

Parc de planeurs sous-marins

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***Division Technique de l'INSU**

****IFREMER**

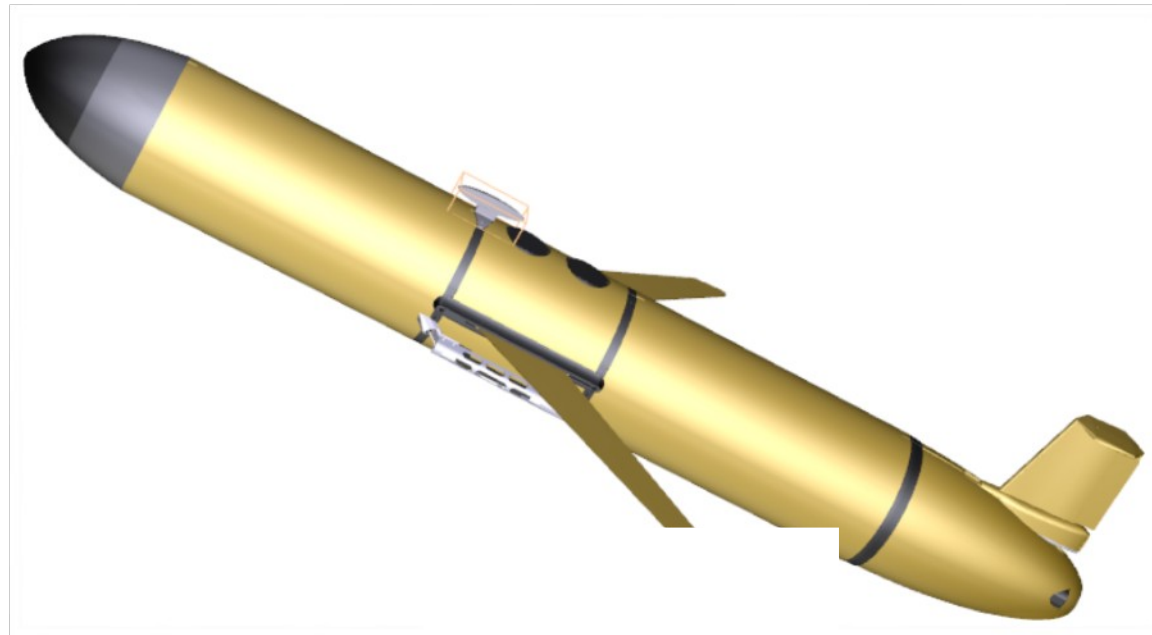


Image réalisée par Karim Mahiouz (DT INSU)



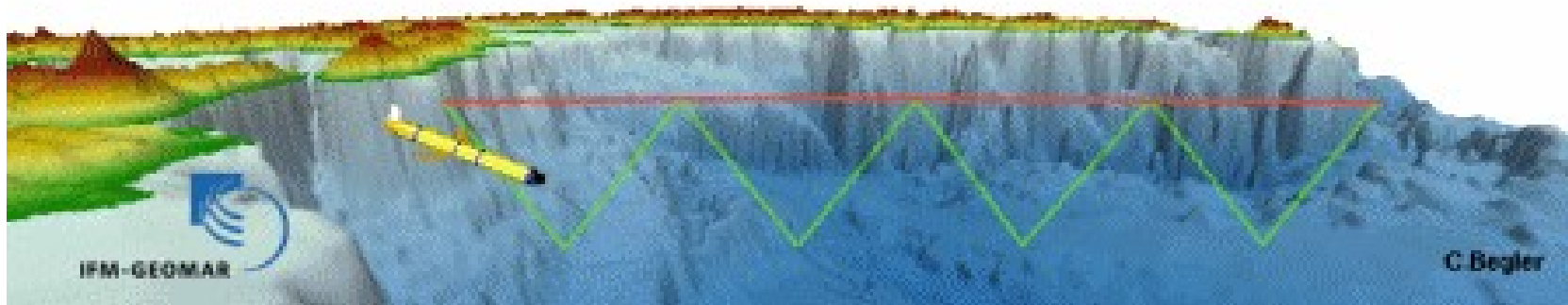
Division Technique de l'INSU

- Unité propre de service du CNRS
- 3 sites : Brest, La Seyne sur Mer et Meudon
- 60 ITA, 60 marins
- Missions principales :
 - Maîtrise d'œuvre et réalisation d'instruments scientifiques
 - Mise en œuvre opérationnelle de moyens nationaux (navires, planeurs sous-marins, parc océanographique côtier, parc géophysique mobile, ...)
 - Contributions à la réalisation de projets techniques pour les laboratoires

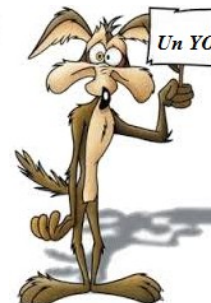
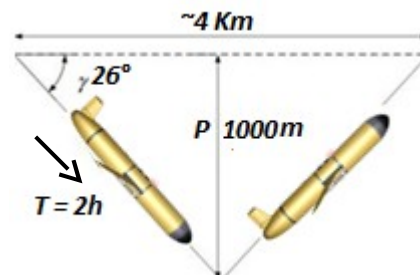
Les planeurs



4 types de planeurs : **Slocum**, **Seaglider**, **Spray** et SeaExplorer

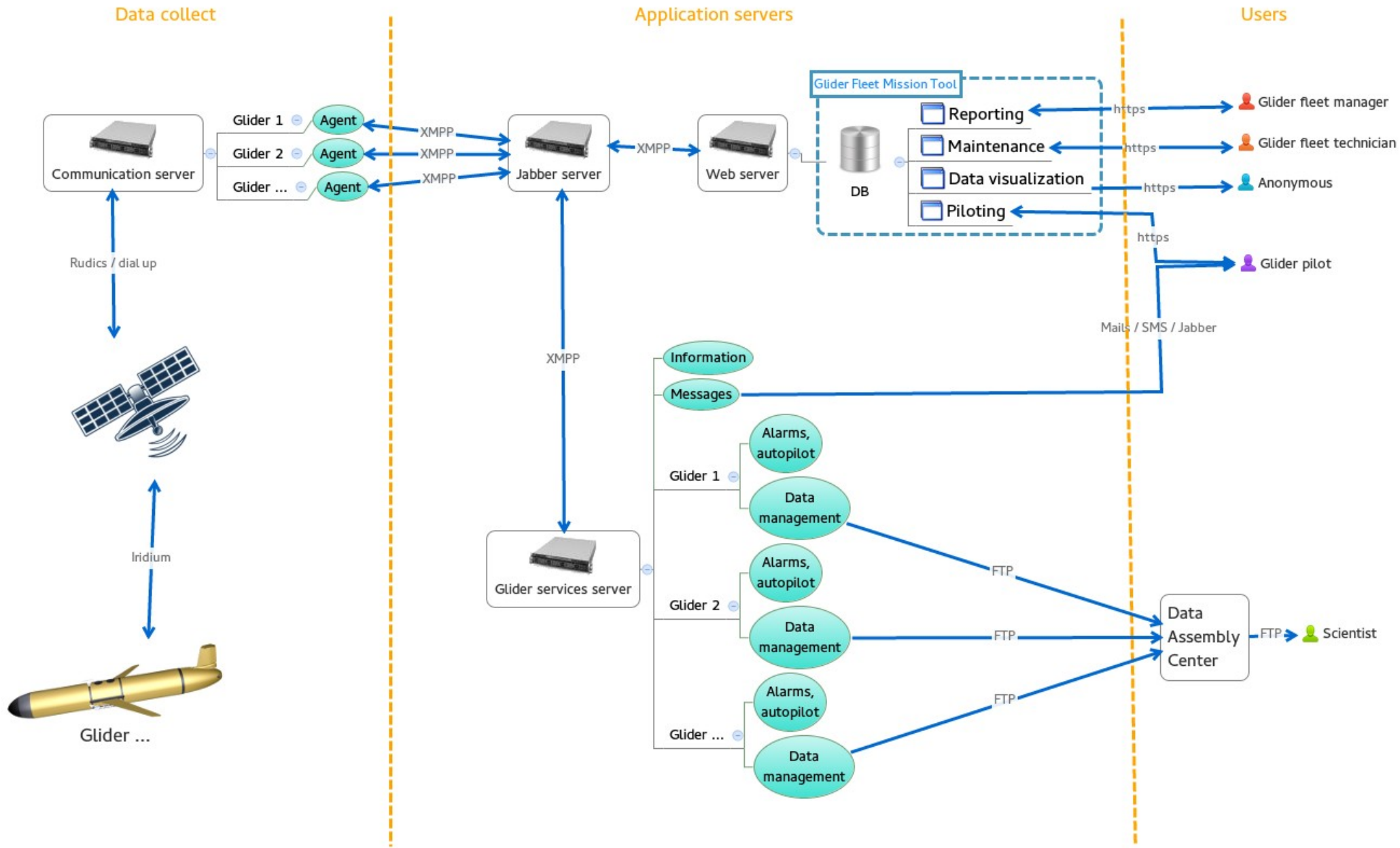


Vitesse 25km / jour



Autonomie 2 à 6 mois

Architecture informatique (1)



Architecture informatique (2)

- Site principal : Cloud sécurisé du CNRS (migration terminée en août 2016) :
 - Serveur Jabber (VM Centos 7 + Openfire)
 - Serveur de communication (VM Centos 7 + logiciel constructeur Java)
 - Serveur de traitement des données (VM Centos 7 + Matlab)
 - Serveur web et base de données (VM Centos 7 + Apache + MySQL)
 - Serveur VPN (VM Centos 7 + OpenVPN)
- Site secondaire pour la communication par satellite : TELEDYNE WEBB RESEARCH (Slocum)
- Utilisateurs du système : Le parc et quelques extérieurs (Espagne, Canada, Chypre)
- Données transmises en temps réel au centre de données CORIOLIS
- Logiciels développés (essentiellement pour le Slocum et le Seaglider) :
 - Pilotage (PHP)
 - Maintenance des engins (PHP) => métadonnées (Python)
 - Monitoring et pilotage automatique (Python)
 - Traitement des données (Matlab)

Procédure de traitement des données EGO

- 3 modes de données : temps réelles, hautes fréquences et différées
- Structure :
 - Principal Investigator (PI)
 - Data Assembly Center (DAC)
 - Global Data Assembly Center (GDAC)
- Format NetCDF (CF standard) décrit dans <http://dx.doi.org/10.13155/34980>
- Données temps réelles publiques
- Fichiers de métadonnées au format Json (1 pour décrire le déploiement et 1 pour chaque capteur)

Pilotage

The image displays the 'Crate' web interface, a control system for gliders. The main interface is divided into several sections:

- Home**: Welcome Gliderman, Gliderman, Logout.
- Control Panel**: Home, Control Panel, Data processing, Alarms, Auto piloting, Maintenance, Others.
- Active deployments section**: Shows opened sessions (Campe, Tintin, Qala1, Qala2, Crate, Theque, Bonpland) and a 'Save session' button.
- Glider/Deployment section**: Includes a 'Glider' dropdown (Crate), 'New glider?' button, 'Deployment' dropdown (Matugli01), 'New deployment?' button, and buttons for 'Reset', 'Command', 'SetMissionFile', and 'Clean MATLAB'.
- Missions**: Includes a 'Missions' dropdown (ego2016.mi), '-select an ac', 'Matfiles' dropdown (goto_l40.ma), '-select an ac', 'Config' dropdown (-Config-), '-select an ac', and 'Sciconfig' dropdown (tbdlist.dat), '-select an ac'.
- Info/Plot section**: Includes 'Info' dropdown (-Info-), '-select an ac', 'Cfg' dropdown (-Cfg-), '-select an ac', and 'To-glider' dropdown (-To-glider-), '-select an ac'.
- Utility section**: Includes 'Glider status', 'Crate real time plots', 'Crate Matlab log file (auto)', 'Crate dms@dockserver | with a ssh tunnel', 'GMC Client Tools | with an ssh tunnel', and a 'Browse/Edit section'.
- Shift section**: Includes 'Person on shift' (Nobody), a list of people (Lou TISNE, Jean-Luc Fuda Cpt, Hassane BENABDELMOUMENE 2nd Cpt, Jeanne MELKONIAN, Karim Bernardet), and a 'Logbook' button.
- Gliders Deployments**: Includes a list of gliders (+ MED-Eastern observatory, + MED-Western observatory, + ATL-Tropical observatory).

Two browser windows are also visible:

- Missions/Mafles/Config files editor - Mozilla Firefox**: Shows the 'Glider: Crate', 'Deployment: Matugli01', 'Type: mafles', and 'File: goto_l40.ma'. It includes a 'Save' button and a 'Cancel' button.
- Utility section**: Shows the 'Glider status' and 'Browse/Edit section'.

Maintenance

back to GCP	Home	Equipment	Assembly	Maintenance	Status	Documents
Welcome Karin Bernhardt		Home > Equipment > View				
Logout		View details of a Glider : Slocum 1800m				
Spare		Name : Campe WHO : 58970 Serial : 175				
Shipped out		Owner : DT #ISU Provider : Teledyne Webb research (purchase date : 2011-12-14 - price : 0 €) Current status : Not prepared! Nothing to declare ❌ Current firmware version : 7.9				
Relative documents						
Actions						
Add or change firmware version Add a maintenance operation Change Status Add a relative document						
Equipment's composition						
Change composition date to: 2016-08-16						
Equipment's composition the 2016-08-16						
<ul style="list-style-type: none"> • fore : (176_Fore) ❌ <ul style="list-style-type: none"> ◦ Buoyancy_Pump Assy : 196 ◦ Fwd_Air_Pump : 128 ◦ Hull : 176_11 ◦ Motor_Controller : 131 ◦ Pitch_Motor : 129 ◦ Pump_Assy : 048 ◦ Valve_Assy : 126 ◦ Altimeter : 2043023 • extra_batt : 007 (extra_batt 007) • aft : (176_Aft) <ul style="list-style-type: none"> ◦ AR_Cap_Assy : 055 ◦ AR_Tray_Assy : 159 ◦ Air_Blaster : 120 ◦ Air_Pump : 167 ◦ Attitude : 25581 ◦ Flashcard : 23138 ◦ Freewave_Slave : 8748412 ◦ GPS : 113100410m 						
Glider's status						
Bonpland Campe Confi Crate Eudoxus Himelicon Mitou Mxiu Tenuse Theque Turtin Walls						

back to GFCP

Home

Equipment

Assembly

Maintenance

Status

Documents

Welcome
Karim Bernadet

logout

Home > Maintenance

Add a maintenance operation

Spare

Shipped out

Browse maintenance history

Filtered search

By equipment type

By equipment subtype

By operation

or by serial

Search

0 to 20 of 556

Type	Subtype	Serial	Name	Operation	Date	Action
Glider	Slocum	173	Tenuse	Ship in	2018-08-01 11:01:36	View details
Glider	Slocum	176	Campe	Compact flash backup	2018-07-12 11:07:50	View details
Glider	Slocum	176	Campe	Compact flash backup	2018-07-12 10:36:50	View details
Glider	Slocum	142	Borpland	Compact flash backup	2018-07-11 17:11:07	View details
Glider	Slocum	142	Borpland	Compact flash backup	2018-07-11 17:04:54	View details
Glider	Slocum	124	Tintin	Compact flash backup	2018-07-06 16:49:08	View details
Glider	Slocum	142	Borpland	Ship in	2018-07-06 14:02:05	View details
Glider	Slocum	245	Crate	Soft up	2018-06-28 17:10:31	View details
Glider	Slocum	246	Theque	Soft up	2018-06-28 17:09:46	View details
Sci sensor	fbbsdcsl	4121		Calibration	2018-06-28 17:08:51	View details
Glider	Slocum	246	Theque	Ship in	2018-06-10 10:40:28	View details
Glider	Slocum	124	Tintin	Compact flash backup	2018-04-11 15:15:20	View details
Sci sensor	fbbsdcsl	3818		Calibration	2018-03-31 09:34:11	View details
Glider	Slocum	142	Borpland	Ballasting	2018-02-15 16:03:06	View details
Glider	Slocum	176	Campe	Ballasting	2018-02-03 10:40:41	View details
Block	fore	142_Fore		Report an anomaly	2018-01-26 15:38:32	View details
Glider	Slocum	246	Theque	Ship out	2018-01-15 09:52:01	View details
Glider	Slocum	124	Tintin	Ballasting	2015-12-18 16:47:29	View details
Glider	Slocum	176	Campe	Compact flash backup	2015-12-16 14:45:03	View details
Glider	Slocum	124	Tintin	Ballasting	2015-12-10 16:14:38	View details

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Borpland

Campe

Conti

Crate

Eudoxus

Himilton

Milou

Tenuse

Theque

Tintin

Wallis

VSC 2018

SCIENCE DATA

VSC 08

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Welcome

Karin Bernadet

 Logout

Spare

Shipped out

Message board

 Add a message

View erased messages

Warnings

Deployment planning

 Add an event
  Add a mission
  Deployment reporting

To edit or erase an event, just click on the planning.

◀ Today ▶

Day view / Week view

2016	06 Aug	07 Aug	08 Aug	09 Aug	10 Aug	11 Aug	12 Aug	13 Aug	14 Aug	15 Aug	16 Aug	17 Aug	18 Aug	19 Aug	20 Aug	21 Aug	22 Aug	23 Aug	24 Aug	25 Aug	26 Aug
Bonpland																					
Campe																					
Conti																					
Crate																					
Eudoxus																					
Hamilton																					
Milou																					
Tenuse																					
Theque																					
Timin																					
Walls																					

Trenat

Not prepared/Nothing to declare

Preparation

Prepared

Tested at sea

At sea

Lost

Recovered

Broken

Gone broken

Broken at sea

Glider's status



 Bonpland



 Campe



 Conti



 Crate



 Eudoxus



 Hamilton



 Milou



 Tenuse



 Theque



 Timin



 Walls




[View information](#)

back to GFCP Home Equipment Assembly Maintenance Status Documents

Welcome
Eloise Godinot
login

Home > Deployment reporting

Deployment reporting

Spare Start report date End report date Go

Shipped out

Gliders status

- ☐ Benpland
- ☒ Campe
- ☐ Carli
- ☐ Crate
- ☒ Eudoux
- ☒ Himilcon
- ☒ Mlou
- ☐ Tenuse
- ☐ Theque
- ☐ Thio
- ☐ Tintin
- ☒ Walls

All gliders deployment reporting 2012-01-01 to 2012-12-31

Status	Percentage
Transit	7.28 %
Broken at sea	0.28 %
Gene broken	4.29 %
Broken	25.86 %
Recovered	11.89 %
Lost	0.00 %
At sea	12.20 %
Tested at sea	0.00 %
Prepared	11.30 %
Preparation	10.05 %
Not prepared/thing to declare	8.35 %

Highcharts.com

Deployment reporting 2012-01-01 to 2012-12-31

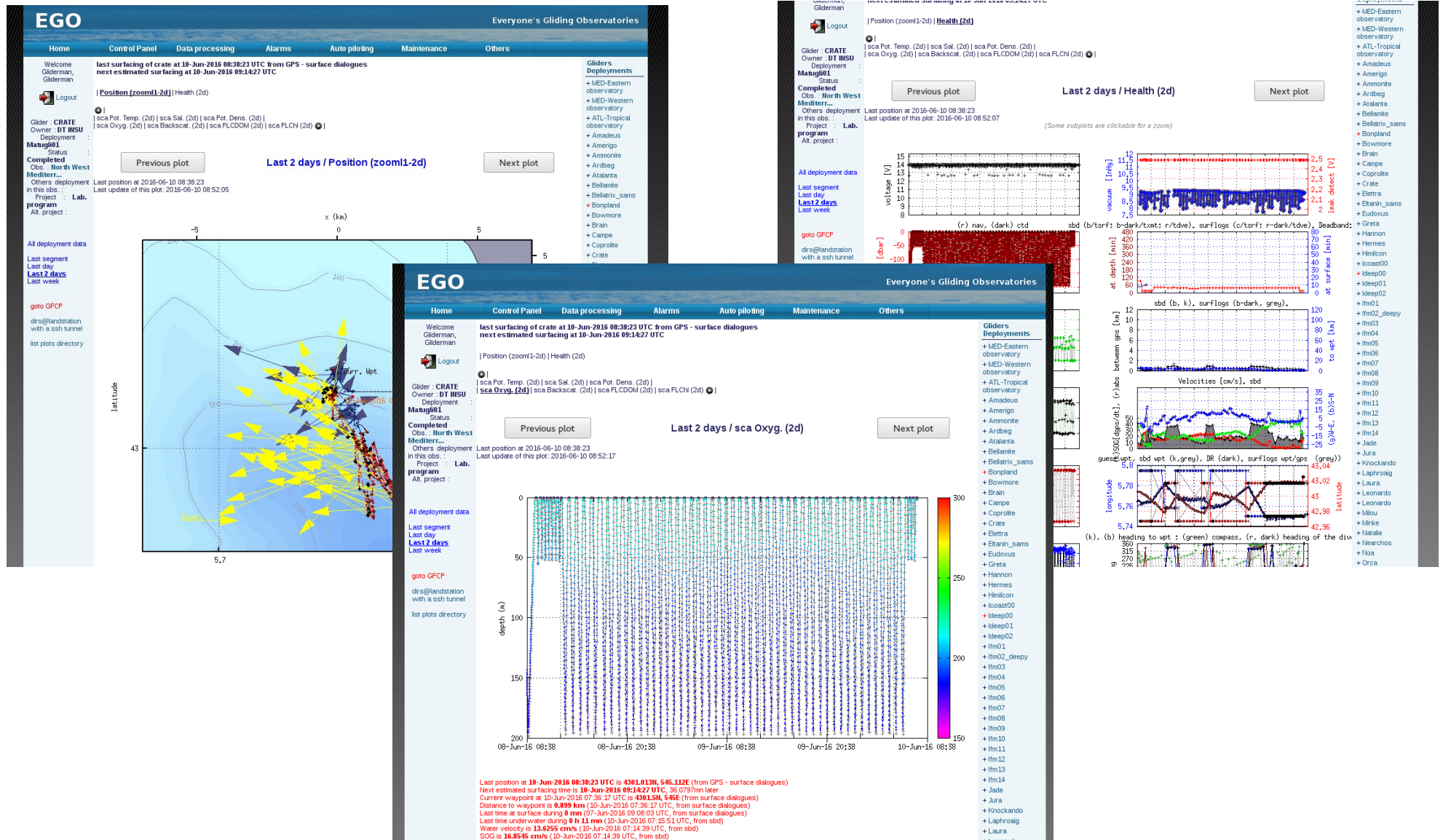
Days

Baker Benpland Campe Carli Crate Eudoux Harcon Hericon Mlou Tenuse Theque Tintin Walls

☐ Transit ☐ Not prepared/thing to declare ☐ Preparation ☐ Prepared ☐ Tested at sea ☐ At sea ☐ Lost
☐ Excetvent ☐ Gene broken ☐ Broken at sea

6 29-30 septeml

Traitement des données



Évolutions

- Refonte de la plateforme
- Possibilité de déployer les logiciels chez les partenaires EGO
- Technologies à utiliser ?

