

# E-SURFMAR Report

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## E-SURFMAR

EUMETNET is a grouping of  
31 European Meteorological Services

19 participate in E-SURFMAR

Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia,  
Finland, France, FYROM, Germany, Greece, Hungary, Iceland, Ireland,  
Italy, Latvia, Luxembourg, Malta, Montenegro, Netherlands, Norway,  
Poland, Portugal, Serbia, Slovak Republic, Slovenia, Spain, Sweden,  
Switzerland, United Kingdom

### ■ Objectives

- to **coordinate, optimise** and progressively **integrate** the European activities for surface observations over the sea  
**in support of weather forecasting and climate monitoring**

### ■ Two components

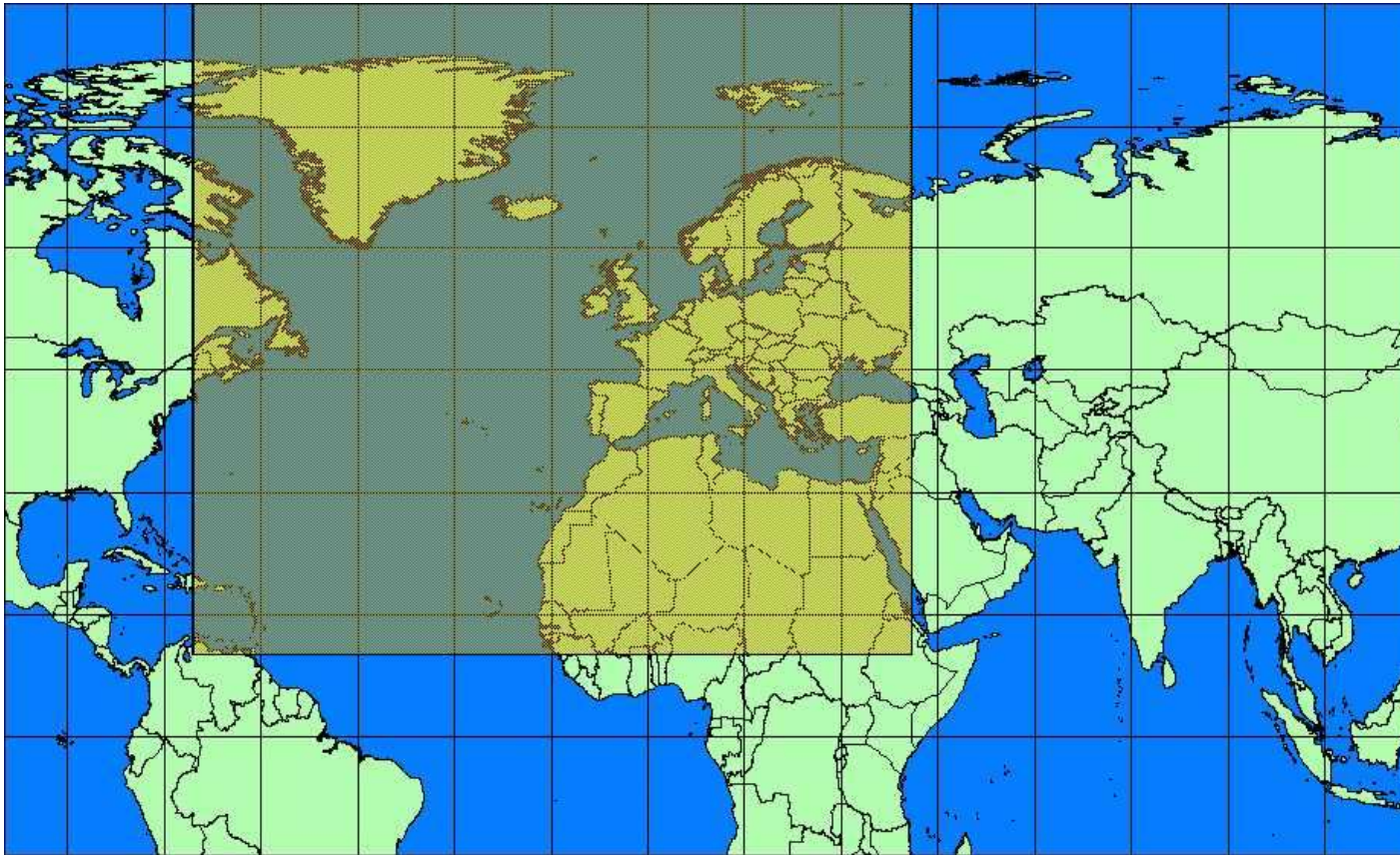
- Conventional Voluntary Observing Ships (VOS)  
or ships equipped with Automated Weather Stations (S-AWS)
- Drifting and Moored Data Buoys

# Cooperations

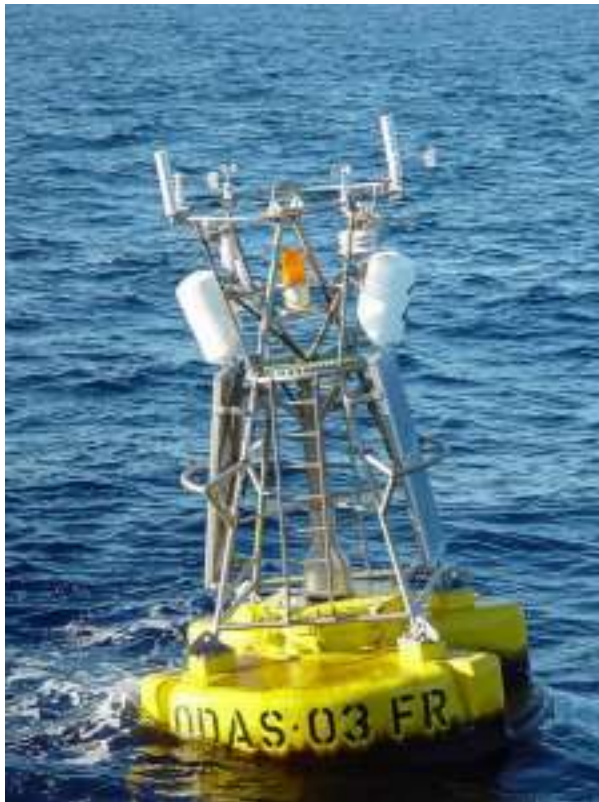
## ■ **E-SURFMAR**

- contributes to:
  - the World Weather Watch of WMO - all observations are reported onto its Global Telecommunication System (GTS) in real time
  - and the Copernicus marine environment monitoring service (EU) especially with a link to CORIOLIS, thereby bridging to the oceanographic community
- works closely with the Joint WMO-IOC Commission of Oceanography and Marine Meteorology (JCOMM) Data Buoy Cooperation Panel (DBCP) and the Ship Observation Team (SOT).
- cooperates with NOAA and the Meteorological Service of Canada, as well as with Puertos del Estado and other European oceanographic agencies among MOON members

## E-SURFMAR area



# Data Buoys



## Data Buoy Management

E-SURFMAR is responsible for the European meteorological data buoys and is supported by :

- Expert Team – Data Buoy (ET-DB) took over in 2013 the attributions of Data Buoy Technical Advisory Group (DB-TAG) - is an action group of the DBCP

Meetings:

January (Geneva) and May 2005 (Hamburg)

June 2006 (Galway)

May 2007 (Larnaka)

May 2008 (Reykjavik)

May 2009 (Southampton)

May 2010 (Madrid)

May 2011 (Héraklion)

May 2012 (Las Palmas)

June 2013 (Oslo)





May 2014 (Exeter)

May 2015 (Rome)

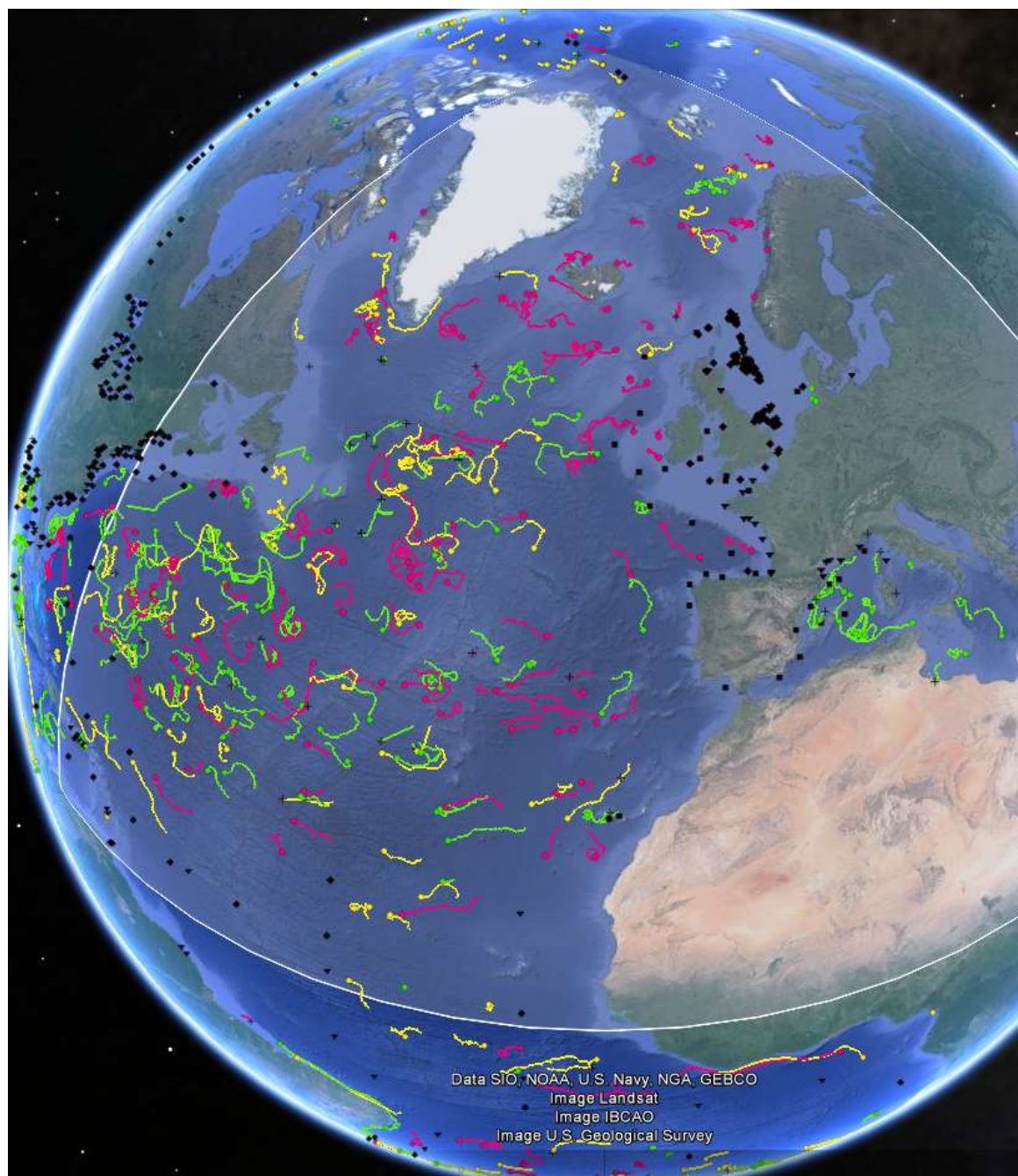
April 2016 (Hamburg)

- Data Buoy Programme Manager

## Network status

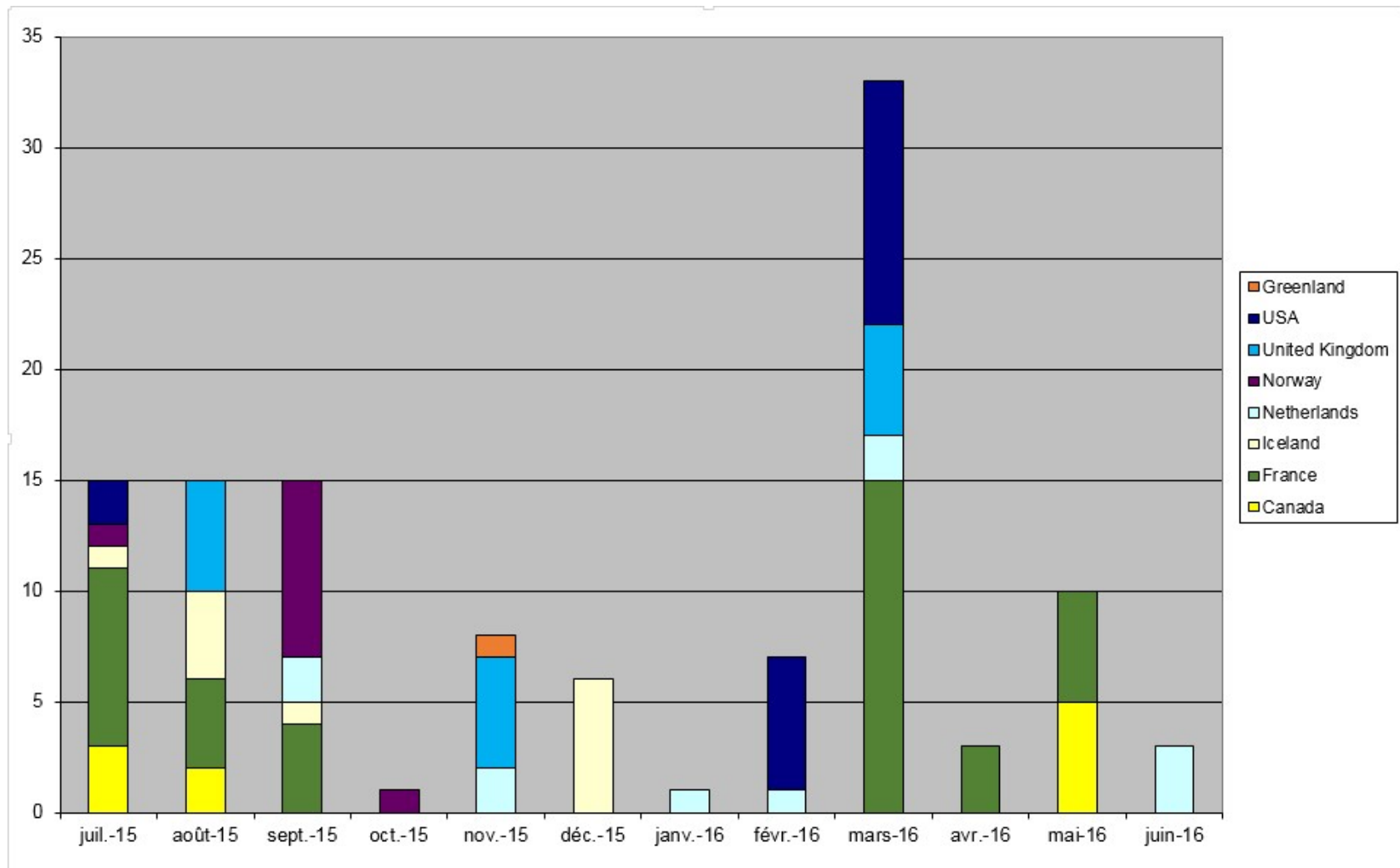
-  E-SURFMAR
-  Others
-  SST only
-  (moored buoys)

June 2016



## Drifting buoys deployed (July15-June16)

(117 units, 92 last year)



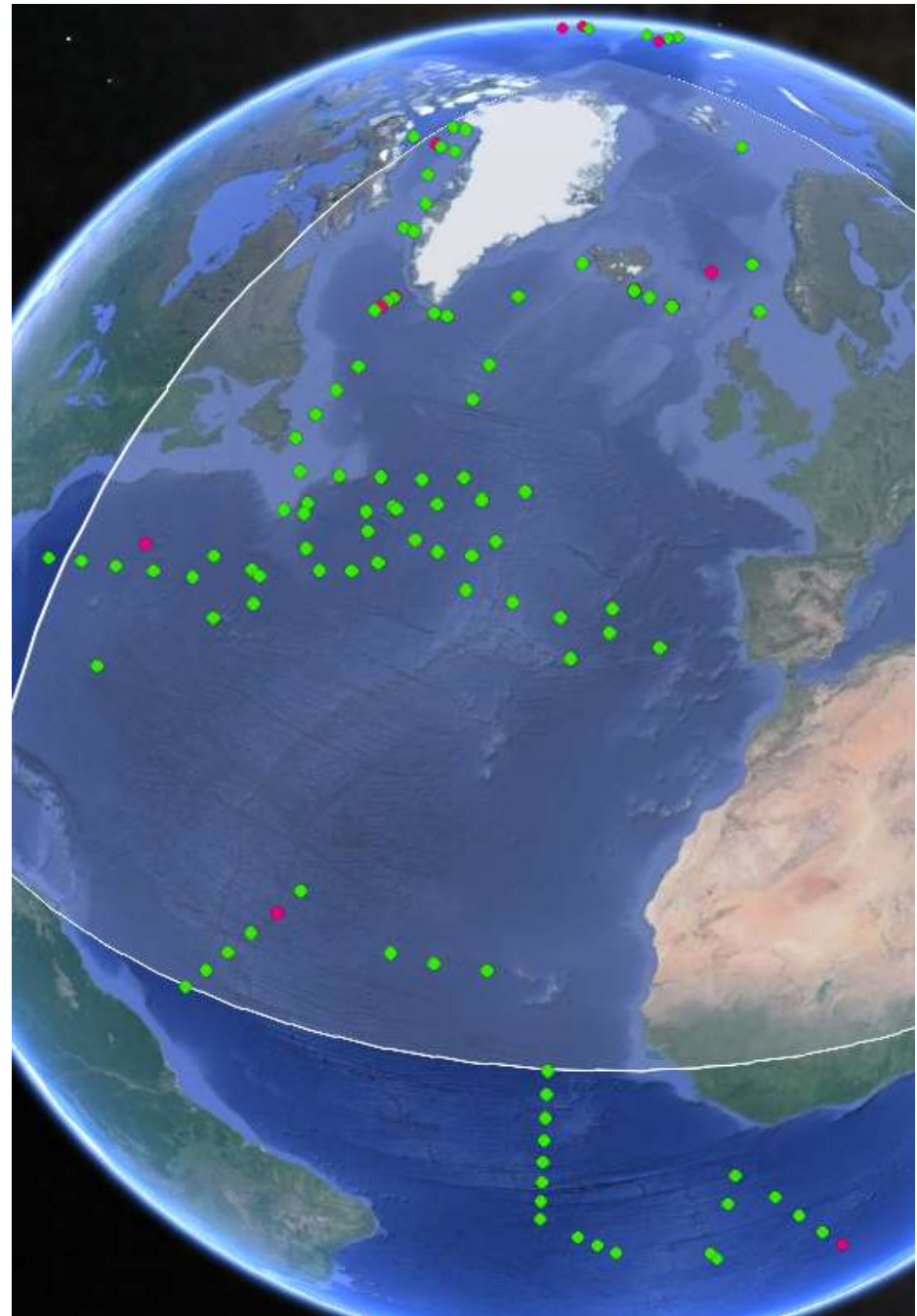


## Deployment locations (July15-June16)

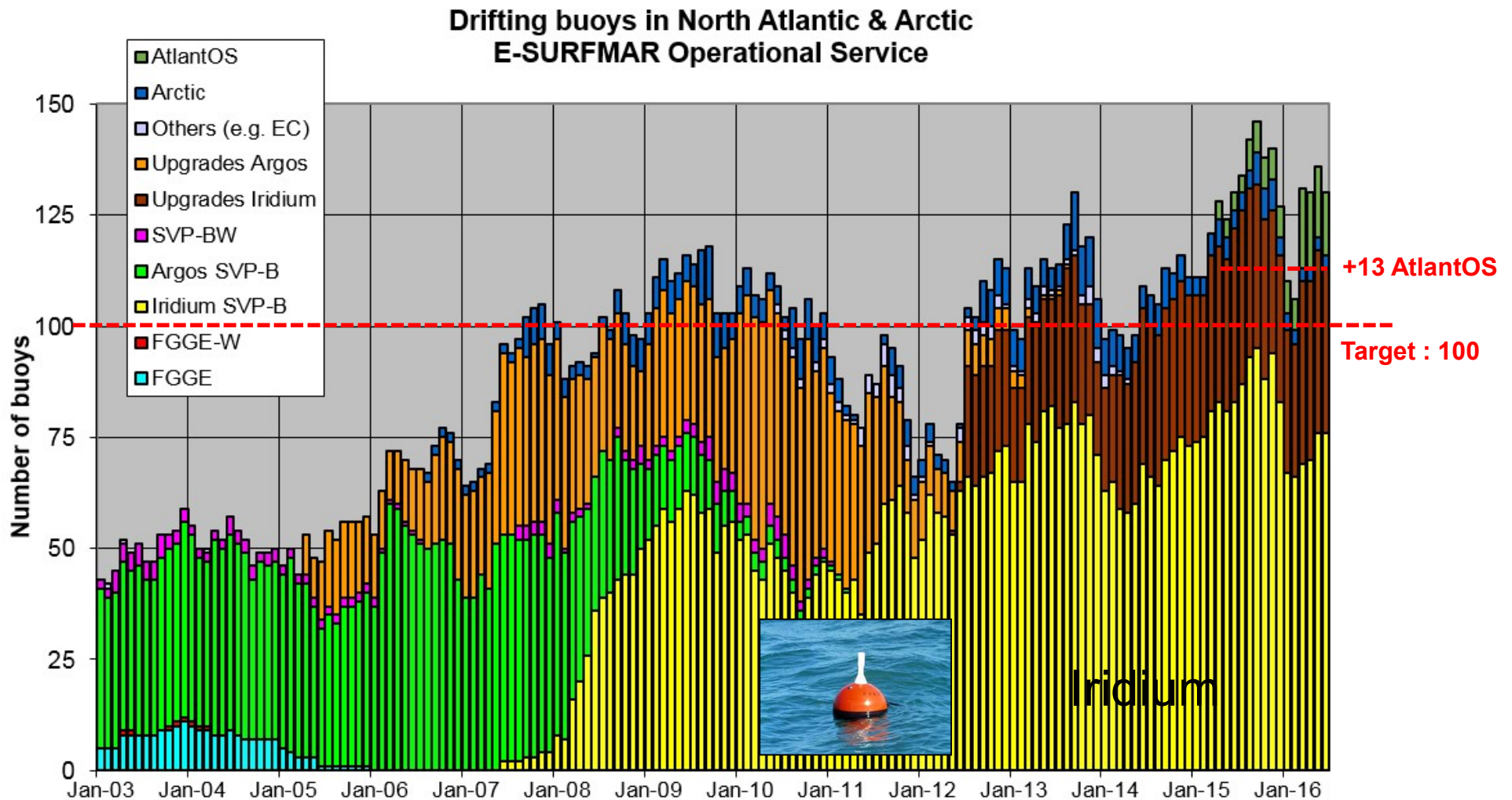
**Legend :**

- Drifting buoy OK
- Drifting buoy failed at deployment

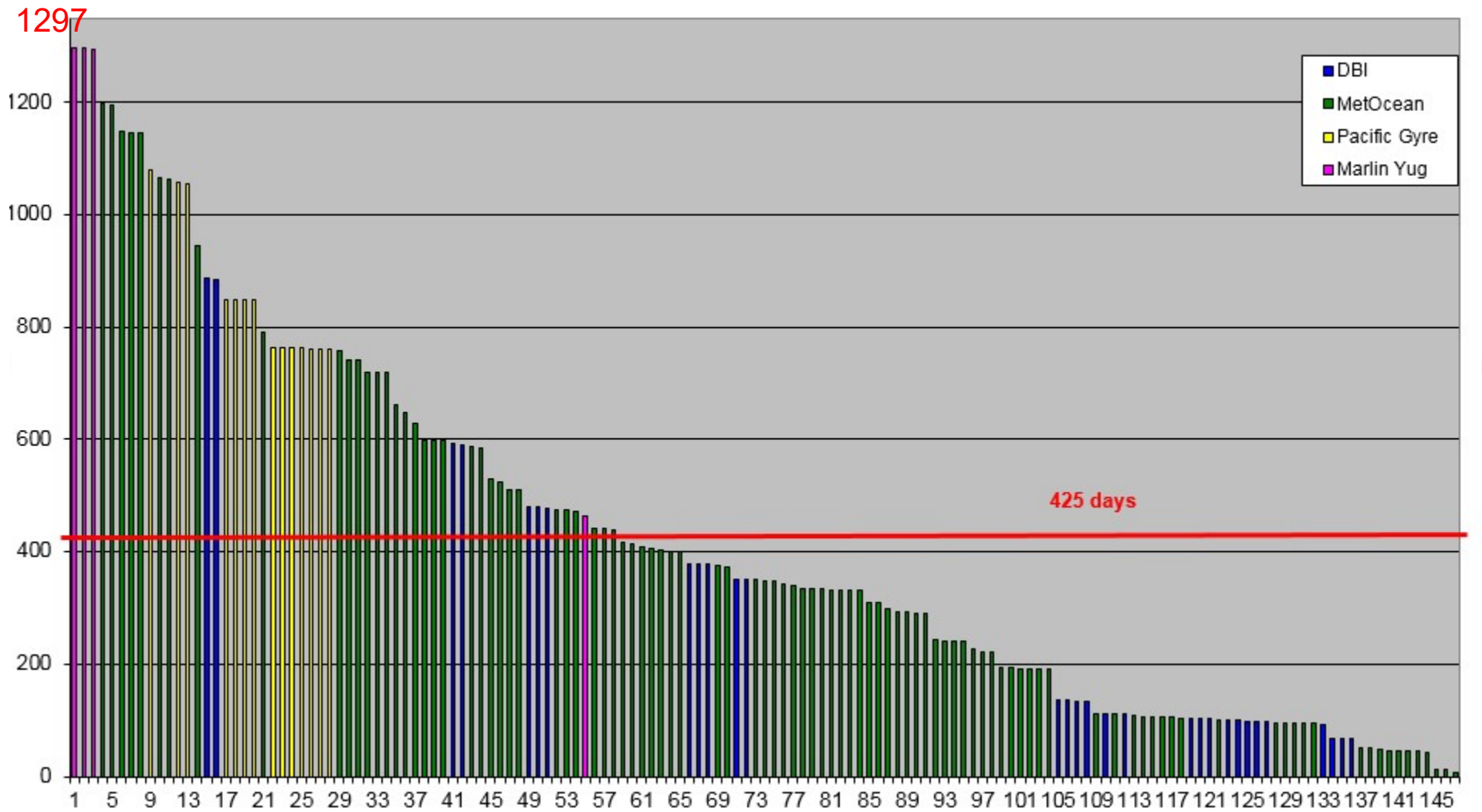
117 buoys deployed  
10 failed at deployment



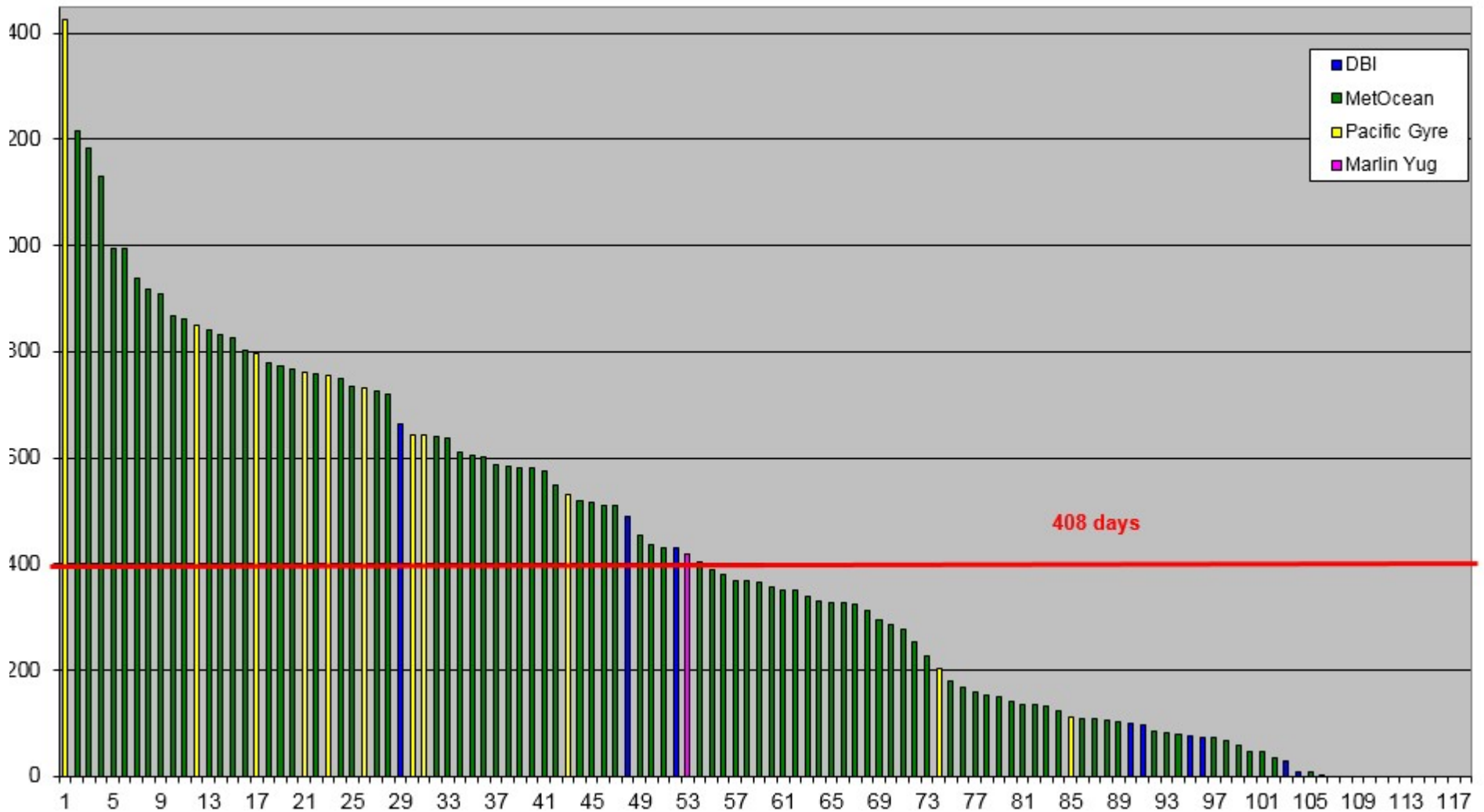
# Drifting Buoys (number of buoys in operation)



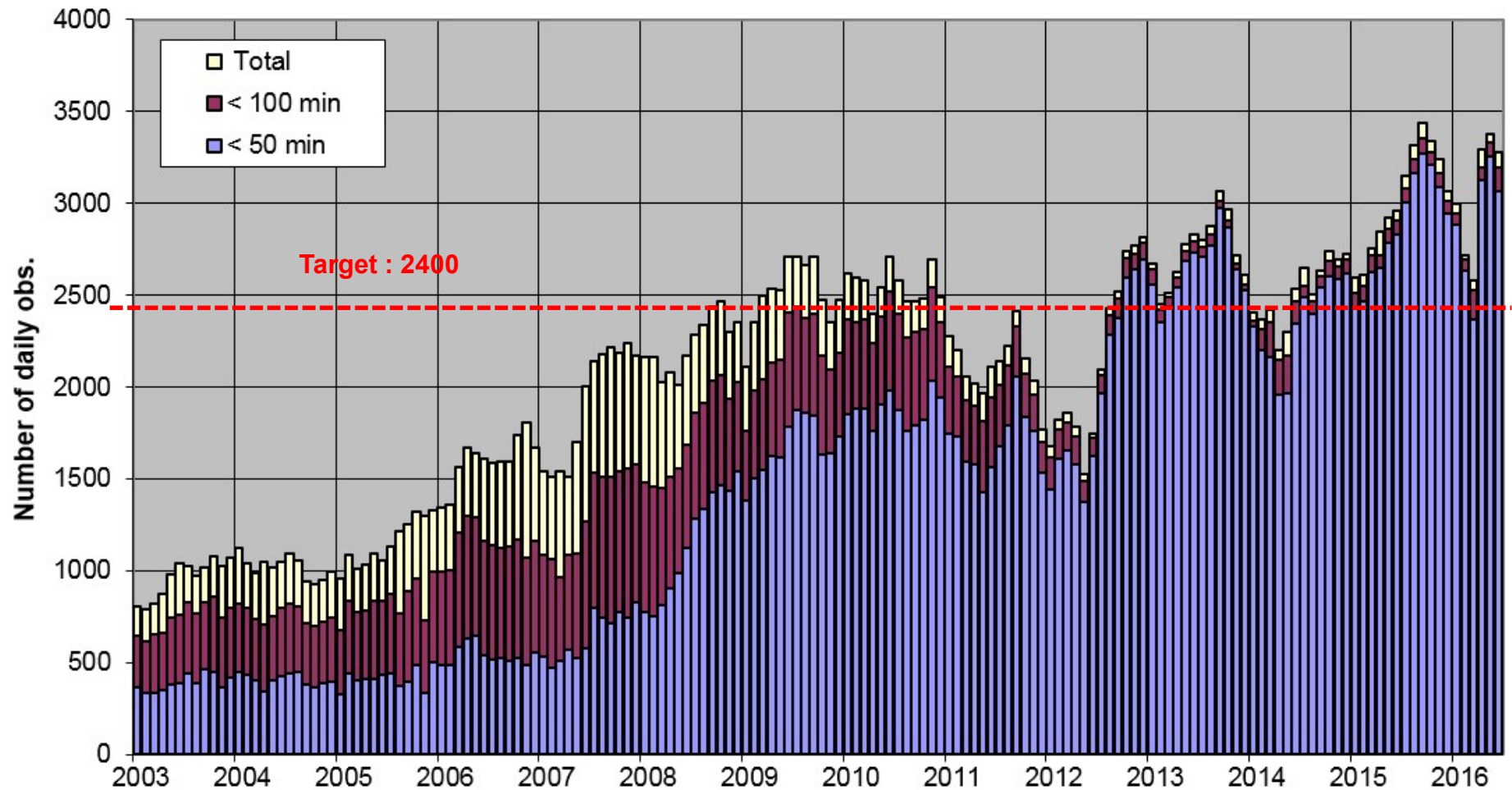
# Age of the network (148 buoys, 133 last year)



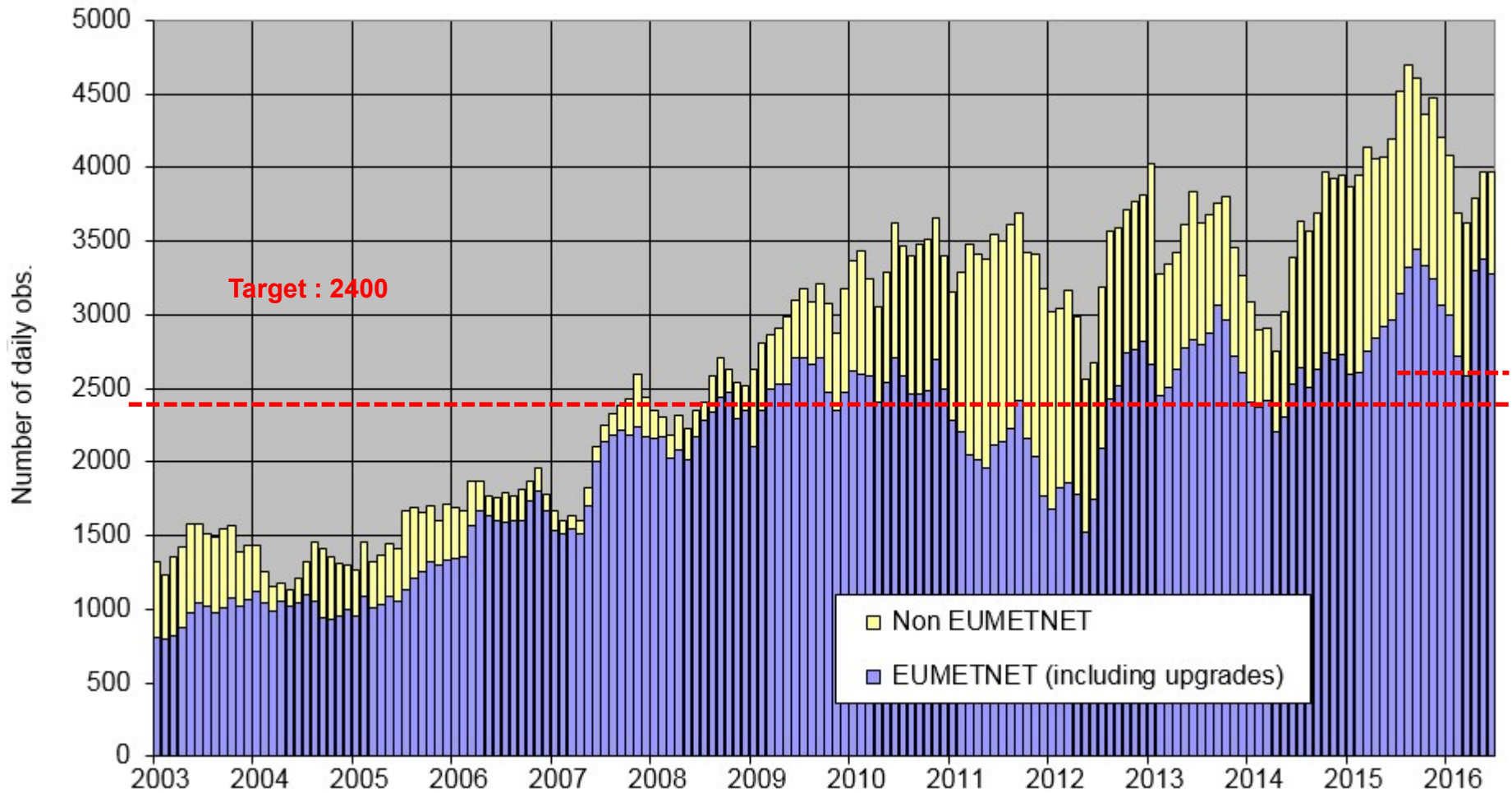
# Average lifetime of buoys (AP) (118 units, 73 last year)



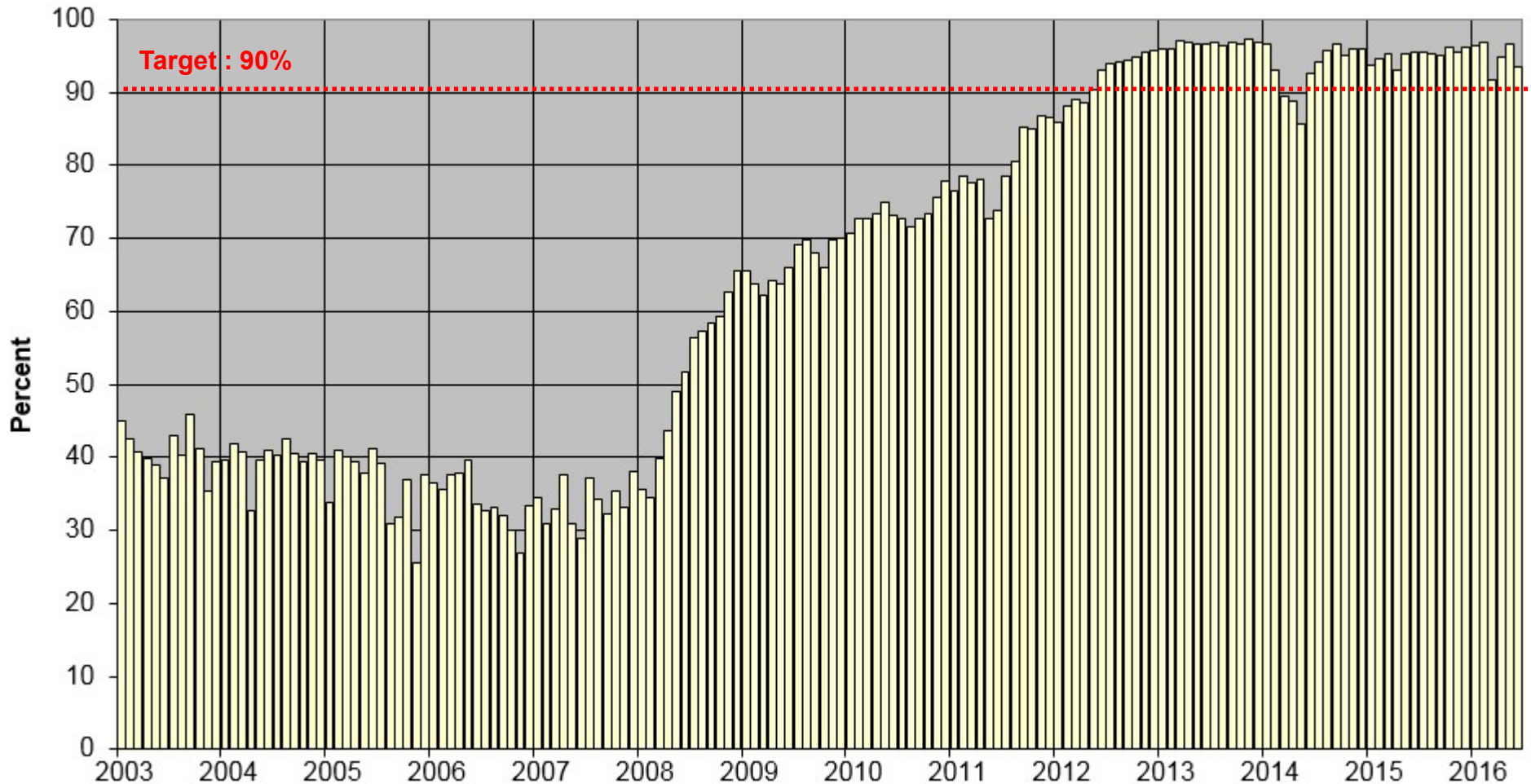
# Drifting Buoys Number of observations



# Drifting Buoys (Data availability)



# Drifting Buoys (Data timeliness % < 50 min)



## Contribution to E-SURFMAR north area

- Contribution through IABP

- 2 IcesAir in 2006,
- 3 ICEB buoys in 2007
- 4 SVP-B (2 Argos – 2 Iridium) in 2007
- 5 SVP-B (Argos) in 2008
- 15 SVP-B (Argos) in 2009
- extra free buoys from 2009 (10 to MetNo + 2 to NOAA) in 2010
- 3 New ICEB (2 Argos, 1 Iridium) + 12 SVP-B (Iridium) in 2011
- 22 SVP-B (Iridium) in 2012
- 13 SVP-B (Iridium) in 2013
- 6 SVP-B (Iridium) in 2014
- 3 SVP-B (Iridium) in 2015
- 8 SVP-B (Iridium) in 2016 (4 failed at deployment)

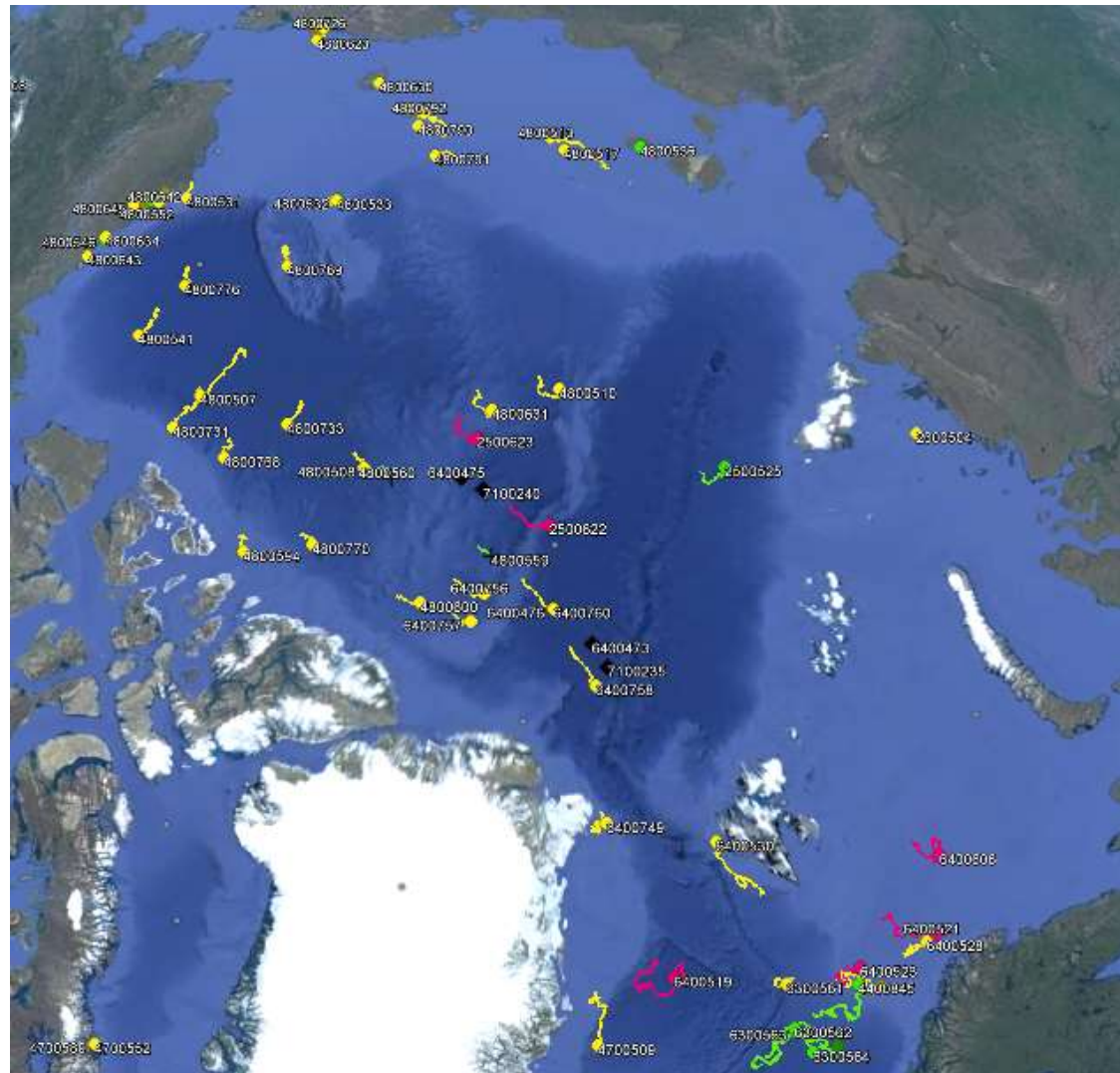


# North E-SURFMAR area and Arctic

June 2016

All buoys on the map are measuring **air pressure** at least

- E-SURFMAR
- Others
- SST only
- ◆ (moored buoys)



# AtlantOS

- **AtlantOS** is a consortium formed in response to a Horizon2020 call: *developing in-situ Atlantic Ocean Observations for a better management and sustainable exploitation of maritime resources.*
- **E-SURFMAR** is engaged in AtlantOS and responsible for the *Surface Drifters*

**Started on 1 April 2015, 3 targets enhancements:**

- **Enhance geographical coverage:**
  - 13 SVP-B deployed every year, for 4 years, in Tropical Atl. area.
- **Enhance multivariate sampling:**
  - R&D towards a cost-effective salinity drifter (with other partners)
- **Enhance vertical sampling:**
  - Research on SVP-BTC by CNRS.

# AtlantOS

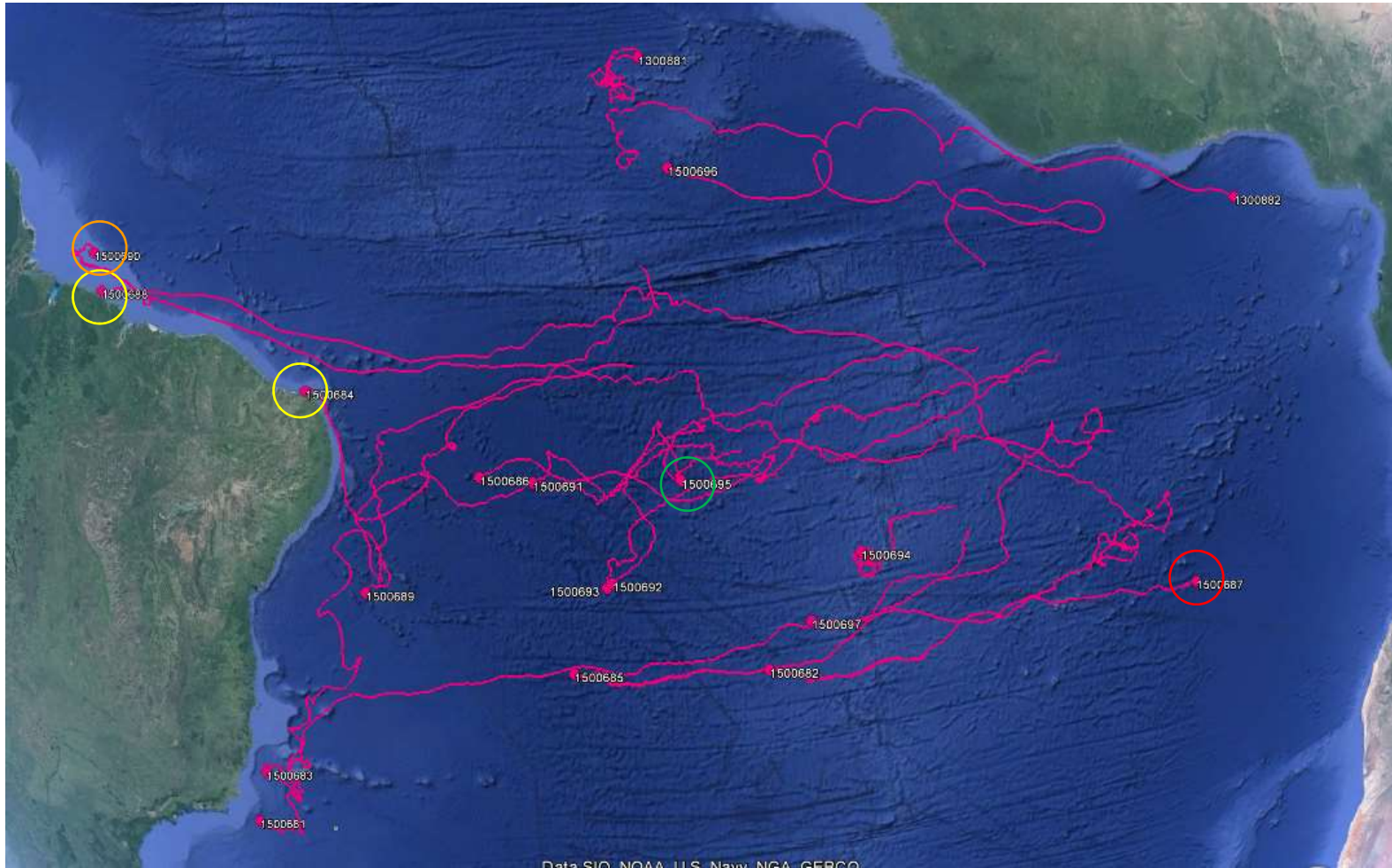
8 SVPB launched in 2015  
11 SVPB launched Q1 2016  
(3 more to be launched Nov. 2016)

2 ashore in Brazil  
1 picked-up by a fisherman in Brazil  
1 failed at deployment  
1 ceased

**14 buoys still alive**

# AtlantOS

2 ashore in Brazil   
1 picked-up by a fisherman in Brazil   
1 ceased  1 failed 

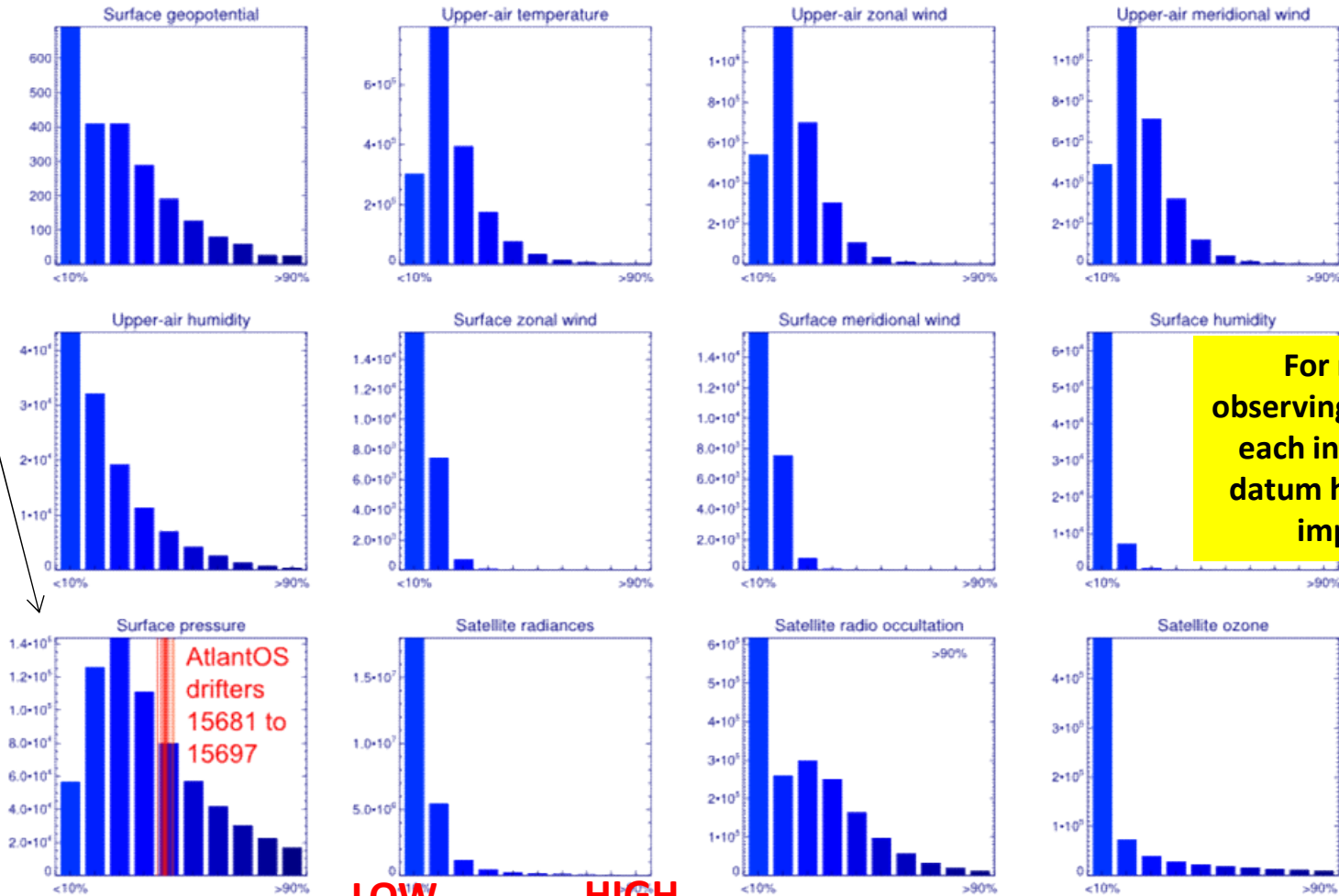


# Long-term sustainability of such deployments?

- Preliminary impact results from ERA-Interim

Surface pressure observations are the most impacting, per datum

Among these, the AtlantOS drifters are above the norm (because they observe regions with few other Sfc.P obs around)



For most observing systems, each individual datum has a low impact

Analysis sensitivity to individual observation  
Computed from ERA-Interim 1st day of the month Jan-May 2016

Paul Poli  
Météo-France (CMM)  
2016

## Environmental responsibility

### #1 question from outsiders when they hear about drifting buoys

Important element when engaging with shipping companies for deployments etc...

### Recovery and refurbishment whenever possible

For about 2 years, drifting buoys are recovered (generally without drogue) by CMM (MF) or other European NWS.

If buoy is undamaged, batteries are refurbished and drifter is:

- redeployed,
- used as « deck-drifter » on opportunity ships,
- used as training tool for capacity building

CMM : 15 (7 re-deployed onboard ship)

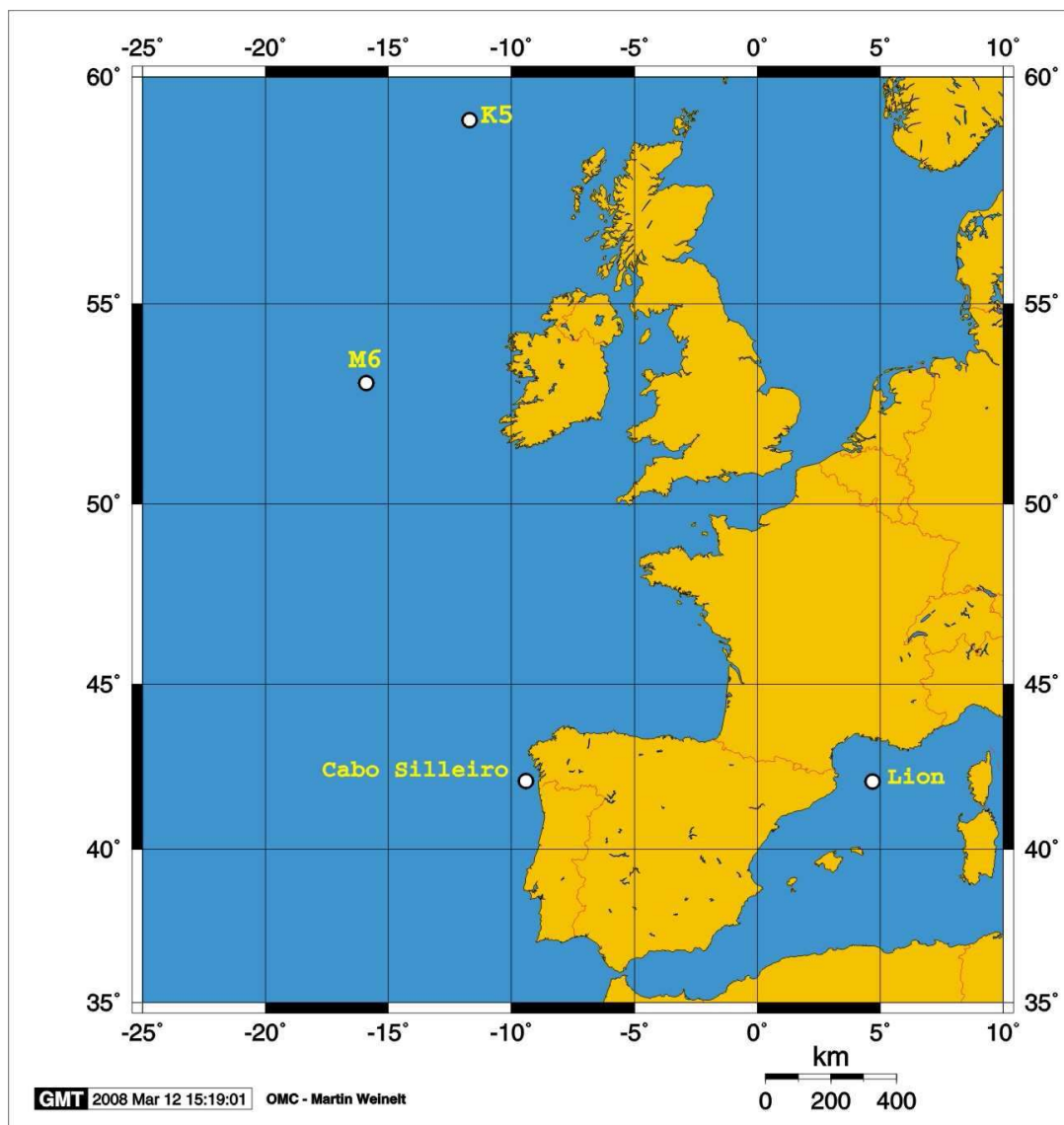
Norway : 2

Iceland : 3



# E-SURFMAR Moored Buoys

- K5 operated by the Met Office
- M6 operated by IMI and Met Eireann
- Cabo Silleiro operated by Puertos del Estado
- Lion operated by Meteo-France

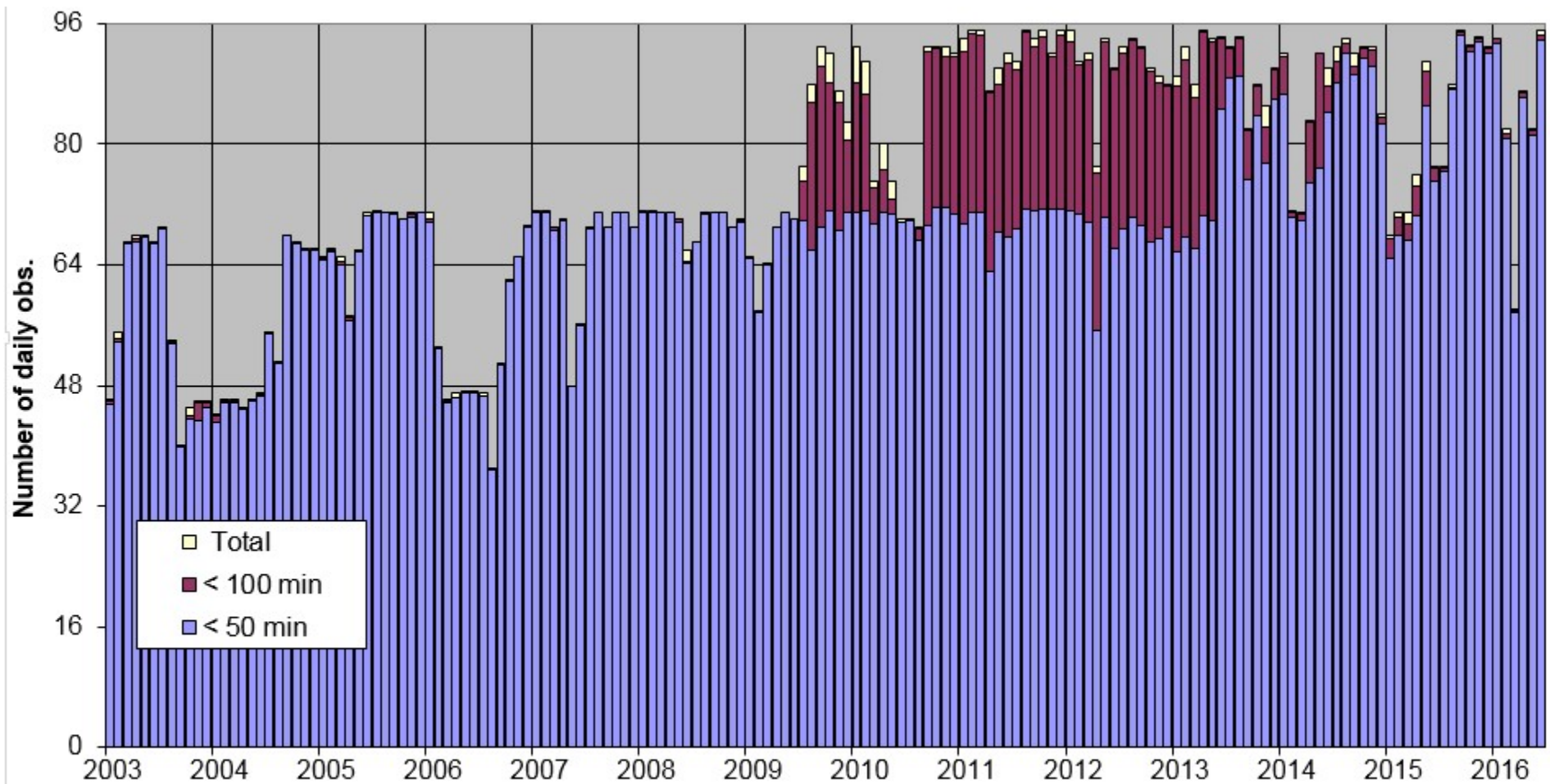


## E-SURFMAR Moored Buoys

WMO	Name	Type	Country	GTS reports
<b>6400045</b>	K5	K-pattern	UK	FM-13 SHIP FM- 94 BUFR ( <i>TM308009</i> )
<b>6200095</b>	M6	K-pattern	Ireland	FM-94 BUFR ( <i>TM308009</i> )
<b>6200084</b>	Cabo Silleiro	SeaWatch	Spain	FM-94 BUFR (old template)
<b>6100002</b>	Lion	K-pattern	France	FM-94 BUFR ( <i>TM315008</i> )



## Moored Buoys data availability (E-SURFMAR)



## Data buoys reporting


- Monthly report
- Annual report
- Working area of the E-SURFMAR website based on mediawiki, every participant to the programme can easily collaborate on its content

<http://esurfmar.meteo.fr/>

- Public website


<http://www.eumetnet.eu/>



# Data Quality Control Tools



## MARINE OBSERVATION MONITORING

### Quality Control Tools



	Monthly Statistics	Blacklists	Daily Data plots	Other Tools
<div style="text-align: center;">  <p><b>Data Buoy</b></p> </div> <div style="text-align: center;">  <p><b>VOS Ships</b></p> </div>	<p>Buoys and VOS monthly statistics</p> <p style="background-color: #f08080; color: white; padding: 5px;">Statistics of comparisons with models outputs established by different meteorological centres. Enter the parameter and the station(s) you wish.</p>	<p>BUOYS Blacklists Synthesis BUOYS Pressure ( Global ) BUOYS Pressure ( Surfmar ) BUOYS Pressure ( MF ) BUOYS SST ( Global ) BUOYS Positions ( Global ) BUOYS Ashore ( Global ) Some explanations here</p> <p>VOS Pressure ( Global ) VOS Pressure ( Surfmar ) VOS Positions ( Global ) VOS Wind (Surfmar) VOS Unknown ( Global ) VOS Pressure ( US )</p> <p style="background-color: #808080; color: white; padding: 5px;">Blacklists (daily updated) : List of stations with dubious values for a given parameter ( wind, sst, pressure, ... ) for all stations or E-SURFMAR stations only.</p>	<p>Plots of data and differences with model outputs for BUOYS and VOS</p> <p style="background-color: #6495ed; color: white; padding: 5px;">Plots of data and plots of differences with some model outputs (QC plots) over the past two weeks for buoys or VOS.</p>	<p>Google Earth BUOYS map Nearest BUOYS BUOYS location on map Thermistor String BUOYS</p> <p>VOS Indiv Control Panels VOS Observation Counters VOS : European AWS VOS list VOS : European AWS RIGS list</p> <p style="background-color: #ff8c00; color: white; padding: 5px;">Location of a buoy on a map. Search for buoys close to another one or a given location. Access to Individual control panels for VOS and consult VOS observation counters.</p>

Monitoring
Metadata
Maps

Usefull Internet Links (select domain needed)

- ◆ [EUCOS Monitoring on eucos.dwd.de](#)
- ◆ [Met Office Monitoring on research.metoffice.gov.uk](#)
- ◆ [ECMWF monitoring](#)
- ◆ [EUMETSAT SAF Ocean comparisons with satellite SST on saf.met.no](#)
- ◆ [A link to send feedbacks on dubious obs to data responsables through JCOMM Quality Control Relay](#)

