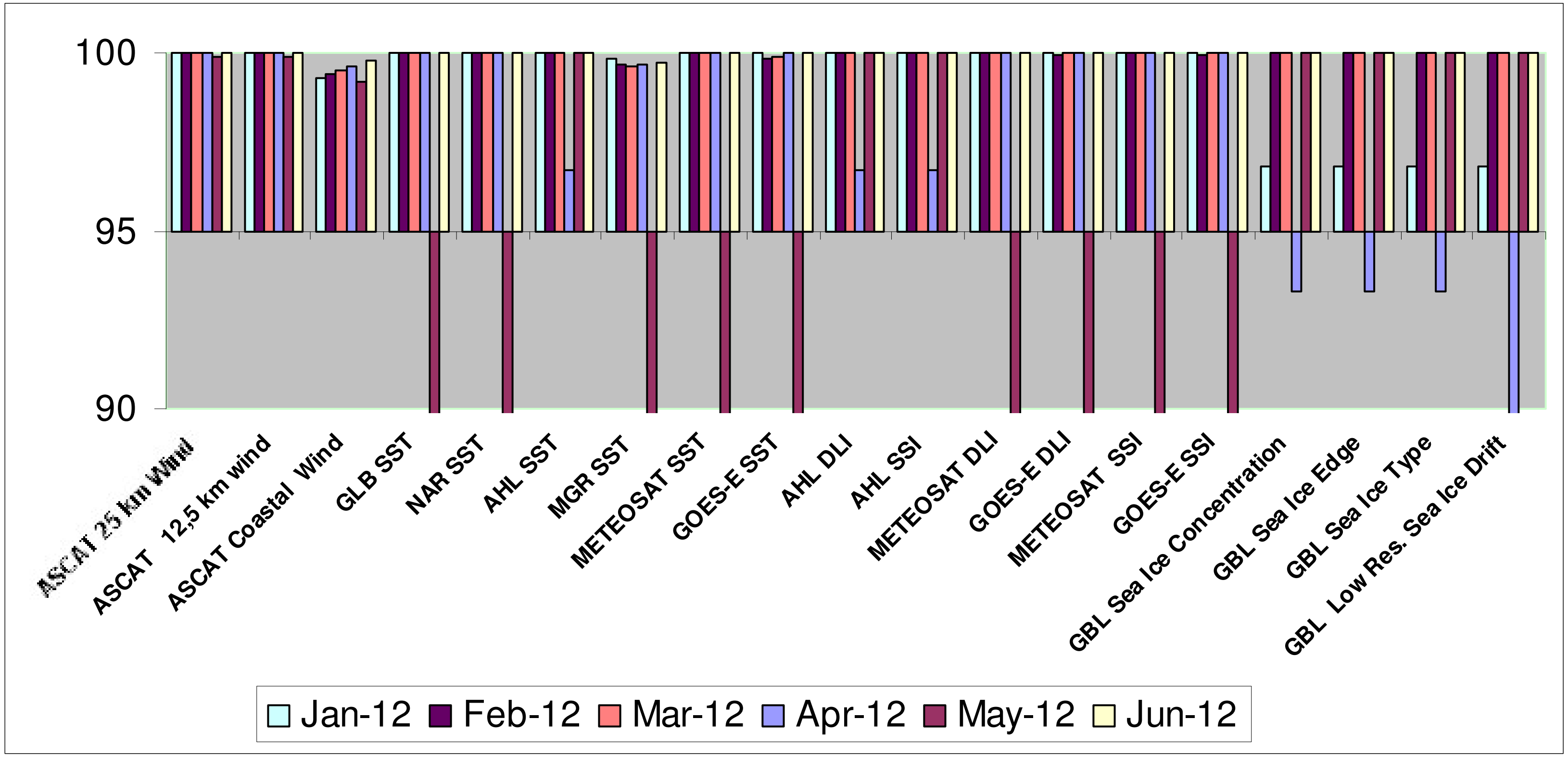


Figure 1 : Products availability on FTP servers for each product over the past six months.

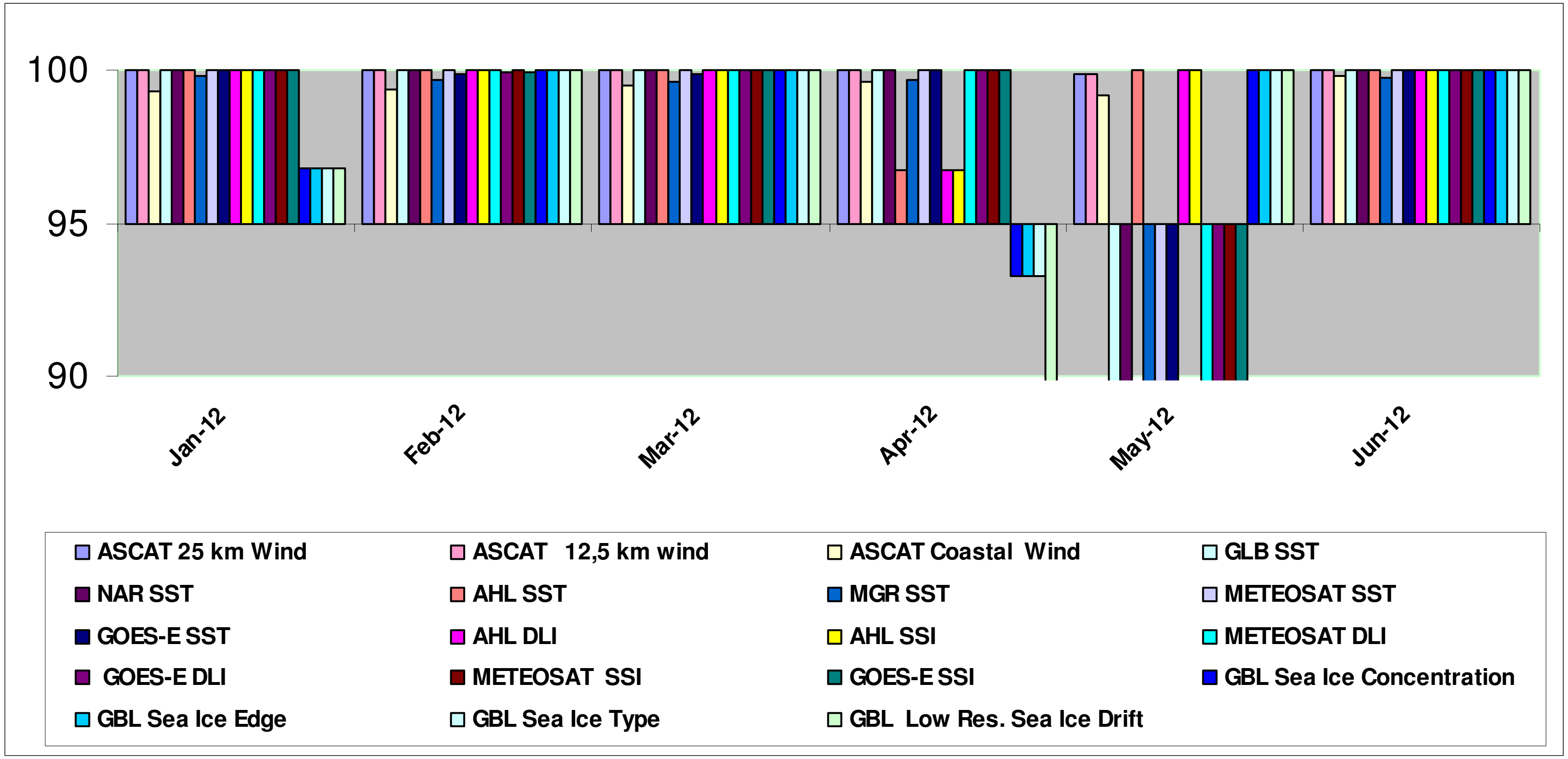


Figure 2 : Products availability on FTP servers over the past six months.

2.2 Availability via EUMETCast

The following table indicates the percentage of the products that have been delivered within the specified time :

Percentage of OSI SAF products available via EUMETCast within the specified time over 2nd quarter 2012																		
Month	ASCAT 25 km Wind	ASCAT 12.5 km Wind	ASCAT Coastal Wind	GLB SST	NAR SST	AHL SST	MGR SST	METEOSAT SST	GOES-E SST	AHL DLI	AHL SSI	METEOSAT DLI	GOES-E DLI	METEOSAT SSI	GOES-E SSI	GBL Sea Ice Concentration	GBL Sea Ice Edge	GBL Sea Ice Type	GBL Low Res. Sea Ice Drift
Apr. 2012	100	100	99,6	100	100	100	N.A.	100	100	100	100	100	100	100	100	93,30	93,30	93,30	86,60
May 2012	99,9	99,9	99,2	98,39	100	100	98,21	100	99,87	100	100	100	100	100	100	96,70	96,70	96,70	96,70
June 2012	100	100	99,8	100	100	100	99,74	99,87	100	100	100	100	99,87	99,87	99,87	100	100	100	100

table 4 : **Percentage of OSI SAF products delivered via EUMETCast within the specified time over 2nd quarter 2012.**

Note : the dissemination of MGR SST product started on 24th of April. Statistics were calculated since 1st of May.

Comments:

The requirement was not met in April for Sea Ice products. See details in section 3.

The following graph illustrates the evolution of the products availability over the past six months.

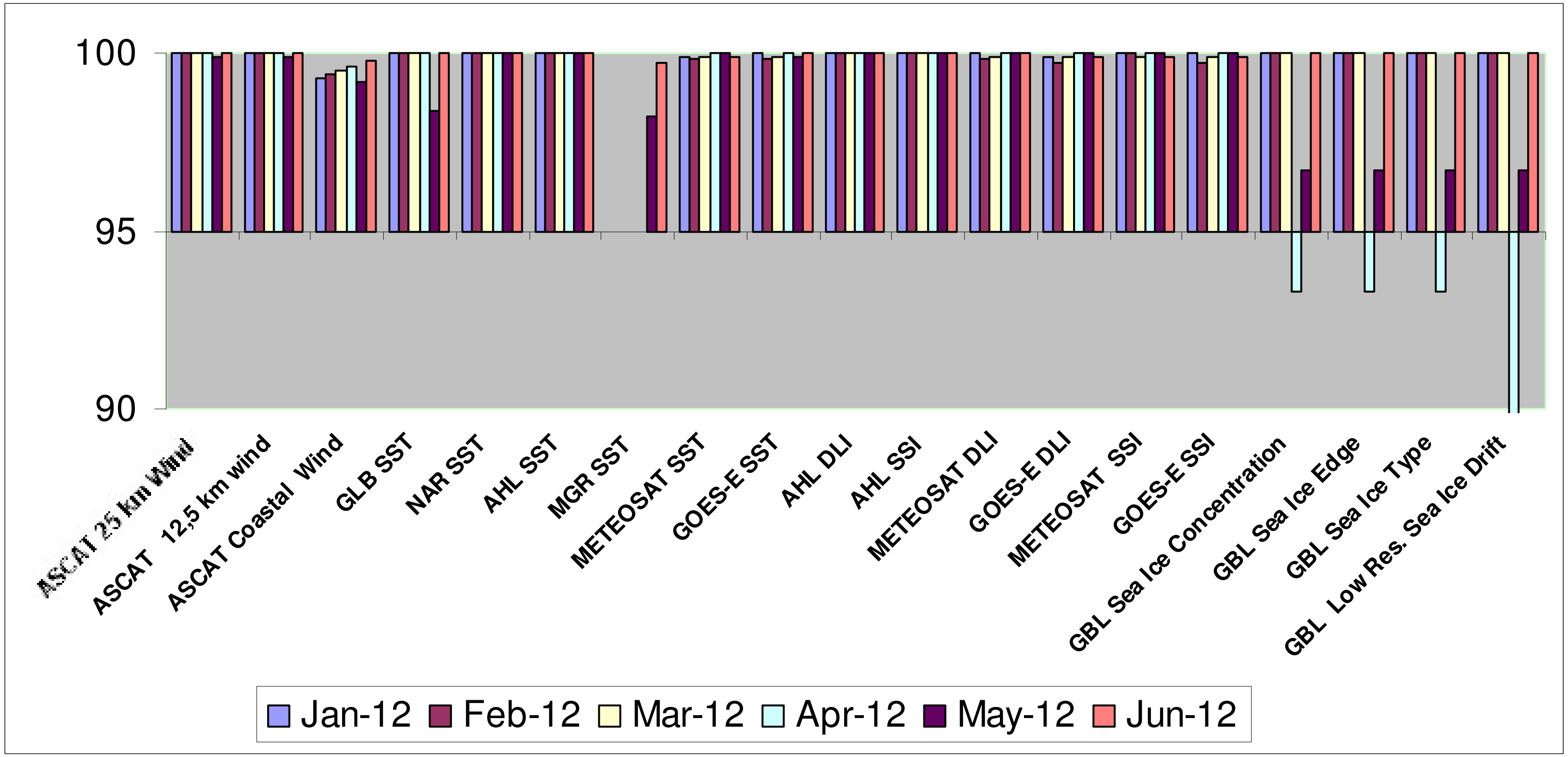


Figure 3 : Products availability via EUMETCast for each product over the past six months.

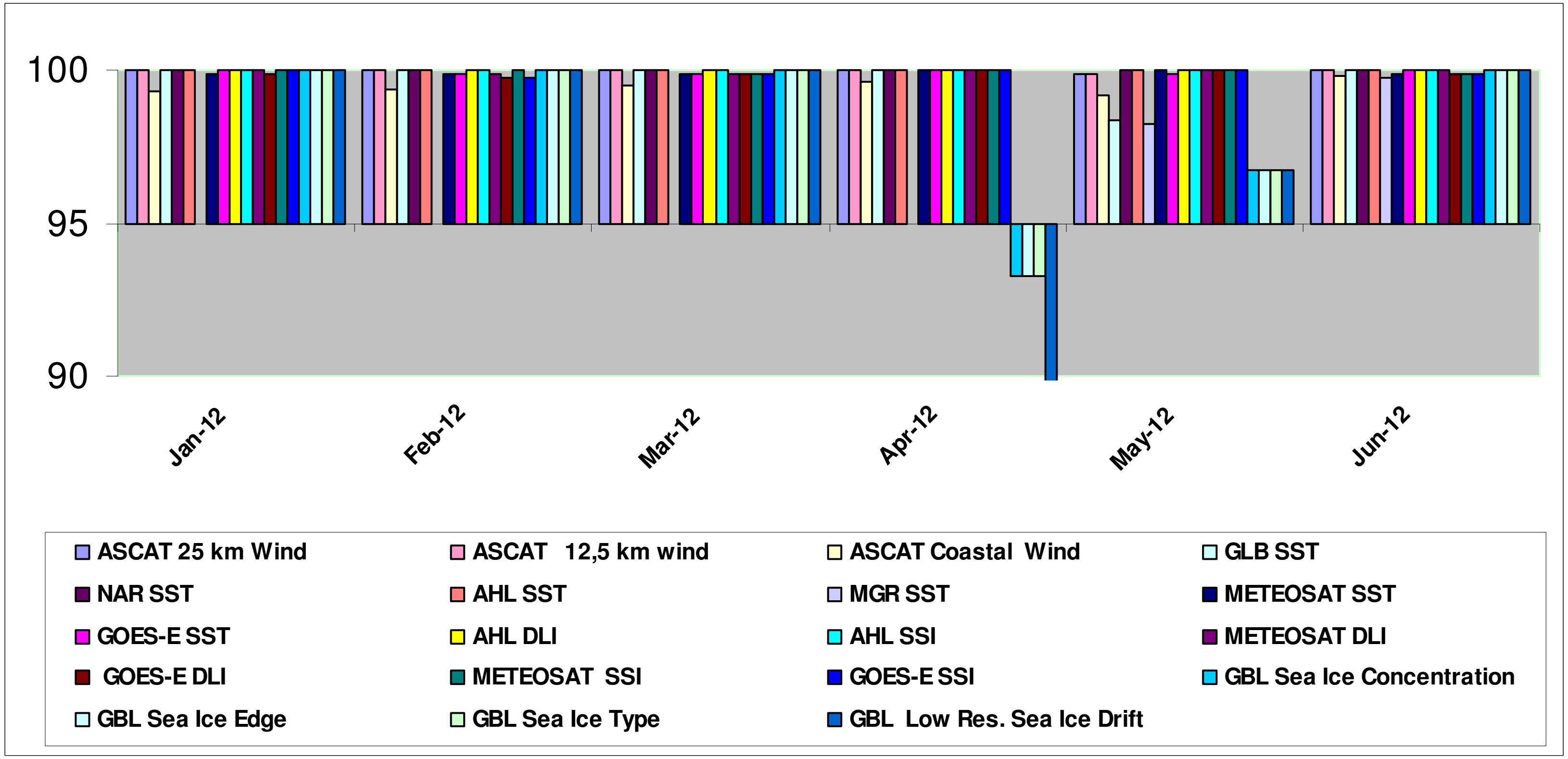


Figure 4 : Products availability via EUMETCast over the past six months.

3 Main anomalies, corrective and preventive measures

In case of anomaly (outage, degraded products…), correspondent service messages are made available in near-real time to the registered users through the Web site www.osi-saf.org.

3.1 At SS1

Between 03 April 2215UTC yesterday and 04 April 0200UTC the quiklooks were not updated on the website is provided again with quicklooks.
From 16 May to 21 May the IFREMER FTP server was out of service. The missing archive was completed following days. The IFREMER FTP server has undergone several outages leading to corrective actions and preventive ones that are under testing till September.
Occasionally the chronology of L1 granule files may be lost, which does not allow the chain to process the L2 product. Actions have been undertaken both at EUMETSAT CAF and CMS for solving the problem. The problem is not closed.

3.2 At SS2

23.04.2012 - OSI SAF Sea Ice: missing products

Due to an unexpected problem with the delivery of SSMI input data to the OSI SAF, we were not been able to produce sea ice products in near real time for 21. and 22. April. The problem was reported to the data provider and the users, and the data provider (NOAA and UK MetOffice) were able to fix the problem. This data anomaly resulted in a delivery percentage below the specifications for April 2012. The missing data were reprocessed and the archive is complete.

14.06.2012 - Reduced coverage for AHL SST and Flux products

Due to technical problems with the AVHRR production servers at met.no, the AHL SST, DLI and SSI products for high latitudes had reduced coverage on 13th June. The problem was fixed during the same evening. The users were notified.

3.3 At SS3

No anomalies or corrective and preventive measures have occurred during the reporting period.

4 Main events and modifications, maintenance activities

In case of event or modification, corresponding service messages are made available in near-real time to the registered users through the Web site www.osi-saf.org.

4.1 At SS1

On 24 April 2012 started the operational dissemination of the MGR SST product through EUMETCast.

4.2 At SS2

14.05.2012 - Upgraded NetCDF format for Sea Ice products

The NetCDF format of the OSI SAF Sea Ice Concentration, Edge and Type products (OSI-401, OSI-402 and OSI-403) have been upgraded, as well as the file name convention. The reprocessed Sea Ice Concentration product (OSI-409) and LR Sea Ice Drift (OSI-405) product have not been changed. The reason for these changes is to provide all ice products using the same meta data convention (CF-1.4) and to harmonize the content of these three products with the more recent released OSI-405 and OSI-409 products.

The old and new data formats will be distributed in parallel until 1. October.

4.3 At SS3

There have been no events or modifications during the reporting period.

5 OSI SAF products quality

5.1 SST quality

The comparison between SST products and Match up data bases (MDB) gathering in situ (buoy) measurements is performed on a routine basis for each METEOSAT and GOES-E satellite, currently METEOSAT-09 and GOES-12.
Hourly SST values are required to have the following accuracy when compared to night time buoy measurements (see PRD) :

- monthly bias (Bias Req in following tables)less than 0.5° C,
- monthly difference standard deviation (Std Dev Req. in following tables) less than 1° C for the geostationary products (METEOSAT SST and GOES-E SST), and 0.8°C for the polar ones (MGR SST, GLB SST, NAR SST and AHL SST).

5.1.1 METEOSAT SST quality

The following maps indicate the locations of buoys for each month.

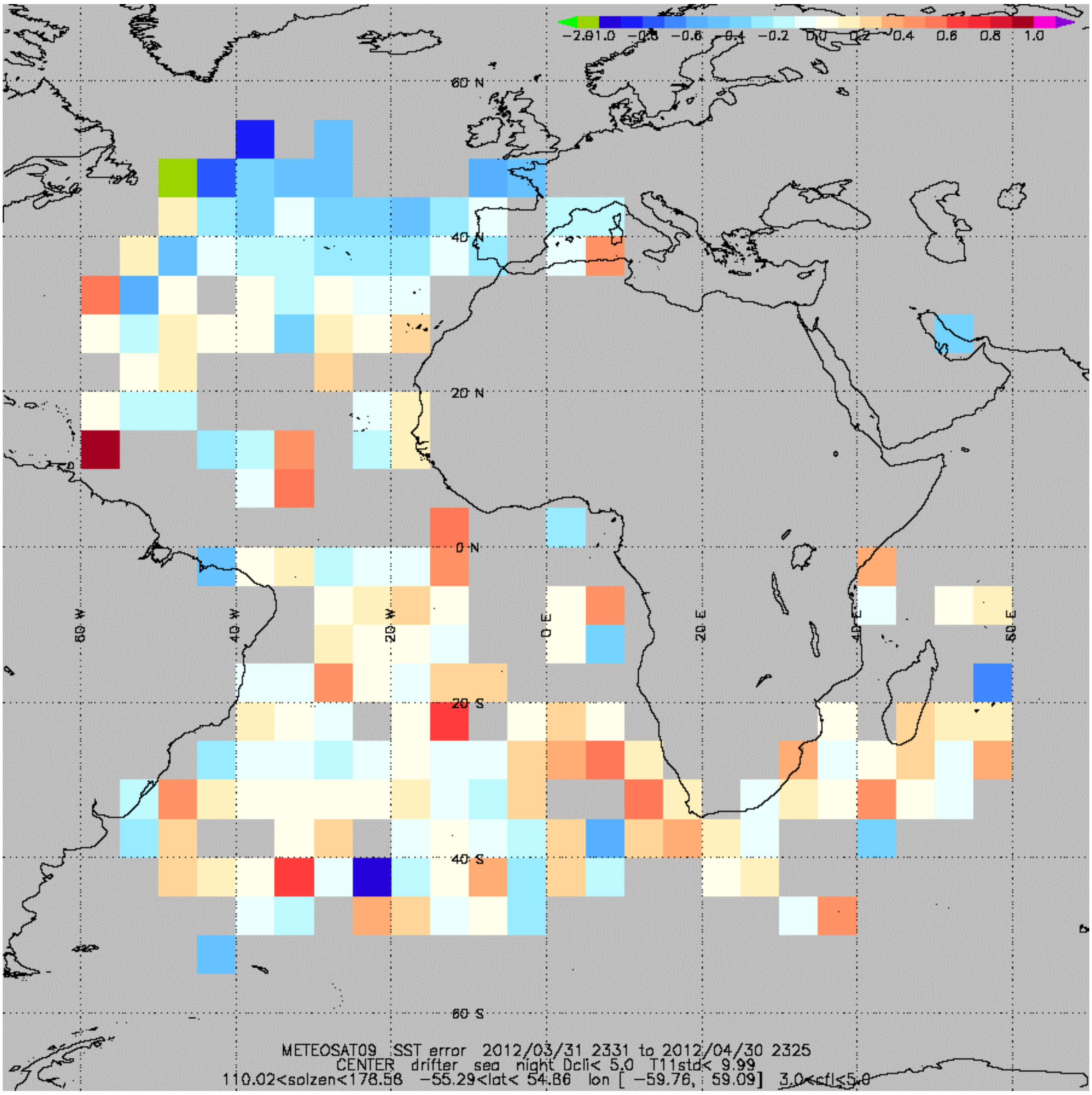


Figure 5 : Location of buoys for METEOSAT SST validation in Apr. 2012, for 3,4,5 quality indexes and by night.

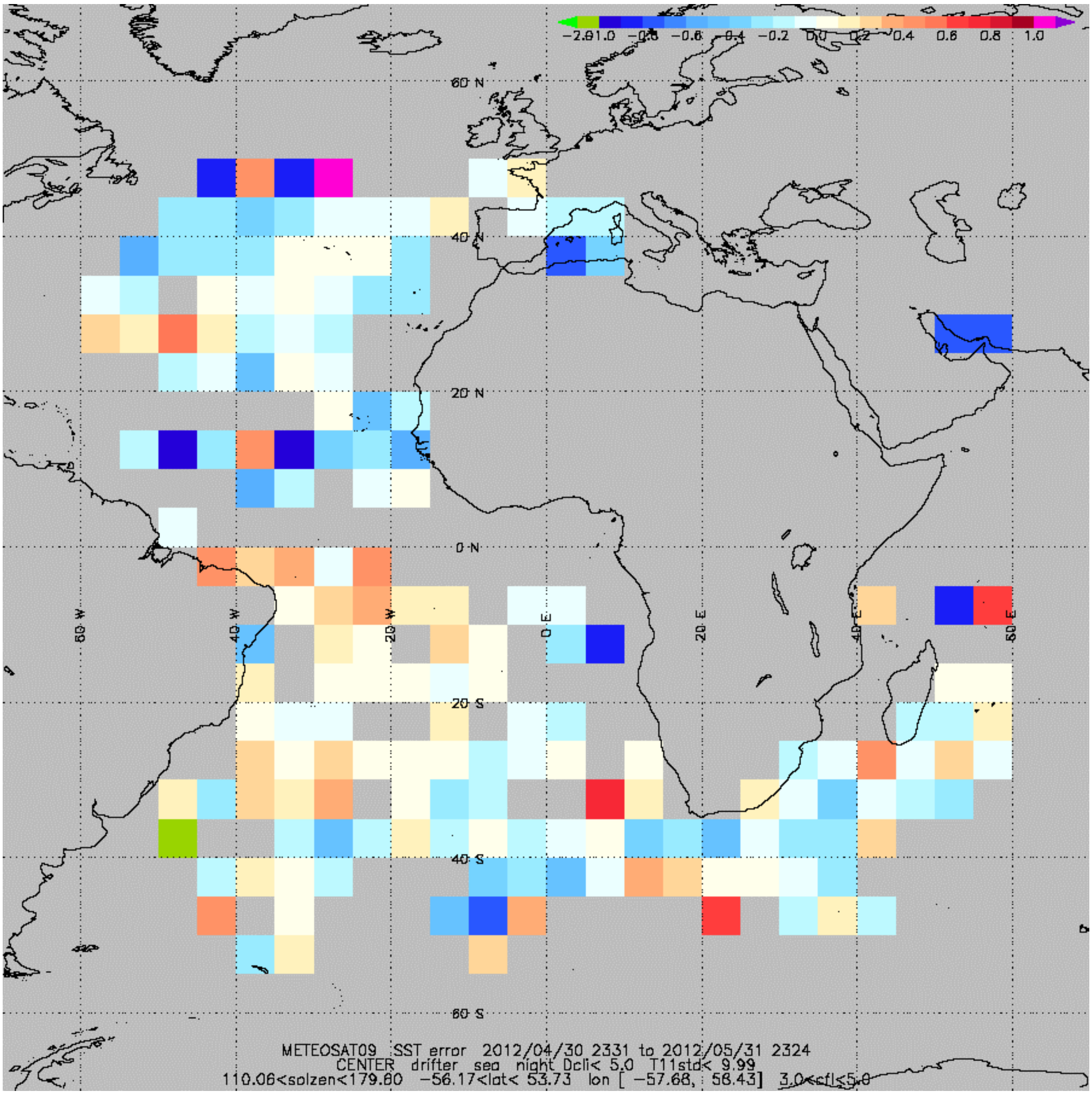


Figure 6 : Location of buoys for METEOSAT SST validation in MAY 2012, for 3,4,5 quality indexes and by night.

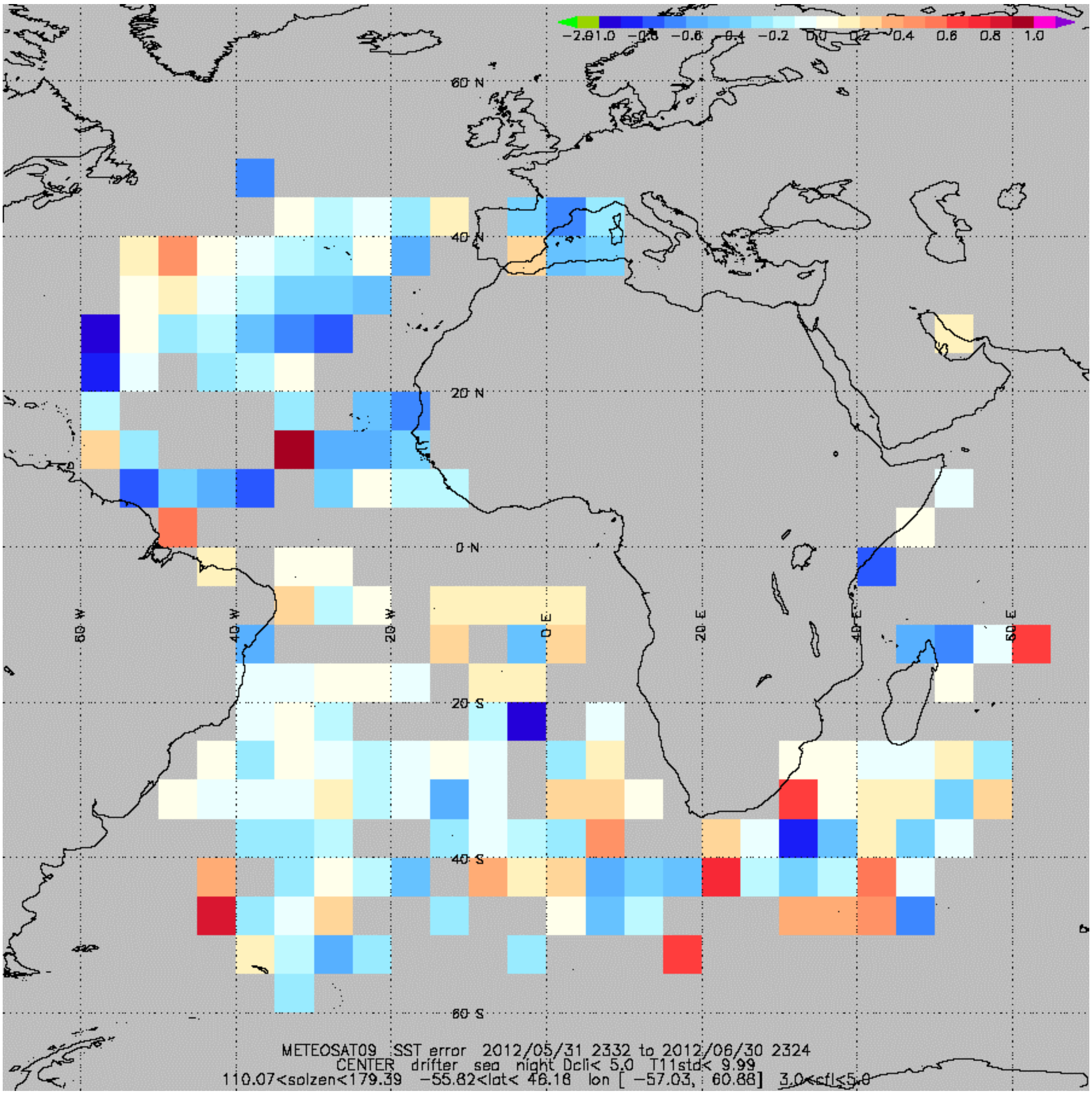


Figure 7 : Location of buoys for METEOSAT SST validation in JUNE 2012, for 3,4,5 quality indexes and by night.

The following table provides the METEOSAT-derived SST quality results over the reporting period. METEOSAT SST quality results over 2nd quarter 2012

METEOSAT SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias ℃	Bias Req ℃	Bias Margin (*)	Std Dev ℃	Std Dev Req ℃	Std Dev margin (*)
Apr. 2012	7870	-0,020	0,5	96,00	0,56	1,0	44,00
May 2012	8912	-0,060	0,5	88,00	0,59	1,0	41,00
June 2012	8807	-0,100	0,5	80,00	0,6	1,0	40,00

table 5 : METEOSAT SST quality results over 2nd quarter 2012, for 3, 4, 5 quality indexes and by night.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good and stable.

The following graphs illustrate the evolution of METEOSAT-derived SST quality results over the past 6 months.

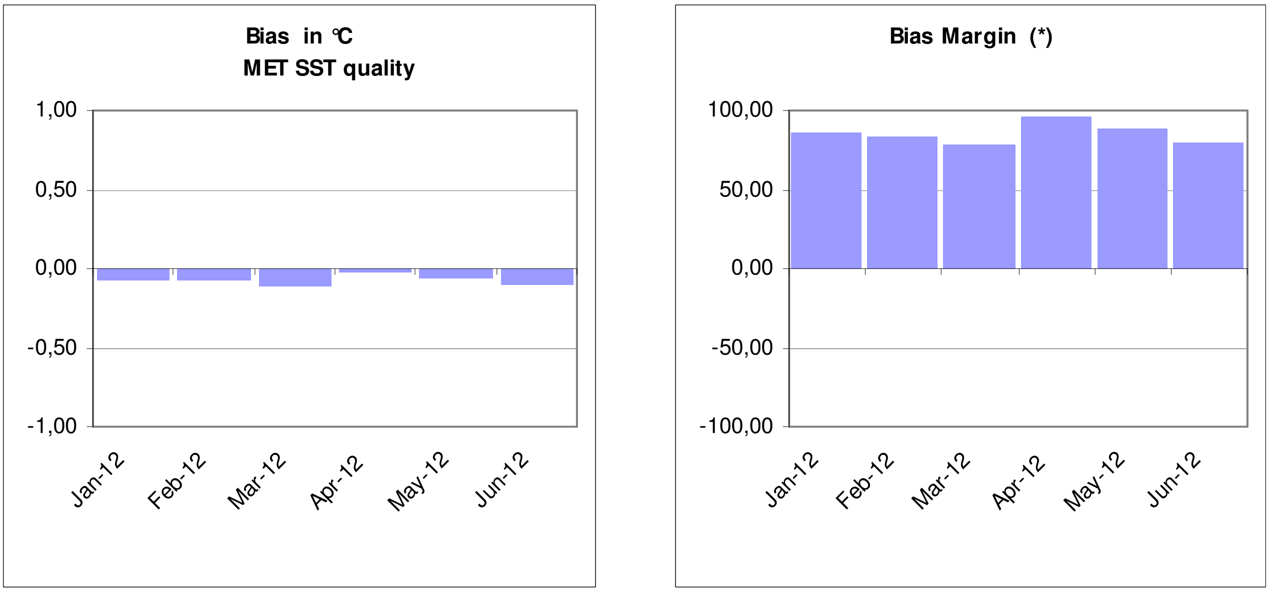


Figure 8 : Left: METEOSAT SST Bias. Right METEOSAT SST Bias Margin

Figure 9 : Left: METEOSAT SST Standard deviation. Right METEOSAT SST Standard deviation Margin.

Complementary validation statistics on METEOSAT SST

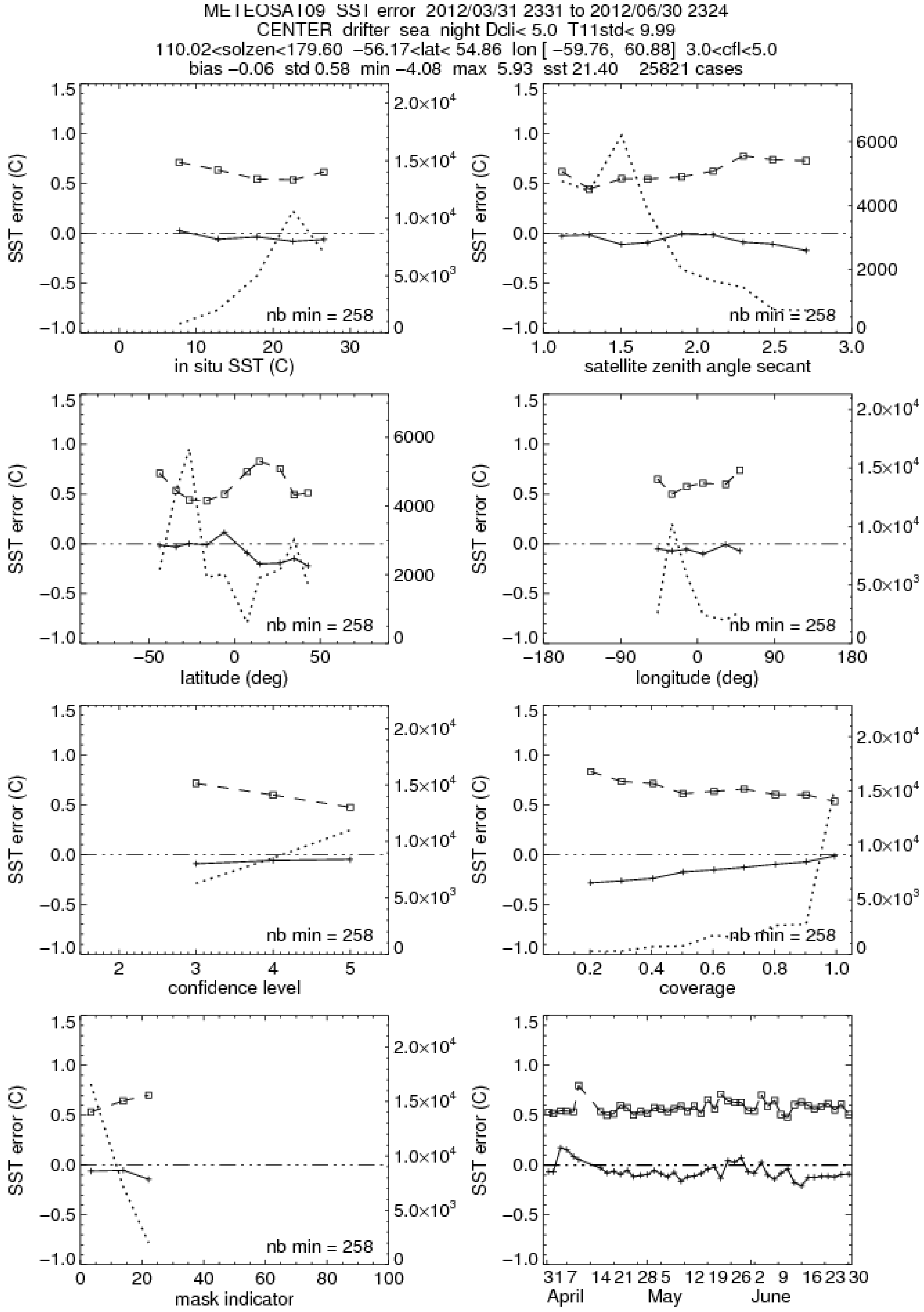


Figure 10 : Complementary validation statistics on METEOSAT SST.

5.1.2 GOES-E SST quality

The following maps indicate the location of buoys for each month.

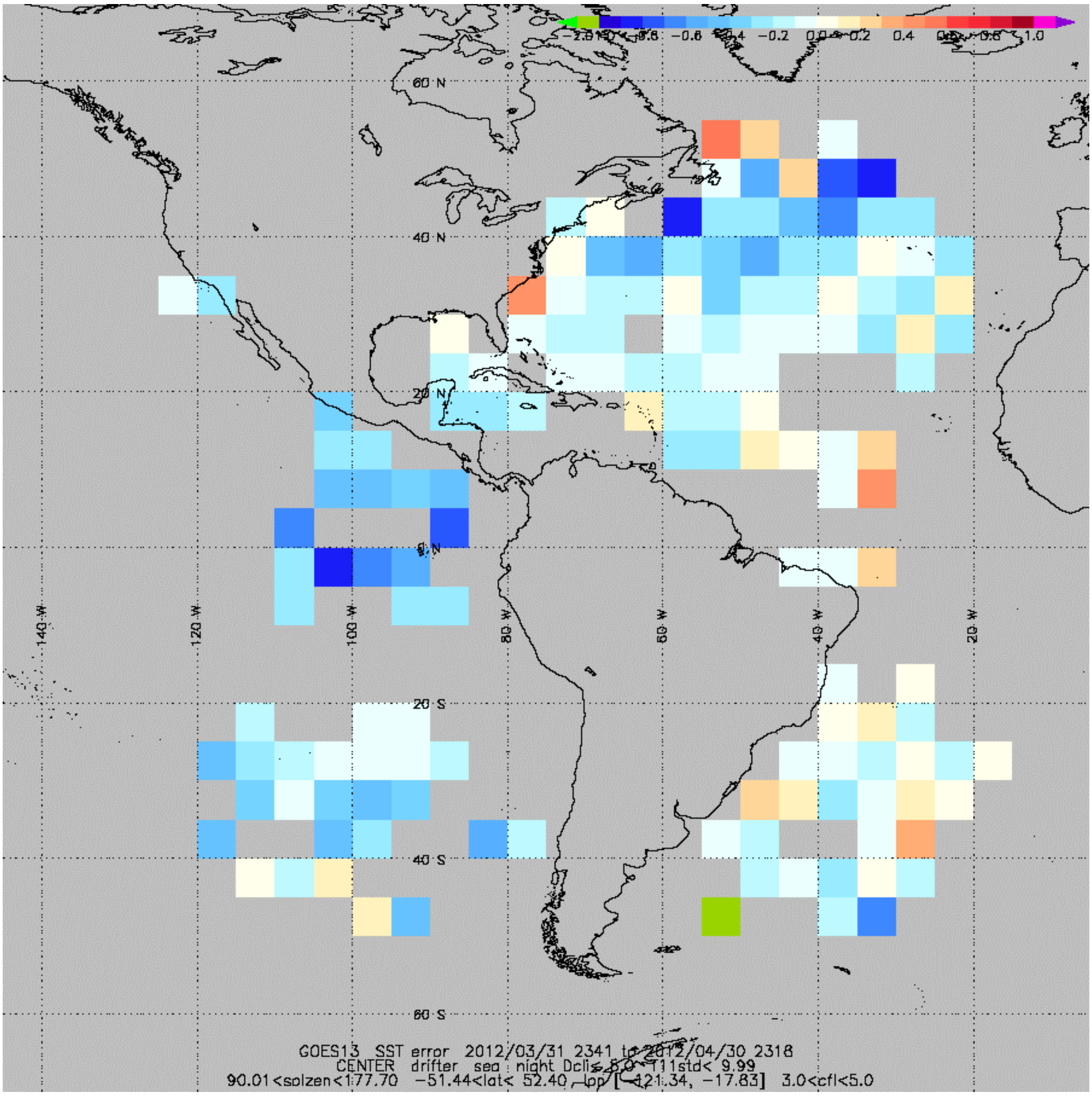


Figure 11 : Location of buoys for GOES-E SST validation in APR. 2012, for 3,4,5 quality indexes and by night.

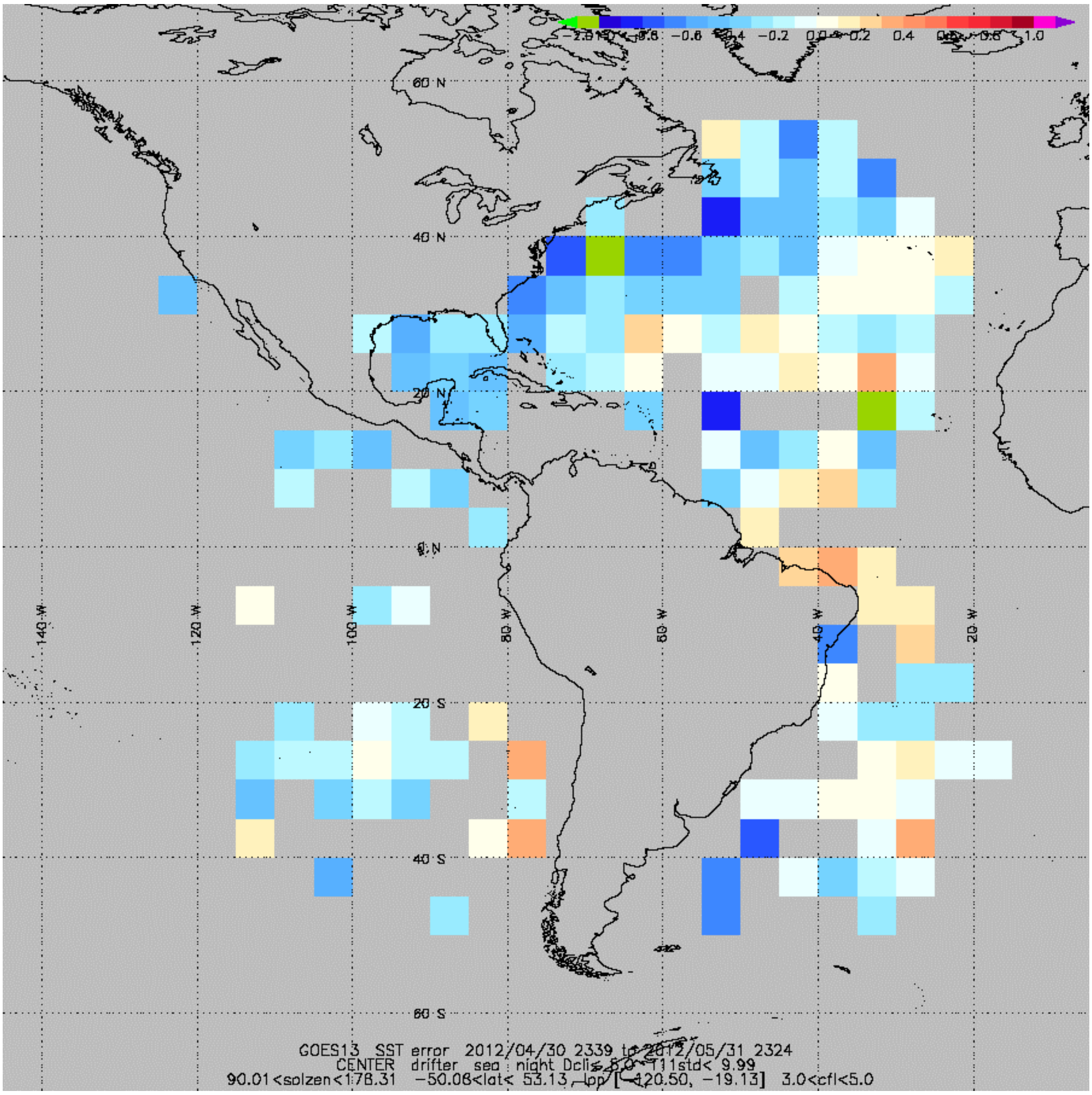


Figure 12 : **Location of buoys for GOES-E SST validation in MAY 2012, for 3,4,5 quality indexes and by night.**

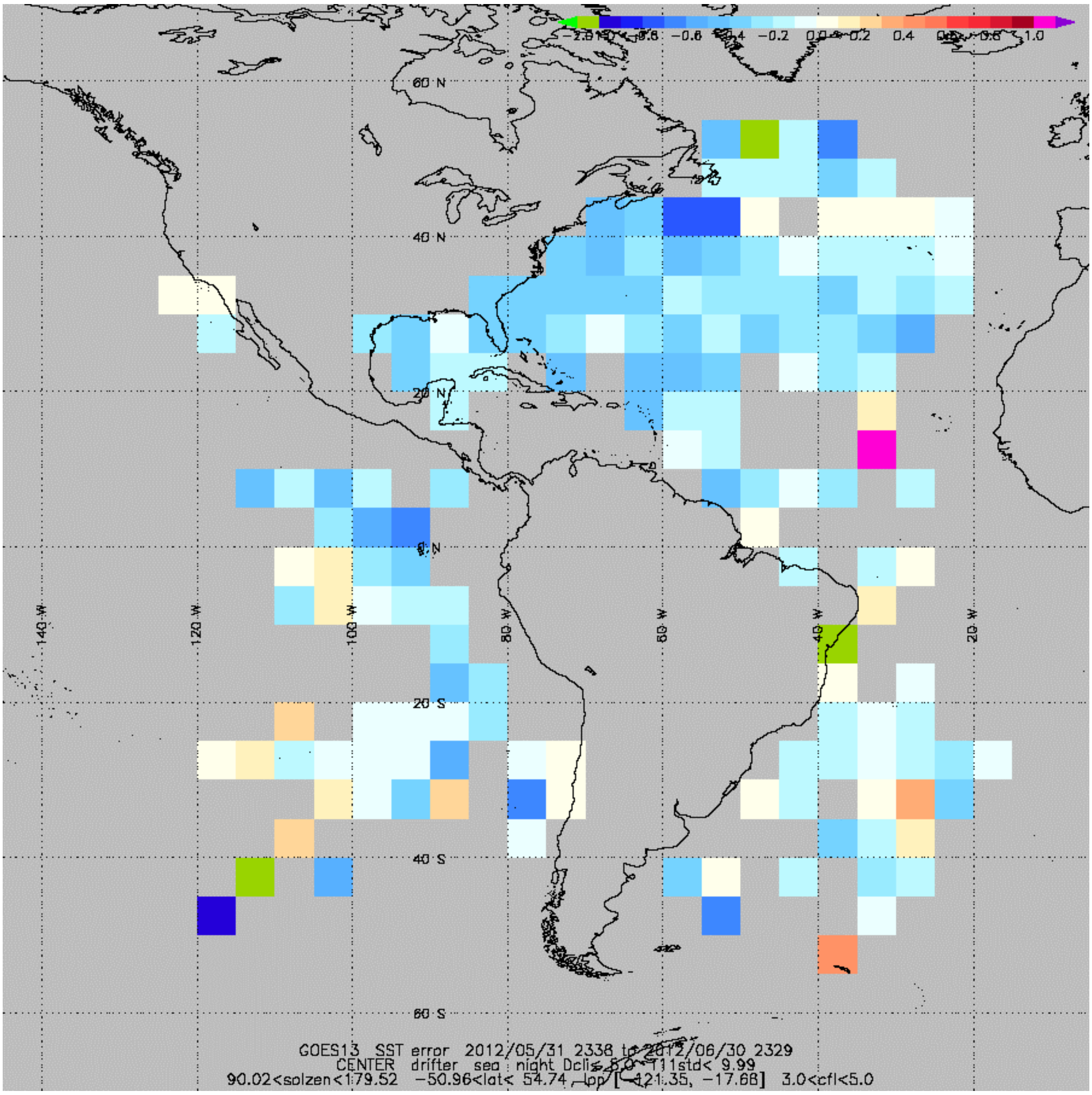


Figure 13 : Location of buoys for GOES-E ST validation in JUNE 2012, for 3,4,5 quality indexes and by night.

The following table provides the GOES-E-derived SST quality results over the reporting period.

GOES-E SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias ℃	Bias Req ℃	Bias Margin (*)	Std Dev ℃	Std Dev Req ℃	Std Dev margin (*)
Apr. 2012	11075	-0,160	0,5	68,00	0,54	1,0	46,00
May 2012	8175	-0,250	0,5	50,00	0,55	1,0	45,00
June 2012	12776	-0,230	0,5	54,00	0,57	1,0	43,00

table 6 : GOES-E SST quality results over 2nd quarter 2012, for 3, 4, 5 quality indexes and by night.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good and stable.

The following graphs illustrate the evolution of GOES-E-derived SST quality results over the past 6 months.

Figure 14 : Left: Goes-E SST Bias. Right: Goes-E SST Bias Margin.

Figure 15 : Left: Goes-E SST Standard deviation. Right Goes-E SST Standard deviation Margin.

Complementary validation statistics on GOES-E SST

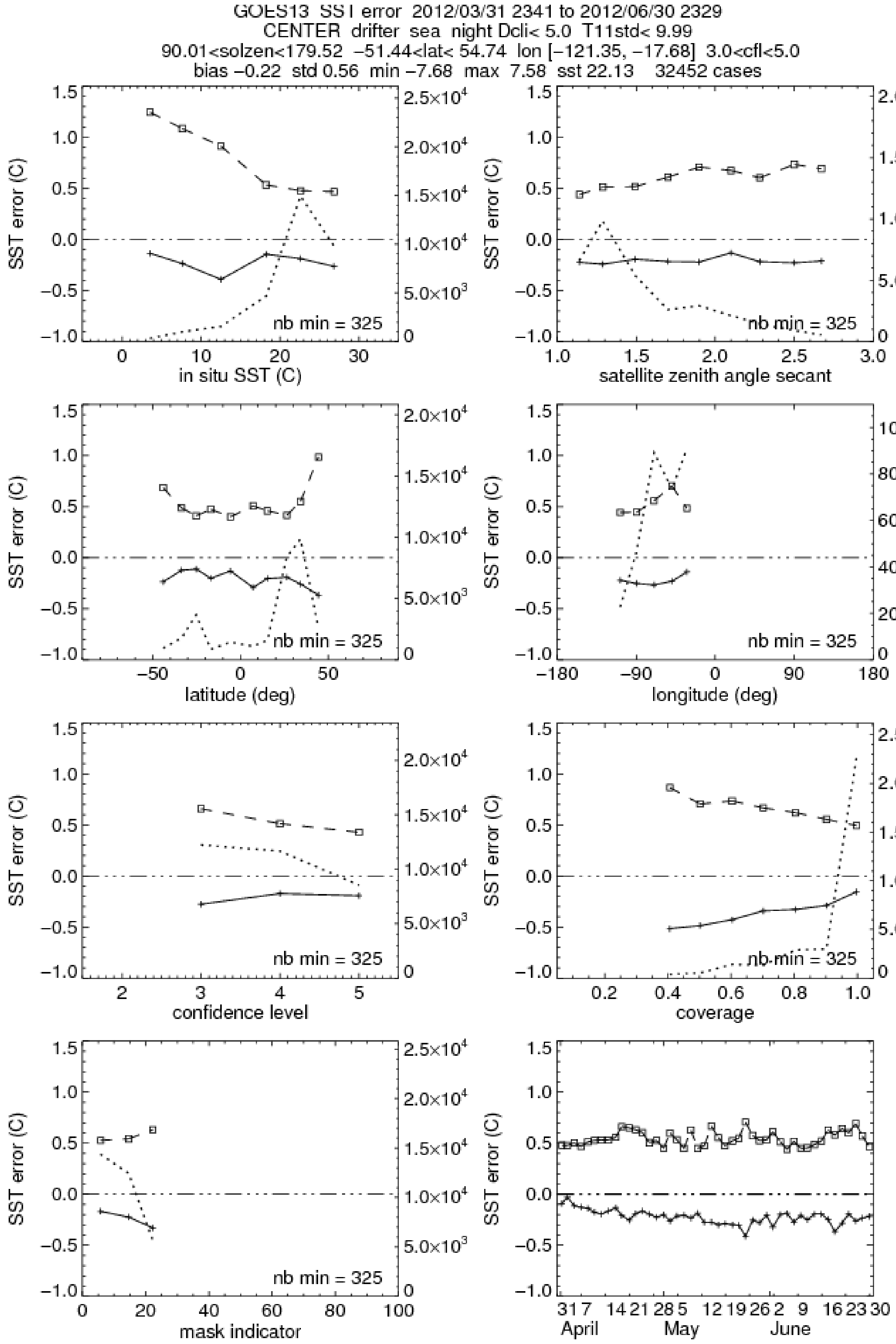


Figure 16 : Complementary validation statistics on GOES-E SST.

5.1.3 NAR SST quality

The operational NAR SST processing relies on two satellite data sources, Metop/AVHRR for the morning orbit and NOAA/AVHRR for afternoon orbit.
Currently Metop-A and NOAA-19 are used.
The comparison between NAR SST products and Match up data bases (MDB) gathering in situ (buoy) measurements is performed on a routine basis for each operational NOAA and Metop satellite. Compiled results are also provided in the first part of this section.

5.1.3.1 NAR Compiled SST quality

The following table provides NAR Metop-NOAA compiled SST quality results over the reporting period.

NAR compiled SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias ℃	Bias Req ℃	Bias Margin (*)	Std Dev ℃	Std Dev Req ℃	Std Dev margin (*)
Apr. 2012	1053	-0,13	0,5	74,00	0,42	0,8	47,50
May 2012	685	0,000	0,5	100,00	0,37	0,8	53,75
June 2012	587	-0,010	0,5	98,00	0,42	0,8	47,50

table 7 : **Quality results for NAR compiled SST over 2nd quarter 2012, for 3, 4, 5 quality indexes and by night.**

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good and stable.

The following graphs illustrate the evolution of NAR SST quality results over the past 6 months.

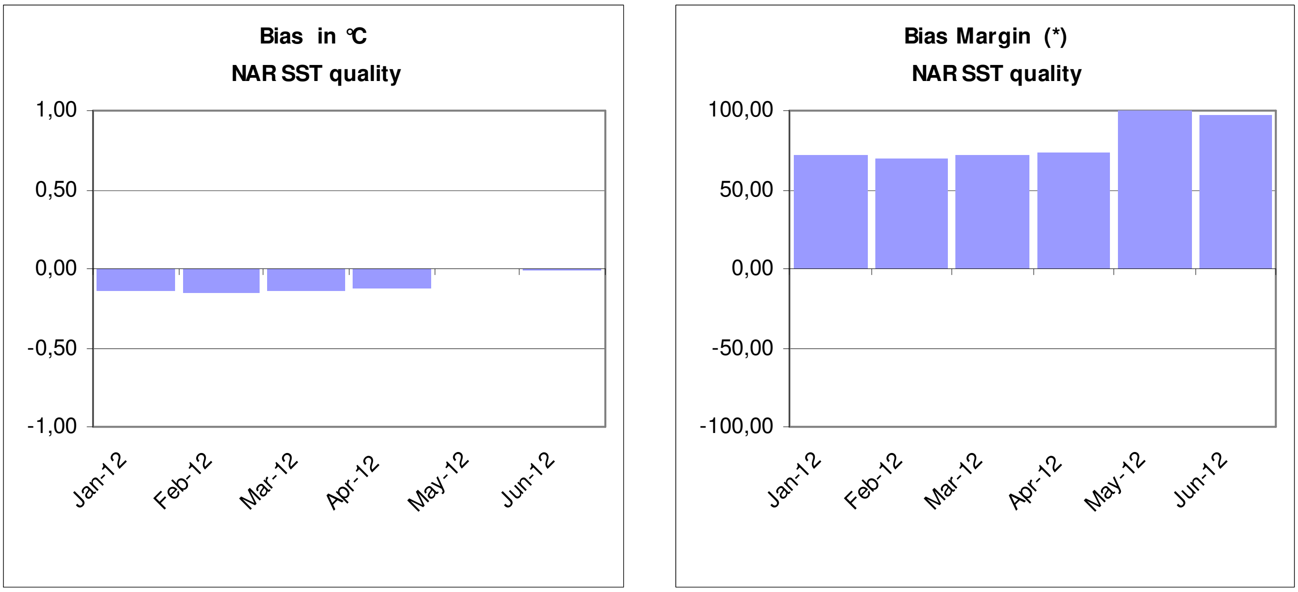


Figure 17 : **Left: NAR SST Bias. Right: NAR SST Bias Margin.**

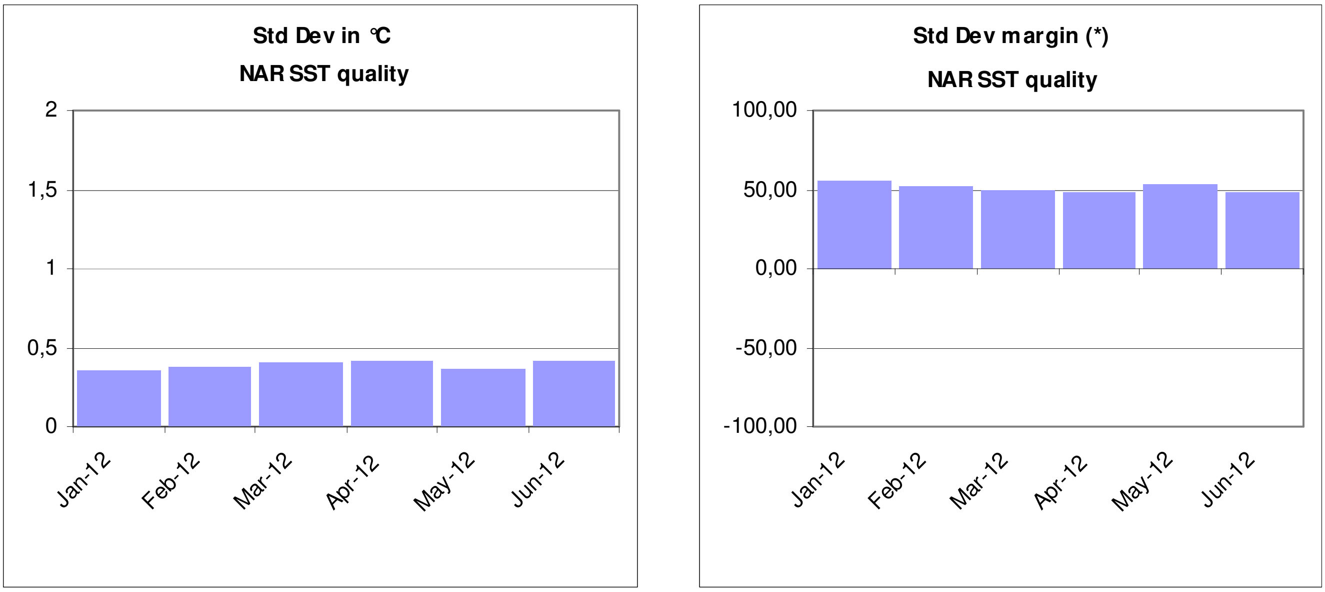


Figure 18 : Left: NAR SST Standard deviation. Right: NAR SST Standard deviation Margin.

5.1.3.2 NOAA-19 NAR SST quality

The following maps indicate the locations of buoys for each month.

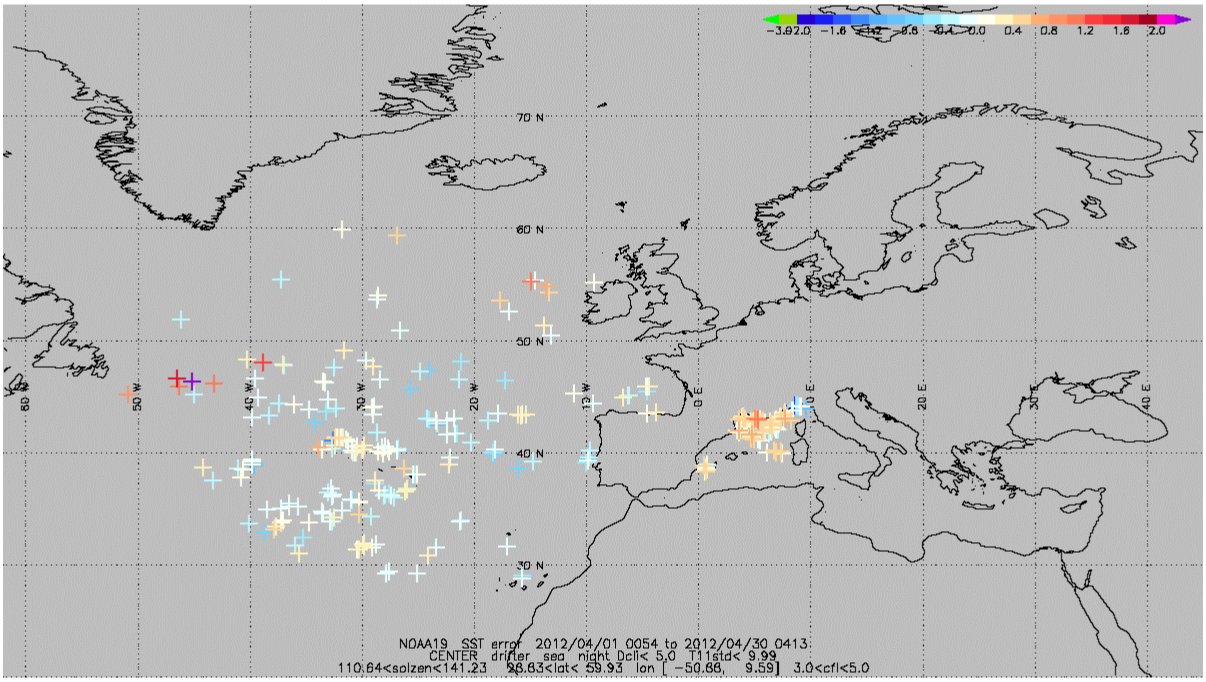


Figure 19 : Location of buoys for NOAA-19 NAR SST validation in APR. 2012, for 3, 4, 5 quality indexes and by night.

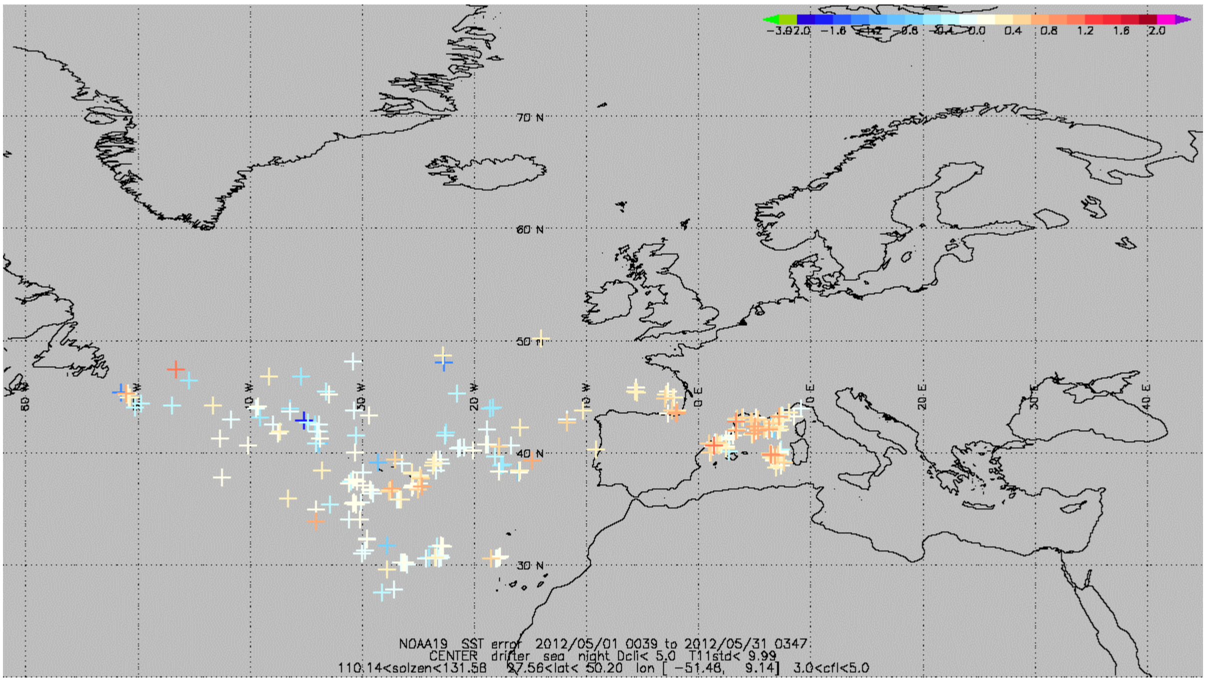


Figure 20 : Location of buoys for NOAA-19 NAR SST validation in MAY 2012, for 3, 4, 5 quality indexes and by night.

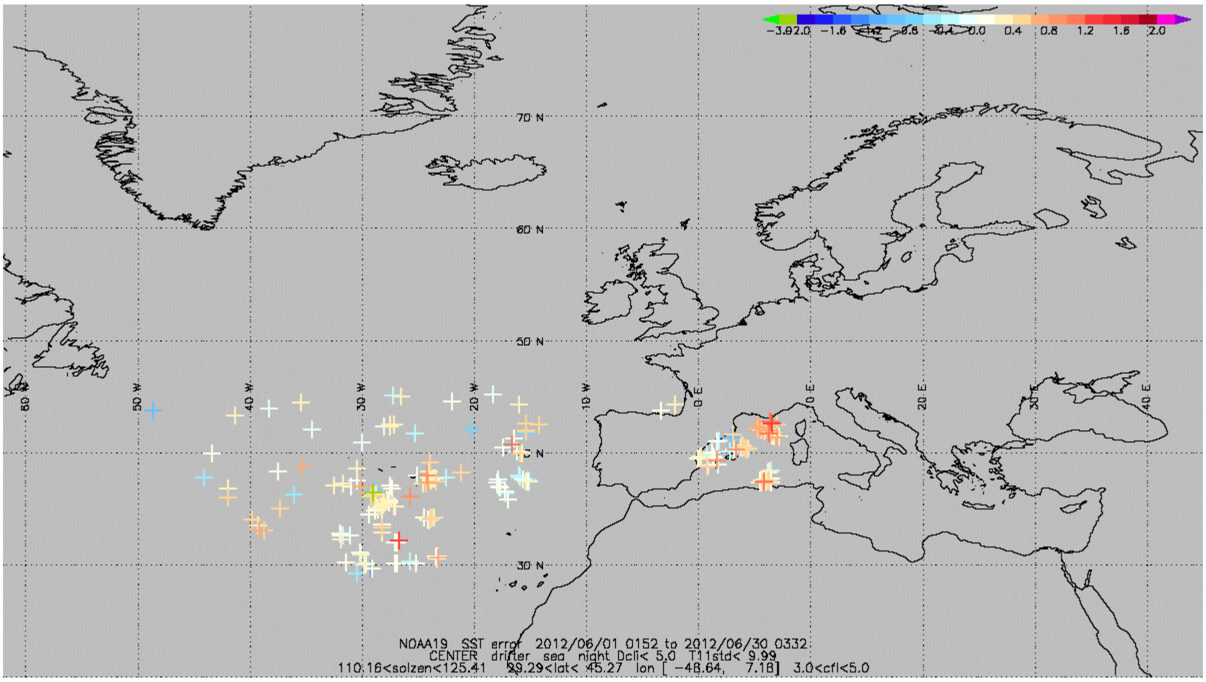


Figure 21 : Location of buoys for NOAA-19 NAR SST validation in JUNE 2012, for 3, 4, 5 quality indexes and by night.

The following table provides the NOAA-19-derived SST quality results over the reporting period.

NOAA-19 NAR SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias ℃	Bias Req ℃	Bias Margin (*)	Std Dev ℃	Std Dev Req ℃	Std Dev margin (*)
Apr. 2012	319	0,030	0,5	94	0,460	0,8	42,50
May 2012	267	0,090	0,5	82	0,360	0,8	55,00
June 2012	213	0,170	0,5	66	0,420	0,8	47,50

table 8 : **Quality results for NOAA-19 NAR SST over 2nd quarter 2012, for 3, 4, 5 quality indexes and by night.**

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good and quite stable.

The following graphs illustrate the evolution of NOAA-19 NAR SST quality results over the past 6 months.

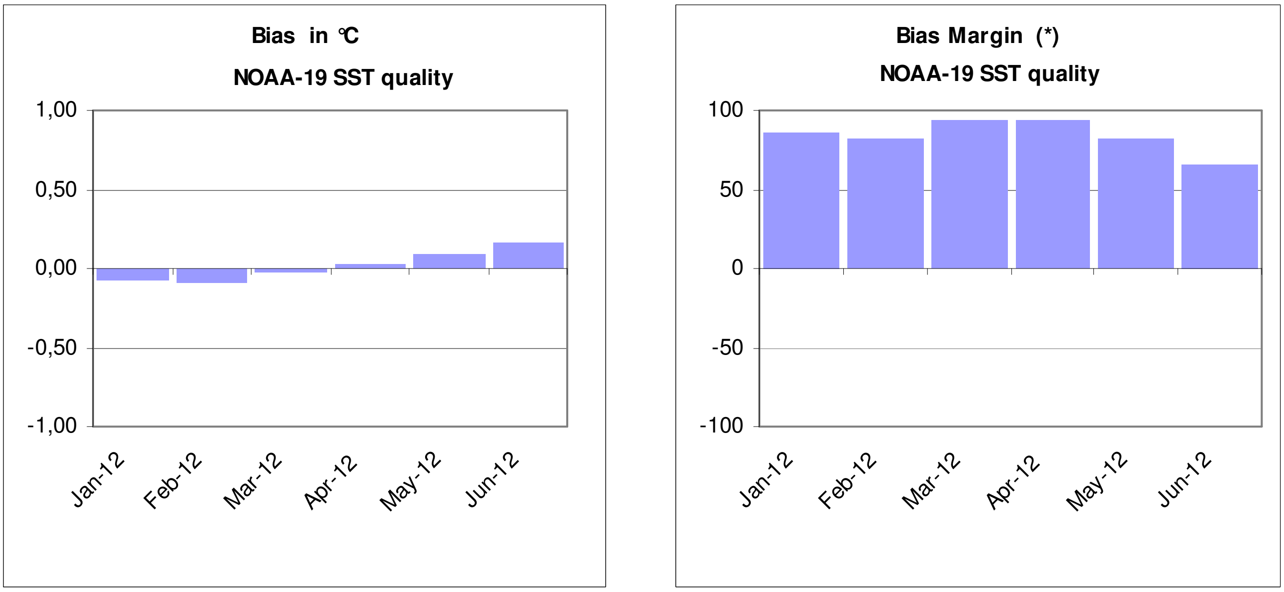
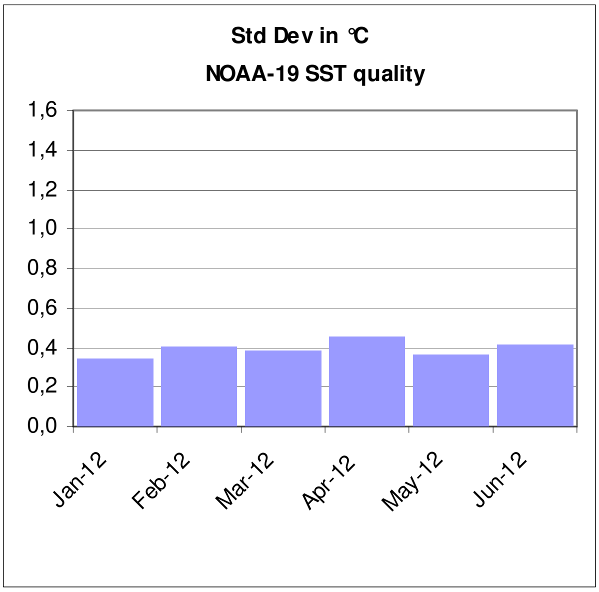


Figure 22 : **Left: NOAA-19 NAR SST Bias. Right NOAA-19 NAR SST Bias Margin.**



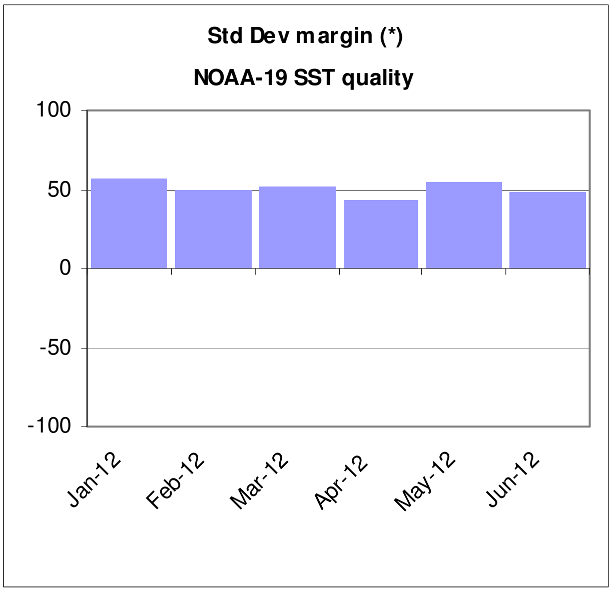


Figure 23 : Left: NOAA-19 NAR SST Standard deviation. Right NOAA-19 NAR SST Standard deviation Margin.

Complementary validation statistics on NOAA-19 NAR SST

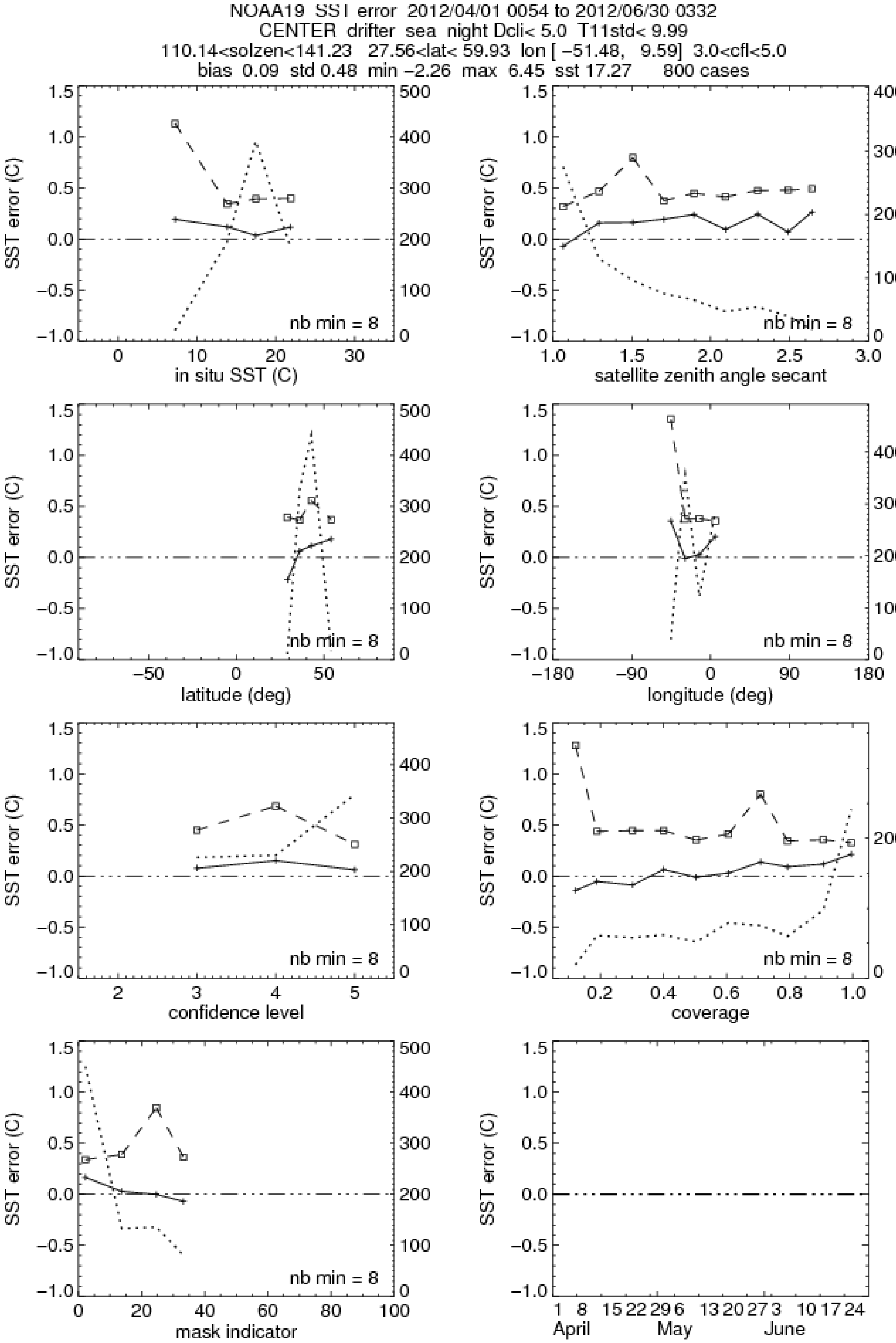


Figure 24 : Complementary validation statistics on NOAA-19 NAR SST.

5.1.3.3 Metop NAR SST quality

The following maps indicate the locations of buoys for each month.

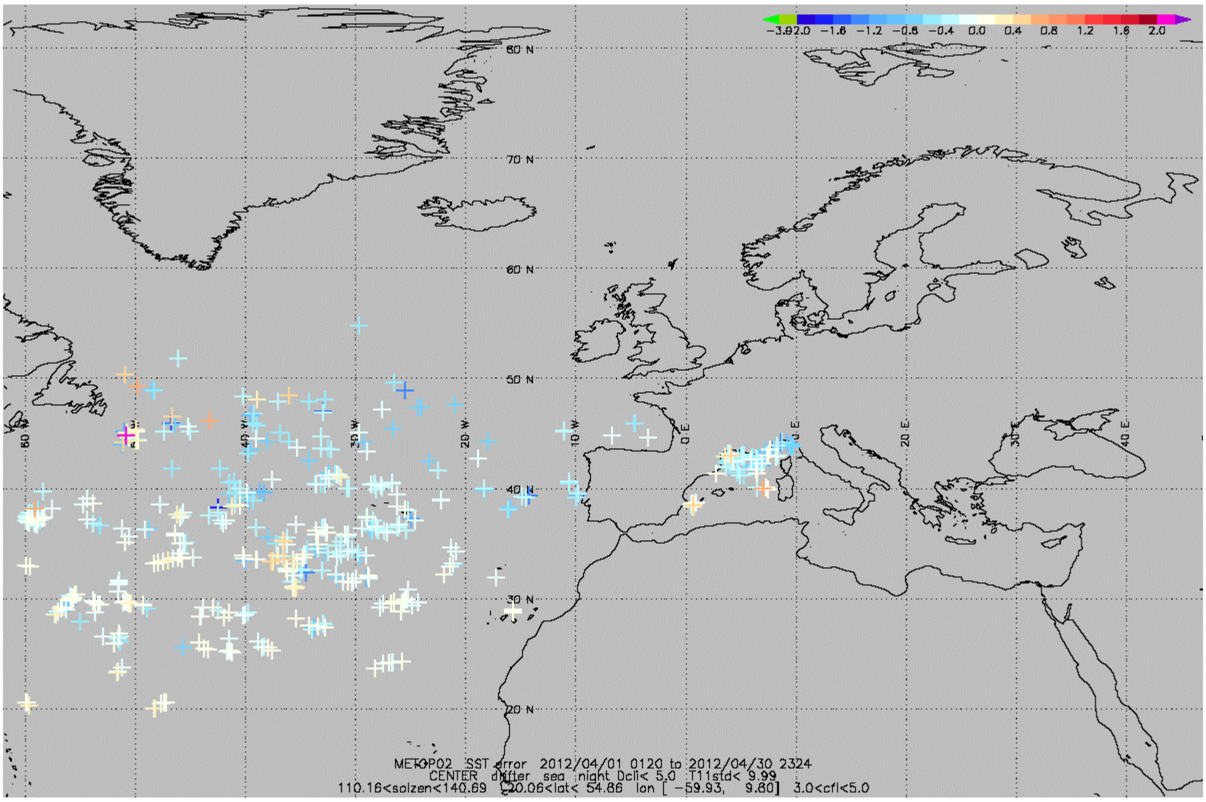


Figure 25 : Location of buoys for Metop-A NAR SST validation in APR. 2012, for 3, 4, 5 quality indexes and by night.

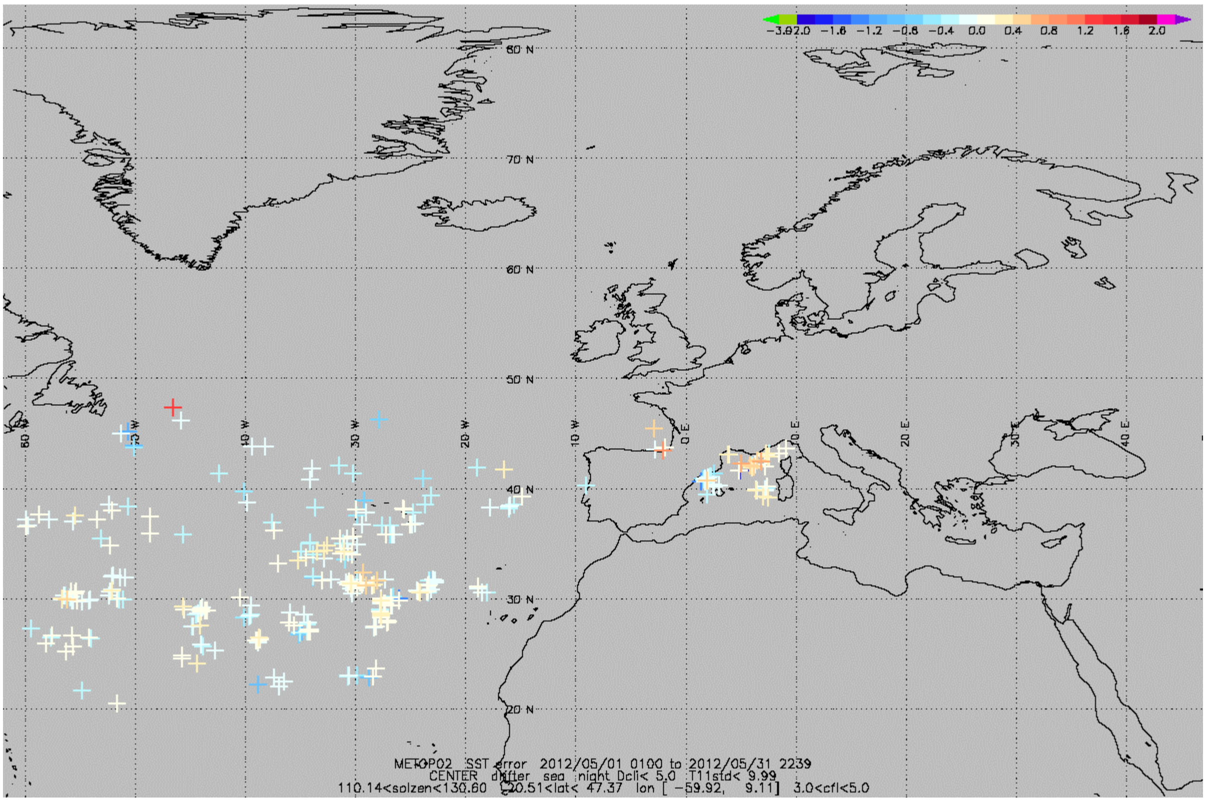


Figure 26 : Location of buoys for Metop-A NAR SST validation in MAY 2012, for 3, 4, 5 quality indexes and by night.

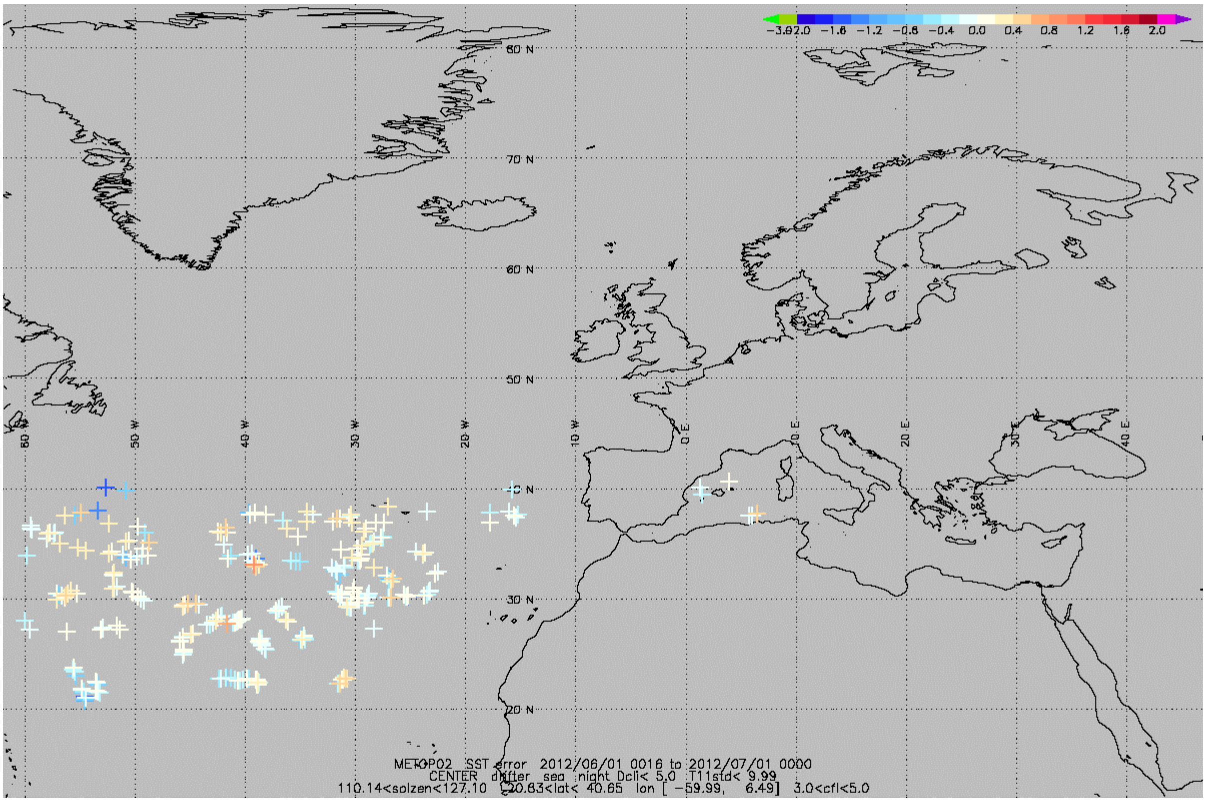


Figure 27 : Location of buoys for Metop-A NAR SST validation in JUNE 2012, for 3, 4, 5 quality indexes and by night.

The following table provides Metop-A -derived SST quality results over the reporting period.

Metop-A NAR SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias ℃	Bias Req ℃	Bias Margin (*)	Std Dev ℃	Std Dev Req ℃	Std Dev margin (*)
Apr. 2012	521	-0,220	0,5	56,00	0,38	0,8	52,50
May 2012	324	-0,070	0,5	86,00	0,32	0,8	60,00
June 2012	310	-0,090	0,5	82,00	0,36	0,8	55,00

table 9 : Quality results for Metop-A NAR SST over 2nd quarter 2012, for 3, 4, 5 quality indexes and by night.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good and stable.

The following graphs illustrate the evolution of Metop-A NAR SST quality results over the past 6 months.

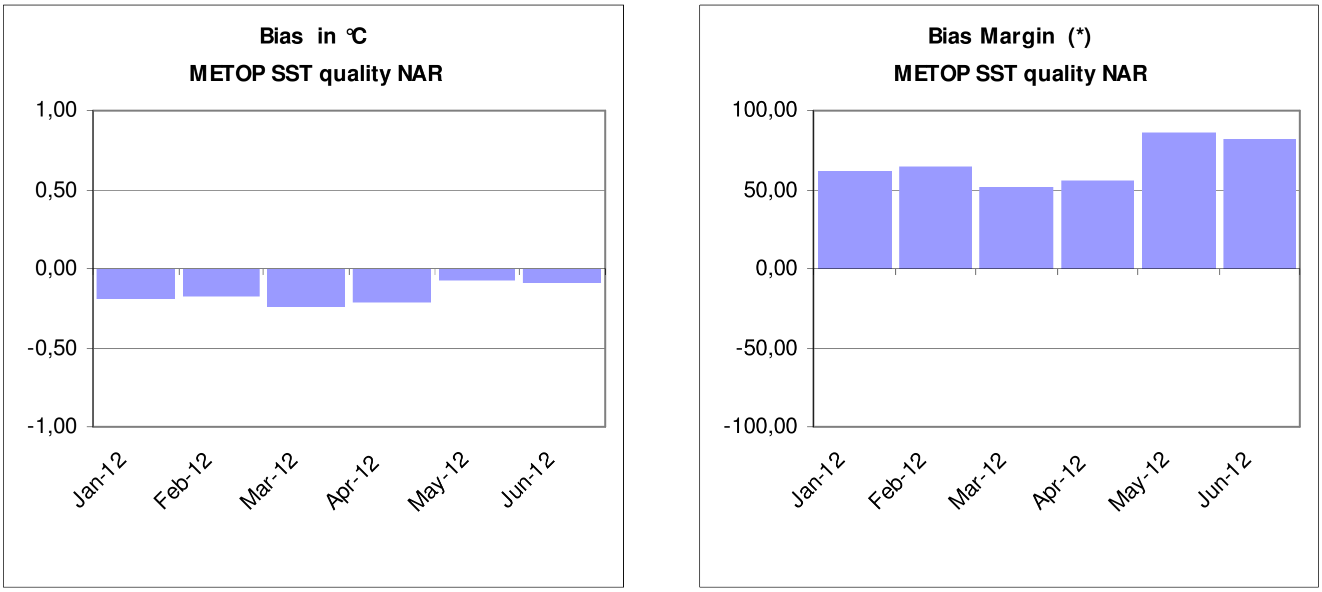


Figure 28 : Left: Metop-A NAR SST Bias. Right: Metop-A NAR SST Bias Margin.

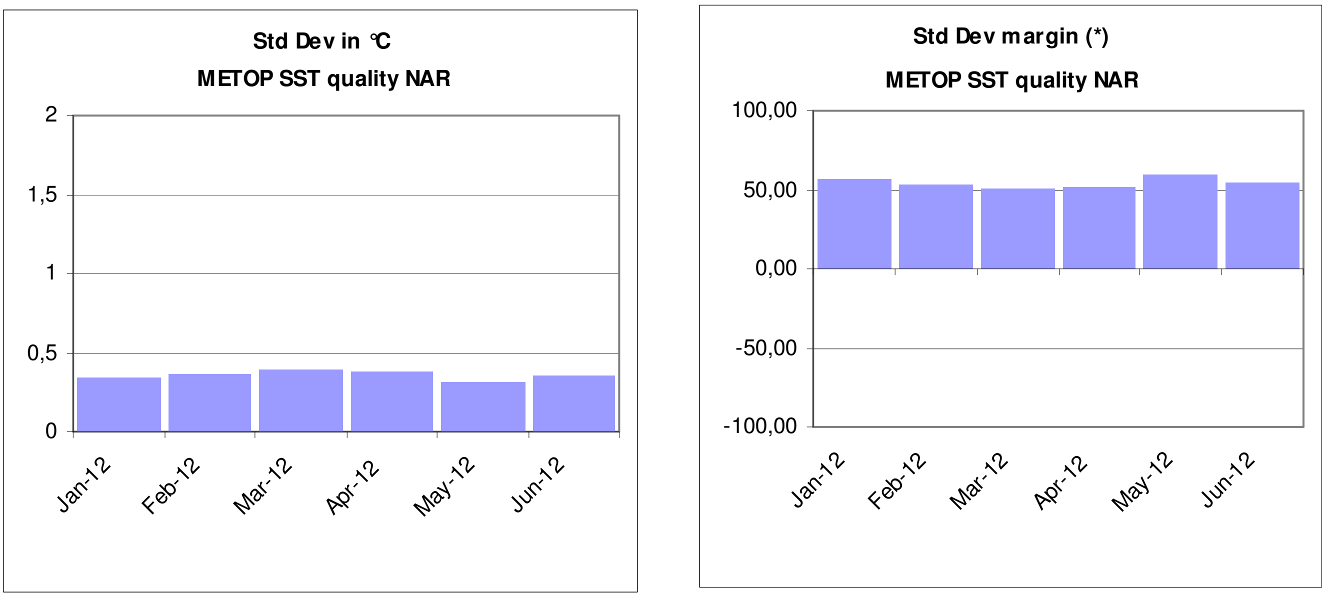


Figure 29 : Left: Metop-A NAR SST Standard deviation. Right: Metop-A NAR SST Standard deviation Margin.

Complementary validation statistics on Metop NAR SST

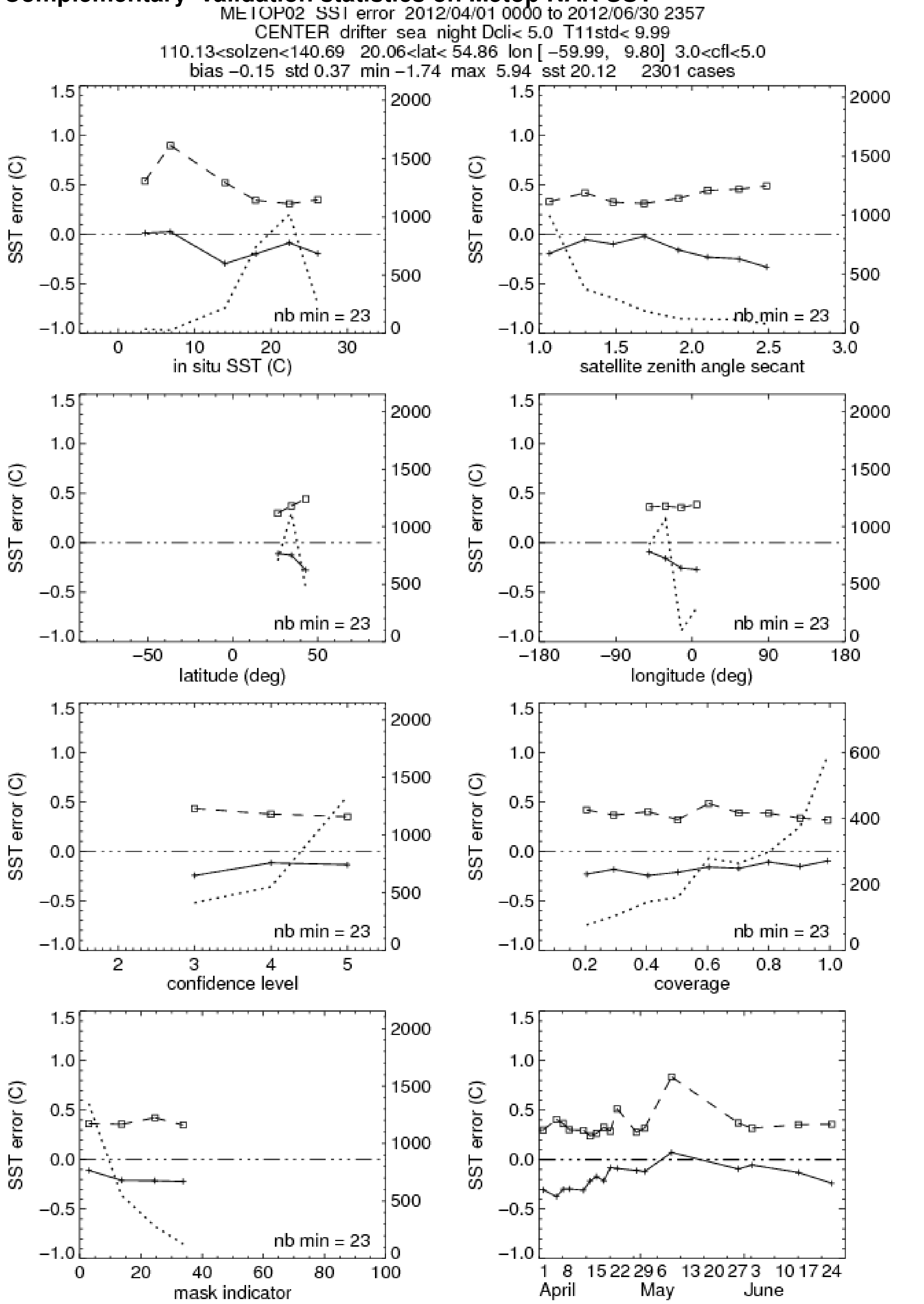


Figure 30 : Complementary validation statistics on Metop NAR SST.

5.1.4 GLB and MGR SST quality

The OSI SAF SST products on global coverage (GLB SST and MGR SST) are based on Metop/AVHRR data, currently Metop-A.

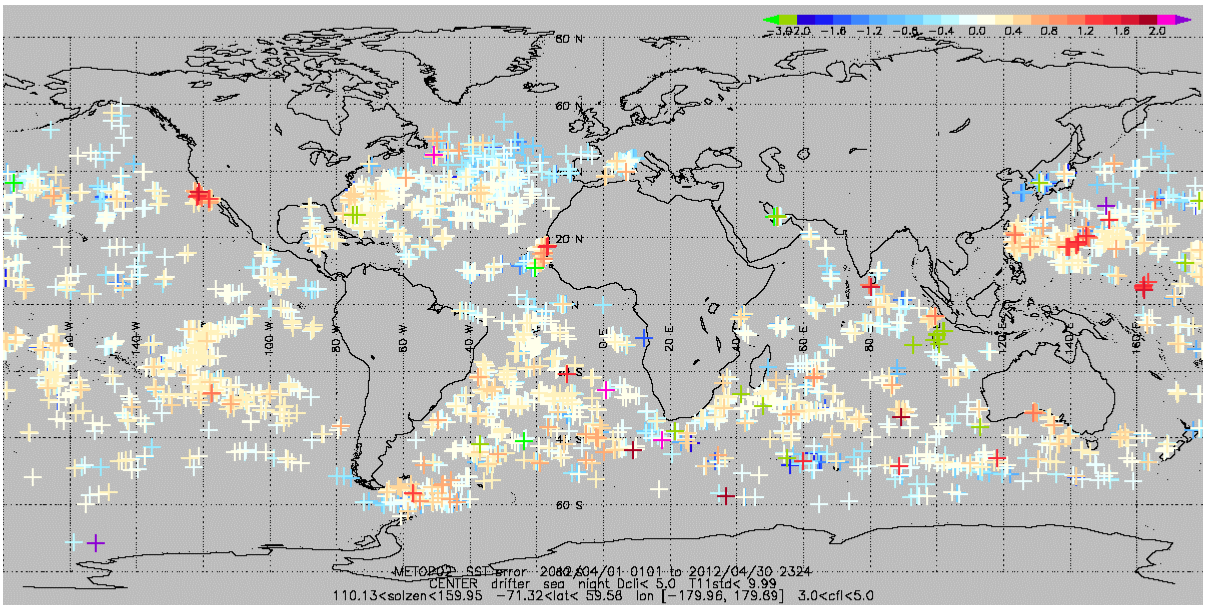


Figure 31 : Location of buoys for global Metop-A SST validation in APR. 2012, for 3, 4, 5 quality indexes and by night.

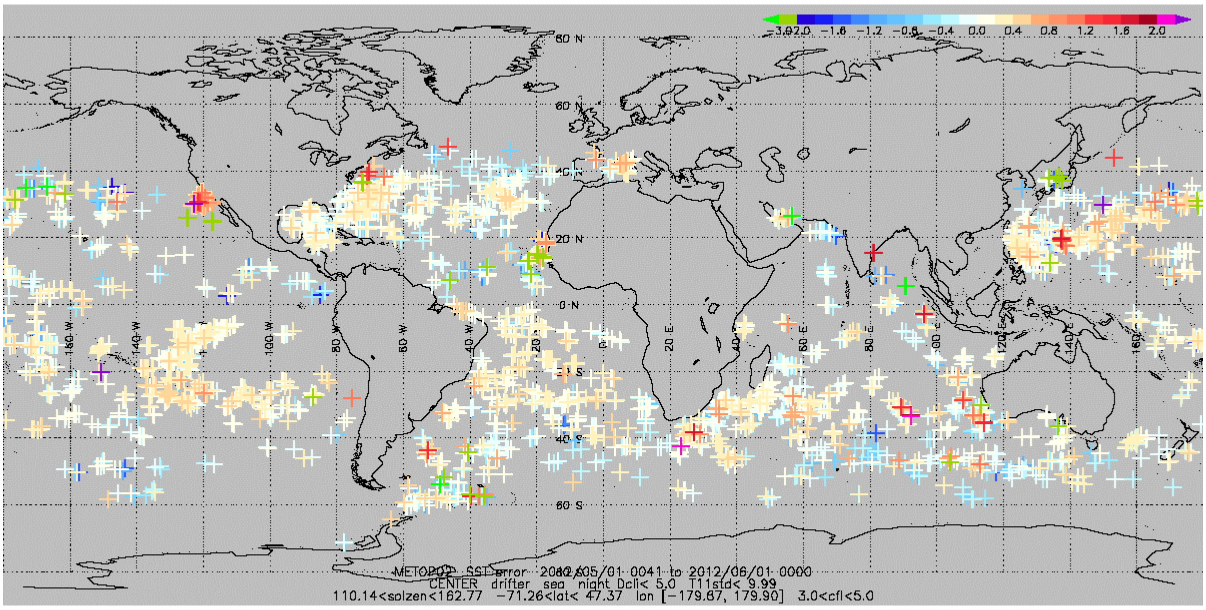


Figure 32 : Location of buoys for global Metop-A SST validation in MAY 2012, for 3, 4, 5 quality indexes and by night.

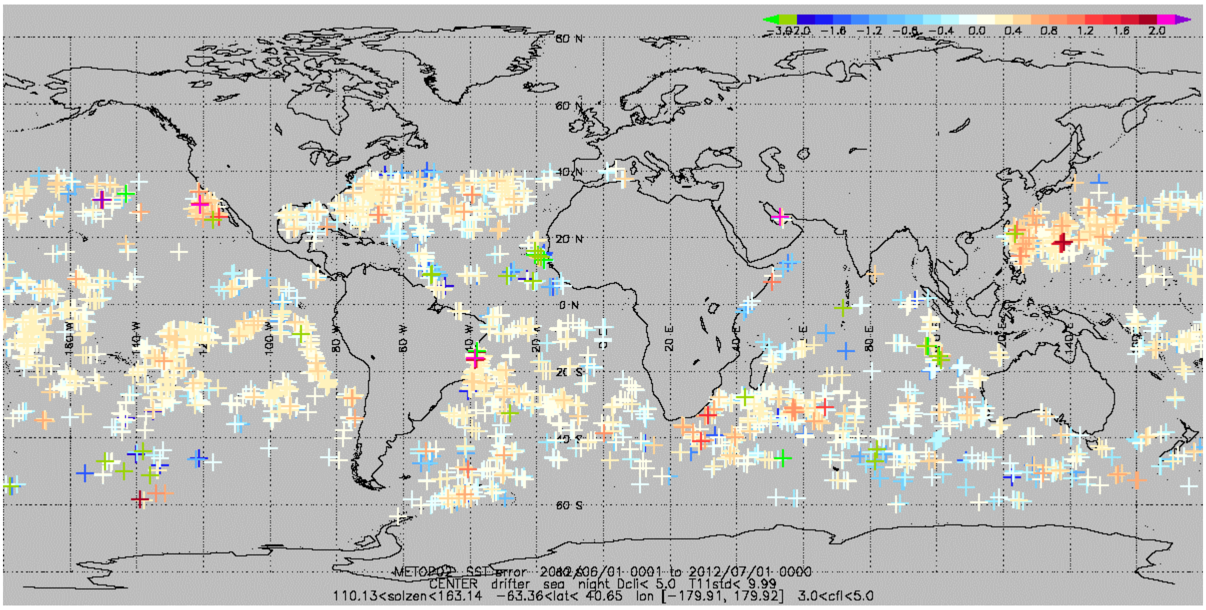


Figure 33 : Location of buoys for global Metop-A SST validation in JUNE 2012, for 3, 4, 5 quality indexes and by night.

The following table provides the METOP-derived SST quality results over the reporting period.

global Metop-A SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias ℃	Bias Req ℃	Bias Margin (*)	Std Dev ℃	Std Dev Req ℃	Std Dev margin (*)
Apr. 2012	4413	-0,080	0,5	84,00	0,47	0,8	41,25
May 2012	4197	-0,080	0,5	84,00	0,5	0,8	37,50
June 2012	4006	-0,050	0,5	90,00	0,47	0,8	41,25

table 10 : Quality results for global METOP SST over 2nd quarter 2012, for 3,4,5 quality indexes and by night.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good and stable.

The following graphs illustrate the evolution of global METOP SST quality results over the past 6 months.

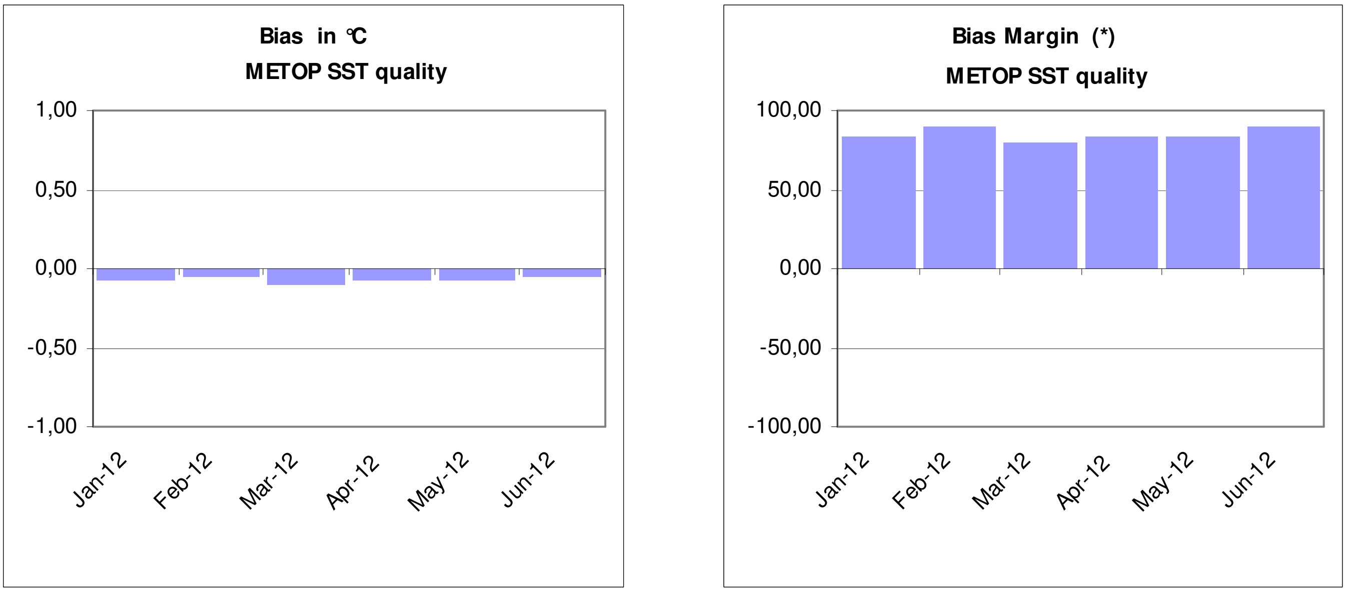


Figure 34 : Left: global Metop-A SST Bias. Right: global Metop-A SST Bias Margin.

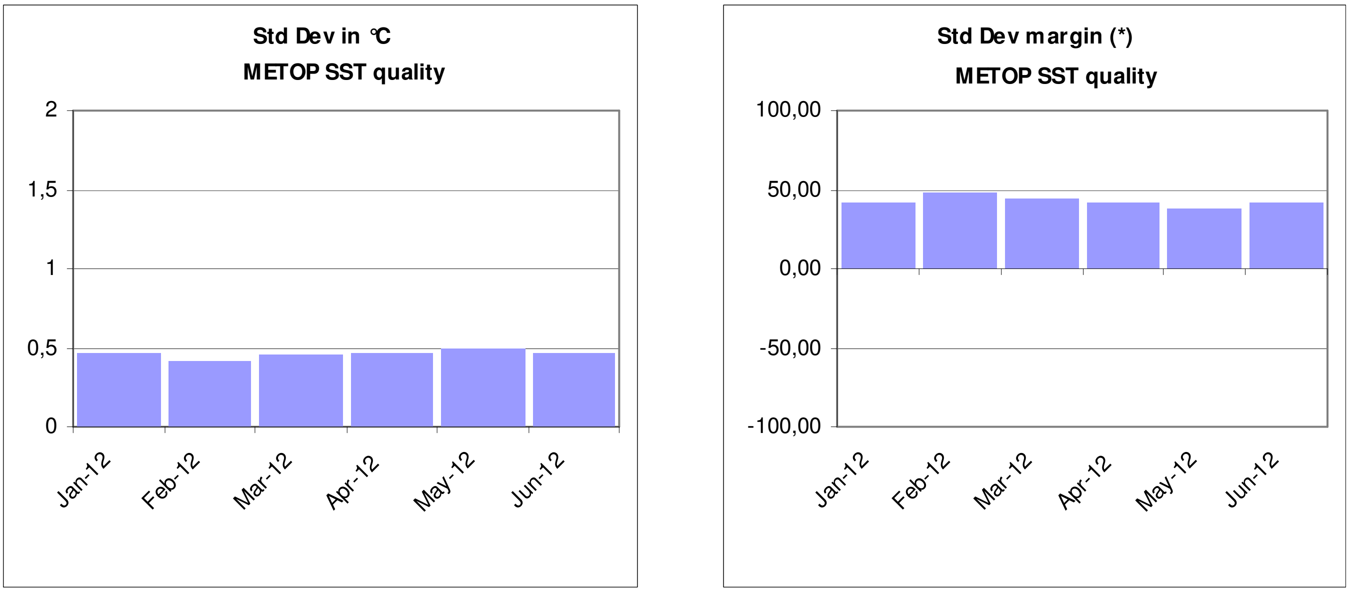


Figure 35 : Left: global Metop-A SST Standard deviation. Right: global Metop-A SST Standard deviation Margin.

Complementary validation statistics on Metop GLB SST

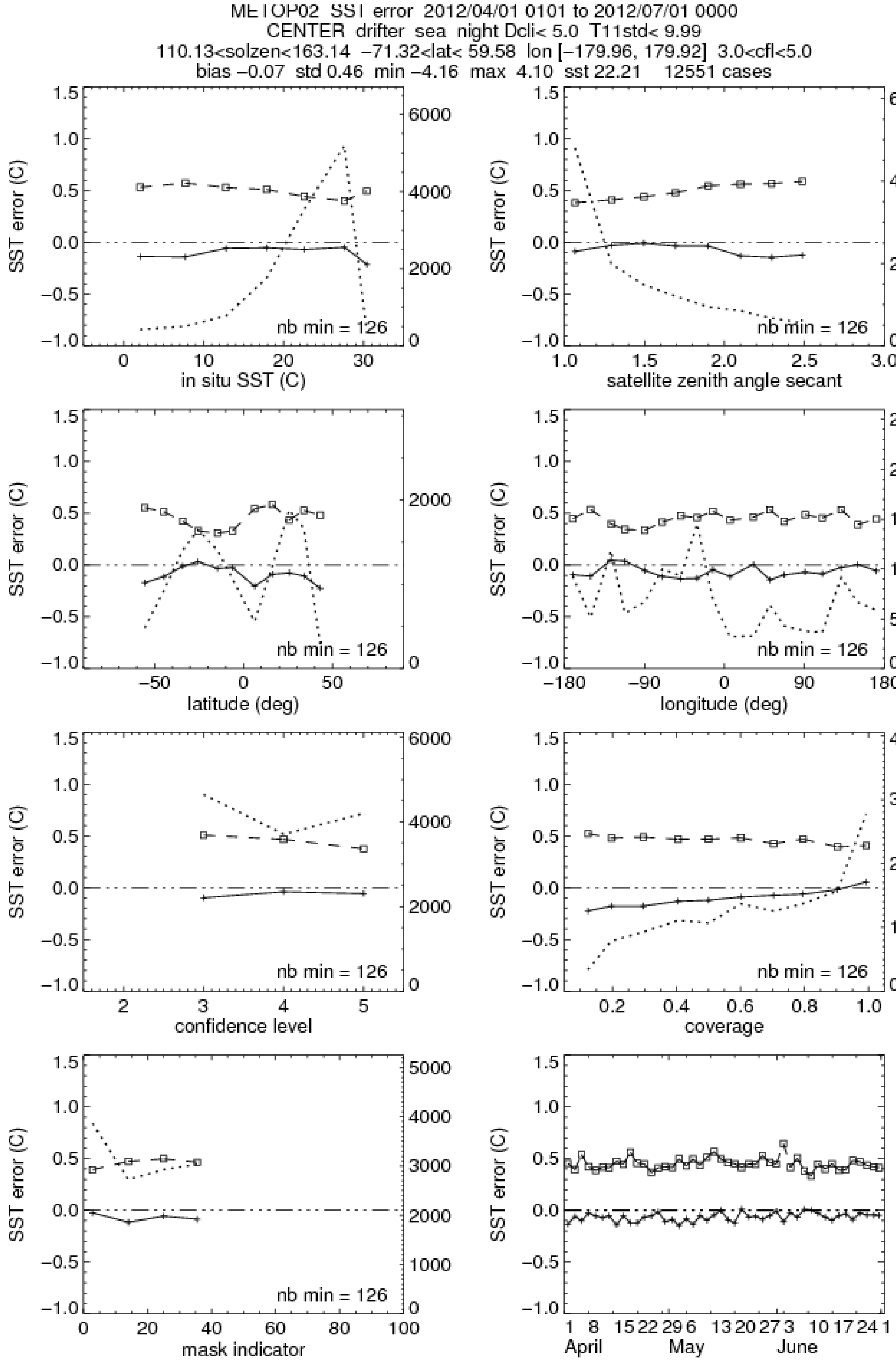


Figure 36 : Complementary validation statistics on Metop GLB SST.

5.1.5 AHL SST quality

The Atlantic High Latitude SST (AHL SST) is derived from polar satellites data, currently AVHRR on NOAA-18, NOAA-19 and METOP-A .

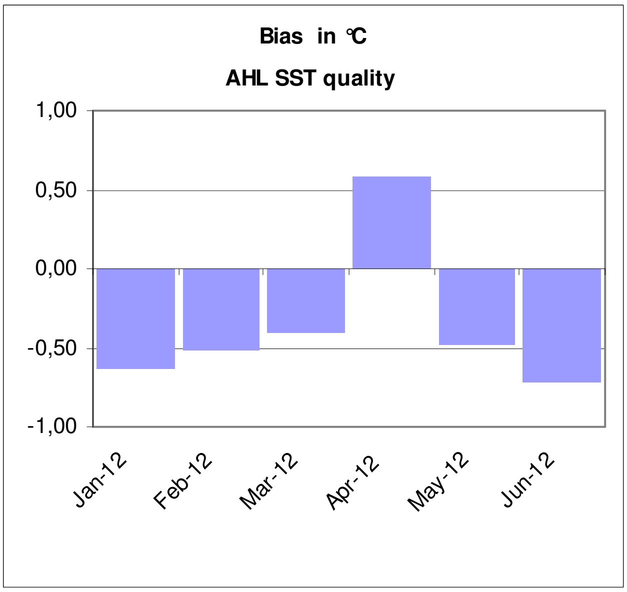
The following table provides the AVHRR-derived AHL SST quality results over the reporting period.

AHL AVHRR SST quality results over 2nd quarter 2012							
Month	Number of cases	Bias °C	Bias Req °C	Bias Margin (*)	Std Dev °C	Std Dev Req °C	Std Dev margin (*)
Apr. 2012	2557	0,577	0.5	-15,4	0,753	0.8	5,9
May 2012	1390	-0,476	0.5	4,8	1,065	0.8	-33.1
June 2012	4357	-0,723	0.5	-44,6	0,884	0.8	-10,5

table 11 : **Quality results for AHL AVHRR SST over 2nd quarter 2012, for 3,4,5 quality indexes and by night.**

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
The AHL SST product does fulfill the requirement partly for April and May, but both bias and standard deviation requirements are not fulfilled for two of the months. The sensor-wise statistics on the swath-based data (not shown) indicates quality within the requirements. This will be further investigated to fully understand, and will be reported in the next QR report.



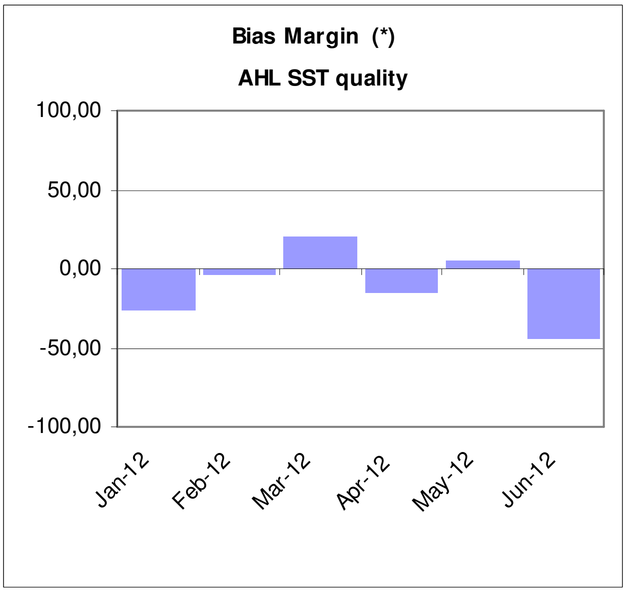


Figure 37 : Left: AHL SST Bias. Right: AHL SST Bias Margin.

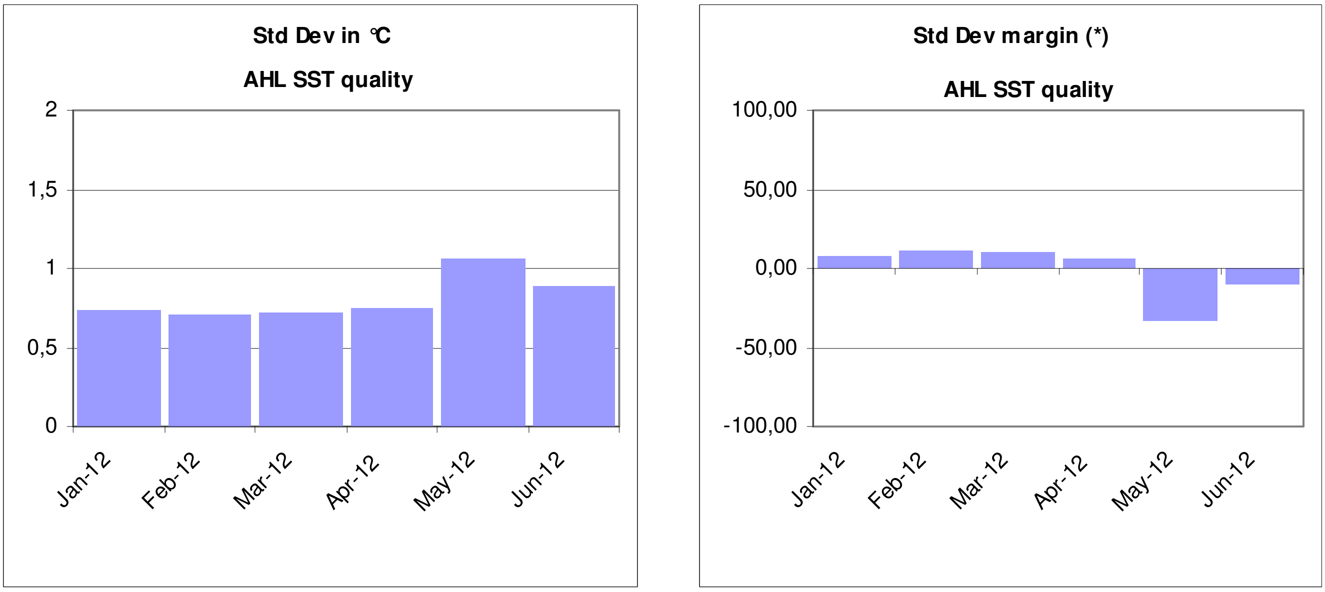


Figure 38 : Left: AHL SST Standard deviation. Right: AHL SST Standard deviation Margin.

5.2 Radiative Fluxes quality

5.2.1 DLI quality

DLI products are constituted of the geostationary products (METEOSAT DLI and GOES-E DLI) and the polar ones (AHL DLI).
DLI values are required to have the following accuracy when compared to land pyrgeometer measurements :

- monthly relative bias less than 5%,
- monthly difference standard deviation less than 10%.

The match-up data base the statistics are based on is continuously enriched, so that, for the same period, results may evolve depending on the date when the statistics were calculated

5.2.1.1 METEOSAT and GOES-E DLI quality

The list of pyrgeometer stations used for validating the geostationary DLI products is available on the OSI SAF Web Site from the following page: http://www.osi-saf.org/production/cms/validation_dli_geo.php?safosi_session_id=2a5ce18676a34d0d8c1355612876a009

The following table provides the geostationary DLI quality results over the reporting period.

Geostationary METEOSAT & GOES-E DLI quality results over 2nd quarter 2012								
Month	Number of cases	Mean DLI	Bias in %	Bias Req In %	Bias Marg in %(*)	Std Dev In %	Std Dev Req In %	Std Dev margin (*)
Apr. 2012	3848	304,5	-0,69	5	86,27	5,42	10	45,85
May 2012	5785	336,64	-0,86	5	82,71	4,71	10	52,89
June 2012	4220	354,32	0,14	5	97,18	4,35	10	56,45

table 12 : Geostationary DLI quality results over 2nd quarter 2012.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good with similar seasonal evolution of the std. dev. observed each year.

The following graphs illustrate the evolution of Geostationary DLI quality over the past 6 months.

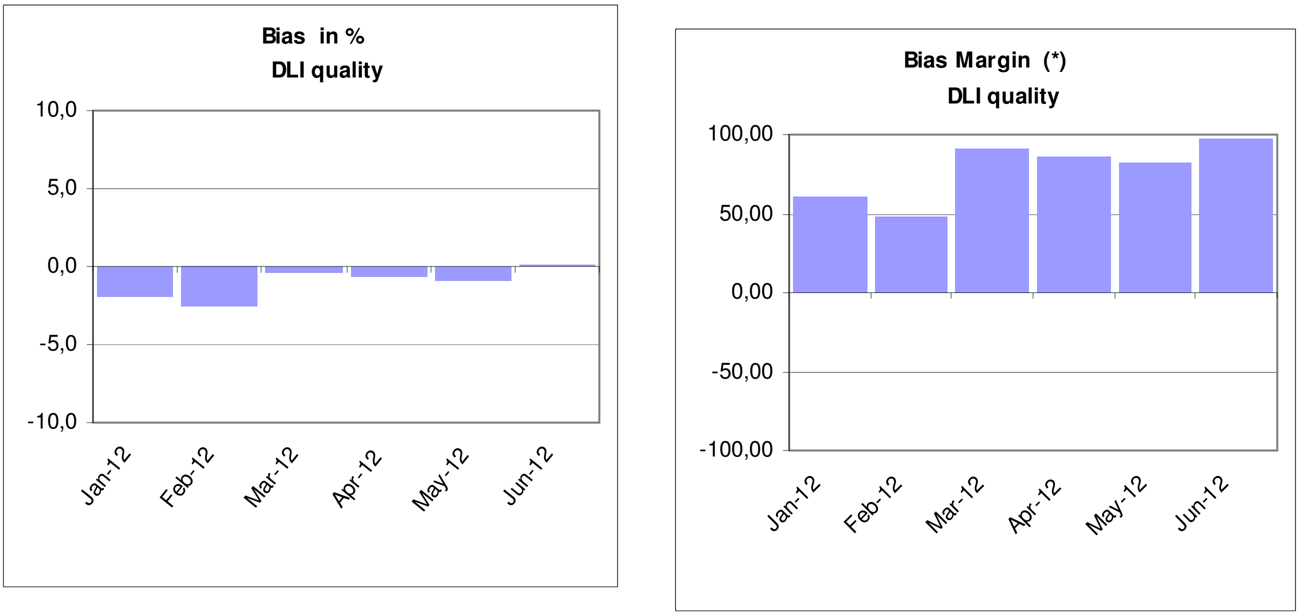


Figure 39 : Left: Geostationary DLI Bias. Right Geostationary DLI Bias Margin .

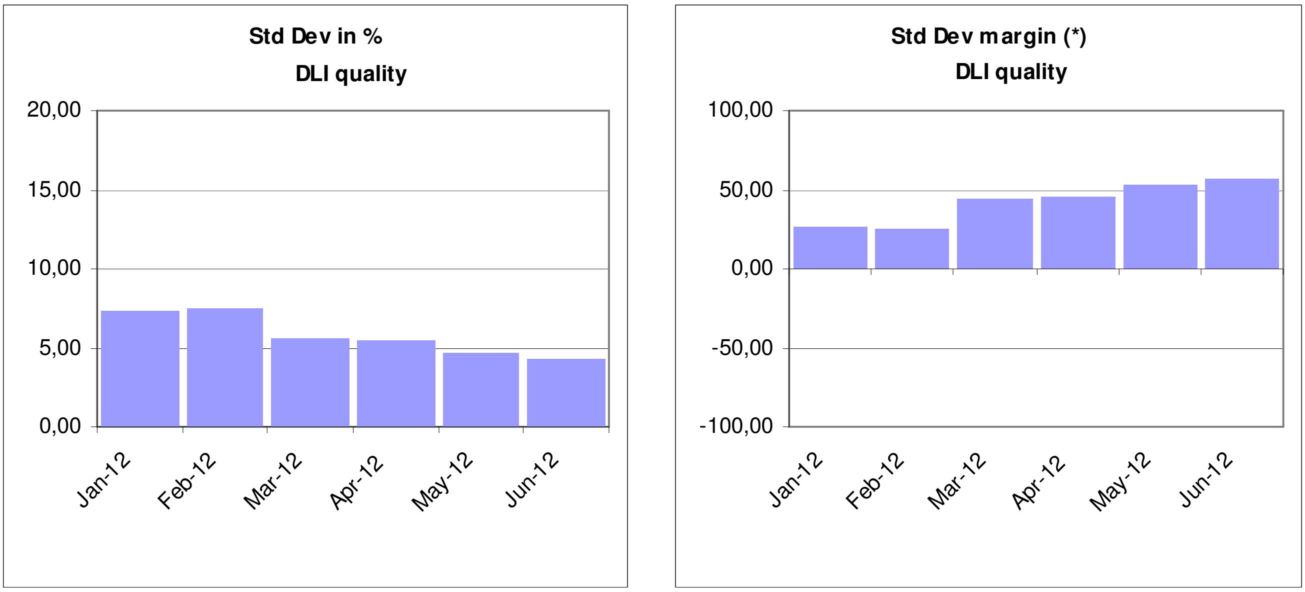


Figure 40 : Left: Geostationary DLI Standard deviation. Right DLI Geostationary Standard deviation Margin.

5.2.1.2 AHL DLI quality

The following table provides the AHL DLI quality results over the reporting period.
The pyrgeometer stations used for validation of the AHL DLI product are are selected stations from Table 1. Specifically the following stations are currently used.
0Ekofisk
1Jan Mayen
2Bjørnøya
3Hopen
These stations are briefly described at *http://dokipy.met.no/projects/iaoos-norway/radflux.html*. A map illustrating the locations is provided in Figure 1 where the stations used for SSI validation is also shown. More information on the stations is provided in chapter section **Erreur ! Source du renvoi introuvable.**.

The following table provides the AHL DLI quality results over the reporting period.

AHL DLI quality results over 2nd quarter 2012								
Month	Number of cases	Mean DLI	Bias in %	Bias Req In %	Bias Marg in %(*)	Std Dev In %	Std Dev Req In %	Std Dev margin (*)
Apr. 2012	120	268.7	1.99	5.0	60,2	4.13	10	58,7
May 2012	94	283.9	4.52	5.0	19,1	3.84	10.0	61,6
June 2012	116	312.2	6.03	5.0	-20,6	3.07	10.0	69,3

table 13 : AHL DLI quality results over 2nd quarter 2012.
(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
The number of stations available for validation of DLI is very limited. Work is currently ongoing to increase the number of stations and stations operated by the *Swedish Meteorological and Hydrological Institute* is currently being examined and data streams prepared for inclusion.
The validation results on the stations used is satisfying. The stations used have some problems when used for validation of SSI (in particular shadow effects), but DLI results seems OK (a full review of the observations quality is yet not finished). An examination of cloud cover conditions and types for the period is planned, but yet not performed.

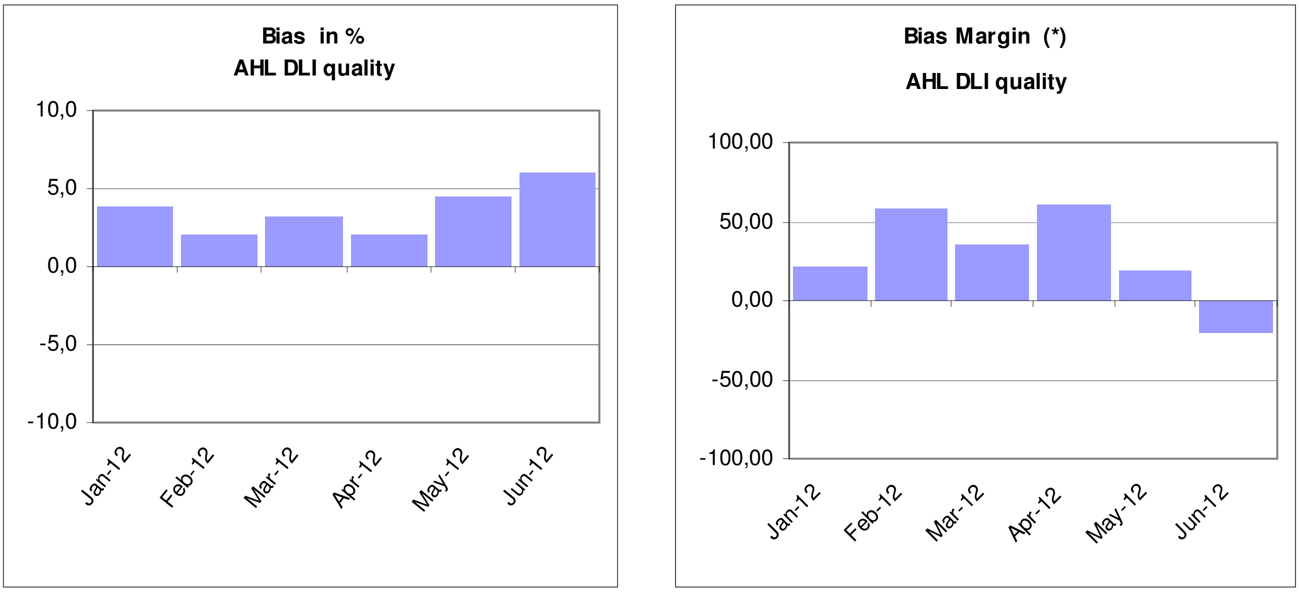


Figure 41 : Left: AHL DLI Bias. Right AHL DLI Bias Margin .

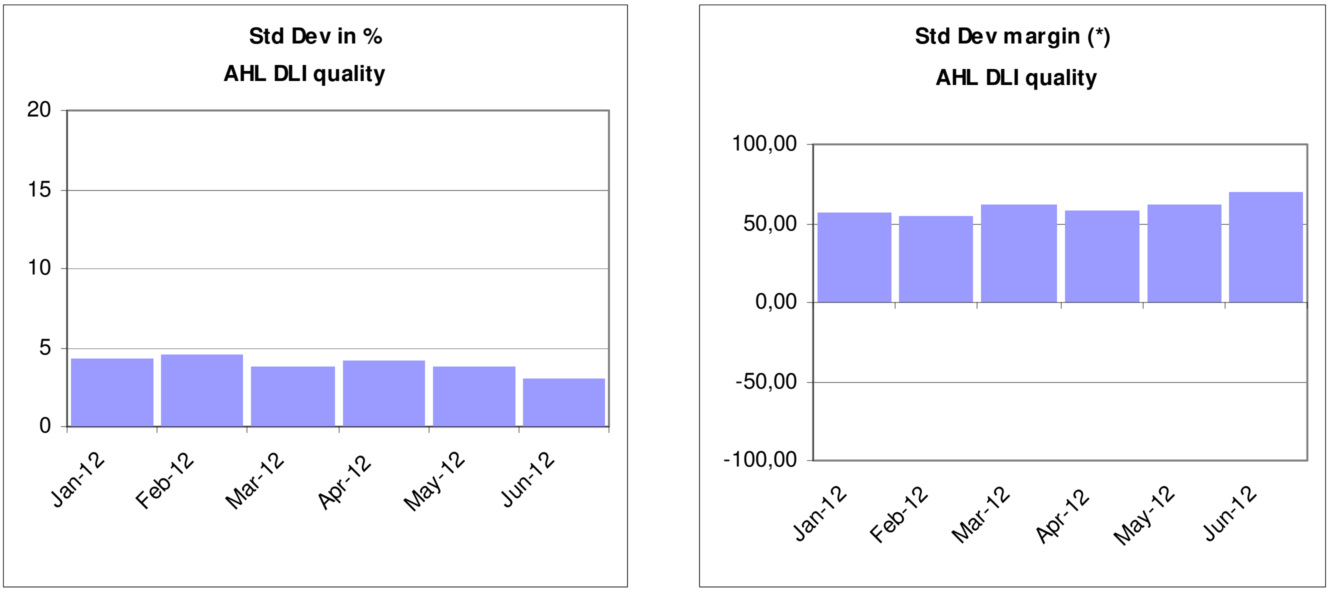


Figure 42 : Left: AHL DLI Standard deviation. Right AHL DLI Standard deviation Margin.

5.2.2 SSI quality

SSI products are constituted of the geostationary products (METEOSAT SSI and GOES-E SSI) and polar ones (AHL SSI).
SSI values are required to have the following accuracy when compared to land pyranometer measurements :

- monthly relative bias less than 10%,
- monthly difference standard deviation less than 30%.

The match-up data base the statistics are based on is continuously enriched, so that, for the same period, results may evolve depending on the date when the statistics were calculated.

5.2.2.1 METEOSAT and GOES-E SSI quality

The list of pyranometer stations used for validating the geostationary SSI products is available on the OSI SAF Web Site from the following page:
http://www.osi-saf.org/production/cms/validation_ssi_geo.php?safosi_session_id=2a5ce18676a34d0d8c1355612876a009

The following table provides the geostationary SSI quality results over the reporting period.

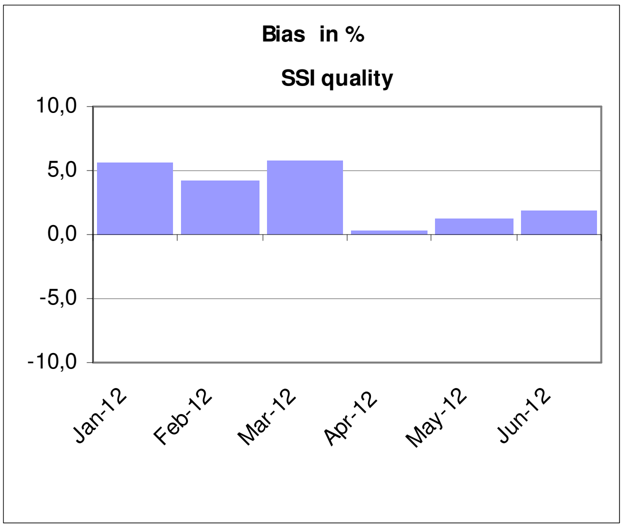
Geostationary METEOSAT & GOES-E SSI quality results over 2nd quarter 2012								
Month	Number of cases	Mean SSI	Bias in %	Bias Req In %	Bias Marg in %(*)	Std Dev In %	Std Dev Req In %	Std Dev margin (*)
Apr. 2012	2119	475,31	0,27	10	97,33	12,81	30	57,31
May 2012	8450	452,33	1,24	10	87,60	17,28	30	42,39
June 2012	7251	493,67	1,95	10	80,53	15,42	30	48,62

table 14 : Geostationary SSI quality results over 2nd quarter 2012.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))
100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Results are good with similar seasonal evolution of the std. dev. observed each year.

The following graphs illustrate the evolution of Geostationary SSI quality over the past 6 months.



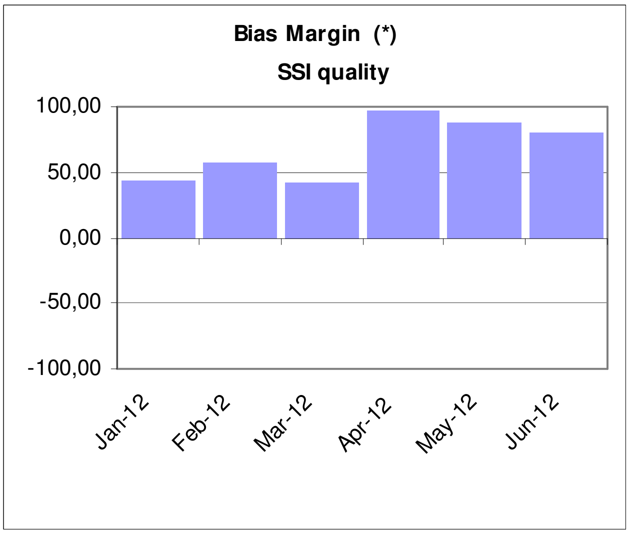
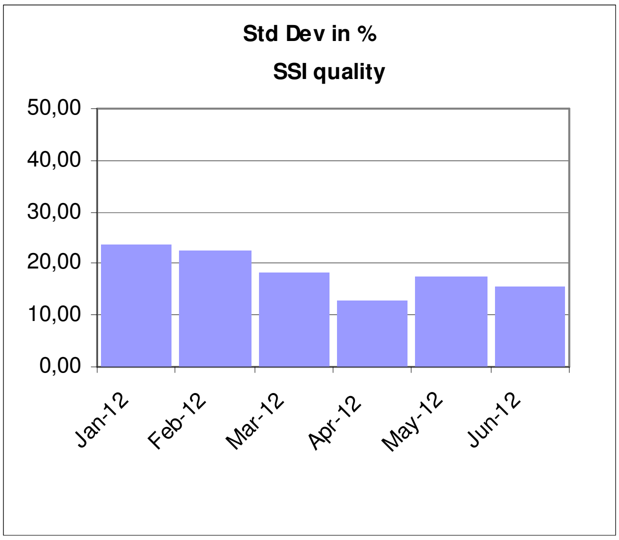


Figure 43 : Left: Geostationary SSI Bias. Right Geostationary SSI Bias Margin.



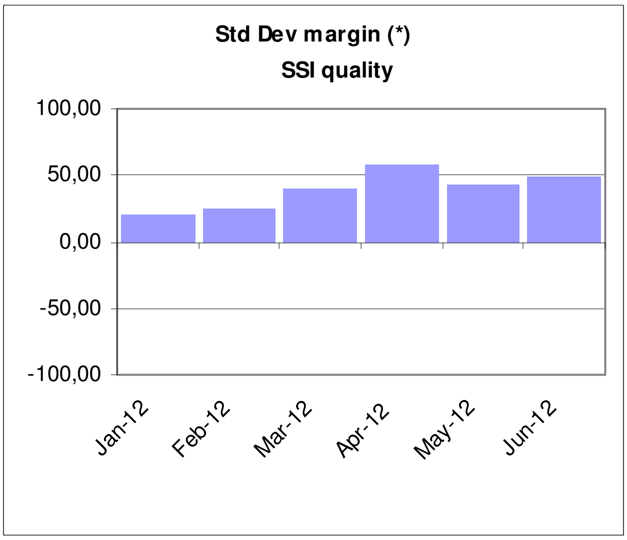


Figure 44 : Left: Geostationary SSI Standard deviation. Right Geostationary SSI Standard deviation Margin.

5.2.2.2 AHL SSI quality

The pyranometer stations used for validation of the AHL SSI product are shown in: Table 15.

Station	StId	Latitude	Longitude	Status
Tjøtta	76530	65.83°N	12.43°E	In use
Vågønes	82260	67.28°N	14.47°E	Not used currently
Holt	90400	69.67°N	18.93°E	Not used currently
Apelsvoll	11500	60.70°N	10.87°E	In use, under examination due to shadow effects.
Løken	23500	61.12°N	9.07°E	Not used currently
Landvik	38140	58.33°N	8.52°E	In use
Særheim	44300	58.78°N	5.68°E	In use
Fureneset	56420	61.30°N	5.05°E	In use
Kvithamar	69150	63.50°N	10.87°E	Not used currently
Jan_Mayen	99950	70.93°N	-8.67°E	In use, Arctic station with snow on ground much of the year, volcanic ash detoriates instruments in periods.
Bjørnøya	99710	74.52°N	19.02°E	In use, Arctic station with snow on ground much of the year.
Hopen	99720	76.50°N	25.07°E	In use, Arctic station with snow on ground much of the year.
Ekofisk	76920	56.50°N	3.2°E	In use, shadow effects at certain directions.

table 15 : ***Validation stations that are currently used for AHL radiative fluxes validation.***

Locations of these stations are provided in the illustration below (Figure 1). The map illustrates whether stations are used for SSI or DLI validation. As readily can be seen, the map contains more stations than actually used (see the list above). The reason for this is that some stations have characteristics which makes them unsuitable for validation of daily SSI due to e.g. shadow effects or other surrounding characteristics.

Furthermore, some of the stations listed are briefly described at http://dokipy.met.no/projects/iaoos-norway/radflux.html.
The stations used in this validation is owned and operated by the Norwegian Meteorological Institute, University of Bergen, Geophysical Institute and Bioforsk.

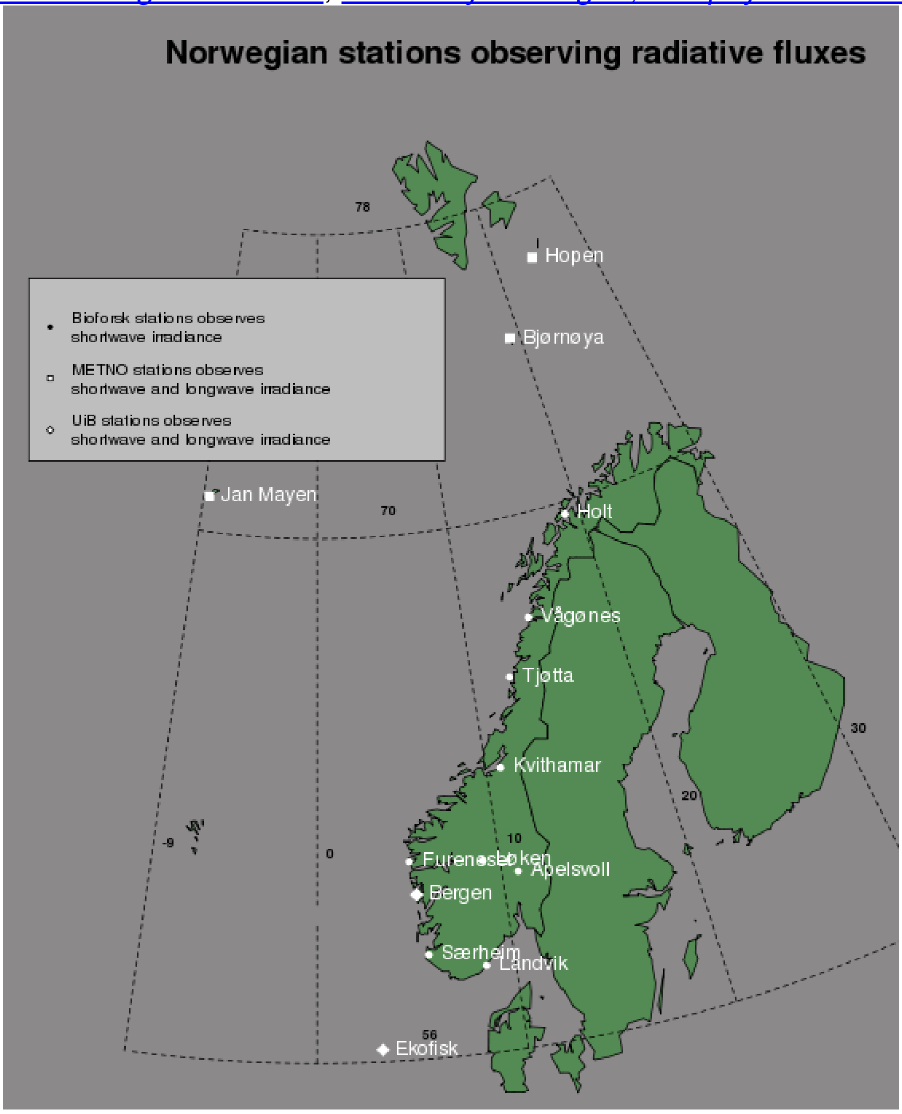


Figure 45 : List of stations available for validation purposes of AHL radiative fluxes. Only a subset of these stations are used due to station characteristics when validation satellite remote sensing products.

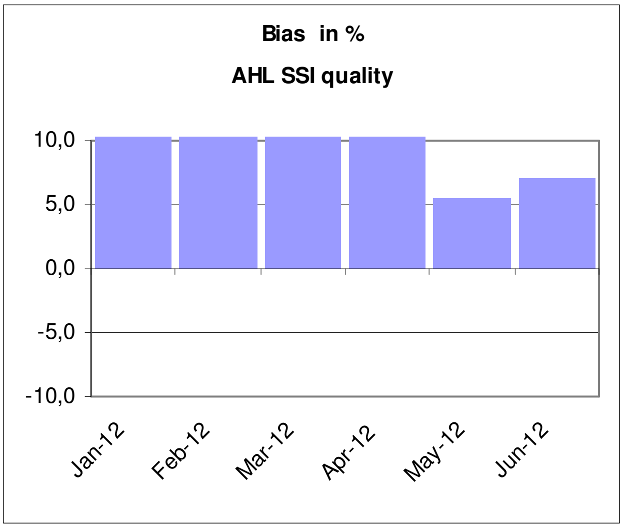
AHL SSI quality results over 2nd quarter 2012								
Month	Number of cases	Mean SSI	Bias in %	Bias Req In %	Bias Marg in %(*)	Std Dev In %	Std Dev Req In %	Std Dev margin (*)
Apr. 2012	270	129.5	10.7	10.0	-7	13.2	30.0	56
May 2012	249	192.6	5.5	10.0	45	13.9	30.0	53,67
June 2012	261	202.3	7.1	10.0	29	14.7	30.0	51

table 16 : AHLSSI quality results over 2nd quarter 2012.

(*)Bias Margin = 100 * (1-(|Bias / Bias Req|))
(*)Std Dev margin = 100 * (1-(Std Dev / Std Dev Req))

100 refers then to a perfect product. 0 to a quality just as required. without margin.
A negative result indicates that the product quality does not fulfill the requirement.

Comments:
Removal of the stations at Bjørnøya and Hopen improves results to meet requirements at all months (relative bias of 5,14%, 3.94% and 6.33% and relative standard deviation of 12.89%, 12.55% and 13.77% respectively April through June). However, these stations are used for further improvement of the AHL fluxes concerning performance in the Arctic. Thus we would like to keep them in the validation.
Work is currently ongoing to increase the number of stations and stations operated by the *Swedish Meteorological and Hydrological Institute*. Data are currently being examined and data streams prepared for inclusion. Work is also ongoing to establish a number of reference stations on the Norwegian mainland (covering the latitudinal extent) and to have these maintained by the Norwegian Meteorological Institute.
Validation results are satisfying for April, May and June. The reason for the negative impact of Arctic stations Bjørnøya and Hopen on validation is snow covered ground which is not well handled by the algorithm (work ongoing to improve this).
Since the last report, further examination of the station at Ekofisk have been performed. Due to the structure of the oil rig and surrounding oil rigs, this station is influenced by shadow effects. Further analysis of how to treat this in validation is ongoing.



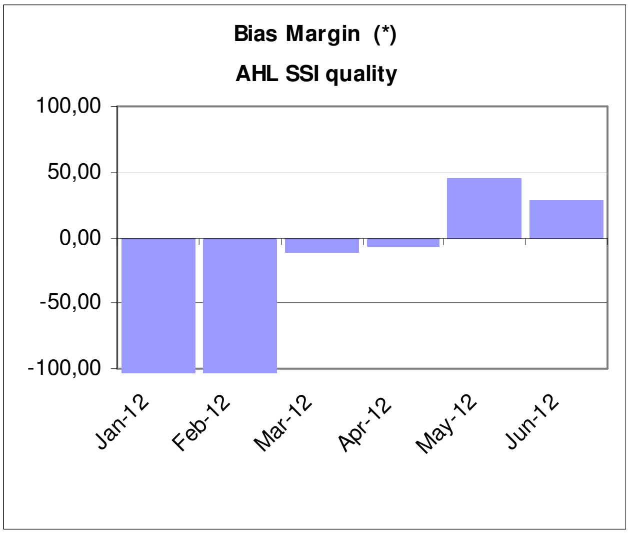
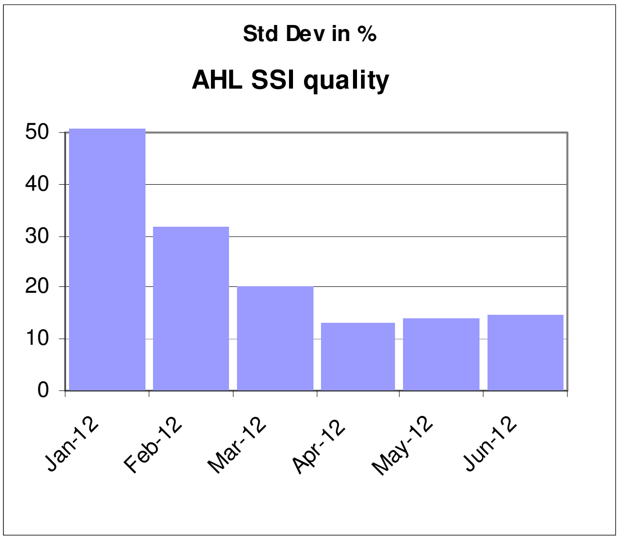


Figure 46 : Left: Geostationary SSI Bias. Right Geostationary SSI Bias Margin.



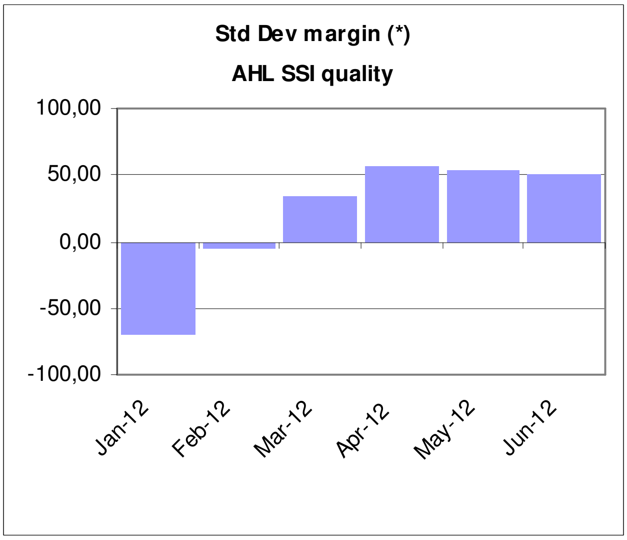


Figure 47 : **Left: Geostationary SSI Standard deviation. Right Geostationary SSI Standard deviation Margin.**

5.3 Sea Ice quality

5.3.1 Reference data

At the current stage operational ice charts are believed to be the best independent source of reference data currently available.
The OSISAF sea ice edge and concentration products are validated against navigational ice charts originating from the operational ice charting divisions at DMI, met.no and National Ice Center. The ice charts are primarily based on SAR (Radarsat and Envisat) data, together with AVHRR and MODIS data in several cases. A detailed interpretation of satellite imagery and a subsequent mapping procedure are carried out by skilled (experienced and trained) ice analysts. The ice charts are primarily used for strategic and tactical planning within the offshore and shipping community. Requirements are strict with demands for detailed high quality products for several areas.

5.3.2 Validation requirements

For the weekly validation at the Northern Hemisphere the concentration product is required to have a bias and standard deviation less than 10% ice concentration on an annual basis. For the weekly validation at the Southern Hemisphere the concentration product is required to have a bias and standard deviation less than 15% ice concentration on an annual basis. There is no requirement on the confidence level of the products, but statistics are shown as additional information.

5.3.3 Validation against DMI ice charts

The ice charting division at DMI (Greenland Ice Service) produces in average 3-5 charts per week. Most charts cover the Cape Farewell area, but also the east and west coast of Greenland are frequently covered. Besides the service related to navigational charts the Greenland Ice Service produces one weekly product covering all of Greenland and usually based on navigational charts, AVHRR and MODIS data.

The validation is carried out as a weekly validation by means of automatic comparison of SAF grid with navigational ice charts for ice edge and ice concentration. The weekly ice chart and the SAF product are gridded into a common projection and resolution. Following this a cell by cell comparison is carried out. Only cells based on Radarsat and/or AVHRR data are used. For each ice chart concentration level the deviation between ice chart concentration and OSISAF ice concentration is calculated. Afterwards deviations are grouped into categories, i.e. ±10% and ±20%. Furthermore the bias and standard deviation is calculated for each concentration level. The bias and standard deviation are reported for ice (> 0% ice concentration), for water (0% ice concentration) and for both ice and water as a total.

5.3.4 Validation results for Northern Hemisphere based on Greenland Ice charts

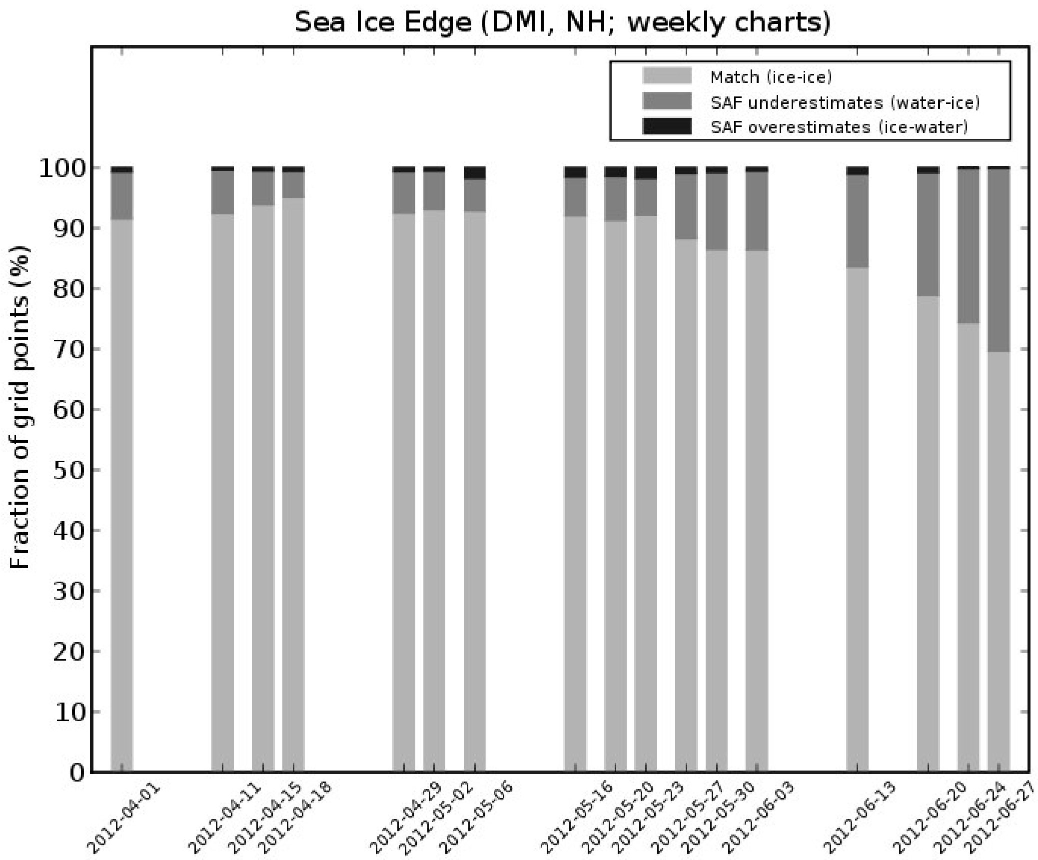


Figure 48 : **Comparison between the weekly DMI ice analysis and the SAF edge product. 'SAF underestimates' means grid points where the SAF product indicated water and the DMI ice analysis indicated ice and vice versa for the 'SAF overestimates' category.**

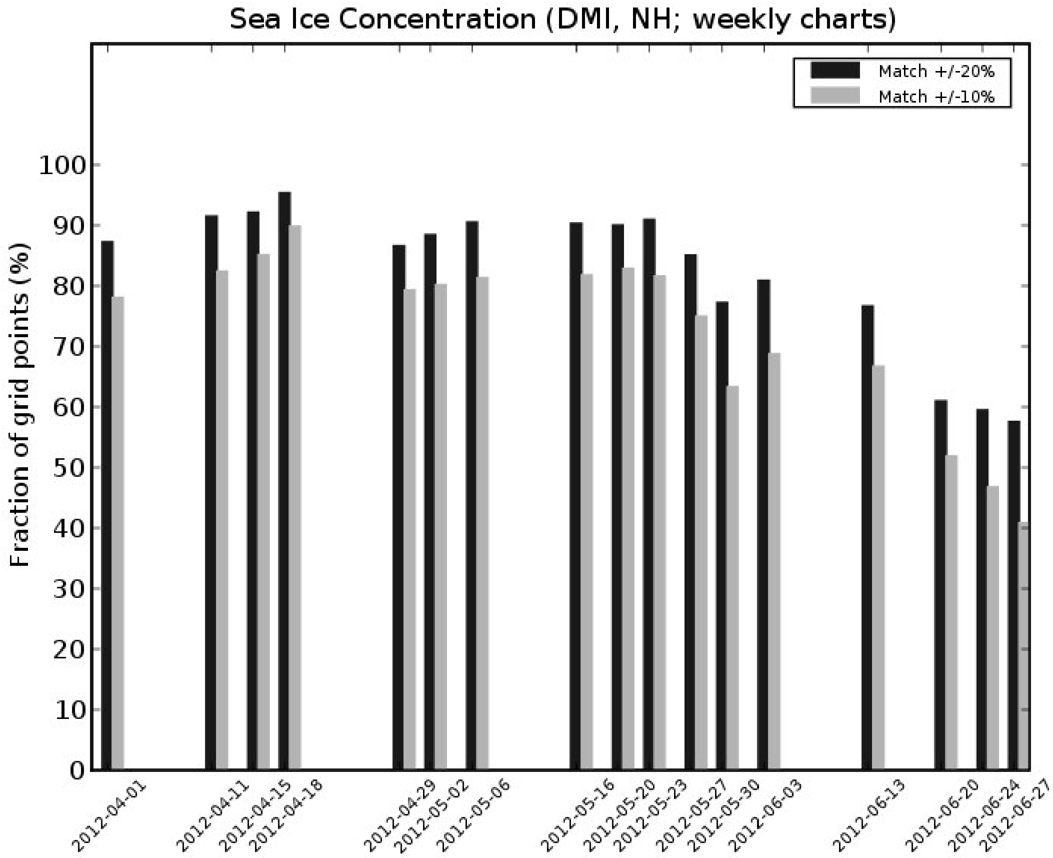


Figure 49 : **Comparison between ice concentrations from the weekly DMI ice analysis and the SAF concentration product. 'Match +/- 10 %' corresponds to those grid points where concentration deviates within the range of +/-10 % and likewise for +/-20 %.**

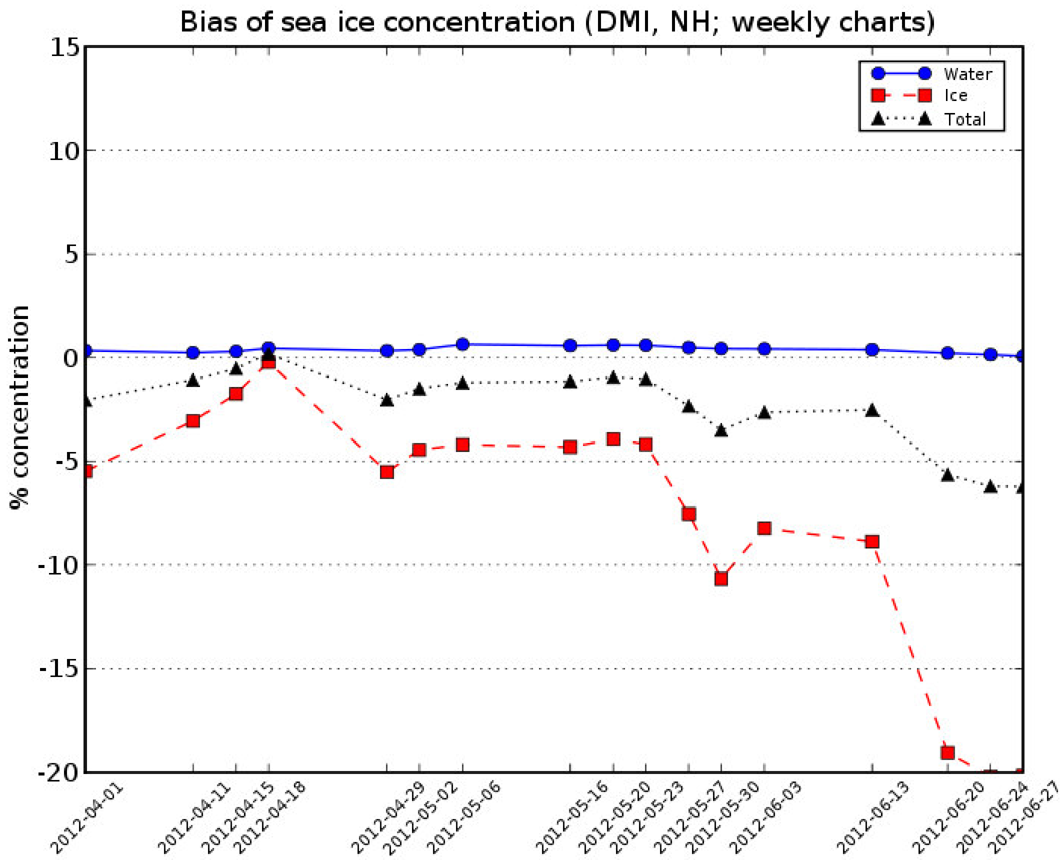


Figure 50 : The bias of ice concentration for three categories: water, ice and total. When bias is below zero the SAF ice concentration tends to underestimate.

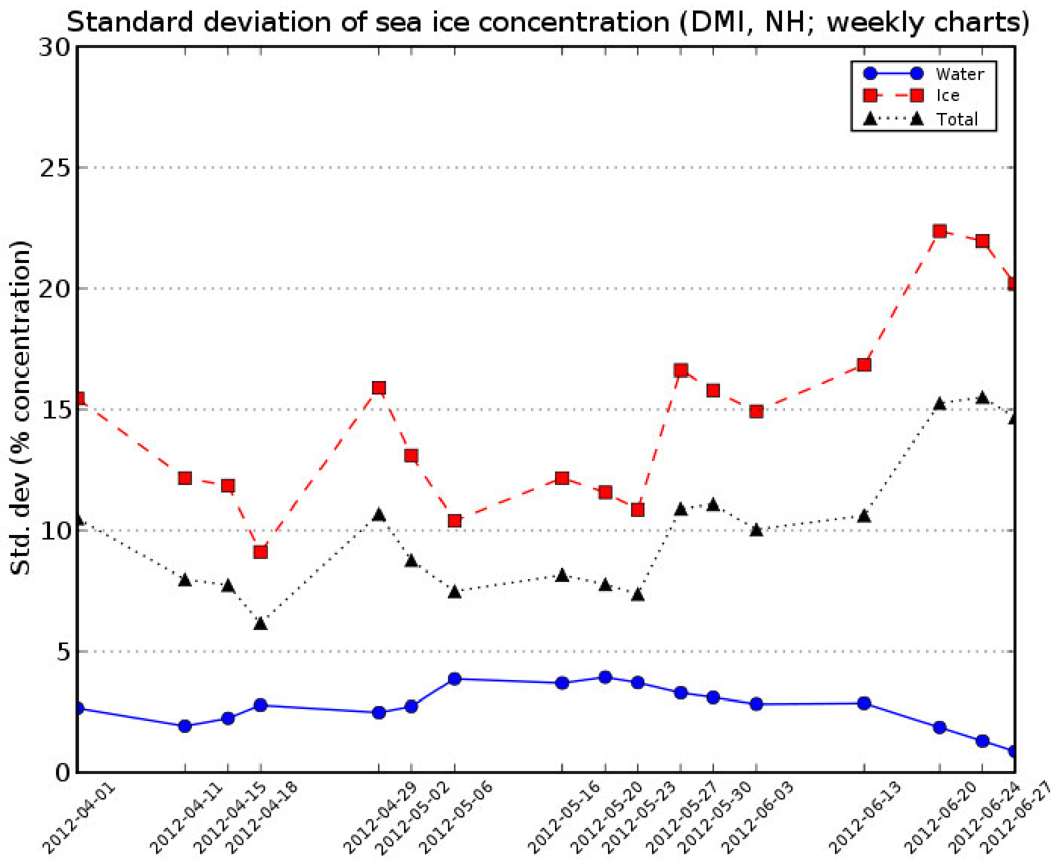


Figure 51 : The standard deviation of ice concentration for threee categories: water, ice and total.

5.3.5 Multi-year variability

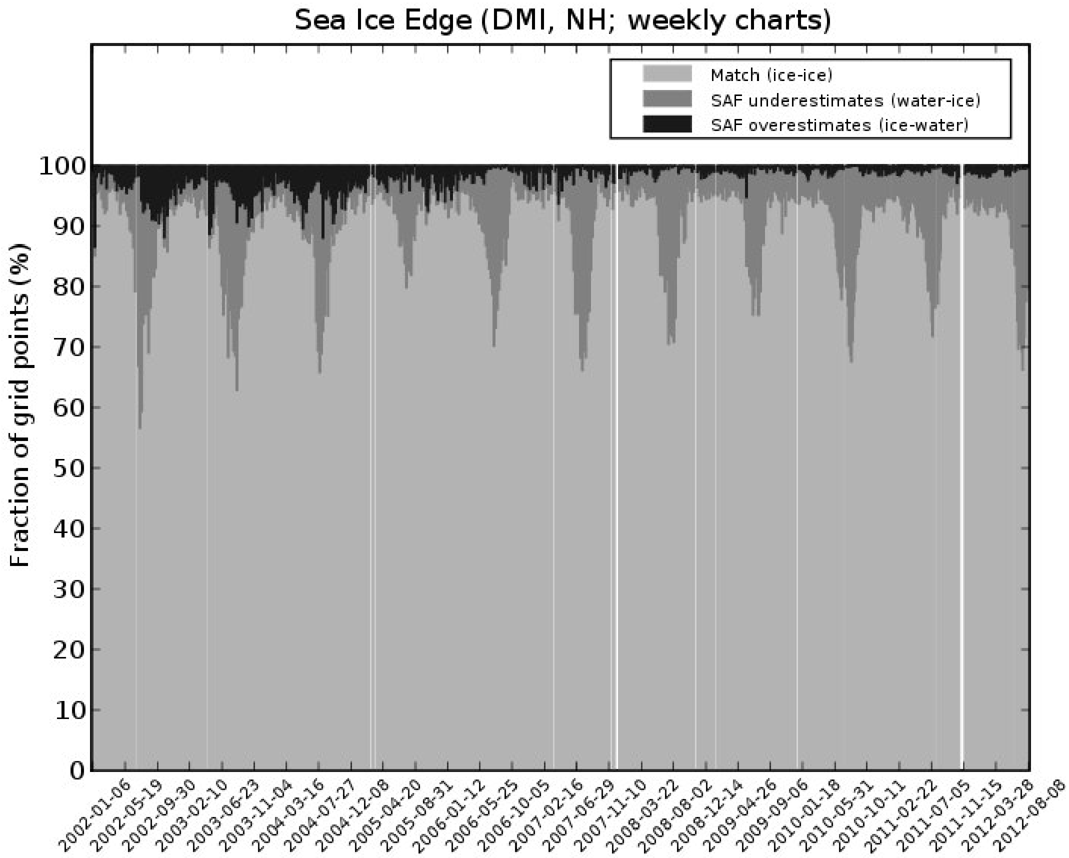


Figure 52 : Quality of ice edge product for the validation period of 2002-2012.

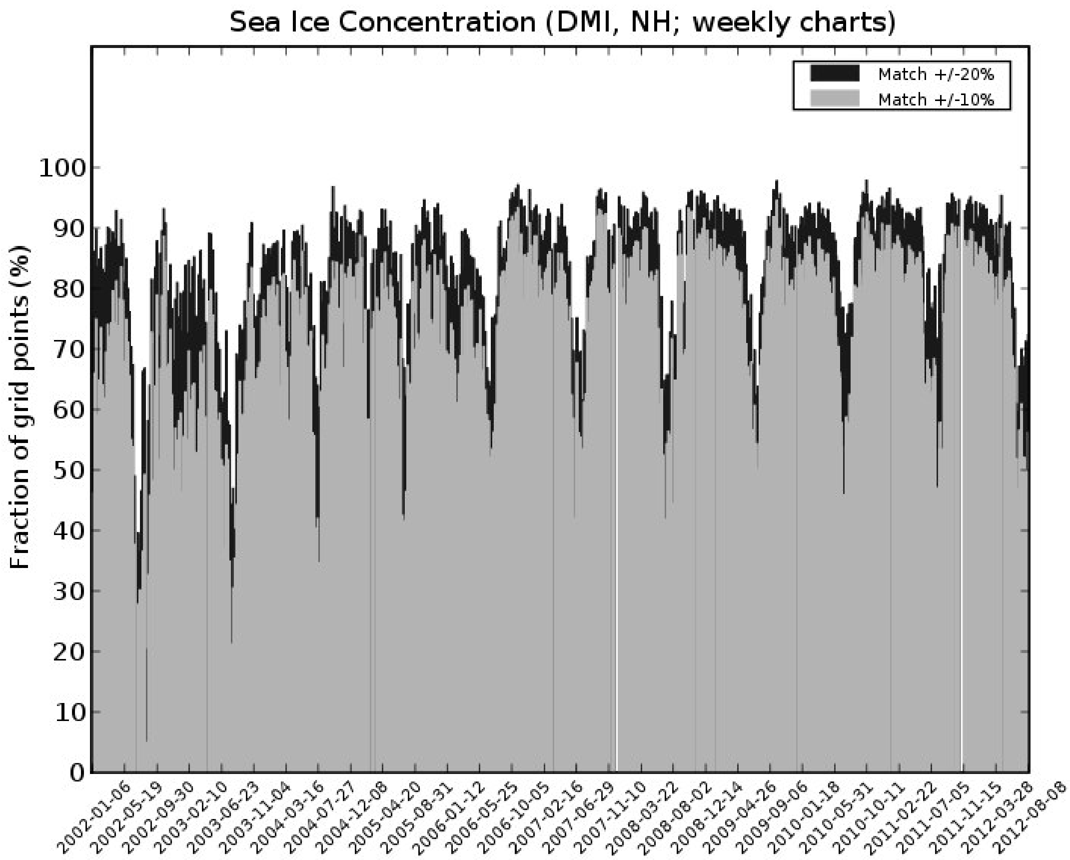


Figure 53 : **Quality of ice concentration product for the validation period of 2002-2012.**

5.3.6 Validation against NIC (National Ice Center) ice charts for Southern Hemisphere

In the same way as for DMI ice charts collocations between OSISAF ice concentration/ice edge products and ice charts from National Ice Center are carried out using charts covering the Southern Hemisphere.

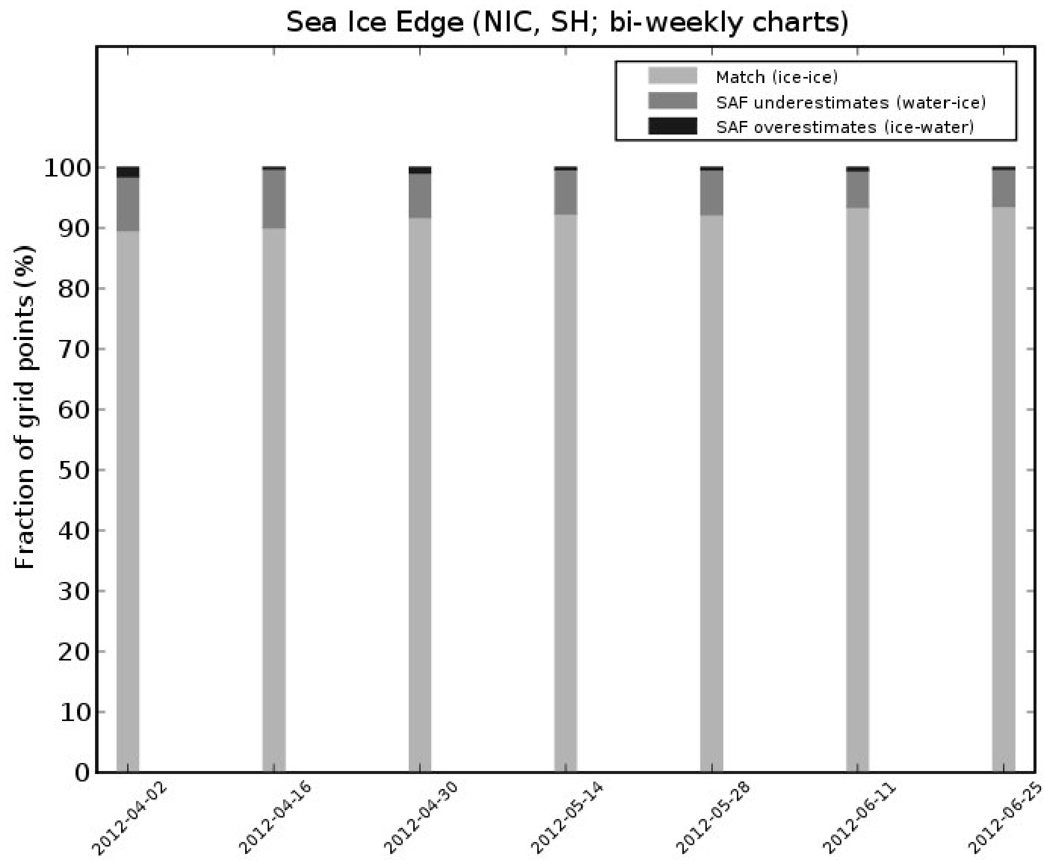


Figure 54 : Comparison between the bi-weekly NIC ice analysis and the SAF edge product. 'SAF underestimates' means grid points where the SAF product indicated water and the NIC ice analysis indicated ice and vice versa for the 'SAF overestimates' category.

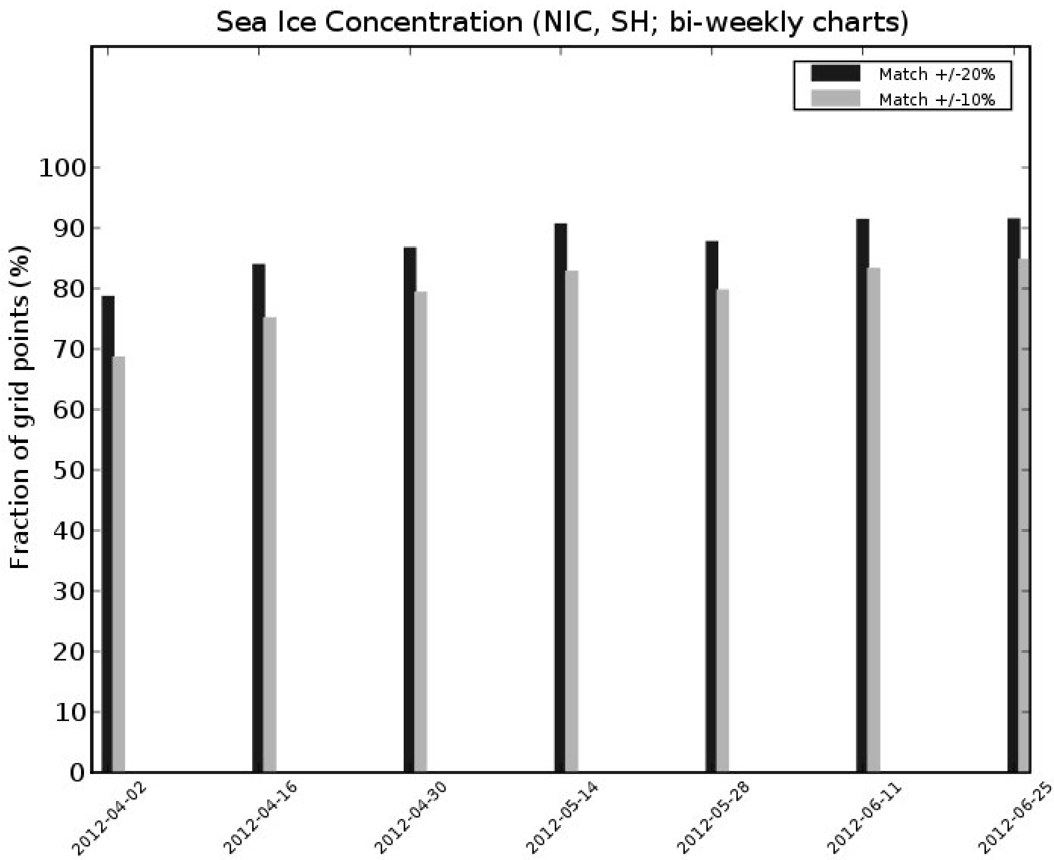


Figure 55 : **Comparison between ice concentrations from the bi-weekly NIC ice analysis and the SAF concentration product. 'Match +/- 10 %' corresponds to those grid points where concentration deviates within the range of +/-10 % and likewise for +/-20 % .**

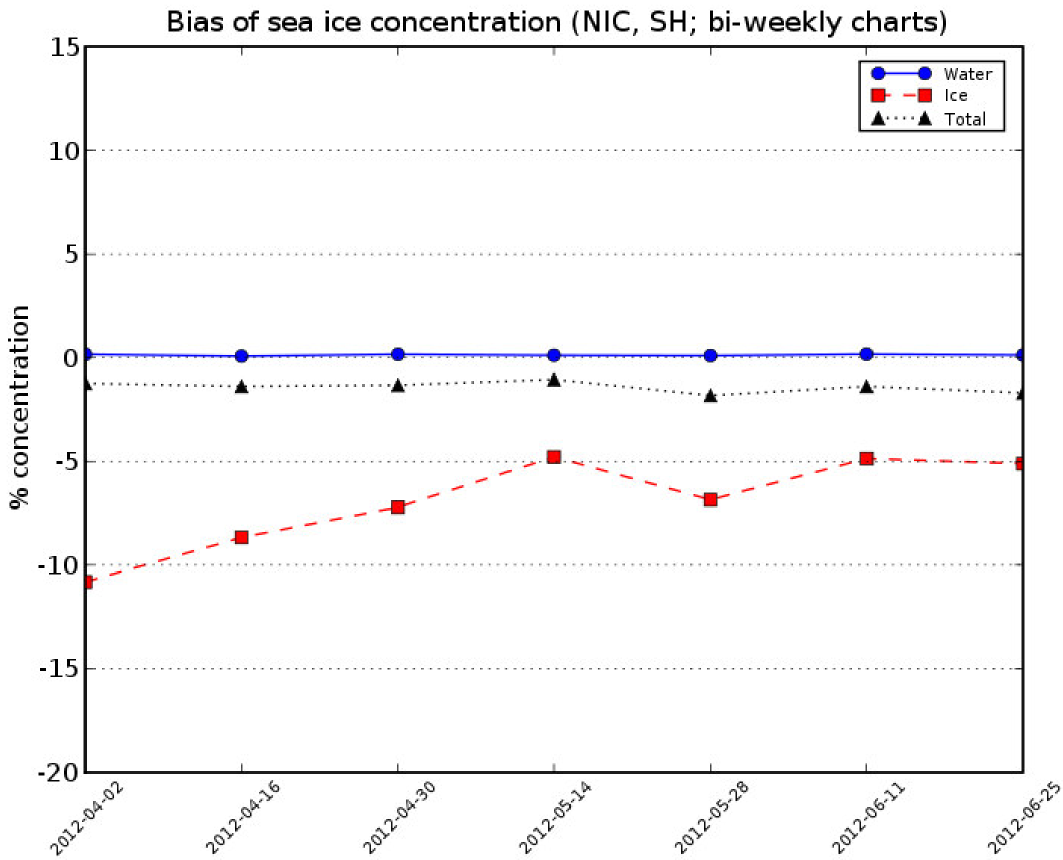


Figure 56 : The bias of ice concentration for three categories: water, ice and total. When bias is below zero the SAF ice concentration tends to underestimate.

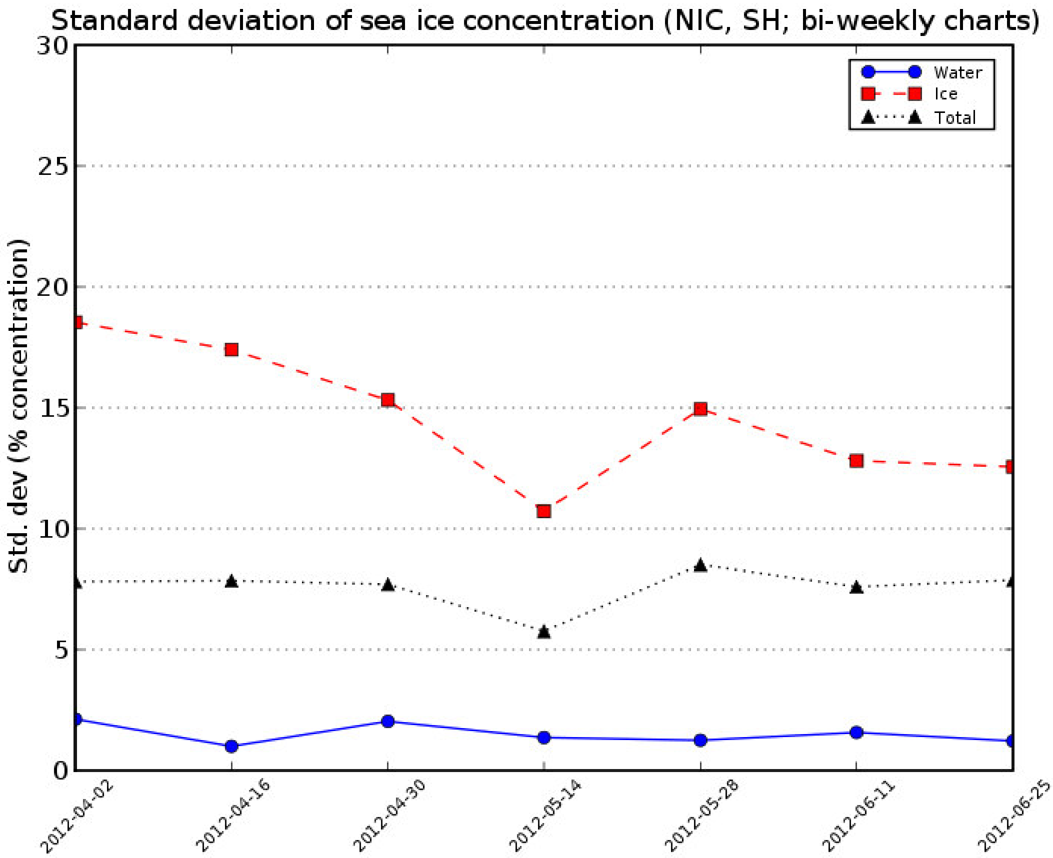


Figure 57 : The standard deviation of ice concentration for three categories: water, ice and total.

5.3.7 Multi-year variability, Southern Hemisphere

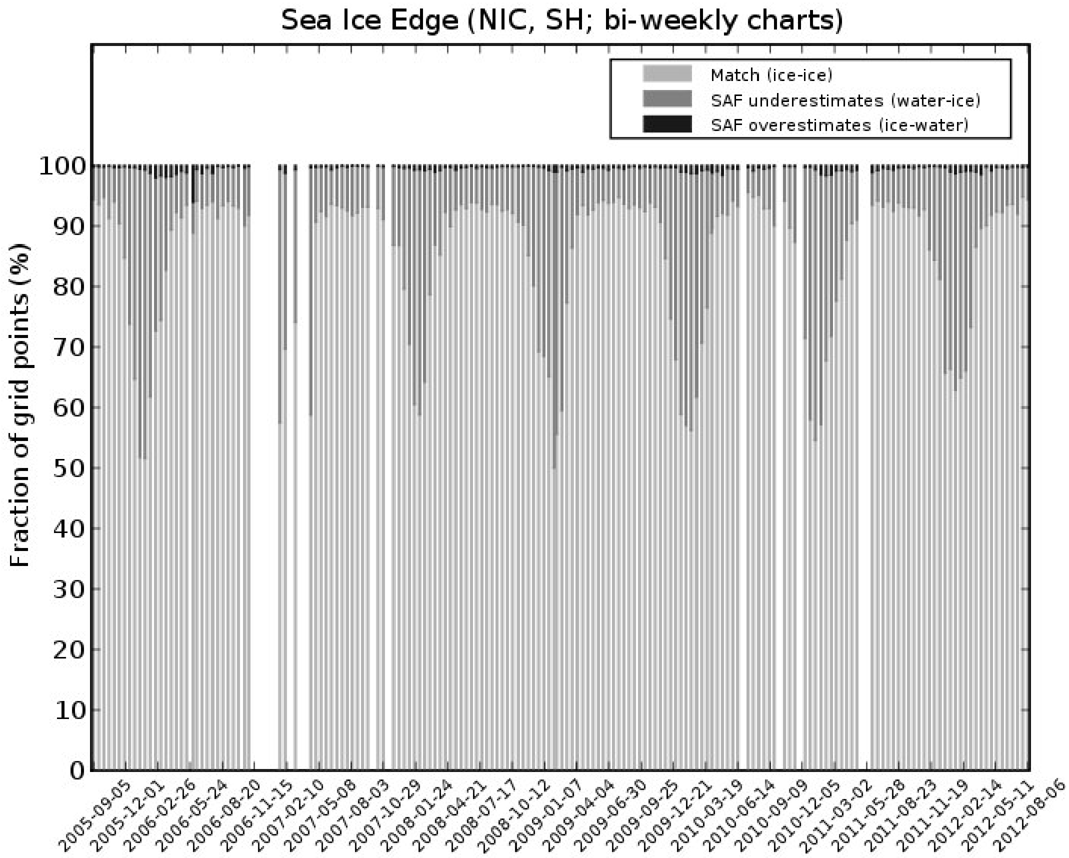


Figure 58 : **Quality of ice edge product for the validation period of 2005-2012**

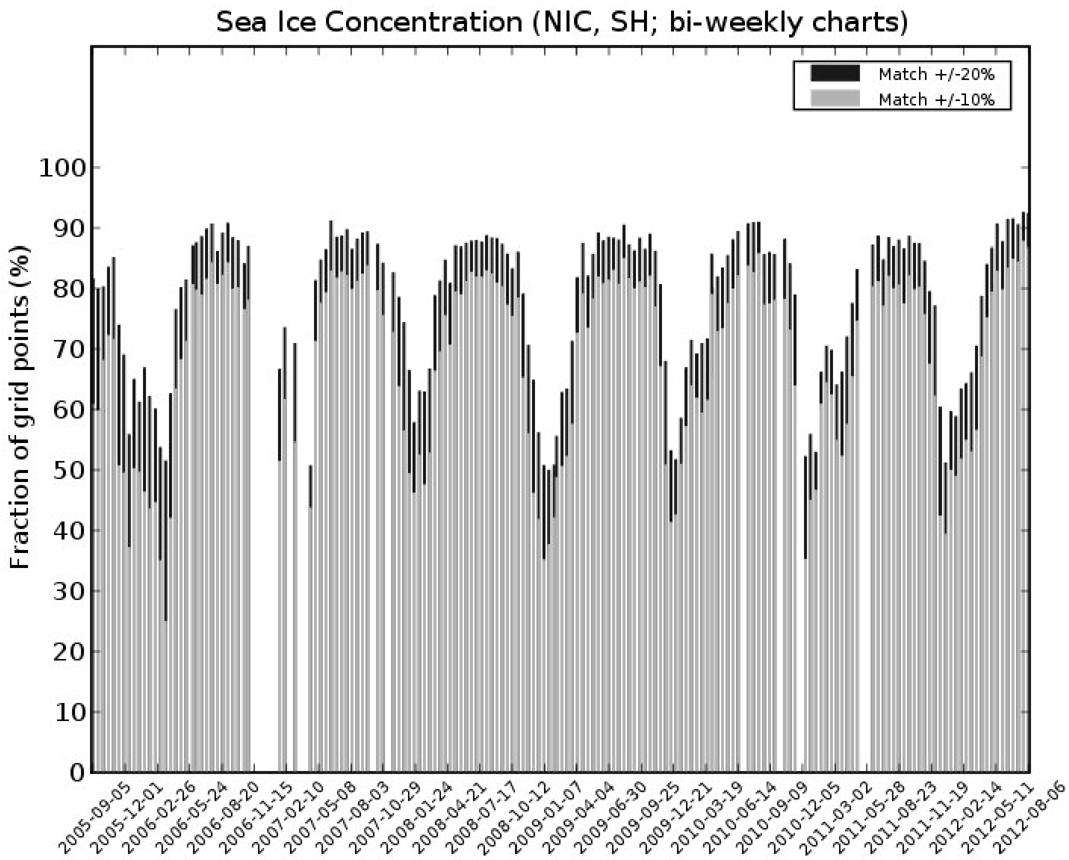


Figure 59 : Quality of ice concentration product for the validation period of 2005-2012

5.3.8 Validation against met.no ice charts

The Sea Ice service at met.no produces daily ice charts covering the area from East Greenland to the Barents Sea with main emphasize on the areas around Svalbard. Areas where independent information (manual inspection of SAR, MODIS and AVHRR) are utilized are marked by the ice service. These areas are then collocated with the OSI SAF ice product. The focus is on areas close to the ice edge. The statistics is therefore not representative for the overall performance of the OSI SAF products. The validation results would generally be better if all areas where included.

Statistics for the performance of the OSI SAF sea ice concentration and edge products from APR. to JUNE 2012 is given in the table below.

		Concentration product				Edge product				
Year	Month	+/- 10%	+/- 20%	Bias	Stdev	Correct (%)	SAF lower (%)	SAF higher (%)	Mean edge diff (km)	Num obs
2012	Apr.	79.09	90.73	-3.77	10,92	96.67	2,14	1,19	14,08	177077
2012	May	70.44	86.95	-5.66	11,76	96.31	2,34	1,35	13,67	196728
2012	June	66.41	79.08	-4.94	16,18	92.63	5,05	2,33	27,39	168929

table 17 : **Monthly validation results from comparing OSI SAF sea ice products to met.no ice service analysis, from APR. 2012 to JUNE 2012 . Mean edge diff is the mean difference in distance between the ice edges in the OSI SAF edge product and met.no ice chart.**

5.3.9 Results from manual error registration

All sea ice products are evaluated by skilled ice analysts on a daily basis. A predefined set of error types are used as a reference for registering non-nominal cases of false ice or missing ice. This registration is used complementary to the automatic validation. Although the automatic validation provides an objective quality assessment it does not detect possible non-nominal cases of ice/no-ice presence. The manual error registration on the other hand, collects on a daily basis the possible errors or noise caused by anomalous situations with data or processing. The following error types are searched for in the registration:

Error code	Type	Description
1	Area	missing data
2	point	open water where ice was expected
3	Area	false ice where open water was expected
4	point	false ice induced from SSM/I processing errors
5	point	other errors
6	point	noisy false ice along coast

table 18 : **Error codes for the manual registration**

The tables below summarize the statistics on registrations for last quarter according to the above mentioned error types. Daily and monthly graphs with all registrations can be viewed at:

http://saf.met.no/validation/icequal_monitor_daily.php
http://saf.met.no/validation/icequal_monitor_monthly.php

5.3.10 Statistics for confidence levels

Based on the quality flags in the sea ice products, monthly statistics for the confidence levels are derived for each product type.

Area	Product	Code=5	code=4	code=3	code=2	code=1	Unprocessed
NH	Conc	80.13	17.65	2.18	0.04	0.00	0.00
NH	edge	91.76	2.00	3.15	2.41	0.68	0.00
NH	type	89.16	1.17	8.63	0.89	0.15	0.00
SH	conc	85.84	13.41	0.74	0.01	0.00	0.00
SH	edge	94.65	1.06	1.84	1.83	0.61	0.00
SH	type	86.84	0.22	12.64	0.17	0.12	0.00

table 19 : **Statistics for confidence levels in APR. 2012.**

Area	Product	Code=5	code=4	code=3	code=2	code=1	Unprocessed
NH	Conc	82.27	16.26	1.43	0.04	0.00	0.00
NH	edge	91.33	1.93	3.14	2.81	0.79	0.00
NH	type	82.50	1.08	6.87	9.36	0.20	0.00
SH	conc	78.36	20.54	1.09	0.01	0.00	0.00
SH	edge	92.84	1.57	2.81	2.23	0.55	0.00
SH	type	80.40	0.23	19.07	0.21	0.10	0.00

table 20 : **Statistics for confidence levels in MAY 2012.**

Area	Product	Code=5	code=4	code=3	code=2	code=1	Unprocessed
NH	Conc	84.73	14.23	1.00	0.04	0.00	0.00
NH	edge	87.45	2.34	4.49	4.47	1.25	0.00
NH	type	79.79	0.33	1.98	17.31	0.59	0.00
SH	conc	70.79	27.77	1.43	0.01	0.00	0.00
SH	edge	91.51	2.22	3.17	2.52	0.58	0.00
SH	type	74.08	0.26	25.31	0.25	0.10	0.00

table 21 : **Statistics for confidence levels in JUNE 2012.**

Explanation (see Product User Manual for more details):
Code 1-5 is given as fraction of total processed data (total processed data=code 5+4+3+2+1=100%). 'Unprocessed' is given as fraction of total data (total data=total processed data + total unprocessed data).

		Ice Concentration	**Ice Edge/Type**
Code	**Confidence**	(std dev of concentration)	(% probability)
5	Excellent	0 – 1.5	99.0 – 100
4	Good	1.5 -2.5	95.0 - 98.9
3	Acceptable	2.5 – 3.5	75.0 - 94.9
2	Unreliable	3.5 -10.0	50.0 – 74.9
1	Erroneous	>10.0	0.0 – 49.9
0	No data		

table 22 : **Confidence levels explanation.**

5.3.11 Sea Ice validation comments

In general, the sea ice edge and type validation results shown that the quality in the Northern Hemisphere is decreasing as expected, since moving towards Arctic summer and problems with wet ice and melt ponds. At the Southern Hemisphere, the situation is opposite ; the quality is increasing since moving into Antarctic summer

5.3.12 Validation of the Low Resolution Sea Ice Drift product

As of December 2009, the Low Resolution Sea Ice Drift product (LRSID, OSI-405) is processed and distributed with ”pre-operational” status. Only the Northern Hemisphere is covered.

Validation dataset
Validation is performed by collocation of the drift vectors with the trajectories of in situ drifters. Those drifting objects are generally buoys (e.g. the Ice Tethered Profilers) or ice camps (e.g. the Russian manned stations) that report their position at typically hourly intervals. Those trajectories are generally made available in near-real-time or at the end of the mission onto the ice. Position records are recorded either via the GPS (e.g. those of the ITPs) or the Argos Doppler-shift system (thos of the iABP). GPS positions are very precise (< 50 m) while those obtained by Argos have worse accuracy (approx. 350 m for ’high quality’ records).
A nearest-neighbor approach is used for the collocation, and any collocation pair whose distance between the product and the buoy is larger than 30 km or the mismatch at start and stop time of the drift is more than 3 hours is discarded.

Reported statistics
Due to the limited number of drifters in the Arctic and because some of them were not made available in near-real-time, it is not possible to report monthly statistics. Instead, quarterly statistics are mentionned in this report (Q1: JFM, Q2: AMJ, Q3: JAS and Q4: OND).
Because of a denser atmopshere and surface melting, the OSI-405 production is limited to the autumn-winter-spring period each year. No ice drift vectors are retrieved from 1st May to 30th September. As a result, Q2 is only representative of the month of April and Q3 have no data.
The Low Resolution Sea Ice Drift product comprises several single-sensor (e.g. AMSR-E, SSM/I F15 or ASCAT Metop-A) and a merged (or multi-sensor) products that are all processed and distributed on a daily basis. The validation and monitoring results are thus presented for the multi-sensor product (multi-oi) and a selection of the single-sensor ones.

Validation statistics
In the following tables, validation statistics for the Northern Hemisphere (NH) products using multi-sensor (multi-oi) and SSM/I only (ssmi-f15) are reported upon. In those tables, X (Y) are the X and Y components of the drift vectors. b() is the bias and σ() the standard deviation of the error $\varepsilon(X) = X_{prod} – X_{ref}$. Columns α, β and ρ are respectively the slope and intercept of the regression line between Prod and Ref data pairs and the Pearson correlation coefficient. N is the number of collocation data pairs.

Year	Month	b(X) [km]	b(Y) [km]	σ(X) [km]	σ(Y) [km]	α []	β [km]	ρ []	N
2012	Apr.	-0.075	+0.33	2.666	2.096	0.97	+0.11	0.88	76
2012	May	NA	NA	NA	NA	NA	NA	NA	NA
2012	June	NA	NA	NA	NA	NA	NA	NA	NA

table 23 : **Validation results for the LRSID (multi-oi) product (NH) for April – June 2012.**

Year	Month	b(X) [km]	b(Y) [km]	σ(X) [km]	σ(Y) [km]	α []	β [km]	ρ []	N
2012	Apr.	-0.214	+0.21	3.532	2.644	0.89	-0.05	0.82	65
2012	May	NA	NA	NA	NA	NA	NA	NA	NA
2012	June	NA	NA	NA	NA	NA	NA	NA	NA

table 24 : **Validation results for the LRSID (ssmi-f15) product (NH) for April – June 2012.**

5.4 Global Wind quality

The wind products are required to have an accuracy of better than 2.0 m/s in wind component RMS with a bias of less than 0.5 m/s in wind speed.

The scatterometer winds are monitored against forecast winds of the ECMWF global model. Forecasts of +3 to +15 hours are used and the model winds are interpolated with respect to time and location. The monitoring of relevant quality parameters as a function of time yields a sensitive method of detecting deviations of normal operation. However, one must be careful to regard the difference with reference background NWP model winds as the 'true' accuracy of the product, since both the NWP model winds and the scatterometer winds contain errors. Deviations in product quality usually appear as a step in one or more of the plots.

Note that the real model winds are converted to equivalent neutral winds by adding 0.2 m/s to the wind speed. In this way, a realistic comparison with the neutral scatterometer winds can be made.

The scatterometer winds are also compared to in situ equivalent neutral wind data from moored buoys, monthly averages are shown in section 5.7.2.

Seasonal weather variations imply differences in mean atmospheric stability, differences in dynamics, and differences in the distribution of wind speeds. These differences cause variations in the spatial representativeness errors associated with scatterometer wind validation and in the difference statistics. Such effects cause seasonal oscillations that appear mainly in the wind speed bias plots against both model winds and buoy winds. For more background information we refer to: Hans Hersbach (2010) *Comparison of C-band scatterometer CMOD5.N equivalent neutral winds with ECMWF*, J. Atmos. Oceanic Technol., **27**, 721–736.

We have studied the scatterometer wind speed bias against buoy winds for the tropics and the Northern Hemisphere mid latitudes separately. It appears that the biases in the tropics are fairly constant throughout the year, whereas the wind speed biases in the NH are higher in the winter than in the summer. Hence the seasonal cycles are mainly caused by weather variations in the mid latitudes.

5.4.1 ASCAT Wind quality

It is clear from the plots in this section, that the products do meet the accuracy requirements from the User Requirements Document (bias less than 0.5 m/s and RMS accuracy better than 2 m/s) when they are compared to ECMWF forecast winds.

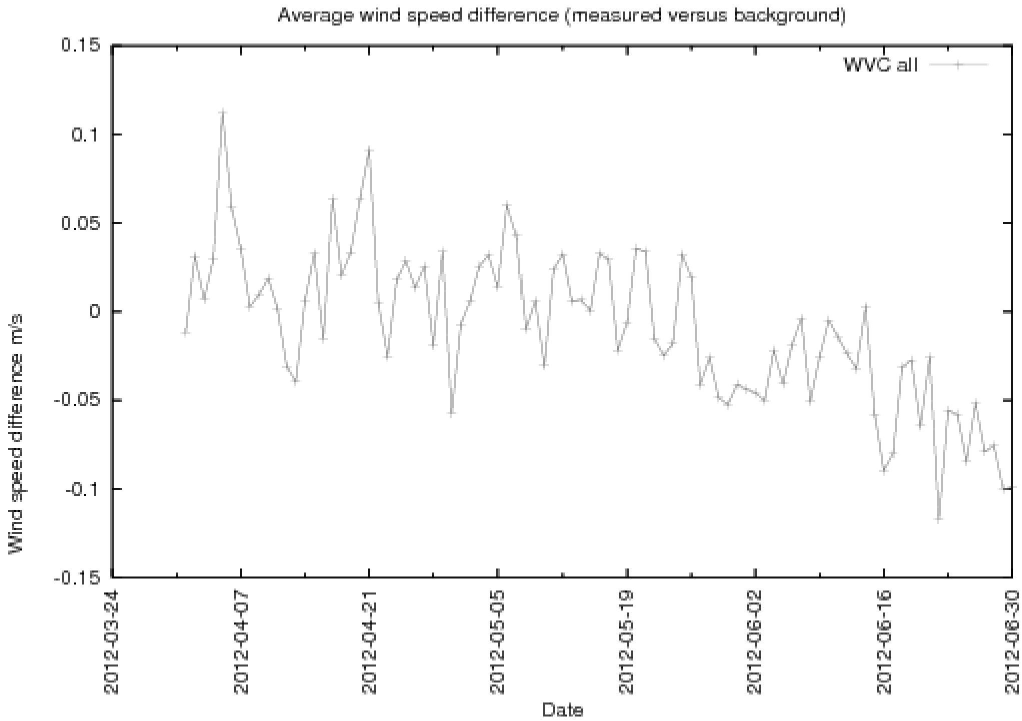


Figure 60 : Average ASCAT 25-km wind speed difference (bias) with the reference ECMWF NWP forecast winds. Data are averaged over a one day period.

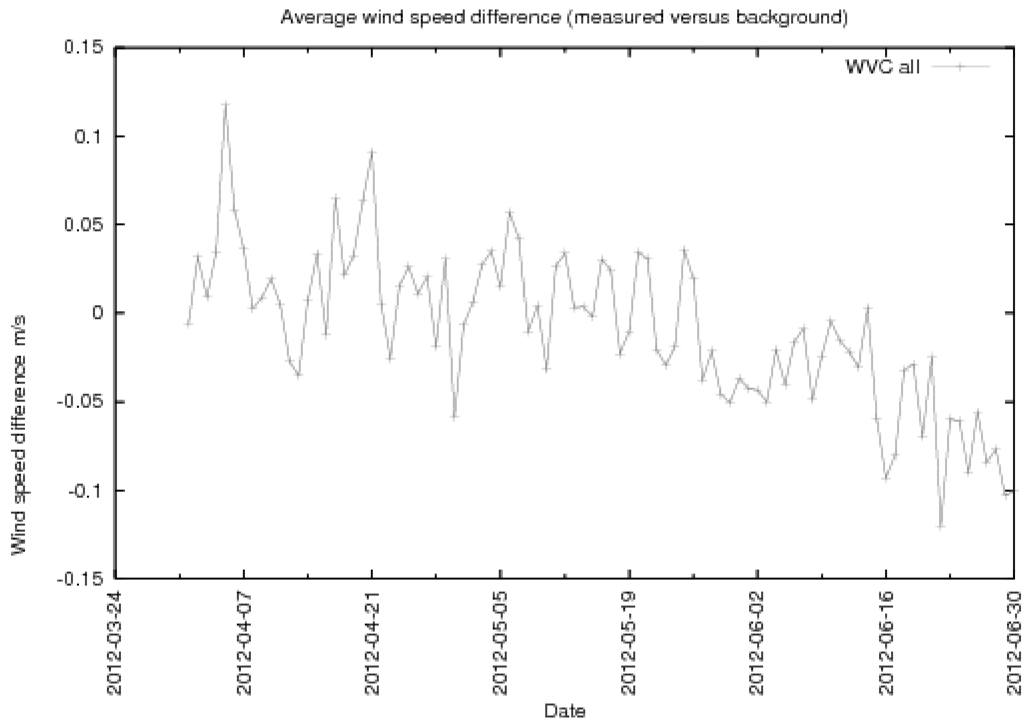


Figure 61 : Average ASCAT 12.5-km wind speed difference (bias) with the reference ECMWF NWP forecast winds. Data are averaged over a one day period.

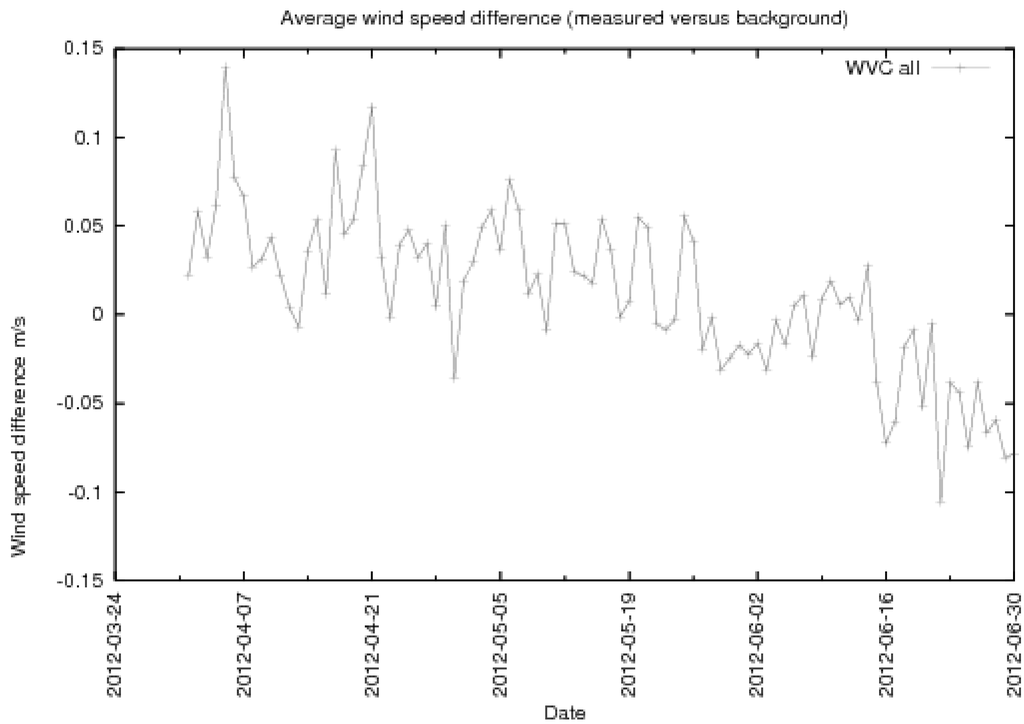


Figure 62 : Average ASCAT Coastal wind speed difference (bias) with the reference ECMWF NWP forecast winds. Data are averaged over a one day period.

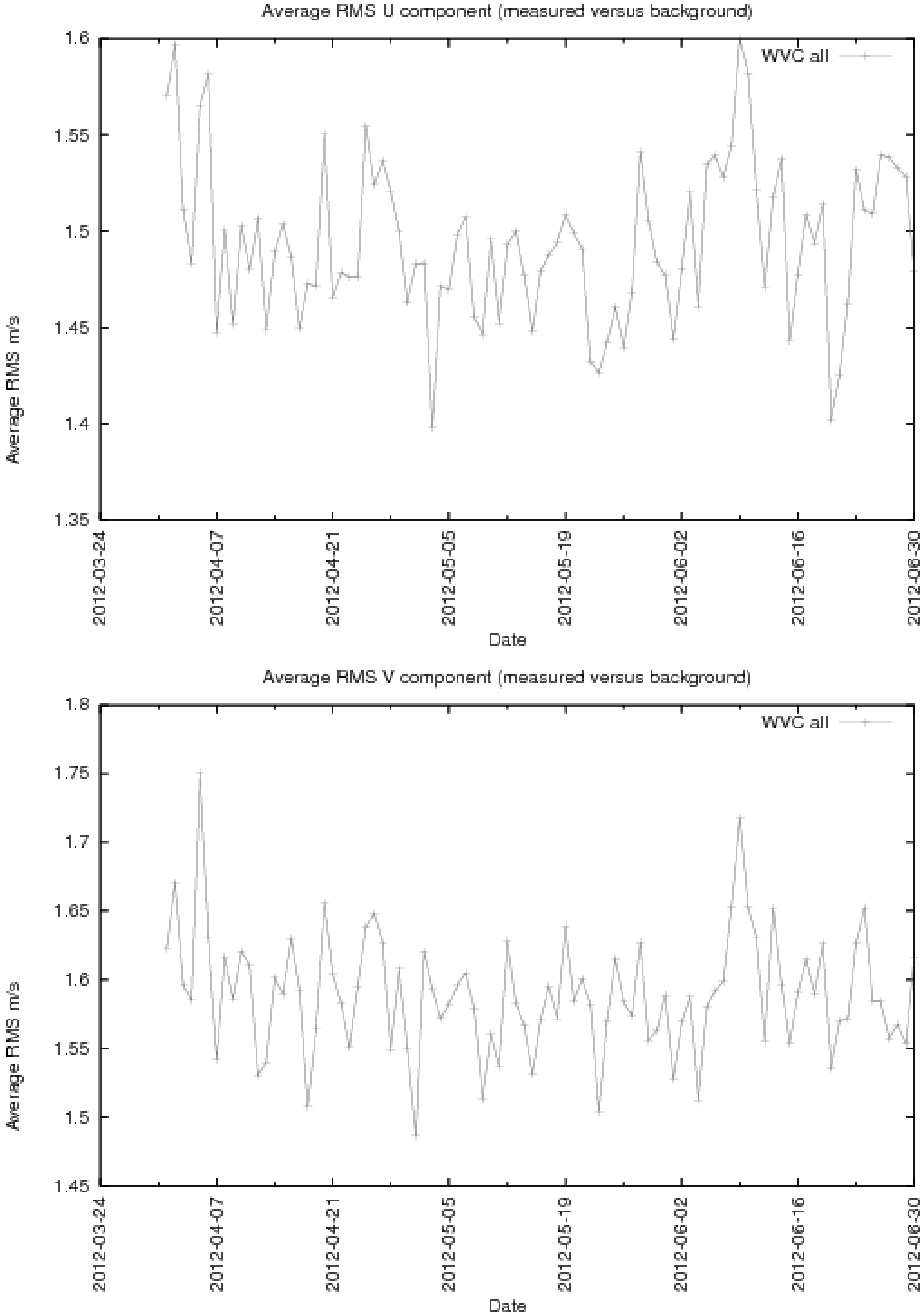
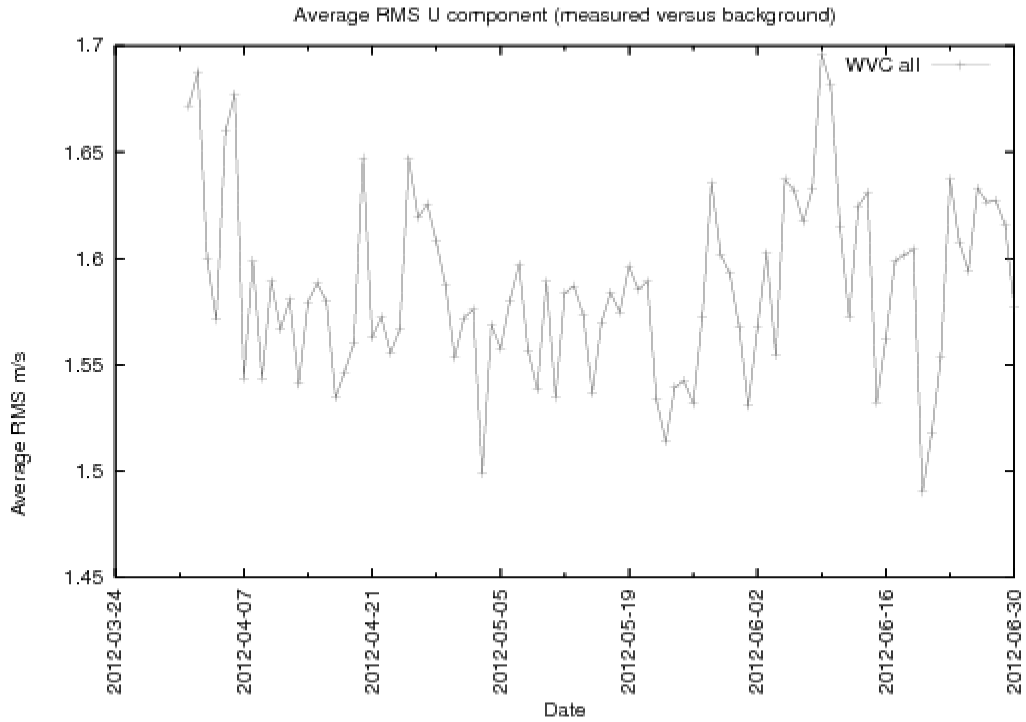


Figure 63 : ASCAT 25-km wind component (U direction: top and V direction: bottom) RMS differences of scatterometer winds versus the ECMWF forecast winds.



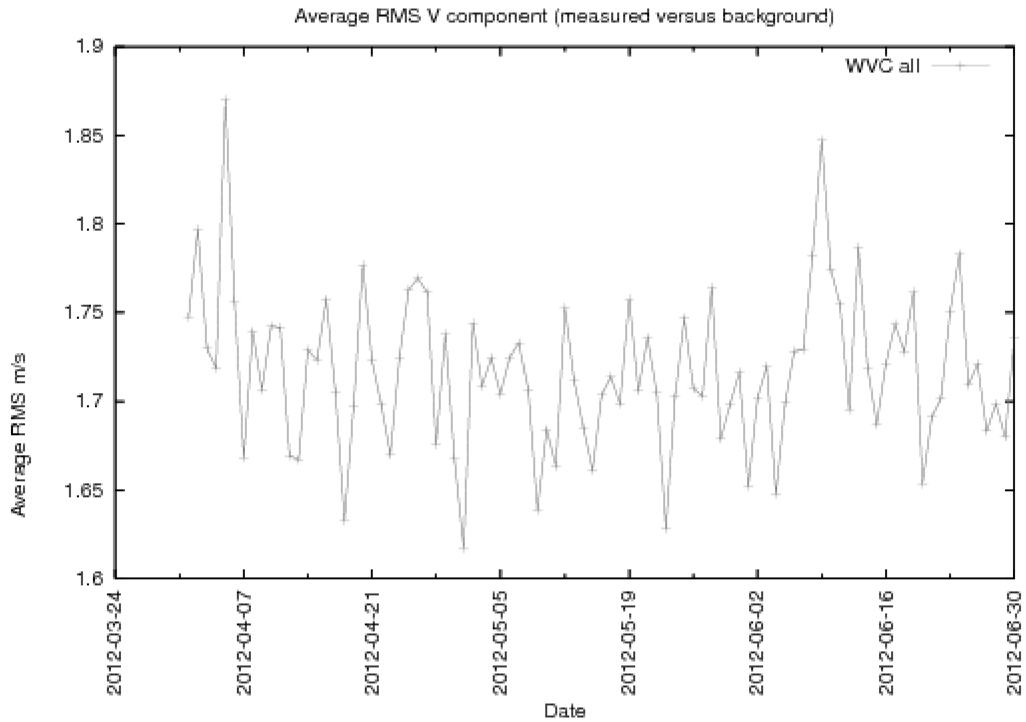


Figure 64 : ASCAT 12.5-km wind component (U direction: top and V direction: bottom) RMS differences of scatterometer winds versus the ECMWF forecast winds.

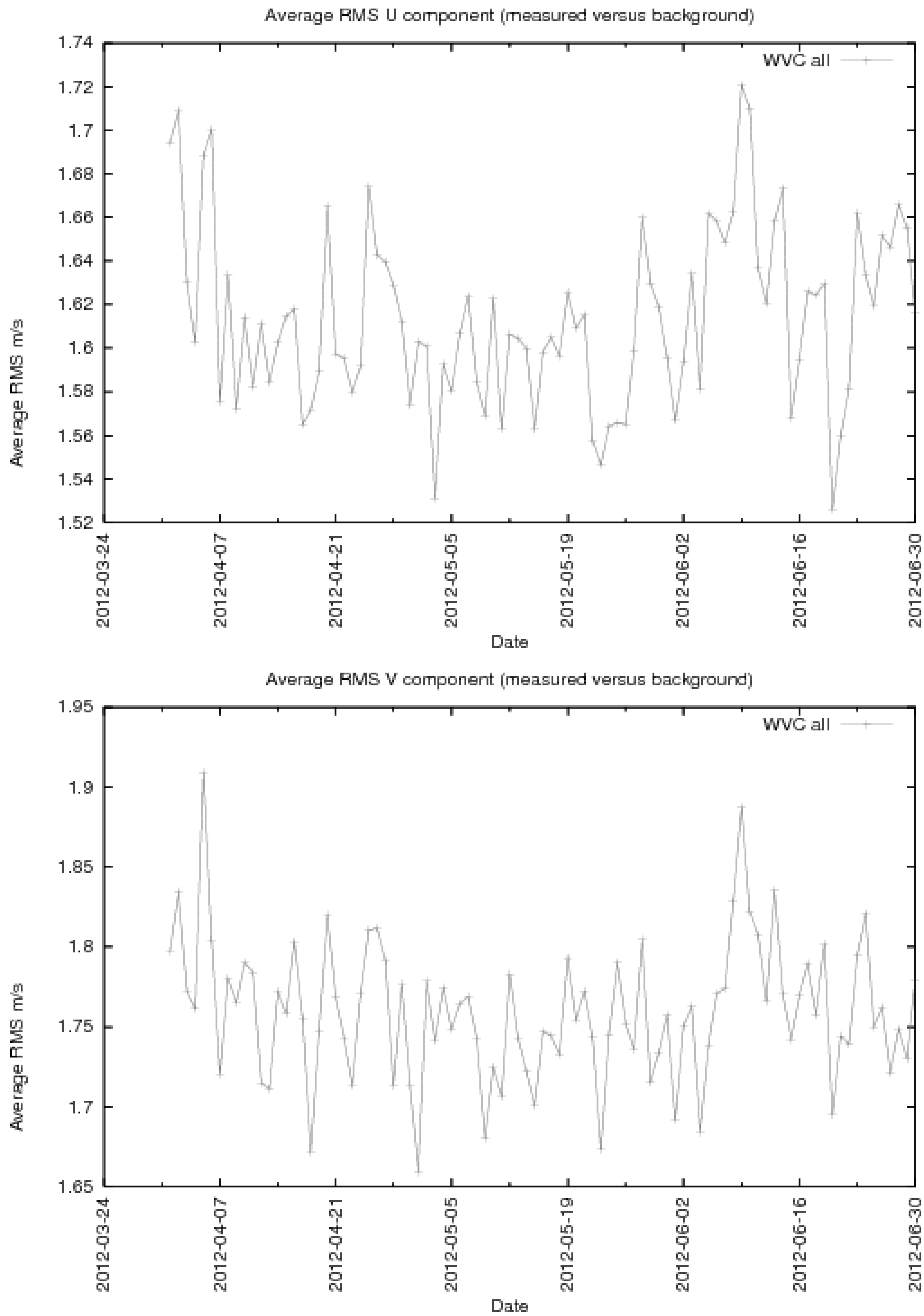


Figure 65 : ASCAT Coastal wind component (U direction: top and V direction: bottom) RMS differences of scatterometer winds versus the ECMWF forecast winds.

5.4.2 Buoy validations

We compare the scatterometer winds with wind data from moored buoys on a monthly basis. The buoy data of approximately 150 buoys spread over the oceans (most of them in the tropical oceans and near Europe and North America) are retrieved from the ECMWF MARS archive and collocated with scatterometer winds.

The buoy winds are converted to 10-m neutral winds using the LKB model, see Liu, W.T., K.B. Katsaros, and J.A. Businger, *Bulk parameterization of air-sea exchanges of heat and water vapor including the molecular constraints in the interface*, J. Atmos. Sci., vol. **36**, 1979.

The figure below shows the monthly results of November 2007 to June 2012. Note that the ASCAT winds before 20 November 2008 are real winds rather than neutral winds. Neutral scatterometer winds are known to be 0.2 m/s higher than real scatterometer winds.

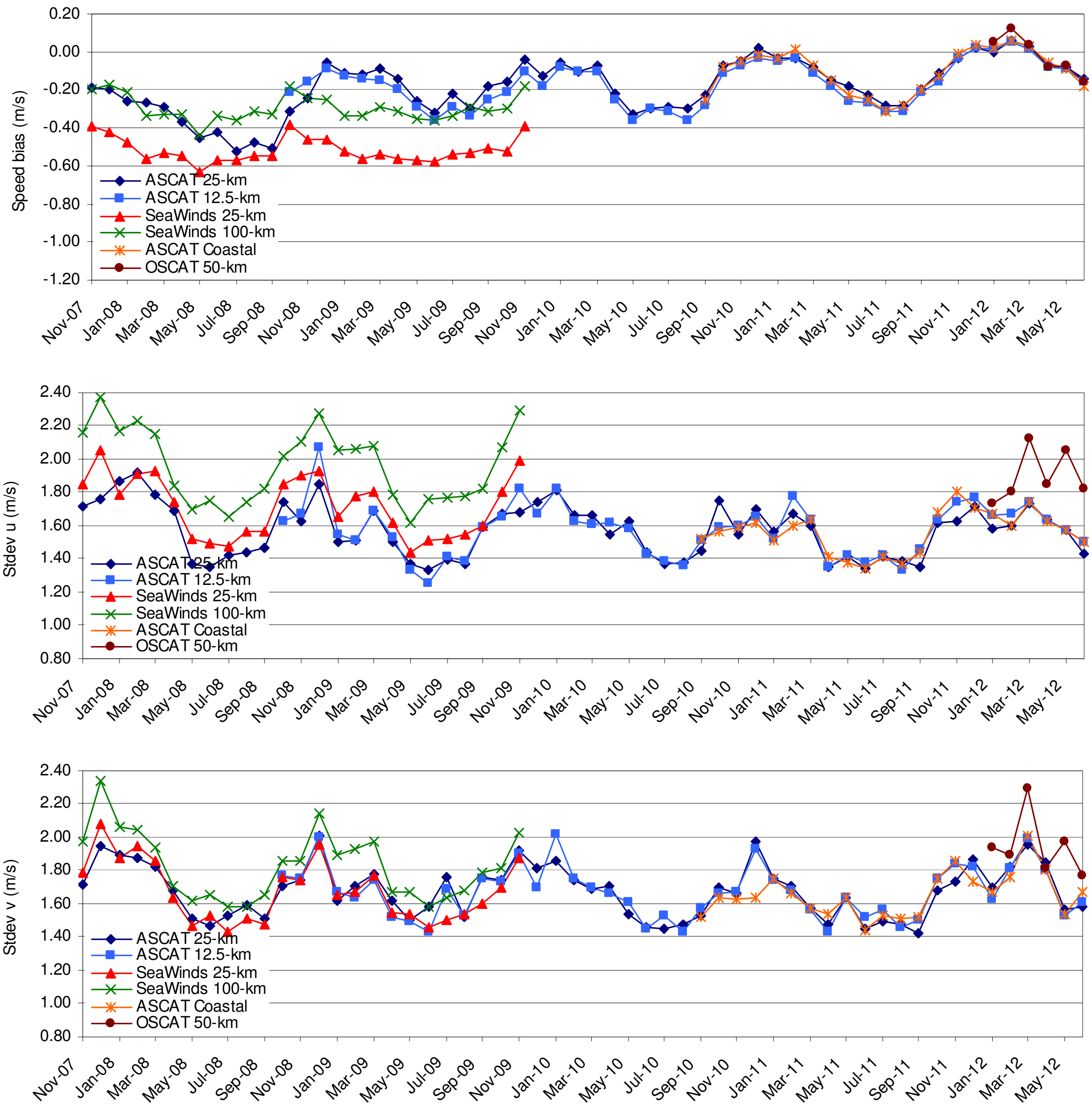


Figure 66 : **Comparison of scatterometer winds against buoy winds (monthly averages). For each product, the wind speed bias (top), wind *u* component standard deviation (middle) and wind *v* component standard deviation (bottom) are shown. OSCAT 50-km is a development status OSI SAF product.**

6 Service and Product usage

6.1 Statistics on the Web site and help desk

The OSI SAF offers to the users a central Web Site, www.osi-saf.org , managed by M-F/CMS, a local page for SS2, http://saf.met.no, managed by Met.no, and dedicated to the Sea Ice, and a local page for SS3, http://www.knmi.nl/scatterometer/osisaf/, managed by KNMI and dedicated to the OSI SAF scatterometer winds.

Users are recommended to make requests preferably through the central Web site Help desk, with the guarantee that they demand will be acknowledged or answered to in time. However for requests concerning the Wind products they may get access to direct contact points at KNMI, and at Met.no for Sea Ice products.

6.1.1 Statistics on the central OSI SAF Web Site and help desk

Statistics on the central Web site use			
Month	Registered users	Sessions	User requests
Apr. 2012	698	4283	1
May 2012	709	4220	2
June 2012	714	4162	2

table 25 : Statistics on central OSI SAF Web site use over 2nd quarter 2012.

User Requests status :

reference	subject	status
120007	Request for archived ASCAT125km winds	closed
120008	user report on unavailability of Sea Ice data	closed
120009	user report on unavailability of data on IFREMET FTP server	Closed
120010	Request for archived SST in Antarctica	Closed
120011	Information on Sea Ice data files	Closed

table 26 : Status of User requests.

Status of requests forwarded from EUMETSAT HELP DESK :
300018791 on EUMETCast Reception Issues. Occasionally the chronology of L1 granule files may be lost, which does not allow the chain to process the L2 product. Actions have been undertaken both at EUMETCAST CAF and CMS for solving the problem. Status is still open.

The following graph illustrates the evolution of external registered users on the central Web Site.

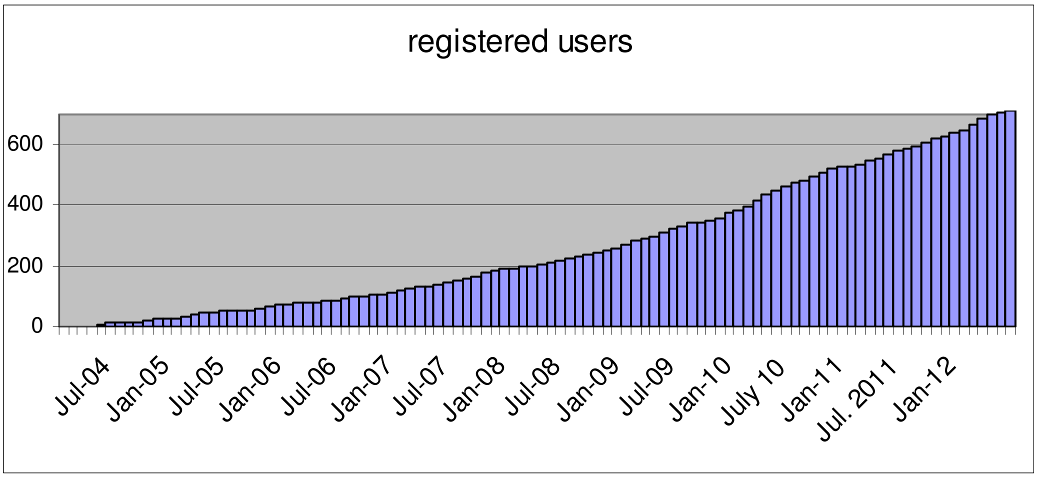


Figure 67 : Evolution of external registered users on the central Web Site from April 2004 to JUNE 2012.

The following table details the list of institutions or companies the registered users are from. Last registrations, made over the reporting period, are overlined in cyan blue..

To be updated

Country	Institution, establishment or company	Acronym
Argentina	AgriSatelital	AgS
Australia	Griffith University	Griff
Australia	James Cook University	University of Windsor
Australia	tidetech LTD	tidetech
Australia	University Of New South Wales	UNSW
Australia-Tasmanie	eMarine Information Infrastructure (eMII), Integrated Marine Observing System (IMOS)	eMII
Belgium	signal and image center	SIC
Belgium	Université catholique de Louvain	UCL/TECLIM
Brazil	Admiral Paulo Moreira Marine Research Institute	IEAPM
Brazil	Centro de Previsao de Tempo e Estudos Climáticos	CPTEC/INPE
Brazil	Fugro Brasil	FGB
Brazil	Instituto de Ciências Atmosféricas, Universidade Federal de Alagoas	UFAL/ICAT
Brazil	Instituto Nacional de Pesquisas Espaciais	INPE
Brazil	Universidade de Brasília - Instituto de Geociências	UNB-IG
Brazil	Universidade de são paulo	USP
Brazil	Universidade Federal de Alagoas	UFAL
Brazil	Universitade Federal do Rio de Janeiro	LAMCE/COPPE/UFRJ
Bulgaria	National Institute of Meteorology and Hydrology	NIMH
Canada	Canadian Ice Service	CIS
Canada	Canadian Meterological Centre	CMC
Canada	Centre for Earth Observation Science	CEOS

Canada	Data Assimilation and Satellite Meteorology, Meteorlogical Research Branch Environment Canada	ARMA/MRB
Canada	Fisheries and Oceans Canada	DFO/IML/MPO
Canada	JASCO Research Ltd	JASCO
Canada	Memorial University of Newfoundland	MUN
Canada	University of Waterloo	UW
Canada	University of Windsor	
Chile	Centro i-mar, Universidad de Los Lagos	I-MAR
Chile	Universidad catolica de la santisima concepcion	UCSC
China	anhuigongyedaxue	ahut
China	Chinese Academy of Sciences	IOCAS
China	HK Observatory	HKO
China	Institute of Oceanology, Chinese Academy of Sciences	IOCAS
China	Institute of Remote Sensing Applications of Chinese Academy of Sciences	IRSA/CAS
China	National Marine and Enviromental Forecasting Center	
China	National Ocean Data Information Service	NODIS
China	National Ocean Technology Center	NOCT
China	National Satellite Meteorological Center	NSMC
China	National Satellite Ocean Application Service	NSOAS
China	Ocean Remote Sensing Institute	ORSI
China	Ocean University of China	
China	Second Institute of Oceanography	SOI
China	South China Sea Institute of Oceanology, Chinese Academy of Sciences	SCSIO, CAS
China	third institute oceanography	TIO/SOA
Croatia	Rudjer Boskovic Institute	IRB/ZIMO
Denmark	Aarhus University - Department of Bioscience	BIOS
Denmark	Danish Meteorological Institute	DMI
Denmark	Royal Danish Administration of Navigation and Hydrography	RDANH
Denmark	Technical University of Denmark, Risø	DTU
Denmark	University of Copenhagen	UoC
Estonia	Estonian Meteorological and Hydrological Institute	EMHI
Estonia	Tallinn University of Technology	TUT
Faroe Islands	Faroe Marine Research Institute	FAMRI
Finland	Finnish Institute of Marine Research	FIMR
Finland	Finnish Meteorological Institute	FMI
Finland	Valtion Teknillinen Tutkimuskeskus	VTT
Florida, USA	Roffer's Ocean Fishing Forecasting Service	ROFFS
Florida, USA	University of Miami	RSMAS MPO
France	African Monitoring of the Environment for Sustainable Development	AMESD
France	Centre de Localisation Satellite	CLS
France	Centre de soutien meteorologique aux armées	CISMF
France	Centre National de la Recherche Scientifique	CNRS-LOB
France	Centre National d'Etudes Spatiales	CNES
France	CNRS Laboratoire d'Etudes en Geophysique et Oceanographie Spatiales	LEGOS/CNRS
France	Creocean	Creocean
France	ecole nationale des telecommunication de bretagne	ENSTB
France	Ecole Nationale Supérieure des Techniques Avancées de Bretagne	ENSTA-Bretagne
France	Institut de Recherche pour le Développement	IRD - US02
France	Institut Français de Recherché pour l’Exploitation de la MER	IFREMER
France	Institut National de la Recherche Agronomique	INRA
France	Institut National de l'Energie Solaire	INES
France	Institut universitaire européen de la mer	IUEM

France	KiloWattsol	KiloWattsol
France	Laboratoire de Physique des Océans, Université de Bretagne occidentale	LPO
France	Laboratoire d'oceanographie et du climat: experimentation et approches numeriques	LOCEAN
France	Mercator Ocean	Mercator Ocean
France	Météo-France	M-F
France	Météo-France / Centre National de la Recherche Météorologique	M-F/CNRM
France	Observatoire français des Tornades et des Orages Violents	KERAUNOS
France	Service hydrographique et océanographique de la marine	SHOM
France	TELECOM Bretagne	TB
France	Université de Corse, UMR SPE CNRS 6134	UC
Germany	Alfred Wegener Institute for Polar and Marine Research	AWI
Germany	Bundesamt für Seeschifffahrt und Hydrographie	BSH
Germany	Center for Integrated Climate System Analsyis and Prediction	CliSAP
Germany	Deutscher Wetterdienst	DWD
Germany	Deutsches Luft- und Raumfahrtzentrum	DLR / IPA
Germany	Deutsches Museum	DM
Germany	Drift and Noise Polar Services	
Germany	EUMETSAT	EUMETSAT
Germany	FastOpt GmbH	FastOpt
Germany	Flottenkommando Abt GeoInfoD	Flottenkdo GeoInfoD
Germany	Freie Universität Berlin	FUB
Germany	german aerospace center	DLR
Germany	Institut of Physics - University of Oldenburg	Uni OL
Germany	Institute for Atmospheric and Environmental Sciences	IAU
Germany	Institute for Environmental Physics Uni. Heidelberg	IUP-HD
Germany	Institute for environmental physics, University of Bremen	IUP, Uni B
Germany	Leibniz Institut fur Meereswissenschaften	IFM-GEOMAR
Germany	Leibniz Institute for Baltic Sea Research Warnemünde	IOW
Germany	Max-Planck-Institute for Meteorology	MPI-M
Germany	O.A.Sys - Ocean Atmosphere Systems GmbH	OASYS
Germany	TU Dresden	TU DD
Greece	Hellenic National Meteorological Service	HNMS
Greece	National Observatory of Athens	NOA
Iceland	Icelandic Meteorological Office	IMO
Iceland	University of Iceland, Institute of Geosciences	UofI
India	ANDHRA UNIVERSITY	AU
India	bharathiar university	BU
India	CONSOLIDATED ENERGY CONSULTANTS LTD	
India	India Meteorological Department	IMD
India	Indian National Centre for Ocean Information	INCOIS
India	Indian Navy	IN
India	Indian Space Research Organization	ISRO
India	Nansen Environmental Research Centre	NERCI
India	National Centre for Medium Range Weather Forecasting	NCMRWF
India	National Institute of Ocean Technology	NIOT
India	National Institute of Technology Karnataka	NITK
India	Oceanic Sciences Divisions, MOG , Indian Space Applications Centre	ISRO
India	University of Pune	
Indonesia	vertex	Mr
Israel	bar ilan university	
Italy	Agenzia nazionale per le nuove tecnologie, l'energia e lo sviluppo economico sostenibile	ENEA
Italy	Centro Nazionale di Meteorologia e Climatologia Aeronautic	CNMCA

Italy	EC- Joint Research Centre	EC-JRC
Italy	ESA	ESA/ESRIN
Italy	fondazione imc - onlus , international marine centre	IMC
Italy	Institute of Marine Science - CNR	ISMAR-CNR
Italy	Istituto di BioMeteorologia - Consiglio Nazionale delle Ricerche	IBIMET-CNR
Italy	Istituto Nazionale di Geofisica e Vulcanologia	INGV
Italy	Istituto Scienze dell'Atmosfera e del Clima - Consiglio Nazionale delle Ricerche	ISAC - CNR
Italy	Istituto Superiore per la ricerca e la protezione ambientale	ISPRA
Italy	Italian Space Agency	ASI
Italy	NATO Undersea Research Centre	NURC
Italy	Politecnico di Torino	DITIC POLITO
Italy	Universita degli Studi di Bari	USB
Italy	university of bologna	DISTA
Japan	Center for Atmospheric and Oceanic Studies	CAOS
Japan	Hydrospheric Atmospheric Research Center	HyARC
Japan	Japan Agency for Marine-Earth Science and Technology	JAMSTEC
Japan	Japan Meteorological Agency	JMA
Japan	Meteorological Research Institute	MRI
Japan	Tokai University	Tokai U
Japan	weathernews	WNI
Kenya	Jomo Kenyatta University of Agriculture and Technology	JKUAT
Korea	Korea Meteorological Administration	KMA
Lithuania	Institute of Aerial Geodesy	AGI
Lithuania	Lithuanian hydrometeorological service	LHMS
Lithuania	University of Vilnius	VU
Marocco	University Ibn Tofail	UIT
Mauritius	Mauritius Oceanography Institute	MOI
Mexico	Facultad de Ciencias Marinas, Universidad Autónoma de Baja California	FCM/UABC
Netherlands	Bureau Waardenburg bv	BuWa
Netherlands	Delft University of Technology	TU Delft
Netherlands	Deltares	Deltares
Netherlands	Meteo Consult on behalf of MeteoGroup Ltd.	Meteo Consult
Netherlands	National Aerospace Laboratory	NLR
Netherlands	Nidera	Nidera
Netherlands	Rijksinstituut voor Kust en Zee	RIKZ
Netherlands	Royal Netherlands Meteorological Institute	KNMI
Niger	African Centre of Meteorological Applications for Development	ACMAD
Nigeria	African Centre of Meteorological Applications for Development	ACMAD
Norway	Institute of Marine Research	IMR
Norway	MyOcean SIW TAC	MyOcean SIW TAC
Norway	Nansen Environmental and Remote Sensing Center	NERSC
Norway	Norge Handelshoyskole	NHH
Norway	Norsk Polarinstitutt	NP
Norway	Norvegian Defense Research Establishment	FFI
Norway	Norvegian Meteorological Institute	Met.no
Norway	The University Centre in Svalbard	UNIS
Peru	Instituto del Mar del Peru	IMARPE
Peru	Servicio Nacional de Meteorologia e Hidrologia	SENAMHI
Peru	Universidad Nacional Mayor de San Marcos	UNMSM
Philipinnes	Marine Science Institute, University of the Philipinnes	UPMSI
Poland	Institute of Meteorology and Water Management	IMWM
Poland	Maritime Academy Gdynia	AM/KN

Poland	Media Fm	Media Fm
Poland	PRH BOBREK	Korn
Poland	University of Gdansk, Institute of Oceanography	UG/IO
Portugal	Centro de Estudos do Ambiente e do Mar - Univ Aveiro	CESAM
Portugal	Instituto de Investigação das Pescas e do Mar	IPIMAR
Portugal	Instituto de Meteorologia	IM
Portugal	Instituto Politécnico de Viana do Castelo	IPVC
Portugal	Laboratório Nacional de Energia e Geologia	LNEG
Portugal	Museu Nacional de Historia Natural	MNHN
Portugal	National Remote Sensing Centre	NRSC
Portugal	Universidade de Lisboa	CGUL
Portugal	Universitade dos Acores	UAC
Republic of Korea	PKNU	MF
Romania	National Meteorological Administration	NMA
Romania	University of Bucharest	UB
Russia	V.I.Il`ichev Pacific Oceanological Institute	
Russia	Atlantic Research institute of Marine fisheries and oceanography	AtlantNIRO
Russia	Geophysical Center of Russian Academy of Sciences	GC RAS
Russia	Hydrometcenter of Russia	RHMC
Russia	Kaliningrad State Technical University	KLGTU - KSTU
Russia	Murmansk Marine Biological Institute	MMBI
Russia	Nansen International Environmental and Remote Sensing Center	NIERSC
Russia	Shirshov Institute of Oceanology RAS	SIO RAS
Russia	SRC PLANETA Roshydromet	planeta
Russia	State research Center Planeta	SRC
Russia	V.I.Il`ichev Pacific Oceanological Institute	POI FEB RAS
Scotland	University of Edinburgh	Edin-Univ
Senegal	Centre de Recherches Océanographiques de Dakar-Thiaroye	CRODT
Senegal	Ecole Supérieure Polytechnique de Dakar	ESP/UCAD
Singapore	Terra Weather Pte. Ltd.	TERRAWX
South Africa	Kaytad Fishing Company	KFC
South Africa	Marine and Coastal Management	MCM
South Africa	South African Weather Service-Cape Town Regional Office	SAWS
Spain	Basque Meteorology Agency	EUSKALMET
Spain	Fundacion Centro de Estudios Ambientales del Mediterraneo	CEAM
Spain	Institut Català de Ciències del Clima	IC3
Spain	Institut d'Estudis Espacials de Catalunya	IEEC
Spain	Instituto Canario de Ciencias Marinas	ICCM
Spain	Instituto de Hidráulica Ambiental de Cantabria - Universidad de Cantabria	IH
Spain	Instituto Español Oceanography	IEO
Spain	Instituto Mediterraneo de Estudios Avanzados	IMEDEA (CSIC-UIB)
Spain	Instituto Nacional de Meteorologia	INM
Spain	Instituto Nacional de Pesquisas Espaciais	INPE
Spain	Instituto Nacional de Tecnica Aeroespacial	INTA
Spain	MeteoGalicia - Departamento de Climatología y Observación	Meteogalicia
Spain	MINISTERIO DEFENSA - ARMADA ESPAÑOLA	MDEF/ESP NAVY - IHM
Spain	Museo Nacional de Ciencias Naturales - Consejo Superior de Investigaciones Cientificas	MNCN-CSIC
Spain	starlab barcelona sl.	STARLAB BA
Spain	Universidad Autonoma de Madrid	UAM
Spain	Universidad de Las Palmas de Gran Canaria	ULPGC
Spain	Universidad de Oviedo	UdO
Spain	Universidad Politécnica de Madrid	UPM

Spain	Universitad de Valladolid	LATUV
Spain	University of Jaén	UJA
Spain	University of Vigo	CACTI
Sweden	Swedish Meteorological and Hydrological Institute	SMHI
Switzerland	Tecnavia S.A.	Tecnavia S.A.
Switzerland	World Meteorological Organization	WMO
Taîwan	Taiwan Ocean Research Institute	TORI
Taïwan	Fisheries Research Institute	FRI
Taïwan	Institute of Amos Physics, NCU ,Taiwan	ATM/NCU
Taïwan	Taiwan Ocean Research Institute	TORI
Taiwan(R.O.C)	National Central University	NCU/TAIWAN
Turkey	Türkish State Meteorological Services	TSMS
United Kingdom	Asgard Consulting Limited	Asgard
United Kingdom	Department of Zoology, University of Oxford	UOO
United Kingdom	ECMWF	ECMWF
United Kingdom	Flasse Consulting Ltd	FCL
United Kingdom	National Oceanography Centre, Southampton	NOCS
United Kingdom	National Renewable Energy Centre	NAREC
United Kingdom	Plymouth Marine Laboratory	PML
United Kingdom	Terradat	TDAT
United Kingdom	the scottish association for marine science	SAMS
United Kingdom	UK Met Office	UKMO
United Kingdom	University of East Anglia	UEA
United Kingdom	University of Leicester	UoL
United Kingdom	University of Plymouth	UOP
United Kingdom	University of Southampton	UoS
United Kingdom	Weatherquest Ltd	weatherquest
USA	Alaska Deparment Of Fish and Game	ADFG
USA	Applied Weather Technology	AWT
USA	Atmospheric and Environmental Research	AER
USA	Berkeley Earth Surface Temperature	BEST
USA	Center for Ocean-Atmosphere Prediction Studies	COAPS
USA	Clemson University	CU
USA	Colorado State University	CSU
USA	Darmouth College	Dartmouth College
USA	Dept. of Environmental Conservation , Skagit Valley College	SVC
USA	Earth & Space Research	ESR
USA	Haskell Indian Nations University	INU
USA	International Pacific Research Institute - Univ. of Hawaii	IPRC
USA	Jet Propulsion Laboratory	JPL
USA	Joint Typhoon Warning Center	JTWC
USA	Locheed martin Corporation,	LMCO
USA	NASA Langley Research Center, Affiliation Analytical Services and Materials, Inc.	NASA LaRC
USA	National Oceanic and Atmospheric Administration	NOAA/NESDIS
USA	Naval Postgraduate School	NPS
USA	Scripps Institution of Oceanography	SIO
USA	Starpath School of Navigation	Starpath
USA	Texas Commission on Environmental Quality	TCEQ
USA	United States Navy	USN
USA	University at Albany-SUNY	UAlbany
USA	University of Maryland	UMCP
USA	University of Miami	RSMAS MPO

USA	University of South Carolina	USC
USA	University of South Florida	USF
USA	Weather Routing Inc.	WRI
USA	Woods Hole Oceanograhic Institution	WHOI
Venezuela	Escuela de Ingeniería Eléctrica Universidad	
Vietnam	Vietnam National Center for Hydro-Meteorological Forecast	NCHMF

table 27 : **List of Institutes registered on the central Web Site**

Notes: Moreover are registered 169 individual or independent users

The following graph illustrates the evolution of sessions on the central OSI SAF Web Site.

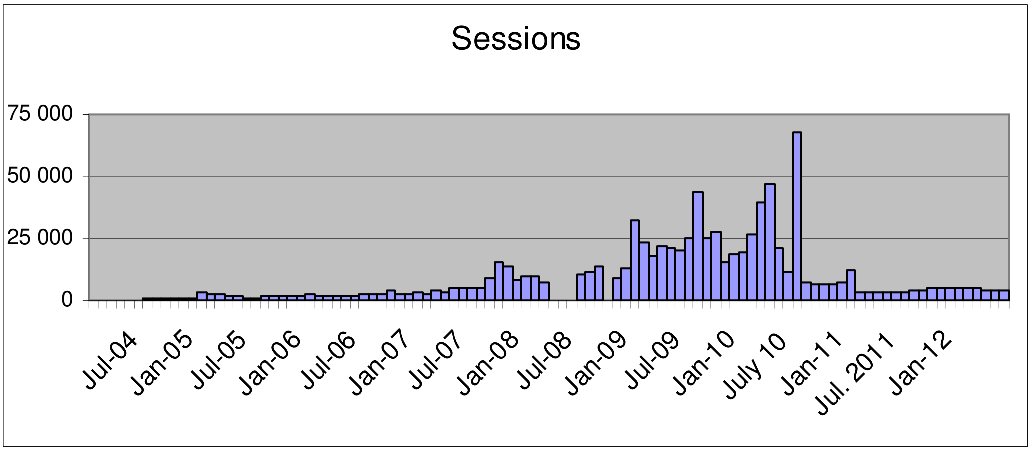


Figure 68 : **Evolution of sessions on the central OSI SAF Web Site from APR. 2004 to JUNE 2012 .**

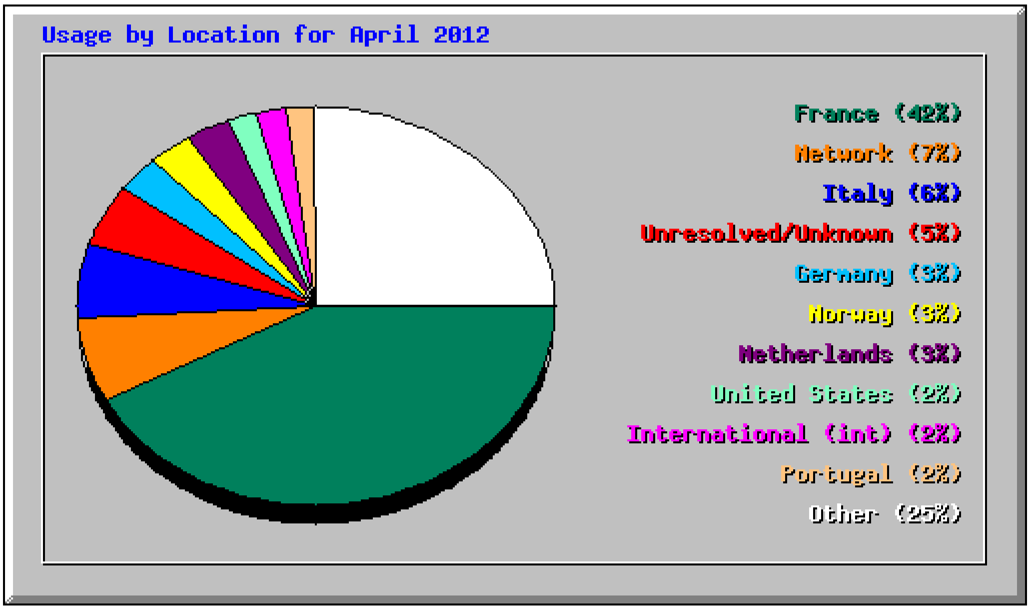


Figure 69 : **Usage of the OSI SAF central Web Site by country in APR. 2012 .**

Top 30 of 66 Total Locations											
#	Hits		Files		kB F		kB In		kB Out		Location
1	21181	42.49%	20016	41.82%	186595	40.84%	0	0.00%	0	0.00%	France
2	3717	7.46%	3670	7.67%	33717	7.38%	0	0.00%	0	0.00%	Network
3	3046	6.11%	3046	6.36%	58570	12.82%	0	0.00%	0	0.00%	Italy
4	2643	5.30%	2626	5.49%	17362	3.80%	0	0.00%	0	0.00%	Unresolved/Unknown
5	1721	3.45%	1665	3.48%	9242	2.02%	0	0.00%	0	0.00%	Germany
6	1597	3.20%	1570	3.28%	7941	1.74%	0	0.00%	0	0.00%	Norway
7	1557	3.12%	1478	3.09%	12752	2.79%	0	0.00%	0	0.00%	Netherlands
8	927	1.86%	839	1.75%	5600	1.23%	0	0.00%	0	0.00%	United States
9	912	1.83%	895	1.87%	5456	1.19%	0	0.00%	0	0.00%	International (int)
10	890	1.79%	877	1.83%	5348	1.17%	0	0.00%	0	0.00%	Portugal
11	888	1.78%	888	1.86%	16854	3.69%	0	0.00%	0	0.00%	US Commercial
12	781	1.57%	781	1.63%	14460	3.16%	0	0.00%	0	0.00%	Spain
13	775	1.55%	774	1.62%	2969	0.65%	0	0.00%	0	0.00%	Australia
14	703	1.41%	700	1.46%	13174	2.88%	0	0.00%	0	0.00%	China
15	702	1.41%	609	1.27%	3459	0.76%	0	0.00%	0	0.00%	Turkey
16	607	1.22%	571	1.19%	2357	0.52%	0	0.00%	0	0.00%	Greece
17	537	1.08%	497	1.04%	3933	0.86%	0	0.00%	0	0.00%	Korea (South)
18	509	1.02%	491	1.03%	3019	0.66%	0	0.00%	0	0.00%	Denmark
19	485	0.97%	485	1.01%	2153	0.47%	0	0.00%	0	0.00%	Japan
20	474	0.95%	469	0.98%	3387	0.74%	0	0.00%	0	0.00%	Russian Federation
21	385	0.77%	367	0.77%	11867	2.60%	0	0.00%	0	0.00%	United Kingdom
22	376	0.75%	376	0.79%	3531	0.77%	0	0.00%	0	0.00%	Poland
23	344	0.69%	314	0.66%	2266	0.50%	0	0.00%	0	0.00%	Austria
24	333	0.67%	321	0.67%	5265	1.15%	0	0.00%	0	0.00%	Sweden
25	328	0.66%	328	0.69%	2443	0.53%	0	0.00%	0	0.00%	US Educational
26	273	0.55%	273	0.57%	1668	0.37%	0	0.00%	0	0.00%	India
27	234	0.47%	234	0.49%	701	0.15%	0	0.00%	0	0.00%	Ireland
28	224	0.45%	224	0.47%	1761	0.39%	0	0.00%	0	0.00%	Trinidad and Tobago
29	221	0.44%	221	0.46%	1419	0.31%	0	0.00%	0	0.00%	Brazil
30	216	0.43%	216	0.45%	1413	0.31%	0	0.00%	0	0.00%	Estonia

table 28 : **Usage of the OSI SAF central Web Site by country in APR. 2012**

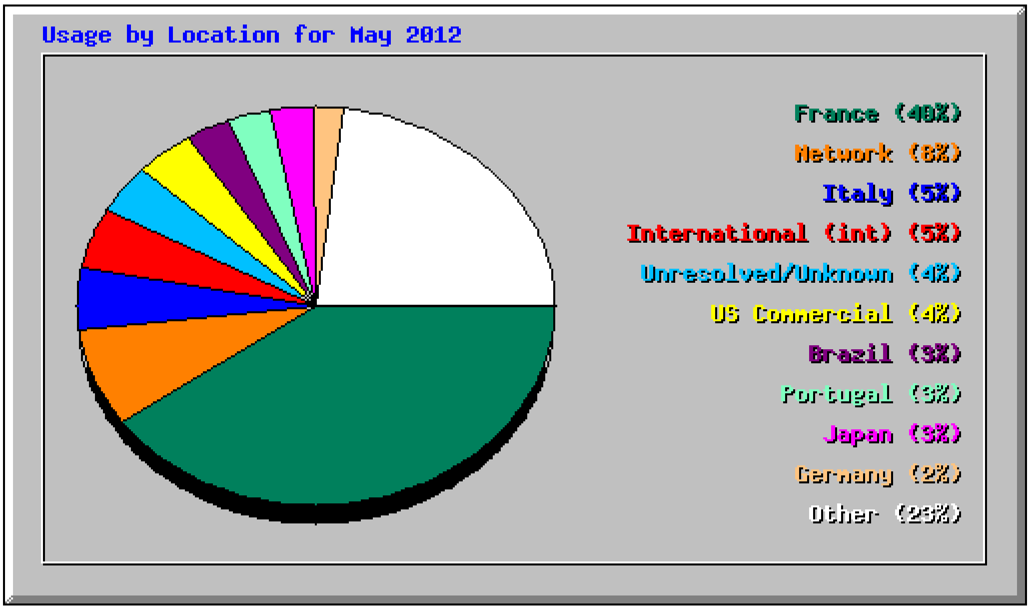


Figure 70 : **Usage of the OSI SAF central Web Site by country in MAY 2012 .**

Top 30 of 69 Total Locations											
#	Hits		Files		kB F		kB In		kB Out		Location
1	21338	39.76%	20378	39.54%	115693	21.48%	0	0.00%	0	0.00%	France
2	4112	7.66%	4098	7.95%	106593	19.79%	0	0.00%	0	0.00%	Network
3	2679	4.99%	2651	5.14%	77847	14.45%	0	0.00%	0	0.00%	Italy
4	2586	4.82%	2368	4.59%	28940	5.37%	0	0.00%	0	0.00%	International (int)
5	2332	4.35%	2314	4.49%	28932	5.37%	0	0.00%	0	0.00%	Unresolved/Unknown
6	2269	4.23%	2179	4.23%	18688	3.47%	0	0.00%	0	0.00%	US Commercial
7	1556	2.90%	1548	3.00%	14915	2.77%	0	0.00%	0	0.00%	Brazil
8	1457	2.71%	1374	2.67%	7350	1.36%	0	0.00%	0	0.00%	Portugal
9	1346	2.51%	1312	2.55%	3887	0.72%	0	0.00%	0	0.00%	Japan
10	1304	2.43%	1300	2.52%	12631	2.35%	0	0.00%	0	0.00%	Germany
11	986	1.84%	966	1.87%	5956	1.11%	0	0.00%	0	0.00%	Norway
12	897	1.67%	897	1.74%	7031	1.31%	0	0.00%	0	0.00%	Spain
13	889	1.66%	850	1.65%	8932	1.66%	0	0.00%	0	0.00%	Netherlands
14	794	1.48%	765	1.48%	12255	2.28%	0	0.00%	0	0.00%	China
15	745	1.39%	691	1.34%	3734	0.69%	0	0.00%	0	0.00%	Greece
16	615	1.15%	610	1.18%	11124	2.07%	0	0.00%	0	0.00%	United Kingdom
17	613	1.14%	518	1.01%	1682	0.31%	0	0.00%	0	0.00%	Taiwan
18	514	0.96%	506	0.98%	3388	0.63%	0	0.00%	0	0.00%	Russian Federation
19	437	0.81%	411	0.80%	2799	0.52%	0	0.00%	0	0.00%	United States
20	414	0.77%	402	0.78%	2127	0.39%	0	0.00%	0	0.00%	Canada
21	407	0.76%	394	0.76%	10822	2.01%	0	0.00%	0	0.00%	Argentina
22	370	0.69%	345	0.67%	2425	0.45%	0	0.00%	0	0.00%	Korea (South)
23	327	0.61%	322	0.62%	1394	0.26%	0	0.00%	0	0.00%	Australia
24	313	0.58%	288	0.56%	3078	0.57%	0	0.00%	0	0.00%	Peru
25	285	0.53%	285	0.55%	8745	1.62%	0	0.00%	0	0.00%	US Government
26	284	0.53%	284	0.55%	2274	0.42%	0	0.00%	0	0.00%	Croatia (Hrvatska)
27	265	0.49%	265	0.51%	2136	0.40%	0	0.00%	0	0.00%	Switzerland
28	242	0.45%	242	0.47%	2134	0.40%	0	0.00%	0	0.00%	Trinidad and Tobago

29	241	0.45%	241	0.47%	1803	0.33%	0	0.00%	0	0.00%	Finland
30	221	0.41%	221	0.43%	1870	0.35%	0	0.00%	0	0.00%	US Educational

table 29 : **Usage of the OSI SAF central Web Site by country in MAY 2012**

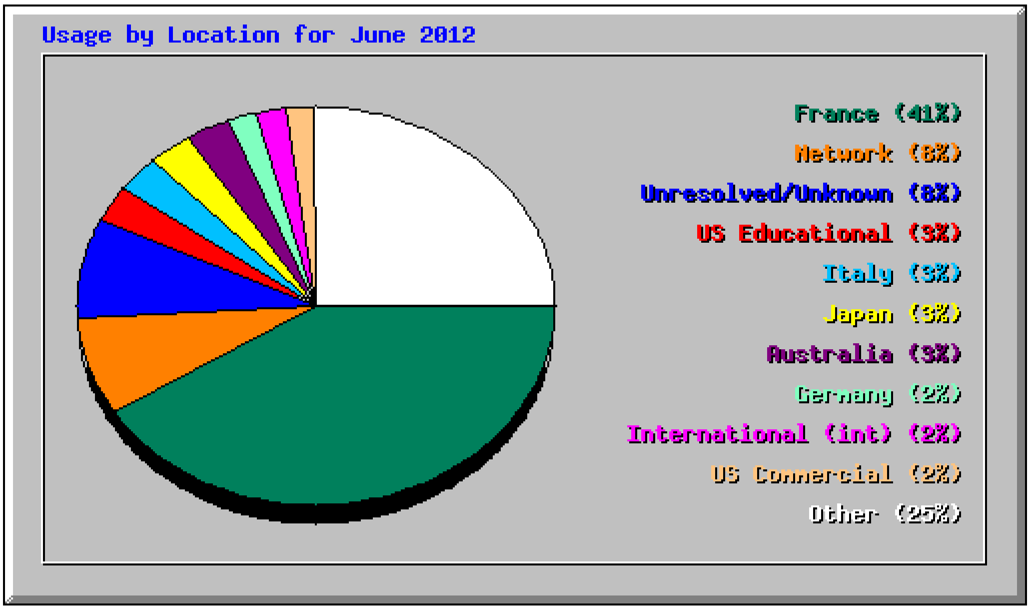


Figure 71 : **Usage of the OSI SAF central Web Site by country in JUNE 2012 .**

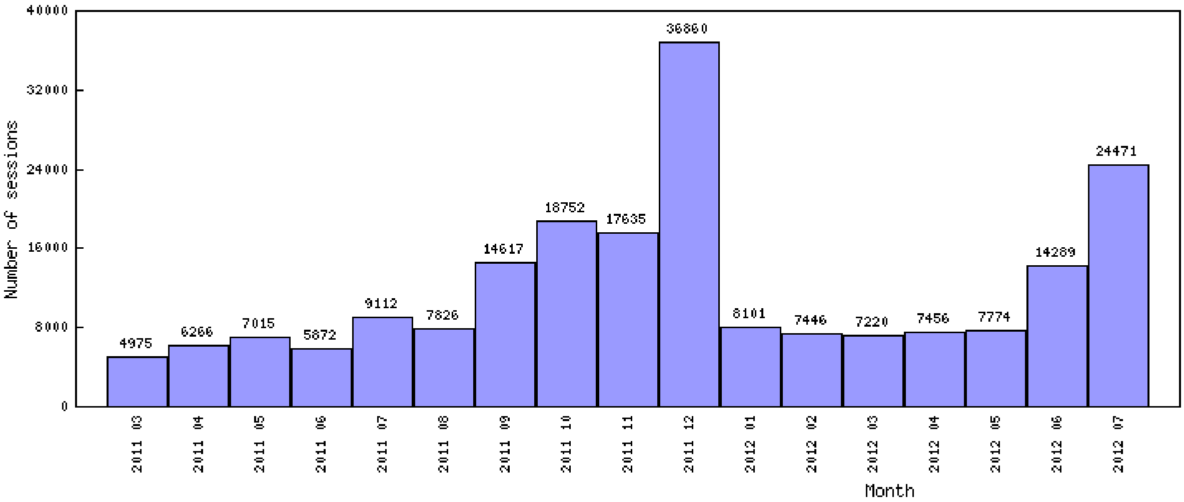
#	Hits		Files		kB F		kB In		kB Out		Location
Top 30 of 60 Total Locations											
1	21291	41.43%	20099	40.72%	198253	37.37%	0	0.00%	0	0.00%	France
2	4081	7.94%	4059	8.22%	67353	12.70%	0	0.00%	0	0.00%	Network
3	4022	7.83%	3868	7.84%	31708	5.98%	0	0.00%	0	0.00%	Unresolved/Unknown
4	1796	3.49%	1772	3.59%	7933	1.50%	0	0.00%	0	0.00%	US Educational
5	1740	3.39%	1720	3.48%	48022	9.05%	0	0.00%	0	0.00%	Italy
6	1697	3.30%	1696	3.44%	7761	1.46%	0	0.00%	0	0.00%	Japan
7	1366	2.66%	1313	2.66%	6029	1.14%	0	0.00%	0	0.00%	Australia
8	1257	2.45%	1235	2.50%	6787	1.28%	0	0.00%	0	0.00%	Germany
9	1161	2.26%	1081	2.19%	16744	3.16%	0	0.00%	0	0.00%	International (int)
10	1127	2.19%	1122	2.27%	11334	2.14%	0	0.00%	0	0.00%	US Commercial
11	963	1.87%	911	1.85%	8915	1.68%	0	0.00%	0	0.00%	Netherlands
12	896	1.74%	811	1.64%	5661	1.07%	0	0.00%	0	0.00%	Greece
13	845	1.64%	845	1.71%	7857	1.48%	0	0.00%	0	0.00%	Spain
14	837	1.63%	797	1.61%	8618	1.62%	0	0.00%	0	0.00%	Russian Federation
15	774	1.51%	774	1.57%	18395	3.47%	0	0.00%	0	0.00%	United Kingdom
16	762	1.48%	739	1.50%	4884	0.92%	0	0.00%	0	0.00%	Portugal
17	656	1.28%	656	1.33%	7010	1.32%	0	0.00%	0	0.00%	Norway
18	435	0.85%	435	0.88%	17375	3.28%	0	0.00%	0	0.00%	Denmark
19	412	0.80%	412	0.83%	3016	0.57%	0	0.00%	0	0.00%	United States
20	394	0.77%	394	0.80%	3224	0.61%	0	0.00%	0	0.00%	Ireland
21	385	0.75%	383	0.78%	8760	1.65%	0	0.00%	0	0.00%	China
22	378	0.74%	358	0.73%	2128	0.40%	0	0.00%	0	0.00%	Korea (South)

23	**344**	0.67%	**344**	0.70%	**1882**	0.35%	**0**	0.00%	**0**	0.00%	Canada
24	**315**	0.61%	**263**	0.53%	**1983**	0.37%	**0**	0.00%	**0**	0.00%	Sweden
25	**314**	0.61%	**312**	0.63%	**2674**	0.50%	**0**	0.00%	**0**	0.00%	Brazil
26	**268**	0.52%	**229**	0.46%	**1891**	0.36%	**0**	0.00%	**0**	0.00%	Poland
27	**266**	0.52%	**258**	0.52%	**4914**	0.93%	**0**	0.00%	**0**	0.00%	Switzerland
28	**239**	0.47%	**237**	0.48%	**2176**	0.41%	**0**	0.00%	**0**	0.00%	Belgium
29	**221**	0.43%	**219**	0.44%	**1465**	0.28%	**0**	0.00%	**0**	0.00%	Turkey
30	**182**	0.35%	**182**	0.37%	**1418**	0.27%	**0**	0.00%	**0**	0.00%	South Africa

table 30 : Usage of the OSI SAF central Web Site by country in JUNE 2012

6.1.2 Statistics on the OSI SAF Sea Ice Web portal and help desk

The following graph illustrates the evolution of sessions on the HL OSI SAF Sea Ice portal (http://osisaf.met.no).



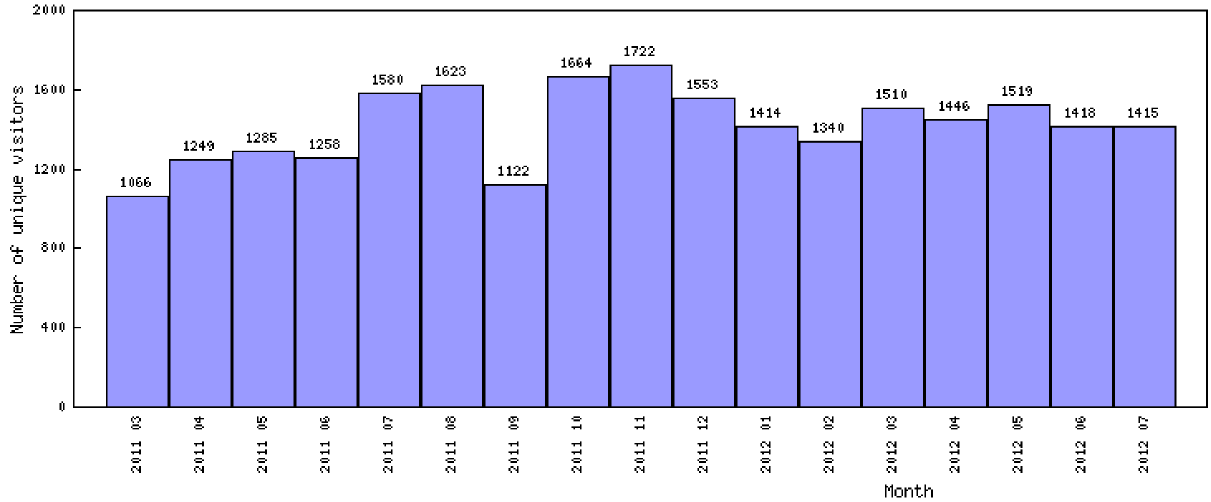


Figure 72 : Evolution of sessions and visitors on the HL OSI SAF Sea Ice portal from March 2011 to July 2012 (http://osisaf.met.no).

Comments:

The number of sessions per month shows and increase after September 2011, which drops back in January 2012. In the same period the number of unique users is quite stable. After looking closer at the logs, the variation in number of sessions seems to be linked to search robots and our thredds servers, and not true users. New filters have been introduced to try to avoid too much traffic from such robots.

6.1.3 Statistics on the OSI SAF KNMI scatterometer web page and helpdesk

The following graph illustrates the evolution of page views on the KNMI scatterometer web pages, which are partly devoted to the OSI SAF wind products, from August 2005 to JUNE 2012. Only external sessions (from outside KNMI) are counted.

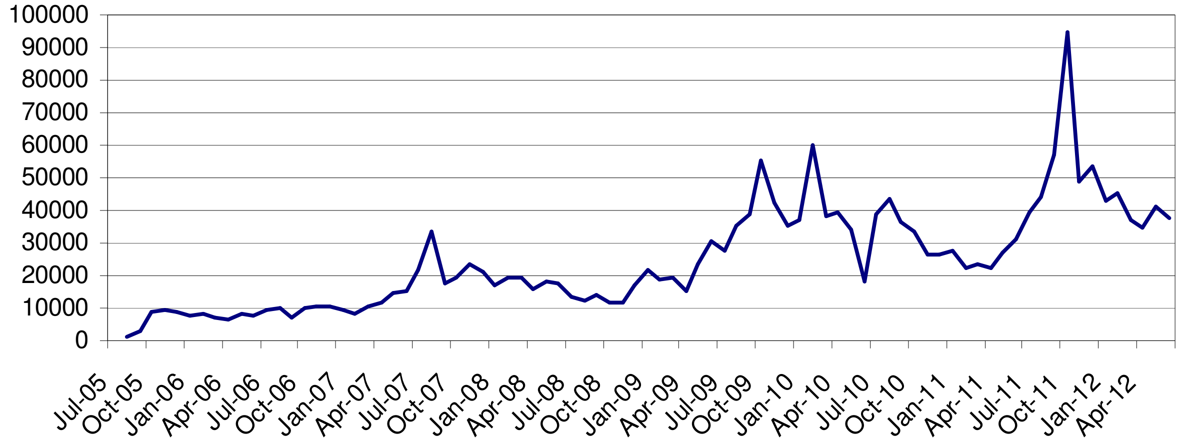


Figure 73 : Number of page views on KNMI scatterometer website per month.

At scat@knmi.nl, we received 90 Emails from 32 different addresses during the reporting period, requesting both wind data, processing software, and other support. This includes requests in the OSI SAF, the NWP SAF, and the EARS project. The total number of enquiries in this period was 34, and 19 of them were identified as OSI SAF enquiries. All requests were acknowledged or answered within three working days.

The following table gives the list of the registered wind users at KNMI.

Entity	**Shortened name**	**Country**
Environment Canada		Canada
Koninklijk Nederlands Meteorologisch Instituut	KNMI	Netherlands
Centre Mediterrani d'Investigacions Marines I Ambientals	CMIMA-CSIC	Spain
Italian Air Force Weather Service		Italy
Norwegian Meteorological Institute	Met.no	Norway
BMT Argoss		Netherlands
Danish Meteorological Institute	DMI	Denmark
Jet Propulsion Laboratory	JPL	U.S.A.
EUMETSAT		Germany
Institute of Meteorology and Water Management Poland	IMGW	Poland
University of Concepcion CHILE		Chile
Turkish State Meteorological Services		Turkey
National Centre for Medium Range Weather Forecasting India		India
Nanjing University		China
Indian National Centre for Ocean Information Service	INCOIS	India
Rudjer Boskovic Institute / Center for Marine Research		Croatia
Consiglio Nazionale delle Ricerche – ISAC Laboratorio		Italy
Ifremer		France
NOAA/NESDIS		U.S.A.
MetService		New Zealand
UAE Met. Department		United Arab Erimates
The Ohio State University, Dept. of Electrical Eng.		U.S.A.
University of Wisconsin-Madison		U.S.A.
BYU Center for Remote Sensing, Brigham Young University		U.S.A.
Woods Hole Oceanographic Institution		U.S.A.
Remote Sensing Systems		U.S.A.
Institute of Low Temperature Science, Hokkaido University		Japan
Center for Atmospheric and Oceanic Studies, Tohoku University		Japan
Naval Research Laboratory	NRL	U.S.A.
ComSine Ltd		U.K.
Met Office		U.K.
Meteorology and Oceanography Group, Space Applications Centre, ISRO		India
Numerical Prediction Division, Japan Meteorological Agency		Japan
The First Institute of Oceanography	FIO	China
PO.DAAC Data Engineering Team		U.S.A.
ECMWF		U.K.

Entity	Shortened name	Country
Satellite Observing Systems		U.K.
Météo France	M-F	France
School of Marine Science and Technology, Tokai University		Japan
Northwest Research Associates		U.S.A.
University of Washington		U.S.A.
Naval Hydrographic Service, Ministry of Defence		Argentina
Swedish Meteorological and Hydrological Institute	SMHI	Sweden
Chalmers University of Technology		Sweden
Typhoon Research Department, Meteorological Research Institute		Japan
Gujarat University		India
Consiglio Nazionale delle Ricerche	CNR	Italy
Oceanweather Inc.		U.S.A.
Ocean University of China		China
Nanjing University of China		China
Hydrometeorological Research Center of Russia		Russia
Meteorology Scientific Institution of ShanDong Province		China
VisioTerra		France
China Meteorological Administration		China
Institut de Recherche pour le Développement	IRD	France
Weathernews Inc		Japan
NECTEC		Thailand
University of Ioannina		Greece
Bermuda Weather Service		Bermuda
Chinese Academy of Sciences		China
Naval Postgraduate School		U.S.A.
University of Hawaii		U.S.A.
Chinese Culture University		Taiwan
Federal University of Rio de Janeiro		Brazil
Flanders Marine Institute		Belgium
V. I. Il`ichev Pacific Oceanological Institute		Russia
Jet Propulsion Laboratory	JPL	U.S.A.
NASA		U.S.A.
National Center for Atmospheric Research	NCAR	U.S.A.
Chinese Academy of Meteorology Science		China
Weather Routing, Inc.	WRI	U.S.A.
Instituto Oceanográfico de la Armada		Equador
Leibniz Institute for Baltic Sea Research		Germany
Nansen Environmental and Remote Sensing Center		Norway
UNMSM		Peru
Centro de Estudos do Ambiente e do Mar		Portugal
Andhra University, Visakhapatnam		India
Unidad de Tecnología Marina (UTM – CSIC)		Spain
MyOcean Sea Ice Wind TAC (Ifremer)		France
Jeju National University		Korea
Weather Data Marine Ltd.		U.K.
Admiral Paulo Moreira Marine Research Institute		Brazil
IMEDEA (UIB-CSIC)		Spain
Hong Kong Observatory		Hong Kong
Observatoire Midi-Pyrenees		France
Tidetech		Australia
Weatherguy.com		U.S.A.
Marine Data Literacy		U.S.A.

Entity	**Shortened name**	**Country**
Hong Kong University of Science and Technology		Hong Kong
Environmental Agency of the Republic of Slovenia		Slovenia
Fisheries and Sea Research Institute		Portugal
National Meteorological Center		China
National Oceanography Centre, Southampton		U.K.
National Taiwan University		Taiwan
Florida State University		U.S.A.
Charles Sturt University, Wagga Wagga		Australia
Marine and Coastal Management		South Africa
Gent University		Belgium
Department of Meteorology		Sri-Lanka
Gwangju Institute of Science & Technology		South Korea
University of Hamburg		Germany
University of Las Palmas de Gran Canaria		Spain
The Third Institute of Oceanography		China
South China Sea Institute of Oceanology		China
Environmental Research Institute, University College Cork		Ireland
Shan dong meteorologic bureau		China
RPS MetOcean Pty Ltd		Australia
APL-UW		China
Korea Ocean Research and Development Institute		Korea
16 independent users (not affiliated to an organization)		

table 31 : List of registered Wind users at KNMI.

6.2 Statistics on the FTP sites use

6.2.1 Statistics on the SS1 ftp sites use

SST and Fluxes products are available on IFREMER FTP server. NAR SST, GLB SST, MGR SST and METEOSAT SST products are also available at the PODAAC. Although outside the OSI SAF the PODAAC kindly provides the OSI SAF with statistics on the downloading of the OSI SAF products on their server.

6.2.1.1 Statistics on the IFREMER FTP server use

Number of OSI SAF products downloaded on IFREMER FTP server Over 2nd quarter 2012			
	APR. 2012	MAY 2012	JUNE 2012
SST MAP +LML	4016	4876	6351
SSI MAP +LML	21	9168	5668
DLI MAP +LML	21322	6784	17539
NARSST	8592	1658	3648
MGR SST	161862	166896	219229
GBL SST	1829	720	2212

table 32 : **Number of OSI SAF products downloaded on IFREMER FTP server over 2nd quarter 2012.**

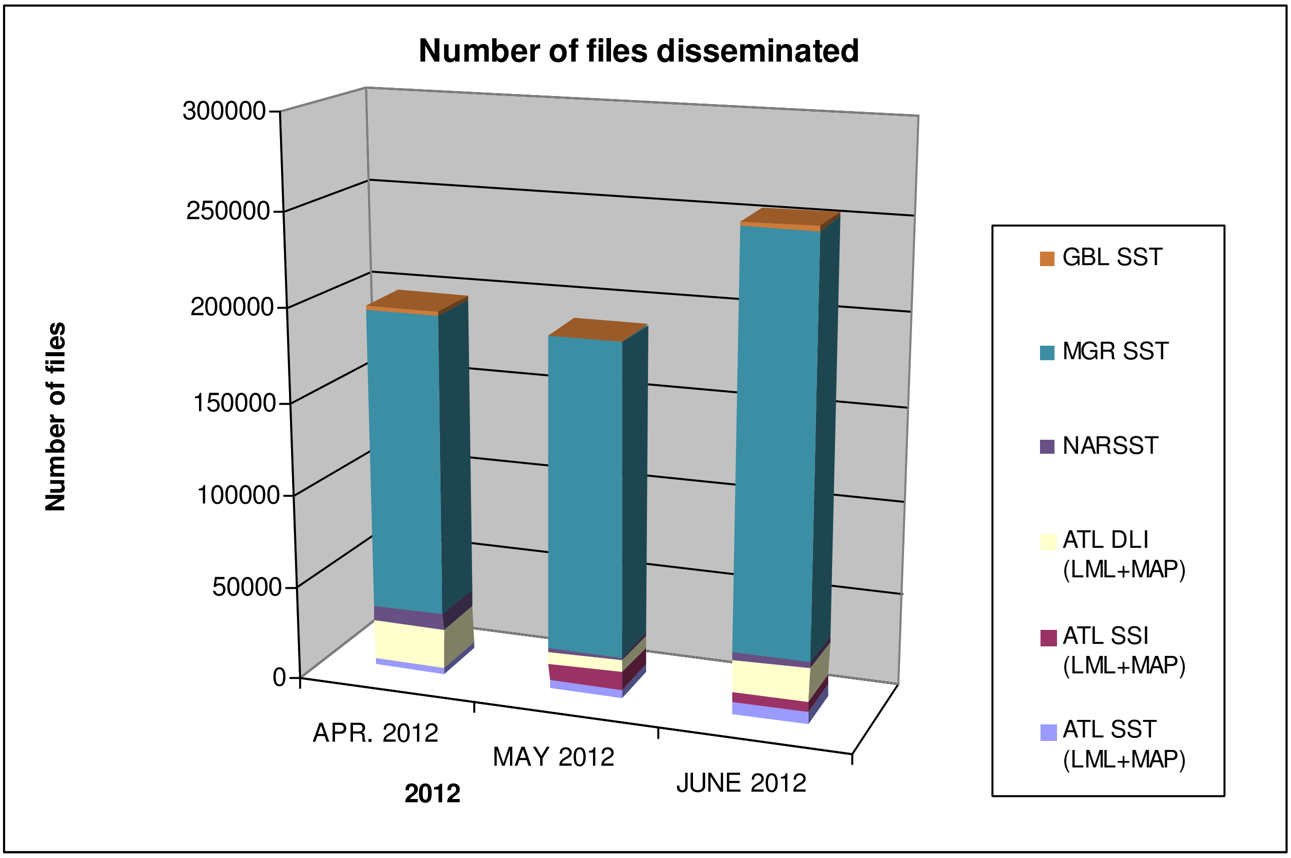


Figure 74 : **Number of OSI SAF products downloaded on IFREMER FTP server over 2nd quarter 2012.**

Volume of data downloaded by country (in Mb)				
	APR. 2012	MAY 2012	JUNE 2012	
Denmark	28989	34478	36557	**100024**
Italy	4372	6369	4383	**15124**
France	2550	7004	1280	**10834**
Netherlands	0	0	0	**0**
Spain	549	801	815	**2165**
Russian Federation	8202	2007	0	**10209**
Belgium	2857	3164	3994	**10015**
Poland	0	0	0	**0**
Inconnu	2693	3799	2109	**8601**
Network	28570	32205	33751	**94526**
Commercial	47780	25160	51241	**124181**
Others	0	48	2079	**2127**

table 33 : **Volume of Data downloaded by country (in Mb) from IFREMER ftp server over 2nd quarter 2012.**

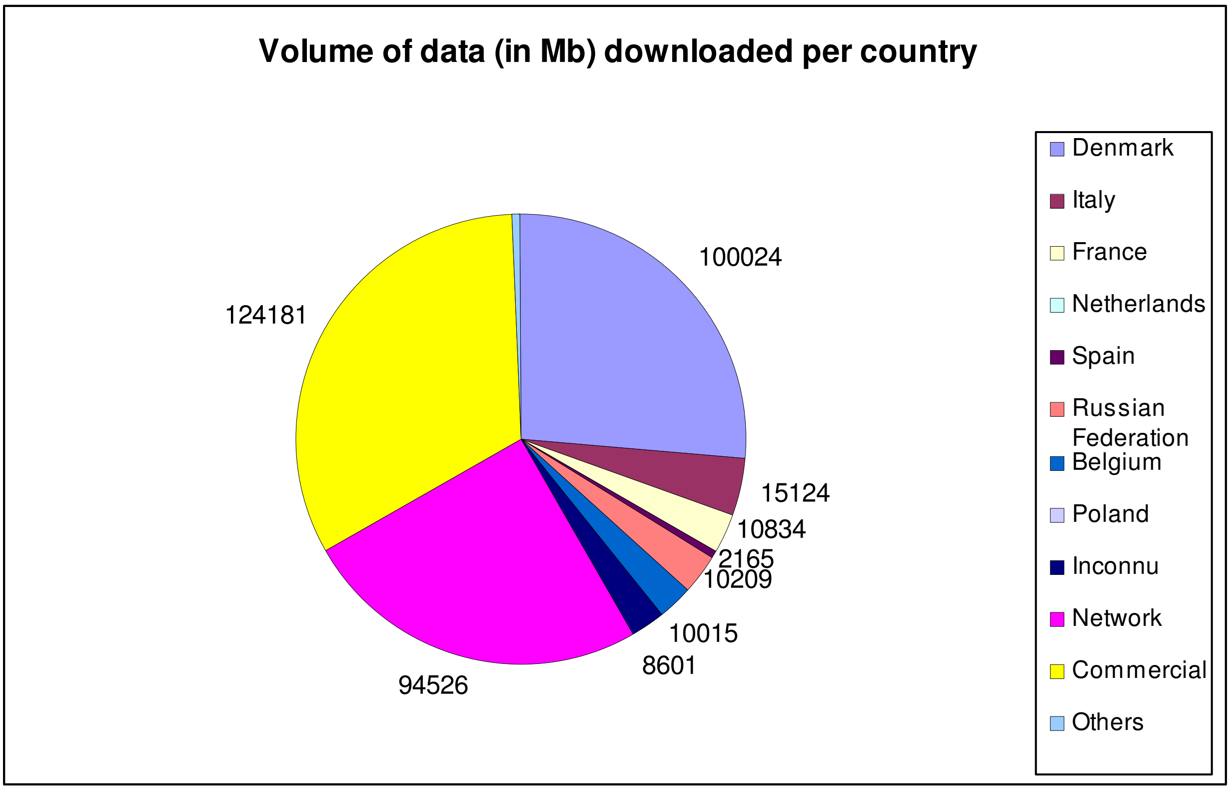


Figure 75 : Volume of Data downloaded by country (in Mb) from IFREMER ftp server over 2nd quarter 2012.

6.2.1.2 Statistics on the PODAAC FTP server use

OSI SAF product	Number of Users	GB	Number of files
MGR SST	83	379,1	416136
GLB SST	85	19,3	3907
NOAA-17 NAR SST	1	0	1
NOAA-18 NAR SST	58	6,1	955
NOAA-19 NAR SST	45	0	1199
Metop-A NAR SST	75	12,9	2106
METEOSAT SST	25	0,7	1320
Total	372	418,1	425624

table 34 : Statistics of the OSI SAF products downloaded on the PODAAC FTP server in April 2012.

OSI SAF product	Number of Users	GB	Number of files
MGR SST	105	320,5	286808
GLB SST	153	10,1	3280
NOAA-17 NAR SST	1	0	1
NOAA-18 NAR SST	41	7,7	970
NOAA-19 NAR SST	81	7,9	3099

Metop-A NAR SST	94	3,8	1042
METEOSAT SST	57	0	1124
Total	532	350	296324

table 35 : **Statistics of the OSI SAF products downloaded on the PODAAC FTP server in May 2012.**

OSI SAF product	Number of Users	GB	Number of files
MGR SST	94	34,7	27681
GLB SST	163	0,2	895
NOAA-17 NAR SST	1	0,0	1
NOAA-18 NAR SST	25	2,9	430
NOAA-19 NAR SST	46	49,7	17643
Metop-A NAR SST	110	56,4	12634
METEOSAT SST	41	0,0	82
Total	480	143,9	59366

table 36 : **Statistics of the OSI SAF products downloaded on the PODAAC FTP server in June 2012.**

6.2.2 Statistics on the SS2 ftp site use

The number of downloads of Sea Ice products from the OSI SAF Sea Ice FTP server are given in table below. The numbers include the ice concentration, ice edge and ice type product for each product area in GRIB and HDF5 format.

Month	Operational				Reprocessed
	Ice Conc	Ice Drift	Ice Edge	Ice Type	Ice Conc
Apr 2012	5594	4371	3205	3525	13710
May 2012	7212	7674	5824	12149	64106
June 2012	8833	2707	2652	5072	36389

table 37 : **Number of sea ice products downloaded from OSI SAF Sea Ice FTP server (ftp://osisaf.met.no) during this QR period**

	SST	SSI	DLI
Apr 2012	738	167	185
May 2012	859	1	75
June 2012	1712	0	0

table 38 : **Number of SST, SSI and DLI products downloaded from OSI SAF Sea Ice FTP server (ftp://osisaf.met.no) during this QR period.**

Comment:

Few users of the AHL SSI and DLI products from the FTP server have yet been registered. This is partly because this is a new product, and partly because SSI and DLI have fewer potential users compared to SST, ice and wind.

The next figure shows the downloads sorted on domains.

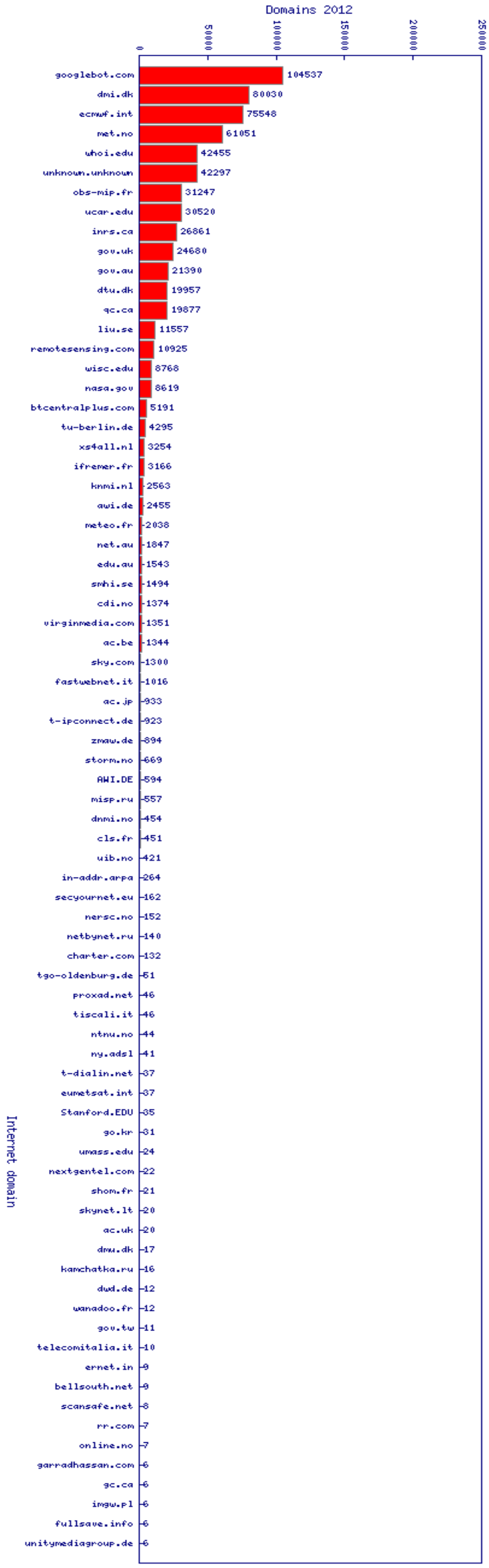


Figure 76 : FTP downloads of sea ice products (more than 5) sorted on domains for January to July 2012 .

6.2.3 Statistics on the SS3 ftp site use

KNMI keeps statistics of the retrieval of wind products of its FTP server. It appears that the 25-km and 12.5-km ASCAT products were retrieved routinely by approximately 40 users and the ASCAT coastal products by approximately 18 users. This includes both BUFR and NetCDF formats. Note that the BUFR products are also disseminated through EUMETCast.

We provided archived SeaWinds data to one user during the reporting period.

We also receive statistics from PO.DAAC on the number of downloads of the ASCAT wind products in NetCDF format from their archive.
During the 4th quarter of 2011:
344,776 files ASCAT 25-km data files have been retrieved by 192 users.
943,050 ASCAT 12.5-km data files have been retrieved by 325 users.
77,639 files ASCAT coastal data files have been retrieved by 93 users.

7 Documentation update

The following table provides the list of documents modified during the reporting period, as well as new documents made available to users.
Last version of documents and new documents are available on the central Web Site (www.osi-saf.org).

Name of the Document	OSI SAF reference	Latest versions	date
Ocean and Sea Ice SAF CDOP Product Requirement Document	SAF/OSI/CDOP/M-F/MGT/PL/001	1.5	March 2012
Sea Ice User Manual (concentration, edge, type)	SAF/OSI/met.no/TEC/MA/125	3.8	May 2012
Oceansat-2 Wind Product User Manual	SAF/OSI/CDOP2/KNMI/TEC/MA/140	1.1	June 2012
Validation Report for the Atlantic High Latitude Radiative Fluxes *OSI-301 OSI-302*	SAF/OSI/CDOP/met.no/TEC/RP/118	1.1	April 2012
Analysis of the ASCAT inversion residual for quality control and forward modelling improvement	SAF/OSI/CDOP/KNMI/TEC/TN/193 (Visiting Scientist activity CDOP-SG06-VS03)	2.0	April 2012
Report on WP 22260: Feasibility study on use of Sentinel / GMES-1	SAF/OSI/CDOP/met.no/TEC/RP/195	N.A.	March 2012

table 39 : **Documentation updates.**

Recent publications

P. Le Borgne, H. Roquet, C.J. Merchant, *Estimation of Sea Surface Temperature from the Spinning Enhanced Visible and Infrared Imager, improved using numerical weather prediction*, Remote Sensing of Environment, Volume 115, Issue 1, 17 January 2011, Pages 55-65, ISSN 0034-4257, DOI: 10.1016/j.rse.2010.08.004.

Eastwood, S., P. Le Borgne, S. Péré and D. Poulter, 2010, *Diurnal variability in Sea Surface Temperature in the Arctic*, in publication, Remote sensing of Environment

Merchant, C.J., A. R. Harris, H. Roquet, and P. Le Borgne, *Retrieval characteristics of non-linear sea surface temperature from the Advanced Very High Resolution,* Radiometer Geophysical Research Letters, VOL. 36, L17604, doi:10.1029/2009GL039843, 2009.

Merchant C. J., P. Le Borgne, H. Roquet and A. Marsouin (2009), *Sea surface temperature from a geostationary satellite by optimal estimation*, Rem. Sens. Env., 113 (2), 445-457. DOI:10.1016/j.rse.2008.10.012 .

Clerici, M., Hoepffner, N., Diop, M., Ka, A., Kirugara, D. and Ndungu, J.(2009)*'SST derivation from MSG for PUMA Pilot Projects in Fisheries'*, International Journal of Remote Sensing, 30:8,1941-1959.

Ineichen, Pierre, Barroso, Carla Sofia, Geiger, Bernhard, Hollmann, Rainer, Marsouin, Anne and Mueller, Richard (2009) *'Satellite Application Facilities irradiance products: hourly time step comparison and validation over Europe'*, International Journal of Remote Sensing, 30: 21, 5549 5571.

Cailleau et al. 2010 *A method of correction of radiative flux to force a regional forecasting system : application to IBI area*, MERCATOR/ CORIOLIS conference Toulouse, November 2010.

F. Massonnet, T. Fichefet, H. Goosse, M. Vancoppenolle, P. Mathiot, C. K¨onig Beatty. *On the influence of model physics on simulations of Arctic and Antarctic sea ice*. The Cryosphere, 5, 687–699, published, 2011

Donlon, C.J., M. Martin, J. Stark, J. Roberts-Jones and E. Fiedler, *“The Operational Sea Surface Temperature and Sea Ice Analysis (OSTIA)”*, accepted , Remote sensing of Environment

Rozman, P., Hölemann, J., Krumpen, T., Gerdes, R., Köberle, C., Lavergne, T., and Adams, S. *"Validating Satellite Derived and Modeled Sea Ice Drift in the Laptev Sea with In-Situ Measurements of Winter 2007/08"*, Jounal of Polar Research, under review, 2011

Lavergne, T., Eastwood, S., Teffah, Z., Schyberg, H., and Breivik, L.-A. *"Sea ice motion from low resolution satellite sensors: an alternative method and its validation in the Arctic".* J. Geophys. Res., doi:10.1029/2009JC005958, in press, 2010.

Tonboe, R. T. *The simulated sea ice thermal microwave emission at window and sounding frequencies.* Tellus 62A, 333-344, 2010.

Belmonte Rivas, M. and A. Stoffelen, *New Bayesian algorithm for sea ice detection with QuikSCAT*
IEEE Transactions on Geoscience and Remote Sensing, I, 2011, 49, 6, 1894-1901, doi:10.1109/TGRS.2010.2101608.

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