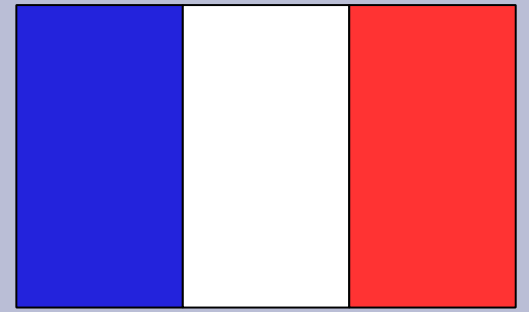


GROOM / Jerico

Review France



- Laurent Beguery / Pierre Testor

Keywords:

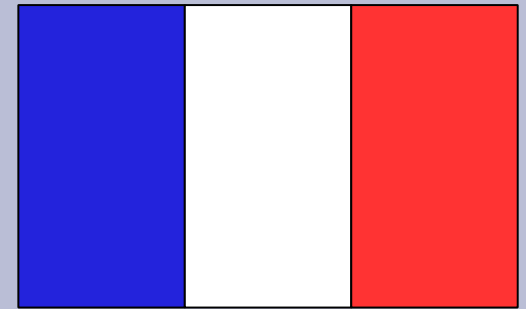
existing platforms and sensors

ballasting, repairing, pressure testing

computer infrastructures (glider
communications, data processing,...)

Calibration facilities

Coastal Ships



Research groups

CNRS:

11 instituts (including INSU)
~30000 employees
multidisciplinary research



IRD:

working in more than 40 countries
~1000 employees
working with developing countries



IFREMER:

working on 26 sites
~1300 employees
Research Institute for Exploration
of the Sea

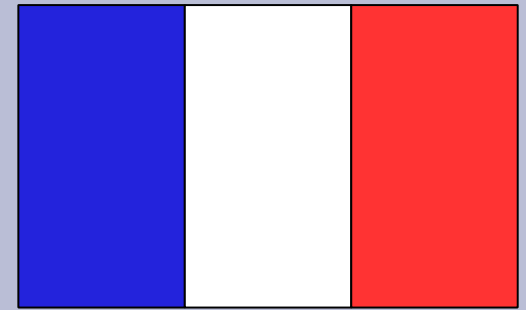


ENSTA / DGA:

Engineering school French Army
Defense ministry
6 different engineering degrees

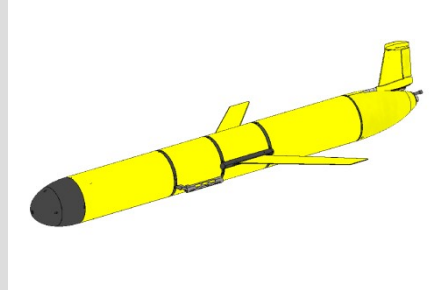


Gliders & sensors

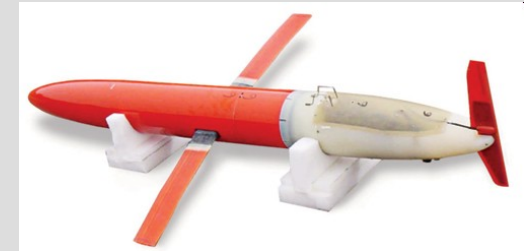


2 SG 1K (iRobot)
SN:
508 (+pump upgrade)
509

Sensors
CTD unpumped
DO (SeaBird)
Chla
Bs: 532, 880 nm



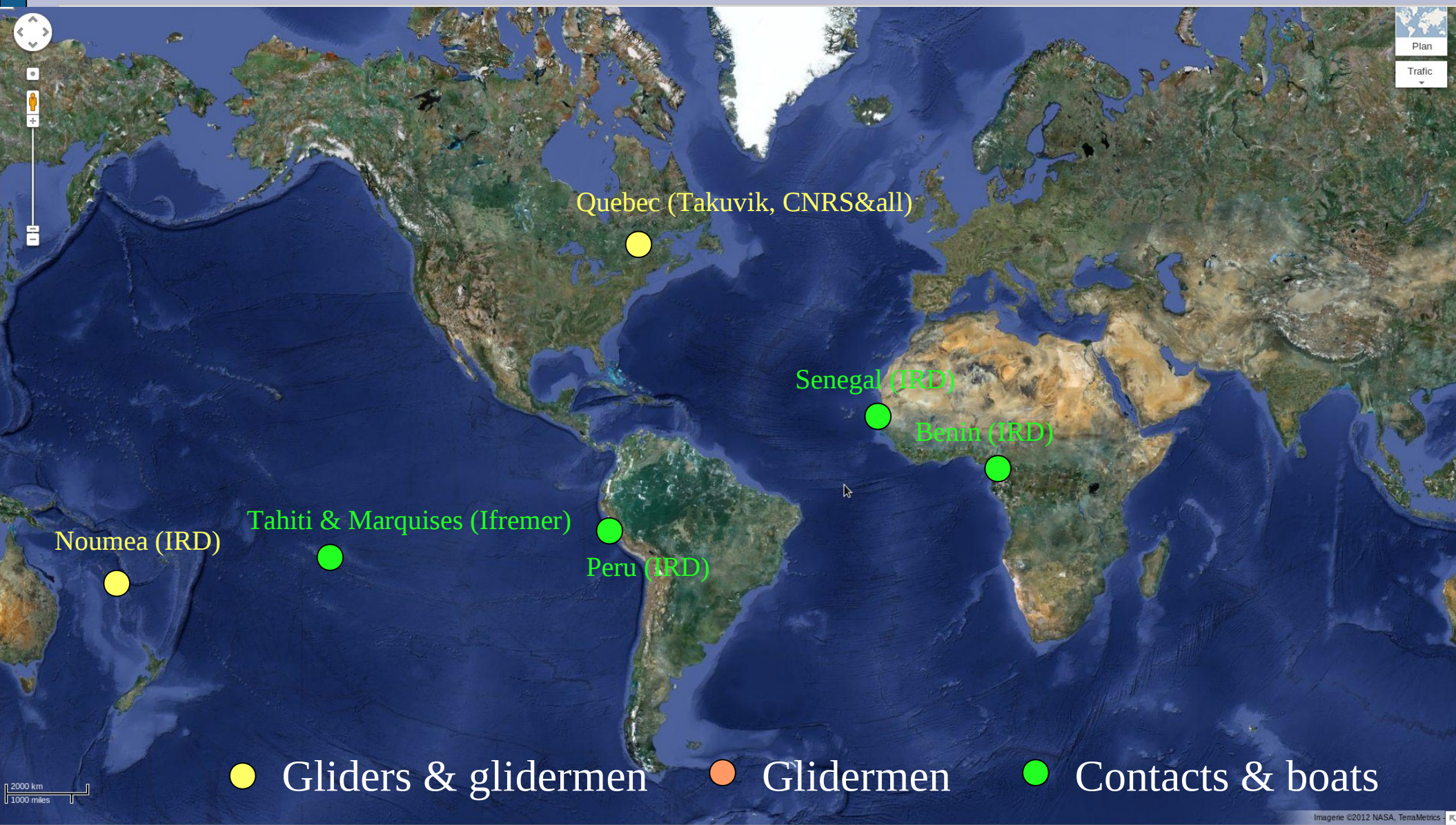
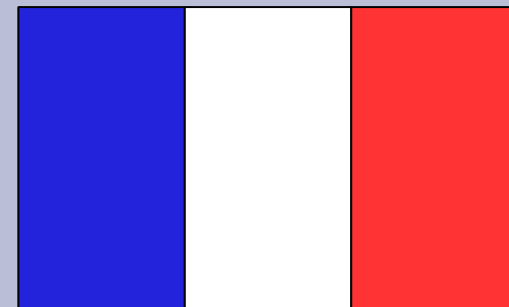
13 Slocum
(10 deep, 3 shallow)
SN:
xx, 97, 98, 127, 128,
133, 135, 136, 142,
173, 176, 245, 247
Sensors
CTD, DO
(Aanderaa), Chla,
Cdom, phyco,
Nitrate
Bs: 412, 470, 532,
650, 715, 880 nm

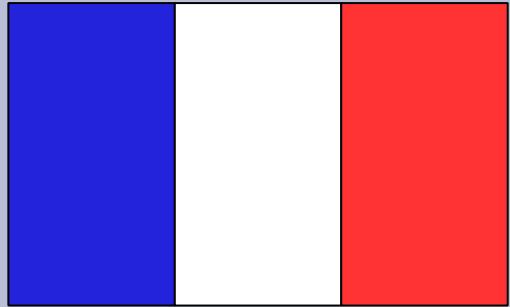


1 Spray (Blue fin)
SN: 511

Sensors
CTD
DO (SeaBird)
Chla

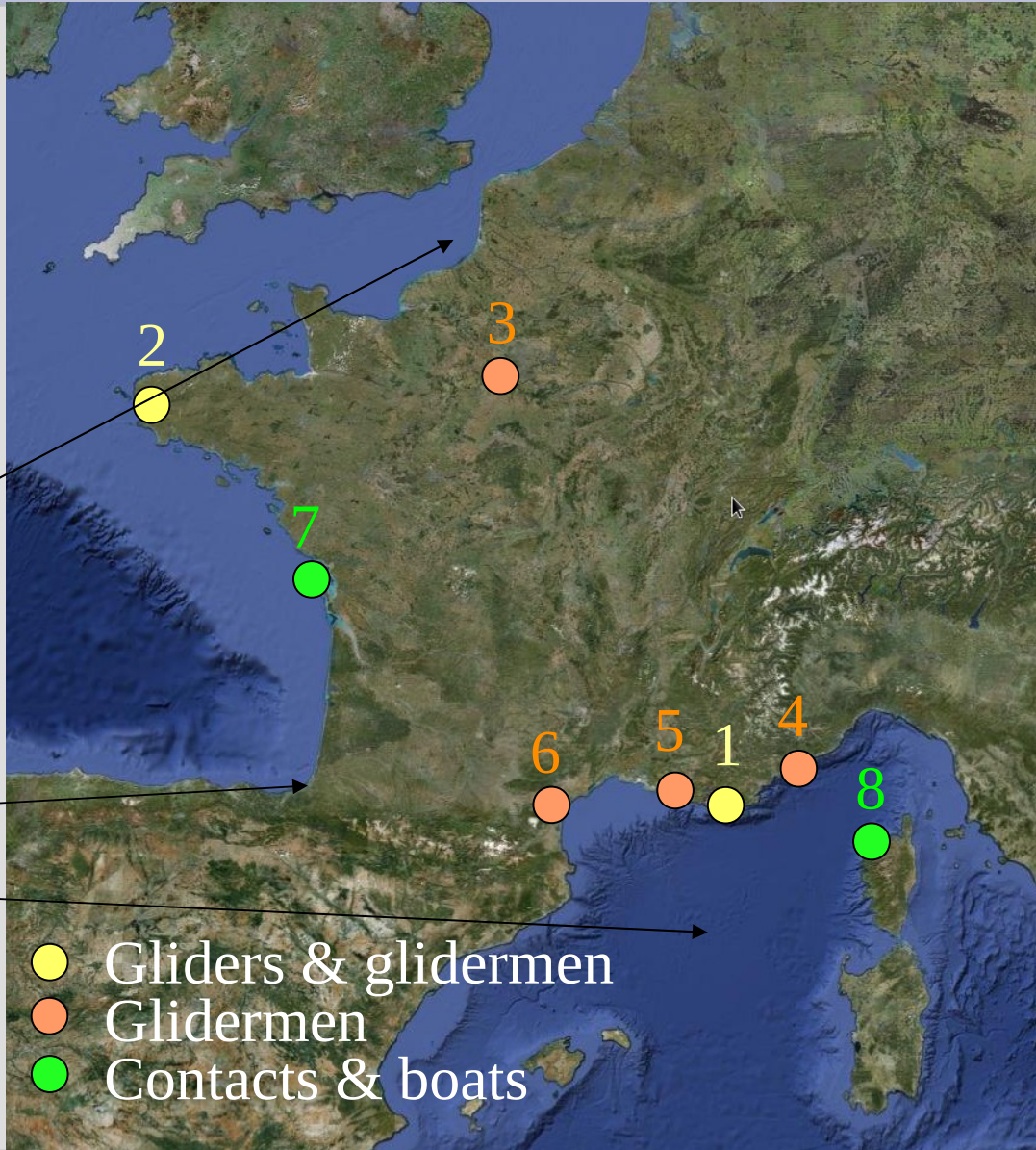
Gliderports (World)





Gliderports

- 1: DT-INSU -La Seyne sur mer (CNRS)
- 2: IFREMER – Brest
- 3: LOCEAN (CNRS) & ENSTA
PARITECH – Paris
- 4: LOV – Villefranche sur mer (CNRS)
- 5: MIO – Marseille (CNRS)
- 6: CEFREM – Perpignan (CNRS)
- 7: Observatoire INSU – île d'Yeu (CNRS)
- 8: Stareso – Calvi (Université of Liege)
- + la flotte INSU:



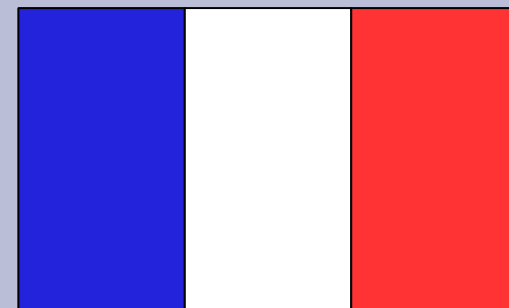
Tethys 2

Côte de la manche



- Gliders & glidermen
- Glidermen
- Contacts & boats

Others ships (INSU)



Neomysis (Roscoff)



Albert Lucas (Brest)



Planula IV (Arcachon)



Sepia (Boulogne)

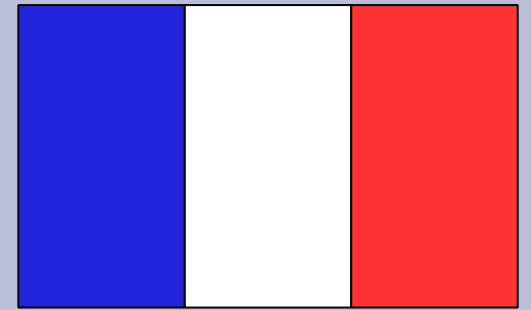


Antedon (Marseille)



Nereis (Banyuls)

Gliderport



LOCEAN (Paris)
Sensor integration
Slocum knowledge
Data analyst
GFCP developers
testor@locean-ipsl.upmc.fr

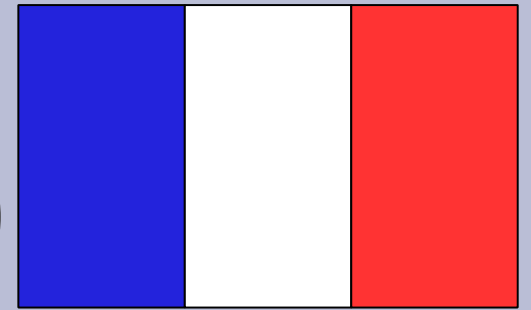
IFREMER
Data analyst
Slocum & Spray knowledge
Thierry.Terre@ifremer.fr

LOV (Villefranche sur mer)
Data analysis
Sensor integration
Deployment & recovery
Slocum knowledge
SeaExplorer Consortium
claustre@obs-vlfr.fr

MIO (Marseille)
Sensor development
SeaExplorer Consortium
madeleine.goutx@univ-amu.fr

CEFREM (PERPIGNAN)
Sensor integration
Data analyst
fbourrin@univ-perp.fr

Gliderport Noumea (IRD)

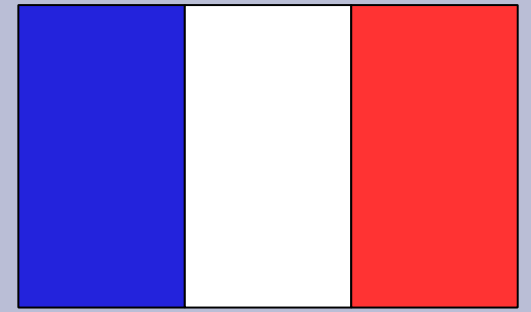


1 Spray
Ballasting tank (sea water)
Spray & Slocum knowledge
Ship « Alis »
A very nice environment

Contact: jean-luc.fuda@ird.fr

GliderPort

La seyne sur mer (CNRS)



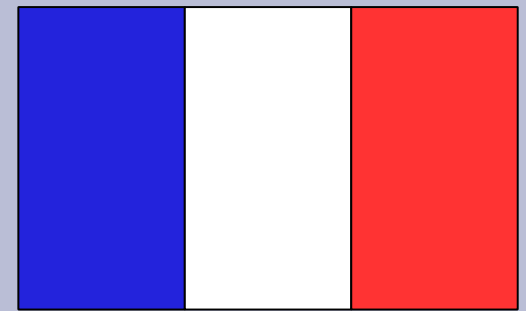
Ifremer Center



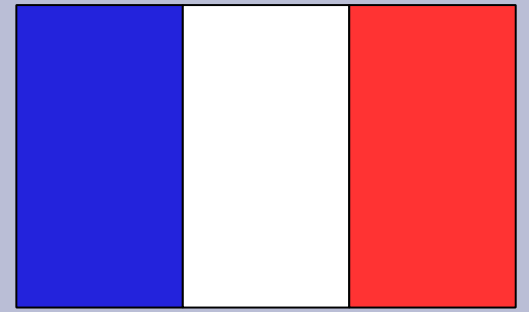
- 9 Deep slocum
- 3 shallow slocum
- 2 Sea Gliders
- 25- 30 months of mission per year
- Ballasting tank (fresh water)
- R&D in sensors and GFCP

Contact: laurent.beguery@dt.insu.cnrs.fr

Software architecture



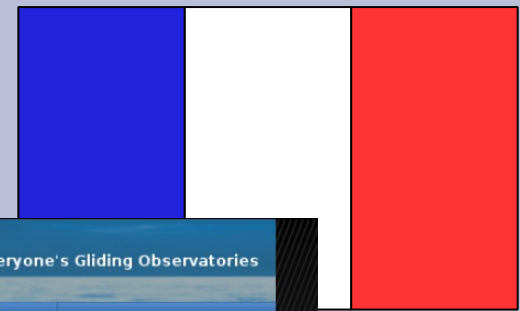
Glider Fleet Control Panel (GFCP)



The GFCP is a web application meant to address 5 different topics:

- Control panel (slocum, seaglider & spray)
 - Send files to glider
 - Manage piloting group
 - Keep track of actions on glider
 - Log book
- Data processing (slocum & sea glider)
 - Produces health and scientific plots
 - Send data to Coriolis data center
- Alarms (slocum only)
 - Analyses data and send information to pilots in case of problem
- Auto pilot mode (slocum only)
 - Send files to glider if needed

Control Panel



Glider & mission

All important files

File management

EGO Everyone's Gliding Observatories

Home Control Panel Data processing Alarms Auto piloting Maintenance Others

Welcome Beguery, Laurent Logout

Fleet status section
Fleet status: Phaidippides Sebastian Tintin Sg508

Active deployments section
Opened sessions: Tintin Sg508 Save session

Glider/Deployment section
Glider: Sg508 New glider?
Deployment: MooseT02 Started Stop
Missions: cmdfile -select an acti
Sciconfig: -Sciconfig- -select an acti

Info/Plot section
Info: -Info- -select an acti
Cfg: -Cfg- -select an acti
To-glider: -To-glider- -select an acti

Utility section
Sg508 real time plots
Sg508 dirs@basestation

Browse/Edit section
[cmdfile]
Edit Transfer file Download file Delete

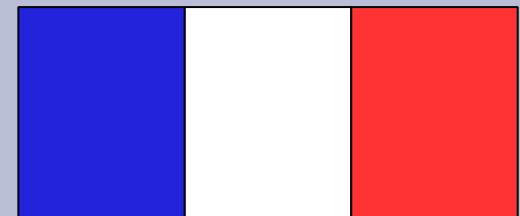
Sg508/MooseT02_09/missions/cmdfile

```
SCAPUPL0AD,0
SNAV_MODE,2
STGT_DEFAULT_LON,513.4
STGT_DEFAULT_LAT,4306.0
SC_PITCH,2620
$PITCH_GAIN,27
SC_ROLL_CLIMB,2267
SC_ROLL_DIVE,2367
SC_VBD,3486
$D_TGT,500
$MAX_BUOY,250
$SM_CC,270
ST_DIVE,200
ST_MISSION,250
$USE_BATHY,0
SALTIM_SENSITIVITY,4
SALTIM_PING_DEPTH,100
SALTIM_PULSE,2
ST_RSLEEP,5
```

Pilots

logbook

Data processing

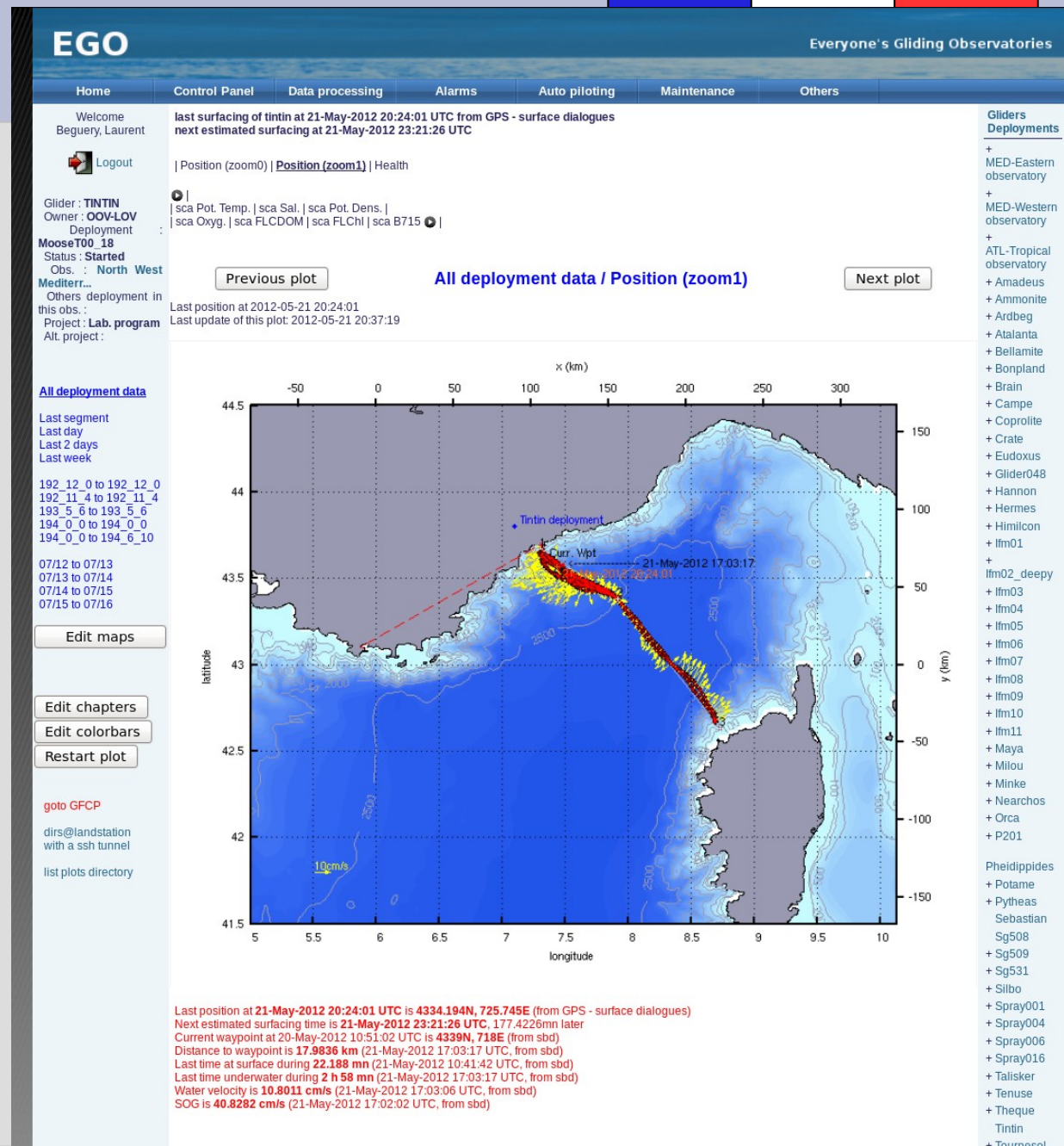


Data:

- Map
- Health
- Science

Time

- Last segment
- Last day
- Last 2 days
- Last week
- All deployment



Alarms

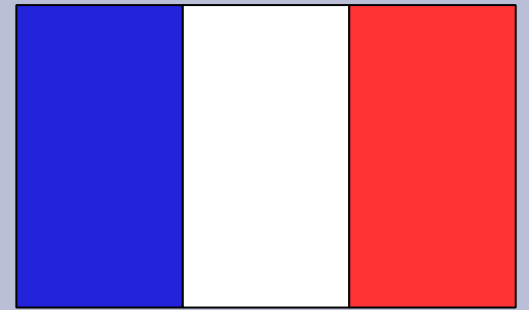
Define your own limits for parameters like:

- Battery
- Battery inst
- Leakdetect
- Distance from endurance line
- Vacuum
- Horizontal / vertical celerity
- Last call time
- ...

And get a text message in case of problem

The screenshot shows a control interface for a submersible. At the top right, there are three colored boxes: blue, white, and red. Below them, a legend indicates 'Level colors : Unknown (white), OK (green), Warning (orange), Danger (red), Autopilot (blue)'. The main interface has a status bar showing 'healthy' in a green pill, 'vimin - slocum (1000m) - MooseT00_18', and 'Last update : 2012-05-21 18:57:42'. There are buttons for 'History', 'Save config', and 'Load config'. Below the status bar, there are checkboxes for 'Alarms' and 'Autopilot', both of which are checked. A list of parameters is shown with green squares next to them: battery voltage = nan v, leakdetect voltage = 2.4998 v, last GPS position = 43°31.567 7°31.4810 [KML](#), distance to waypoint = 17.98 km, min vacuum = 9.5742, max vacuum = 9.9001, celerity horizontal = 43.9693 cm/s, max depth = 499.98 dBar, heading to waypoint = NaN deg, and last call time = 21-May-2012 19:04:30. Below this list, 'Alarm levels' are defined: 'warning (low level alarm) : 7' and 'danger (high level alarm) : 10', both with checkboxes and small icons. A graph titled 'sbd (b/tsrf, b-dark/txmt, r/tdve), surflogs (c/tsrf, r-dark/tdve). Deadband: 40 mn' shows depth in meters on the y-axis (0 to 480) and time on the x-axis (20-May-12 13:42 to 21-May-12 13:42). The graph has two y-axes: 'at depth [m]' on the left and 'at surface [mn]' on the right. A red horizontal line is drawn at 180m depth. A blue line with markers shows the depth profile, starting at approximately 180m, dipping to about 120m, and then rising back to 180m. A black line with markers shows the time spent at the surface, fluctuating between approximately 15 and 25 minutes. Below the graph, there is a list of summary statistics: target wpt lon = 718.0, target wpt lat = 4339.0, number of coms in last hour = 0 num, number of coms in last 12hours = 3 num, errors = 0, and warnings = 0.

Automatic piloting



So far only 2 actions:

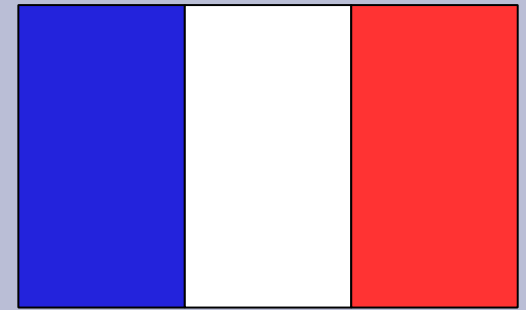
Single waypoint piloting

Switch on/ off altimeter with bathymetric map

More to come

- increase / decrease volume pumped
- dive if a boat has a collision trajectory with the glider
- adjust nb of yos to depth
- fleet piloting
- ...

Maintenance database



Notes

Status of the fleet

Spares in lab

EGO Everyone's Gliding Observatories

back to GFCP Home Equipment Assembly Maintenance Status Documents

Welcome Laurent Beguery [logout](#)

Spare

glider

- 1 Seaglider
- 7 Slocum 1000m
- 3 Slocum 200m

Block

- 2 extra_batt
- 4 sci

Part

- 2 Aanderaa_Power
- 3 Air_Bladder
- 3 Air_Pump
- 1 Altimeter
- 1 Argos_PTT
- 1 Attitude_Rev
- 1 Burn_Wire
- 1 Coulomb_counter
- Assy_E-504
- 3 Digilin
- 3 Flashcard
- 2 Hull_Composite
- 3 Main_Board
- 1 Persistor
- 1 Persistor_Pwr_Supply
- 1 Pitch_Motor
- 1 Pressure_Transducer
- 1 RS485
- 3 U450EM

Battery

- 3 Battery_Al Alkaline
- 10 Battery_Alt Lithium
- 6 Battery_Fore Alkaline
- 7 Battery_Fore Lithium
- 6 Battery_Noise Alkaline
- 3 Battery_Noise Lithium

Sci sensor

- 1 bb2fls v3
- 1 CTD
- 1 FLBCCDSLK
- 1 Oxy 3830
- 1 Oxy 5013

Message board

+ Add a message

2012-05-10 10:29:51 by Laurent Beguery

verifier tous les gliders suivant le bulletin webb n°12 (tie rap qui creve la vessie d'huile)

2011-11-03 16:21:56 by Laurent Beguery

changer systematiquement les 3 piles boutons du glider (2 en glider et 1 en science) Merci de le noter en maintenance
Fait pour Tintin/himicon/Campe

View erased messages

Warnings

Deployment planning

+ Add an event + Add a mission

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

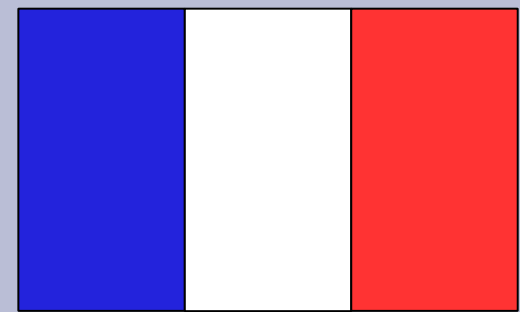
← Today →
Day view / Week view

2012	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	May	
Baker																						
Bonpland																						
Campe																						
Conti																						
Crate																						
Eudoxus																						
Hannon																						
Himicon																						
Milou																						
Nearchos																						
Tenuse																						
Theque																						
Tintin																						
Wallis																						

Transit
 Preparation
 Prepared
 Not available
 Broken at sea
 Gone broken
 At sea - SUNJA
 At sea - BIO+
 At sea - BIO
 At sea - CTD O2

Planning

Maintenance database



Welcome Laurent Beguery [logout](#)

Home > Equipment > View

View details of a Glider : Slocum 1000m

Name : Tintin
Serial : 128

Owner : LOV
Provider : Teledyne Webb research (purchase date : 2008-01-01 - price : 100000 €)

Current status : At sea

Current firmware version : 7.6

+ Add or change firmware version
+ Add a maintenance operation
+ Change Status
+ Add a relative document

Spare

Glider

1 Seaglider
7 Slocum 1000m
3 Slocum 200m

Block

2 extra_batt
4 sci

Part

2 Aanderaa_Power
3 Air_Bladder
3 Air_Pump
1 Altimeter
1 Argos_PTT
1 Attitude_Rev
1 Burn_Wire
1 Coulomb_counter
Assy_E-504
3 Digfin
3 Flashcard
2 Hull_Composite
3 Main_Board
1 Persistor
1 Persistor_Pwr_Supply
1 Pitch_Motor
1 Pressure_Transducer
1 RS485
3 U4SOEM

- Glider's status**
- Baker
 - Bonpland
 - Campe
 - Conti
 - Crate
 - Eudoxus
 - Hannon
 - Himicon
 - Milou
 - Nearchos
 - Tenuse
 - Theque
 - Tintin
 - Walls

Equipment	Operation	From/To	Date	Note	Action
Tintin	At sea		2012-04-18 00:00:00	MooseT00_18	
Tintin	Gone prepared		2012-03-05 10:00:11	ben ouï il est pret	
Tintin	Ship out		2012-03-05 09:54:59	gone to Villefranche	
Tintin	Gone		2012-03-05 09:54:59		
Tintin	Prepared		2012-02-28 15:07:45	Manque test 1000m	
Tintin	Being prepared		2012-02-27 11:23:17	for MooseT00_18 (again)	
Tintin	Repair work		2012-02-27 11:10:41	Nous avons démonté le leakdetect arriere en cassant les connecteurs male et femelle, installé des nouveaux connecteurs et reserré le capteur de pression dela CTD	
Tintin	Broken		2012-02-27 10:58:47	le leakdetect arriere ne faisait plus contact avec la platine. De plus il etait collé!!!	
Tintin	Recovery procedure		2012-02-27 10:57:22	tintin recovered after the leak inspection shows a leak throught the pressure sensor from the CTD.	
Tintin	Broken at sea		2012-02-24 17:47:50	Fuite lors du test 1000m ce jour, la vis du manomètre CTD était dévissée. son joint a donc laissé passer une bonne quantité d'eau !	
Tintin	Being prepared		2012-02-17 16:07:54	pour MooseT00_18	
Tintin	Repair work		2012-02-17 16:06:55	on a changé TOUSles grandsjoints de tintin+baie sci milou+extention (8)	
Tintin	Compact flash backup		2012-02-17 10:25:43	Mission MooseT017 abort entée d'eau	
Tintin	Recovery procedure		2012-02-10 16:08:42	Récupération de Tintin. Entrée d'eau pendant la mission Moose_T017. De feu retrouvé en abondance dans l'extension batterie	
Tintin	At sea		2012-01-25 00:00:00	MOOSE T00_17	
Tintin	Prepared		2011-12-16 10:08:49	Reste à faire les tests en mer.	
Tintin	Ballasting		2011-12-06 17:07:25	Ballastage de tintin jumbo pour moose T00	
Tintin	message board		2011-11-30 12:30:57	fait pour tintin	
Tintin	Repair work		2011-11-25 16:30:46	Remplacement de la coque avant 500 m max par une nouvelle coque reçue de chez Webb 1000 m max.	
Tintin	Assembly	Tintin	2011-11-25 16:27:44		
Tintin	Other		2011-11-24 16:32:48	changement des trois piles boutons et remplacement des vis de fixation du berceau du pack batterie AR, empreinte CHC abimée.	
Tintin	Compact flash backup		2011-11-24 09:55:22	Mission MOOSE T00 13	
Tintin	Other		2011-11-23 16:29:21	Coque arriere, partie humide cassée.	

- Sci sensor**
- 1 bb2fls v3
 - 1 CTD
 - 1 FLBBDCSLK
 - 1 Oxy 3830
 - 1 Oxy 5013

Welcome Laurent Beguery [logout](#)

Home > Equipment > View

View details of a Glider : Slocum 1000m

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Owner : LOV
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+ Add a maintenance operation
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Spare

Glider

1 Seaglider
7 Slocum 1000m
3 Slocum 200m

Block

2 extra_batt
4 sci

Part

2 Aanderaa_Power
3 Air_Bladder
3 Air_Pump
1 Altimeter
1 Argos_PTT
1 Attitude_Rev
1 Burn_Wire
1 Coulomb_counter
Assy_E-504
3 Digfin
3 Flashcard
2 Hull_Composite
3 Main_Board
1 Persistor
1 Persistor_Pwr_Supply
1 Pitch_Motor
1 Pressure_Transducer
1 RS485
3 U4SOEM

- Glider's status**
- Baker
 - Bonpland
 - Campe
 - Conti
 - Crate
 - Eudoxus
 - Hannon
 - Himicon
 - Milou
 - Nearchos
 - Tenuse
 - Theque
 - Tintin
 - Walls

Change composition date to

Equipment's composition the 2012-05-21 19:06:00

- fore : (128_Fore)
 - Altimeter : 08CB060503-9948
 - Fwd_Air_Pump : 113
 - Hull : 127
 - Motor_Controller : 121
 - Pitch_Motor : 100
 - Pump_Assy : 113
 - Valve_Assy : 105
 - Battery_Fore : 1050-001
- sci : (128_Sci)
 - Aanderaa_Power : 157
 - Payload_Bay : 104
 - SBMB : 132
 - Flashcard : 21366
 - Persistor : 52928
 - Sci_Hull : DT-002
 - U4SOEM : P11453
 - bb2fls : 651
 - bb2fls : 550
 - bb2fls : 507
- extra_batt : Extra_Batt_005
- att : (128_Att)
 - Aft_Cap_Assy : 035
 - Hull : 158
 - Aft_Tray_Assy : 117
 - Air_Bladder : 0989
 - Air_Pump : 132
 - Argos_ID : 85386
 - Argos_PTT : 105011
 - Attitude_Rev : 1009421
 - Digfin : 5889
 - Freewave_Slave : 896-7810
 - GPS : 11J045544
 - Iridium_MJMEI : 300224010329180
 - Iridium_Sim_Card : 898816951400376934
 - LNA_Brb : 127
 - Main_Board : 146
 - Flashcard : 22311
 - Persistor : 52845
 - Persistor_Pwr_Supply : 131
 - Pressure_Transducer : 77267
 - RS485 : 134

Conclusion

