ARGOS
Developments & Improvements

# System Improvements

- 1 new global receiving station (1/2 orbit) for METOP-A in Antarctica

- 8 new HRPT antennas since January 2010

- 2 production Database servers in France have been replaced by 2 new and powerful database servers

- Implementation of the new Argos location method (Kalman filtering algorithm)

- Implementation of multi-broadcast of Argos-3 commands

- Improvement of the Argos web functionalities and performances

- Improvement of the Argos data processing performances

New Global antenna for Metop
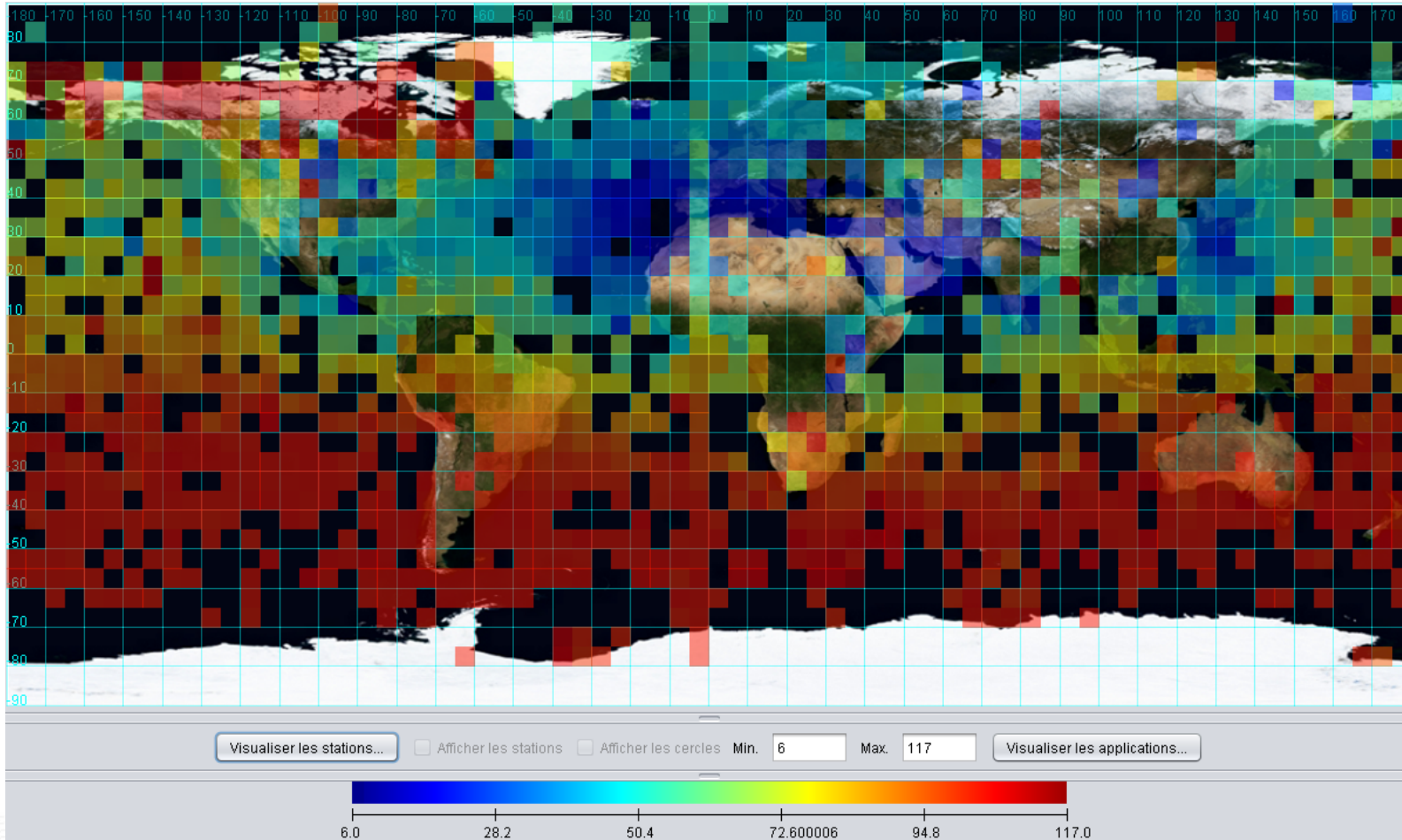
Reduced timeliness for MetOp Data
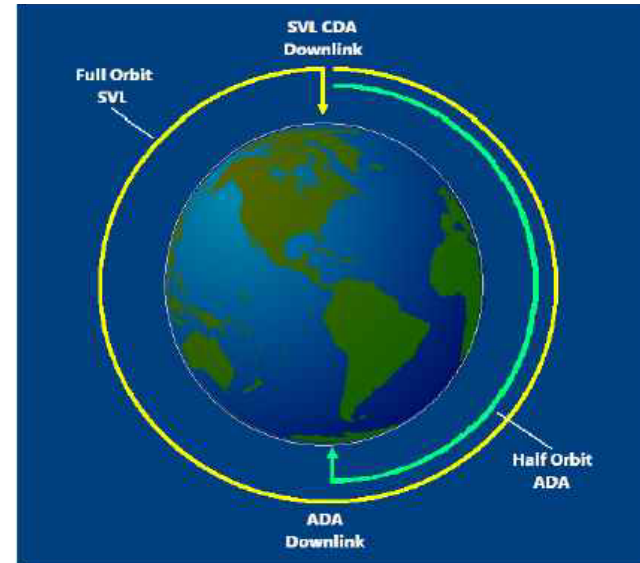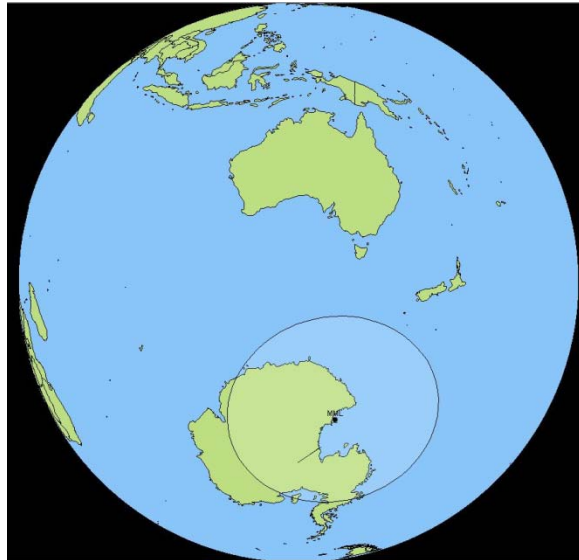
New global MetOp A station at McMurdo / Antarctica (1/2 orbits) since 08/06/2011. Timeliness for data collected in the view of this antenna has improved from 115 to 65 minutes.

METOP-A Data
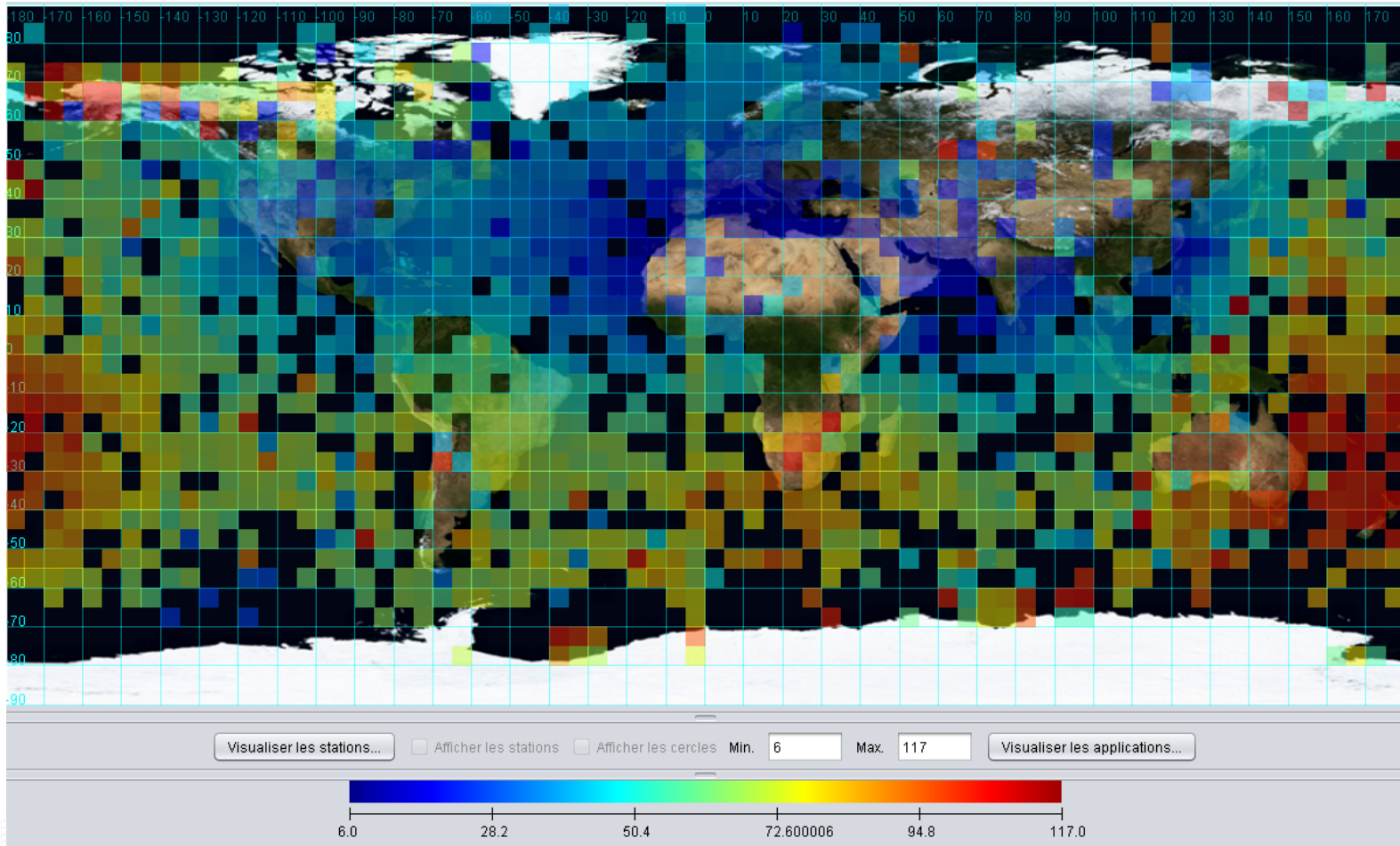## Mean Disposal Time before (mn)

Real-time receiving stations network

A robust system that uses 60 stations

DBCP request : Better coverage of the Indian Ocean as well as South Atlantic

METOP-A Data
Mean Disposal Time after (mn)

ARGOS ground stations network upgrade

| Steps			
	1	System design studies and engineering	Done
	2	NOAA/METOP/SARAL receiver development	Done
	3	Upgrade of 3 CLS stations	Done
	4	Upgrade of 9 non-CLS stations	In progress (4/9
	5	Procurement and installation of two new ground stations	2012

2011 : Lima, Hatoyama, Lannion, La Reunion, Monterey, Miami, ~~Bali~~

To be done in 2012:

- ✓ Resolute Bay, Oman, Athens, Las Palmas , Papeete,
- ✓ Davis, Cap Ferguson, Wellington
- ✓ 2 new ground stations: Cape Town & Ascension Island

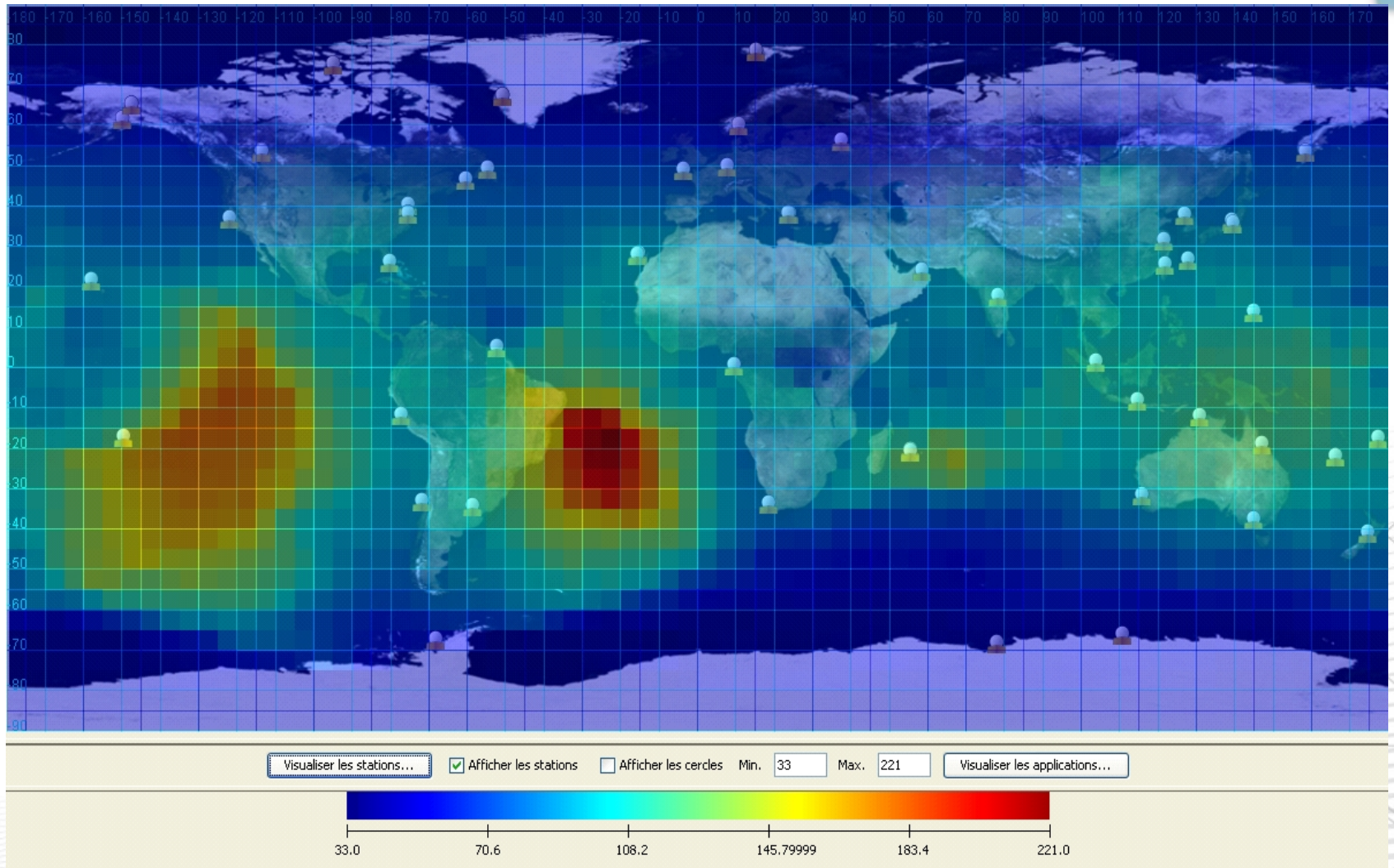# ARGOS ground stations network upgrade
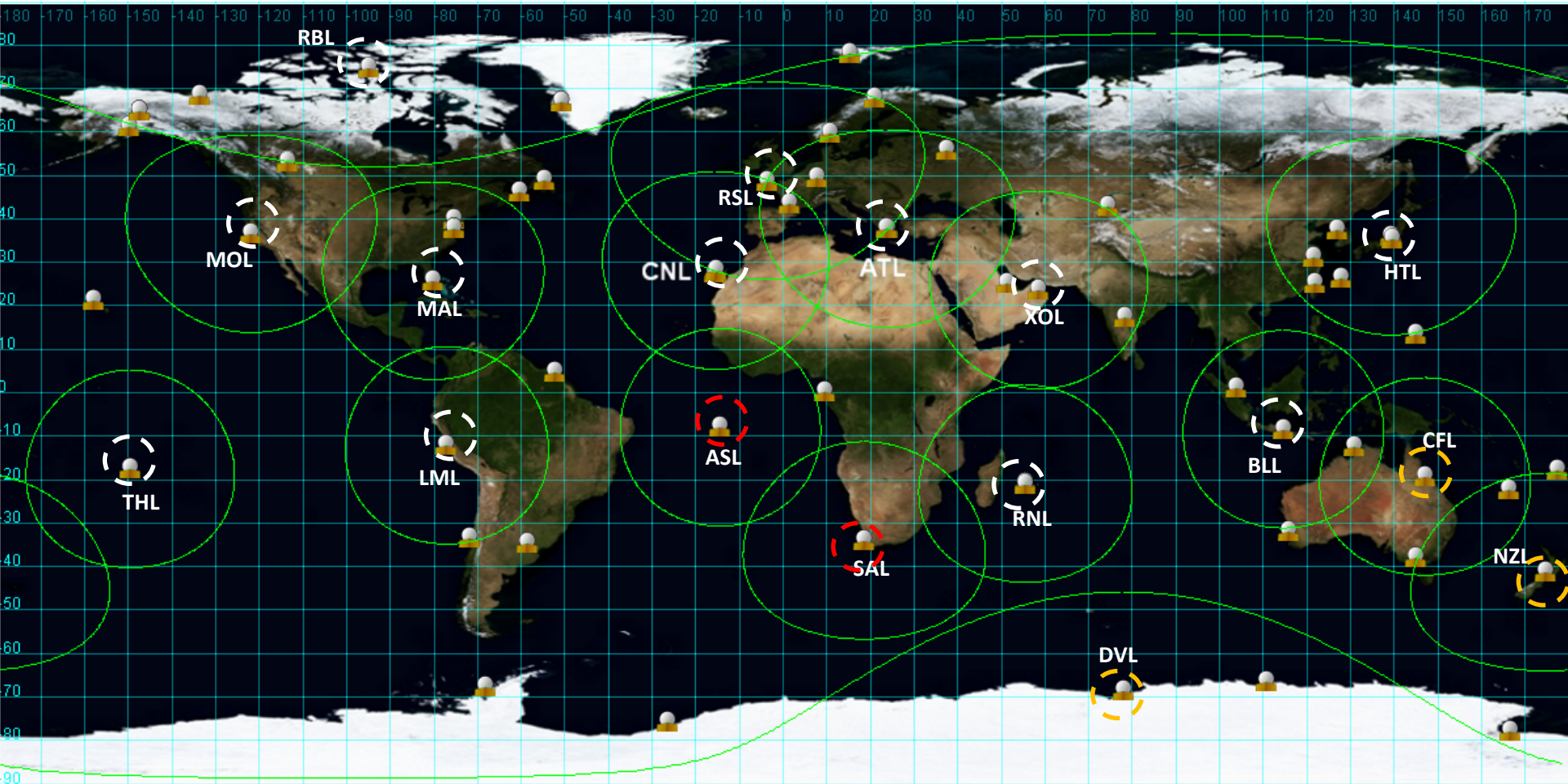
Legend:
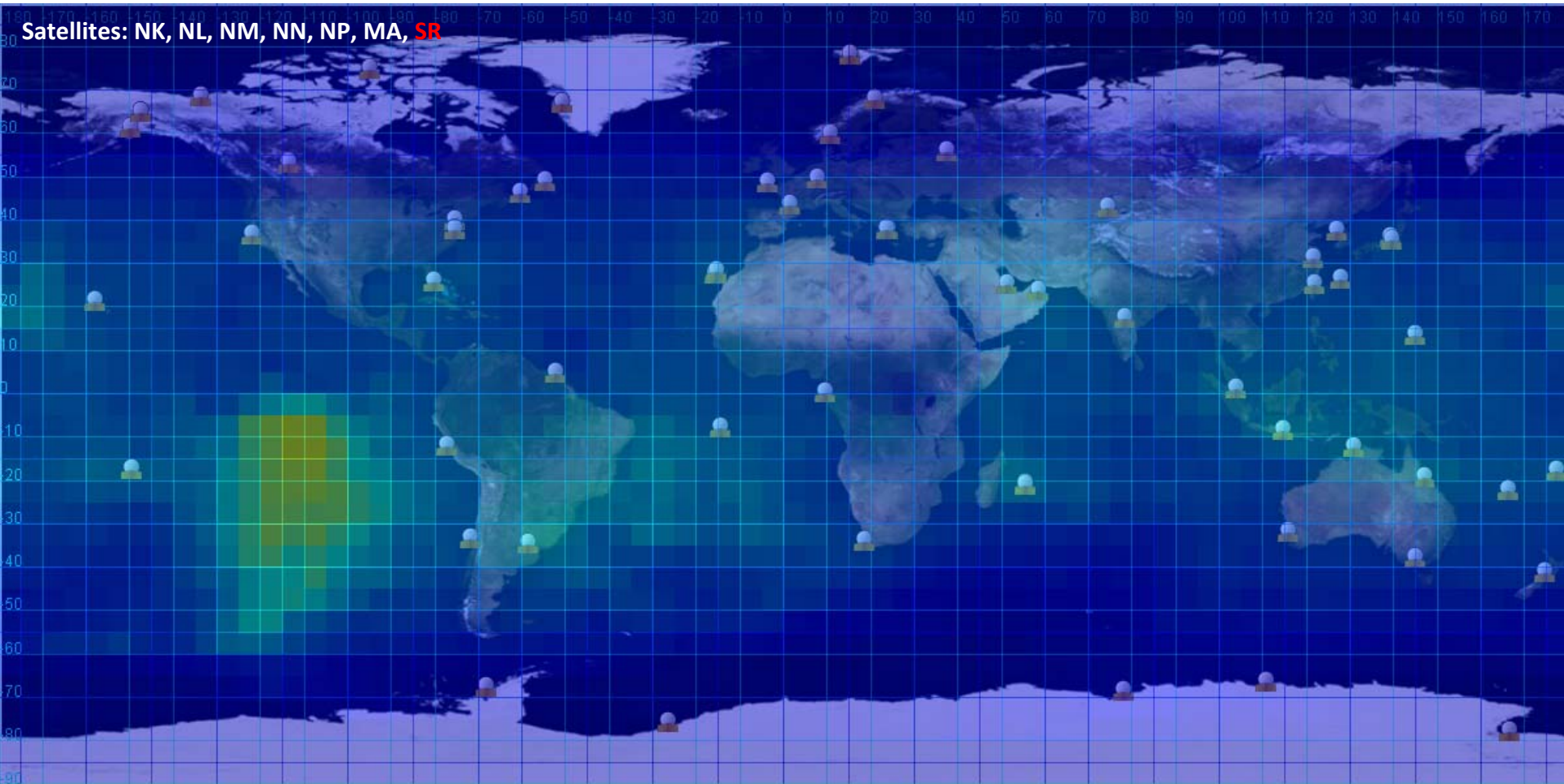- Existing stations (Upgrade CLS)
- New Station (2)
- ES&S / New Zealand and Australian stations

http://www.cls.fr

GLOBAL Data time availability (in minutes) with the current Argos real-time network

GLOBAL Data time availability (in minutes) with the Argos real-time network upgraded

Satellites: NK, NL, NM, NN, NP, MA, SR

HRPT transmission on MetOp-A

Ascending
Passes

Descending
Passes

Pmt 42758
Sept. 2010 to au July 2011
Nb observations per day
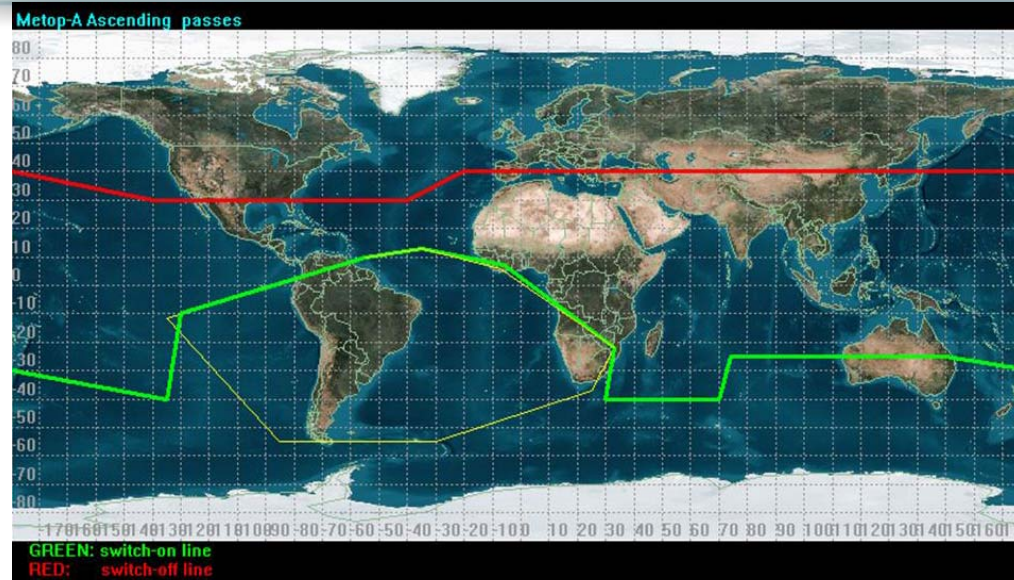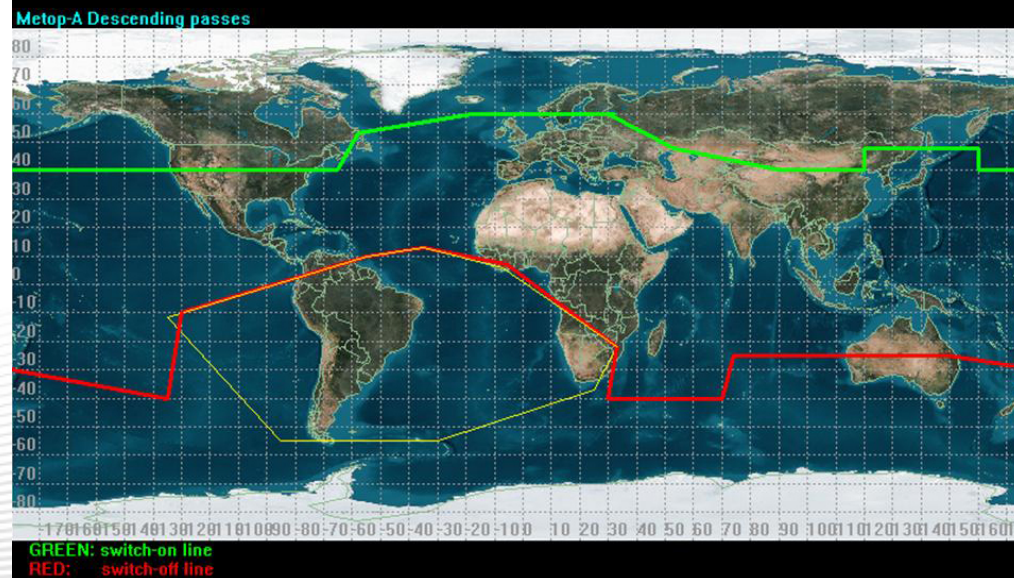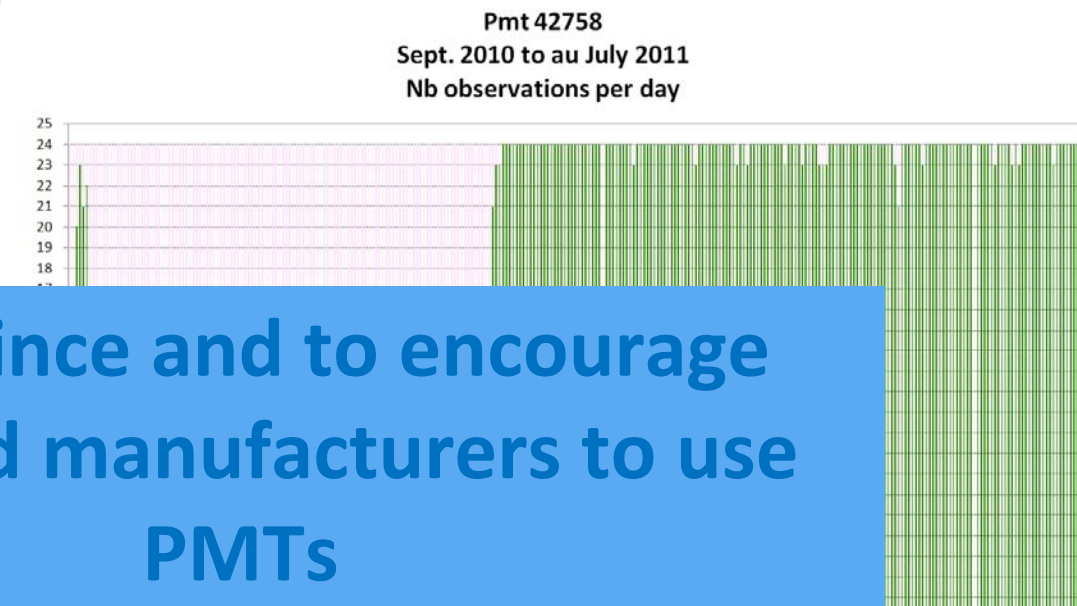
To convince and to encourage users and manufacturers to use PMTs and Argos-3 functionalities

New location processing

Max speed
(setting)

Received Doppler
Frequencies
(at least 1)

Max possible
speed

Previous set of
positions

Processing

QC
Using: speed, Tx
Frequency,..

Position

Class locations with new processing
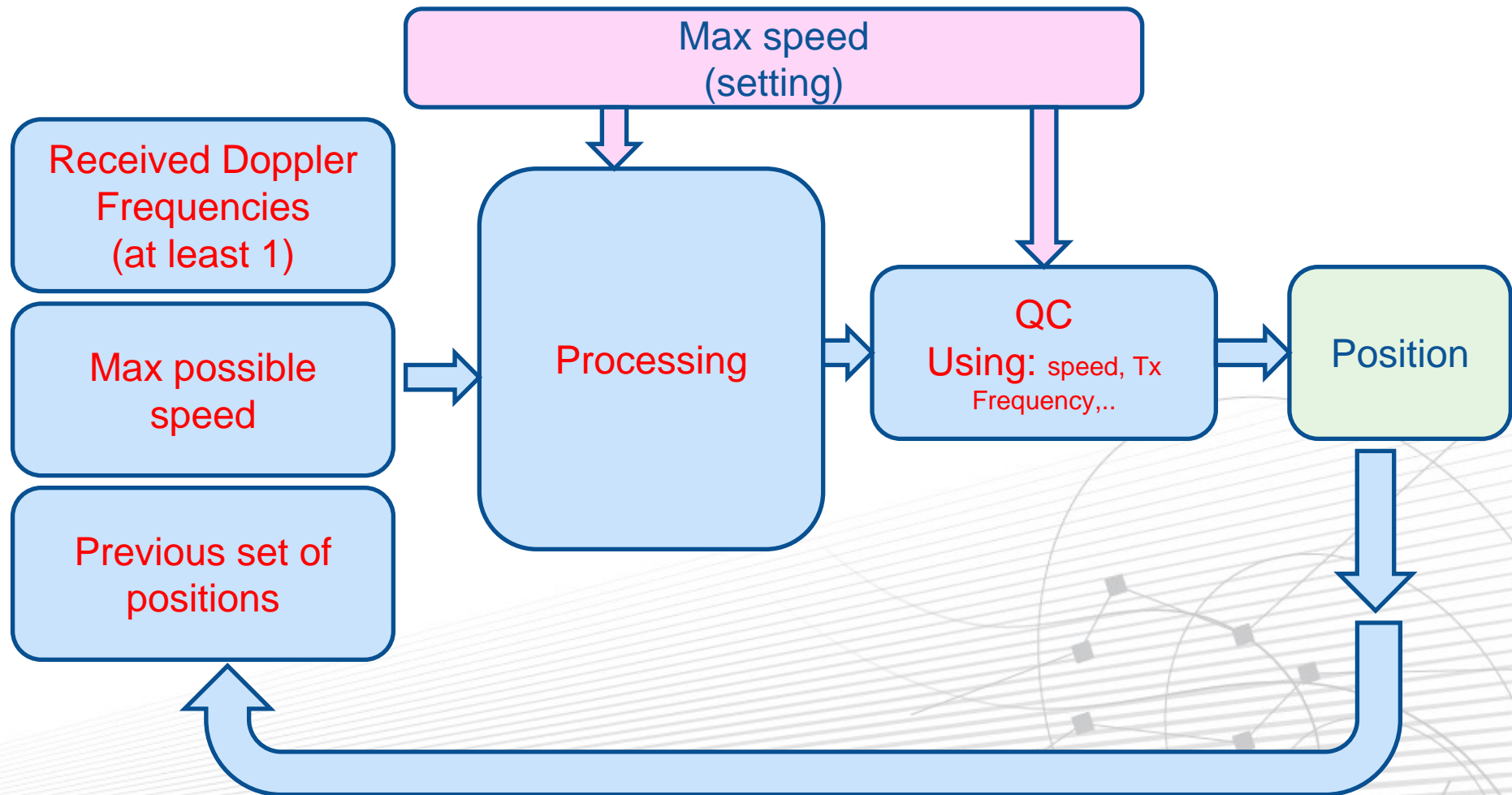
Class	Nb of received messages	Error Estimation (m)
3	At least 4	<250
2		250 - 500
1		500 - 1500
0		>1500
A	3	*YES (*)*
B	*1 or 2*	*YES (*)*

Classe	
Z	Invalid Positions

(*) Could be better than Class 0

Better position accuracy

Gain on **Median** (position obtained from a GPS receiver)

Applications	4 messages and over	2 et 3 messages
Birds	0 %	40-45 %
Land Animals	2-6 %	60-65 %
Marine Animals	10-15 %	10-50 %
Boats	15-20 %	40-50 %
Drifters	13 %	50 %

Gain on **95 % centile** (position obtained from a GPS receiver)

Applications	4 messages and over	2 et 3 messages
Birds	4-15 %	40-70 %
Land Animals	0-25 %	80-90 %
Marine Animals	75 %	45-75 %
Boats	30-35 %	40-70 %
Drifters	26 %	84 %

Processing performances
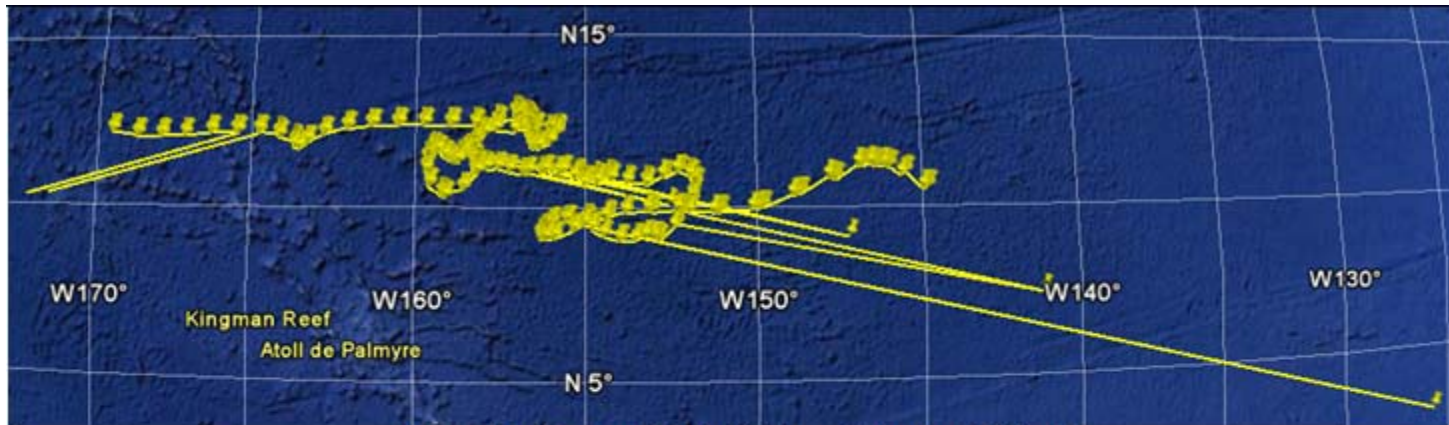
Argos track computed with Least Square Method
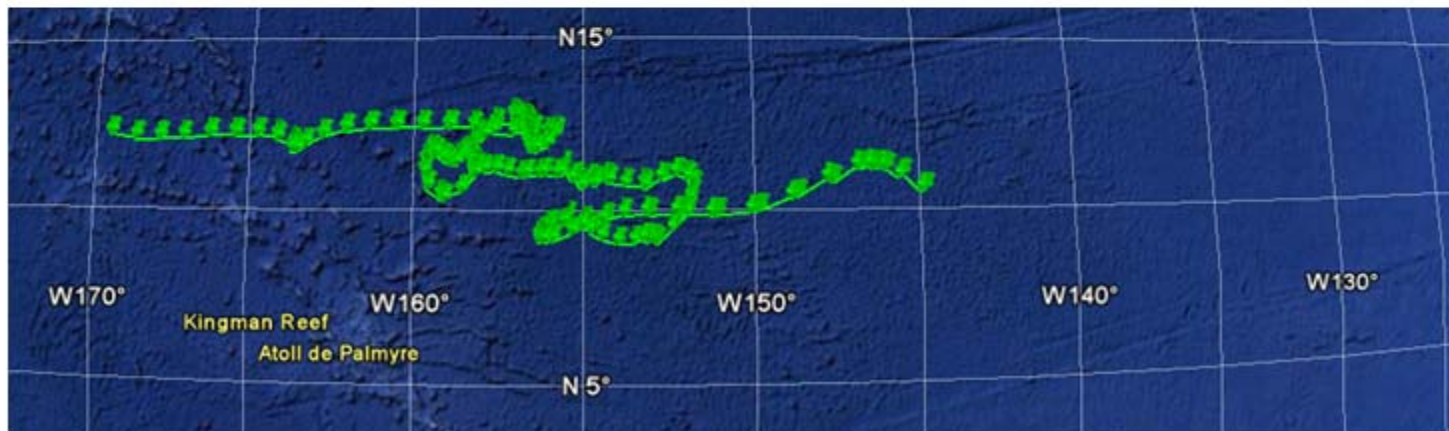
Argos track computed with Kalman Filtering Method

- On June 1st 2011 CLS switched all drifters on this new Kalman process

Web improvements

Improvement of the Argos web functionalities and performances.

- Access of the Argos web through a PDA or a smart phone,

- Creation or renewal of a SUA,

- Request for new Id numbers,

- Consultation of the most recent observation,

- Filter option to get correct checksum only,

- Display of locations of the observations.

More improvements

- Multi-broadcast of Argos-3 commands

- Processing centre upgrades for Saral

- Monitoring of the satellites housekeeping telemetry

- Improvement of the Argos data processing performances: HK, TM processing &value added processing.

- Pay bills online

- BUFR coding for SYNOP observations is in validation. Deadline = end of 2011.

- CLS will implement of the latest BUFR version (V.4) for all platform-templates in the Argos-GTS processing centre. Deadline = end of 2011..