

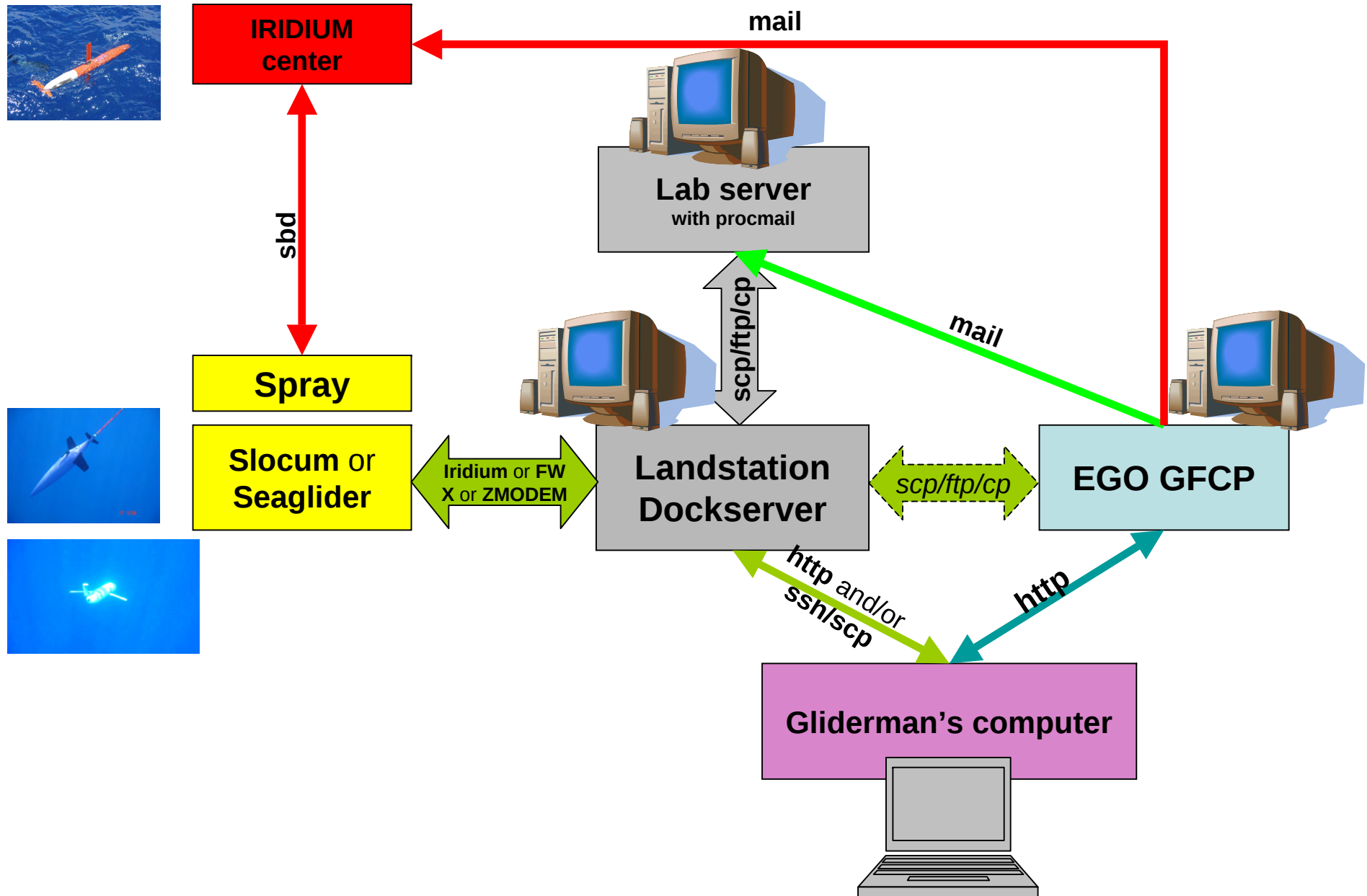
A WEB BASED GLIDER INFORMATION SYSTEM (a follow-up from EGO operations)

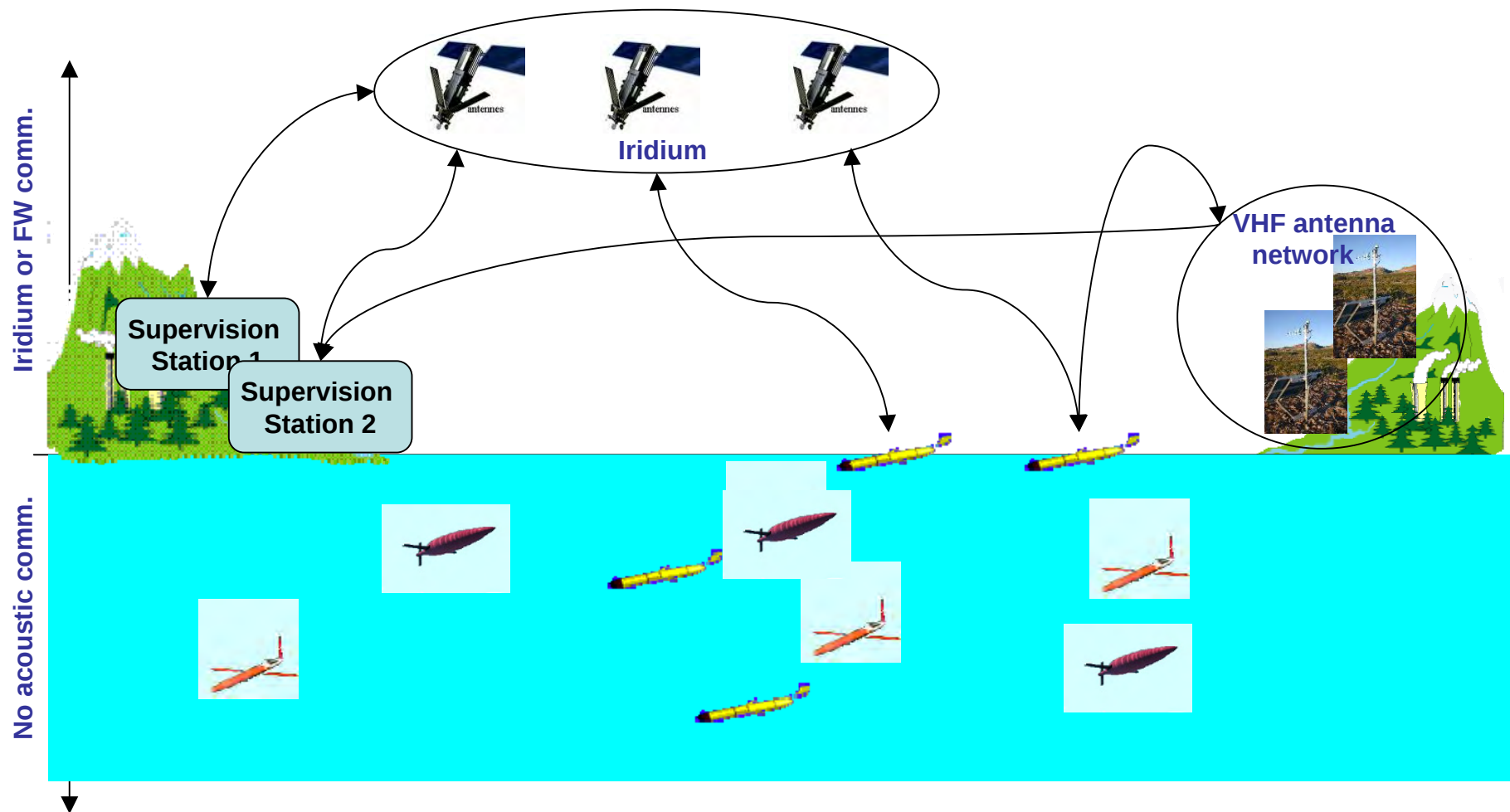
P. Testor¹, L. Mortier¹, K. Bernardet¹, B. Lheveder¹, V. Taillandier¹, U. Send², D. Smeed³, L. Merckelbach³, A. Alvarez⁴, J. Tintore⁴, B. Casas⁴, S. Ruiz⁴, P. Lherminier⁵, T. Terre⁵, G. Krahmann⁶, J. Karstensen⁶, F. Bourrin⁷, H. Claustre⁷, J.-J. Naudin⁸, V. Rigaud⁹, T. Carval¹⁰, L. Petit de la Villeon¹⁰, C. Jones¹¹, J. Sherman²



- 1 LOCEAN-IPSL/ENSTA, Paris, France
- 2 SIO, La Jolla, CA, USA
- 3 NOCS, Southampton, UK
- 4 IMEDEA, Esporles, Spain
- 5 LPO-IFREMER, Brest, France
- 6 IFM-GEOMAR, Kiel, Germany
- 7 LOV, Villefranche, France
- 8 OOB, Banyuls/mer, France
- 9 SSM-IFREMER, La Seyne/mer, France
- 10 Coriolis-IFREMER, Brest, France
- 11 Webb Research Corp., Falmouth, MA, USA

EGO





Objectives: generate commands for

- optimal coverage fixed network
- adaptive sampling

Constraints:

- Asynchronicity, quality and transfer rates are weak
- Maintenance, incidents, transit
- Distributed Supervision
- Interface for different gliders

EGO coordinated actions – Example of the North Western Mediterranean Sea

European Gliding Observatories (EGO) working group : <http://www.locean-ipsl.upmc.fr/gliders/EGO/>

EU and national projects:

DOCONUG (NOCS), GLIBIO (LOV),
LIVINGSTONE (LOCEAN), MERSEA (IFM-GEOMAR, IMEDEA, LOCEAN, LPO)

2 shallow (0-200m) gliders

Maya (IMEDEA)
Pytheas (LOCEAN)

7 deep (0-1000m) gliders

Deepy (IFM-FEOMAR)
Potame (LPO)
Ammonite (NOC)
Bellamite (NOC)
Coprolite (NOC)
Hannon (LOCEAN)
Himilcon (LOCEAN)

Operations from “gliderports” around the basin:

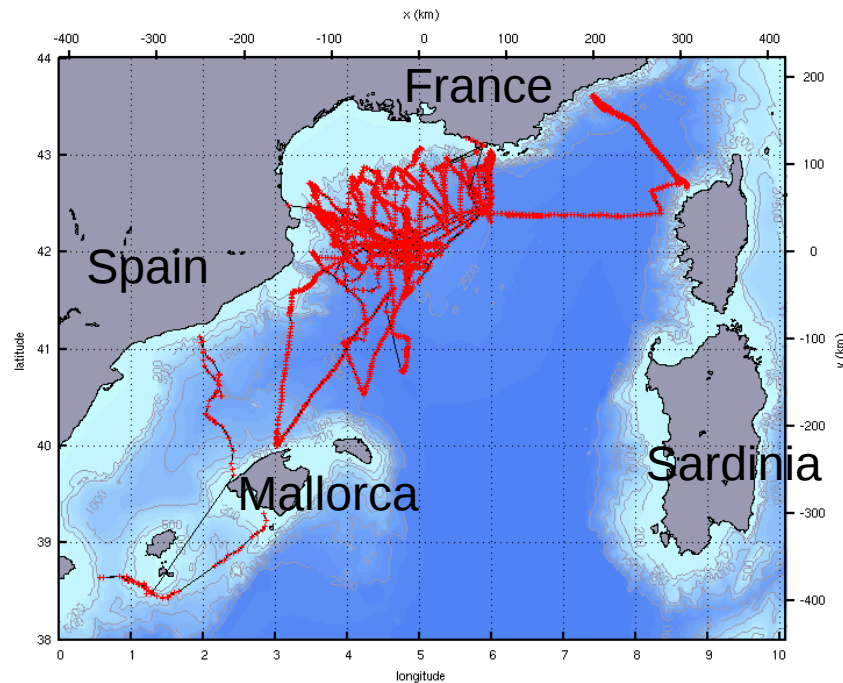
IMEDEA (Mallorca, Spain)
LOBB (Banyuls/mer, France)
IFREMER (Toulon, France)
LOV (Villefranche/mer, France)

Thanks to marine stations ships IMEDEA, Nereis II, and rubber (charter) boats
+ 4 cruises with R/V Tethys II (INSU/CNRS)
in support of glider operations



9 gliders in the North Western Mediterranean Sea [24/01/2008 – 30/04/2008]

EGO2008



**~2100 CTD profiles to 1000m
+ ~4000 CTD profiles to 200m**

IMEDEA (sp)
IFM-GEOMAR (de)
LPO, LOCEAN, LOV (fr)
NOC (uk)

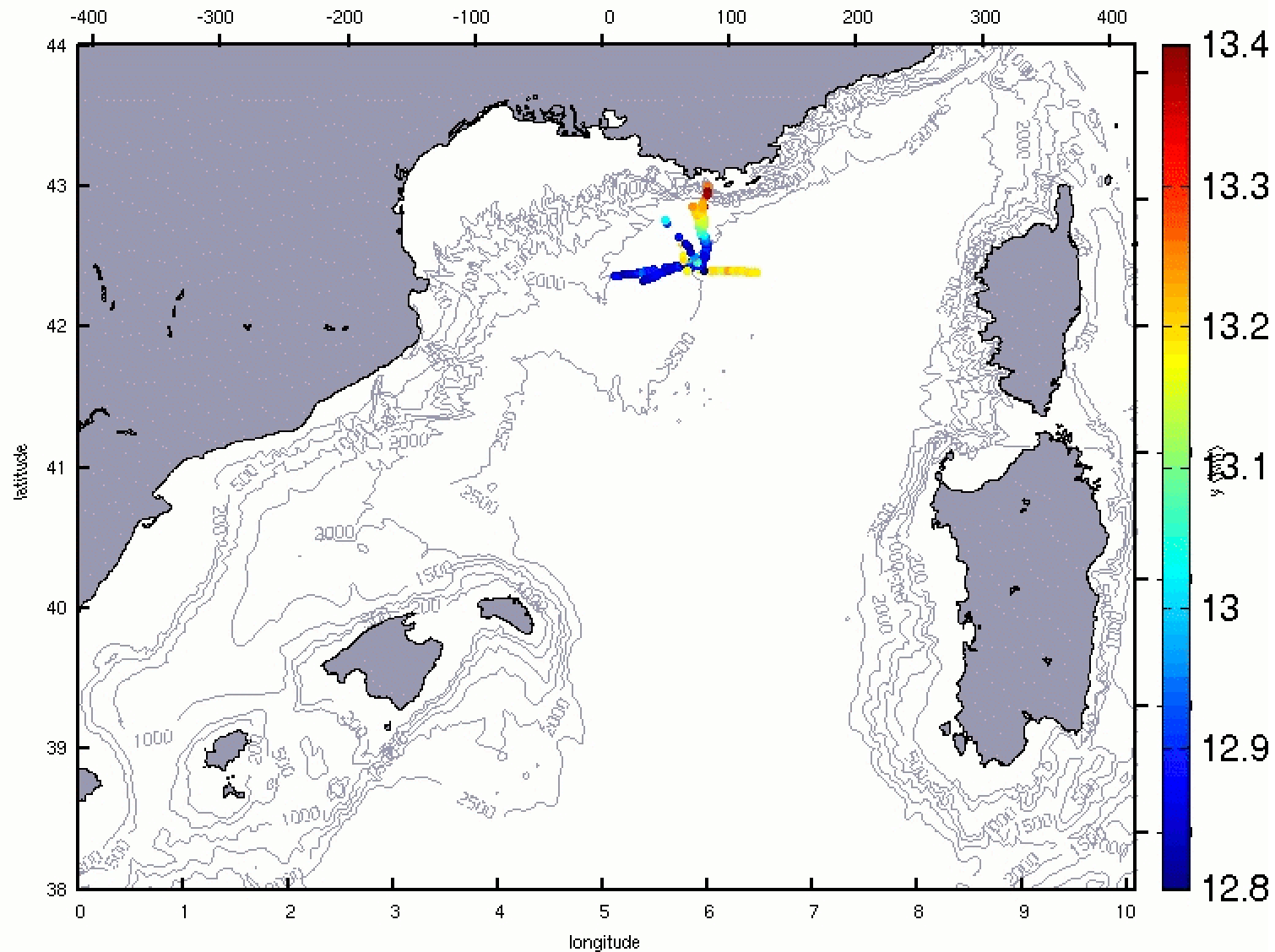
+ biogeochemical sensors

- oxygen,
- chl a,
- phycoerythrin
- cdom,
- backscatter

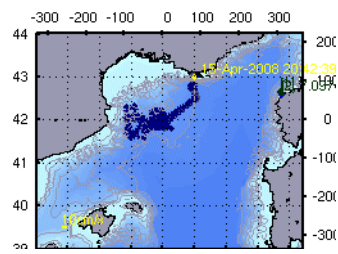
9 gliders in the North Western Mediterranean Sea [24/01/2008 – 30/04/2008]

Temperature at 150m depth (sliding 1 week)

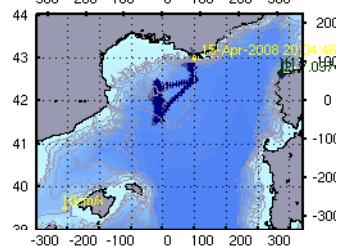
synoptic view!!!



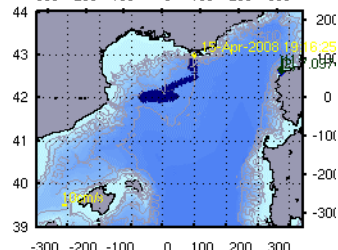
9 gliders in the North Western Mediterranean Sea [24/01/2008 – 30/04/2008]



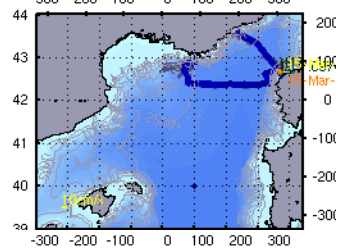
Ammonite
1000m, CTD



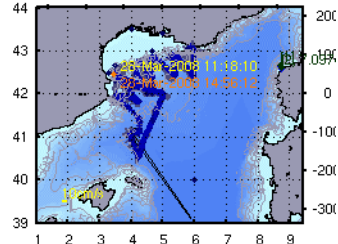
Bellamite
1000m, CTD



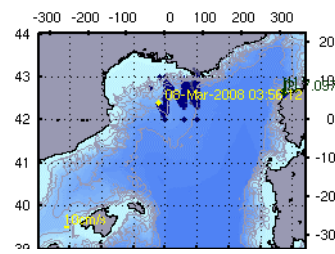
Coprolite
1000m, CTD



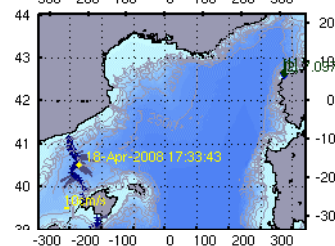
Hannon
1000m, CTD,
Oxygen, fluo (cdom), flu (chl),
bb660, bb880, bb470, bb532



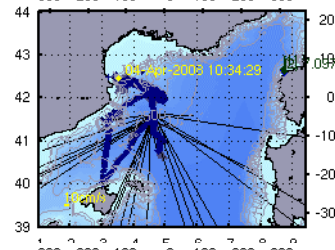
Himilcon
1000m, CTD.
Oxygen, fluo (cdom), fluo (chl),
bb660, bb880, bb470, bb532



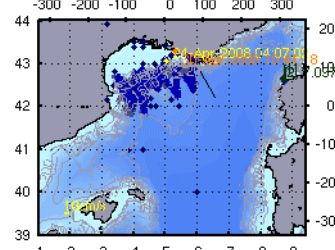
Ifm04
1000m, CTD,
oxygen, fluo (chl), turbidity



Maya
200m, CTD,
oxygen, fluo (chl) turbidity

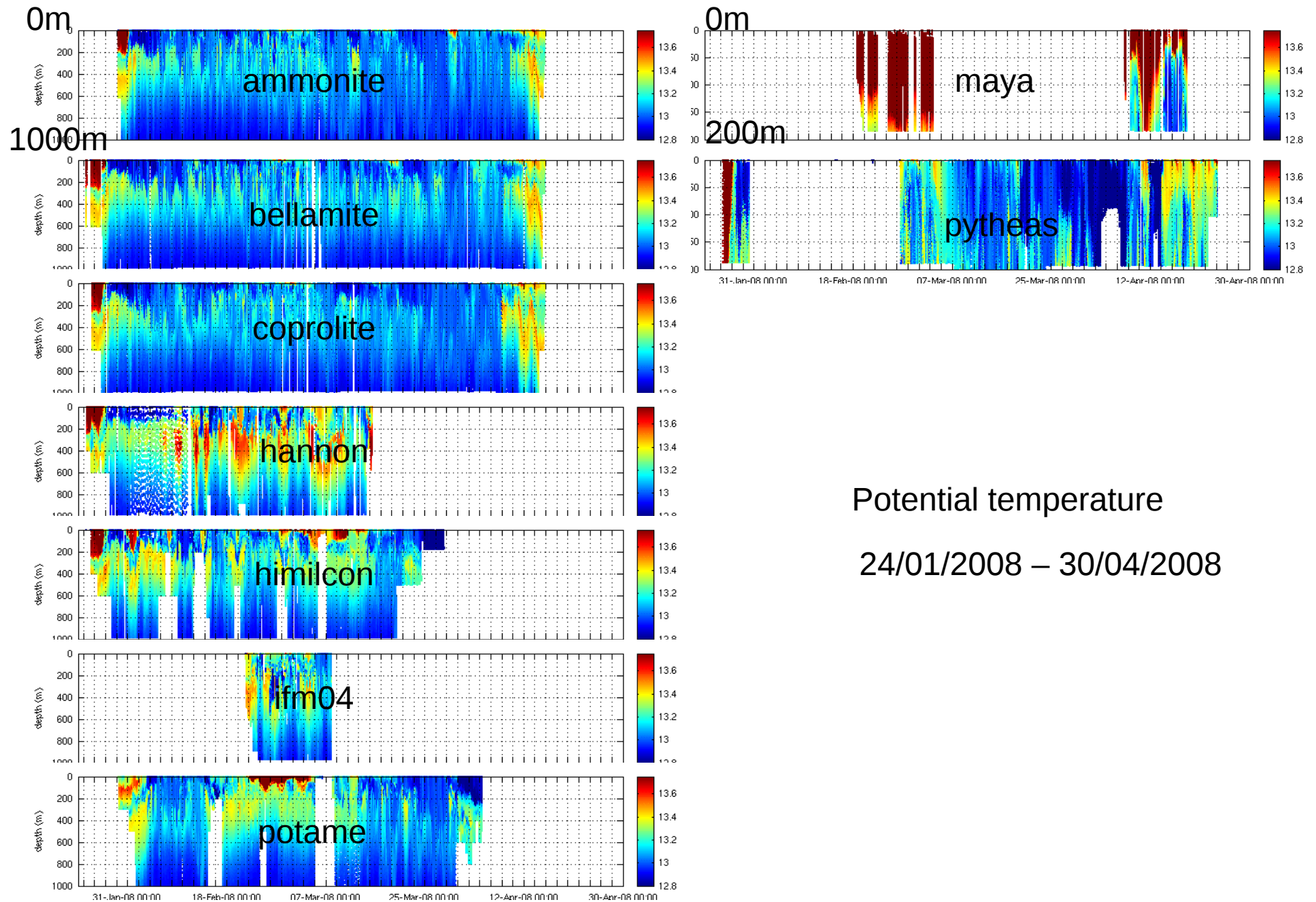


Potame
1000m, CTD,
oxygen

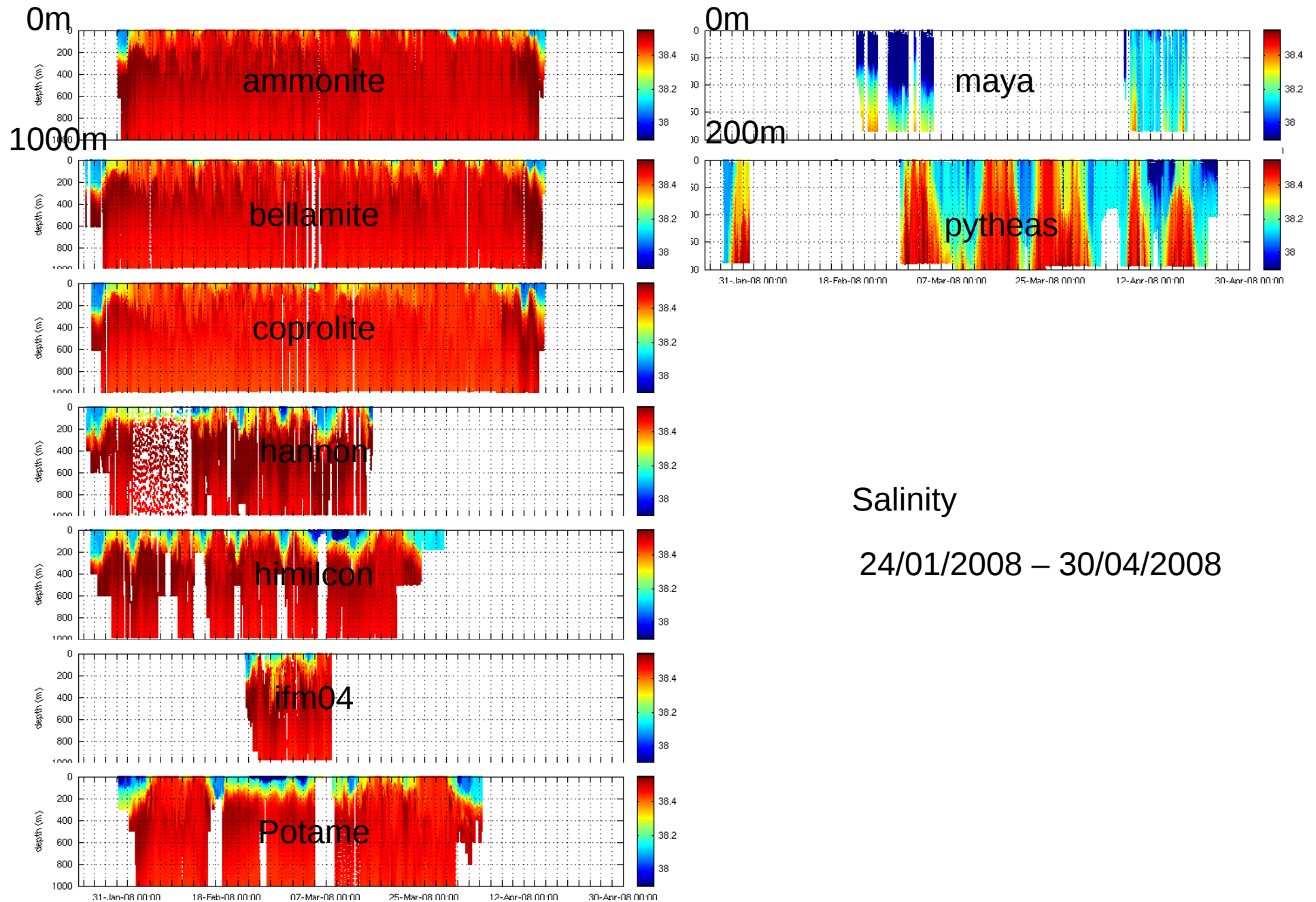


Pytheas
200m CTD,
oxygen, fluo (chl), turbidity.
bbxxx, fluo (cdom), fluo (phycoerithrin)

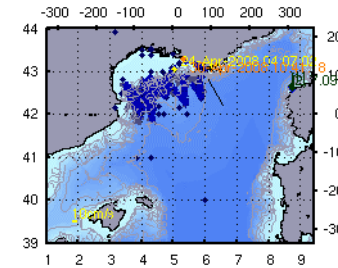
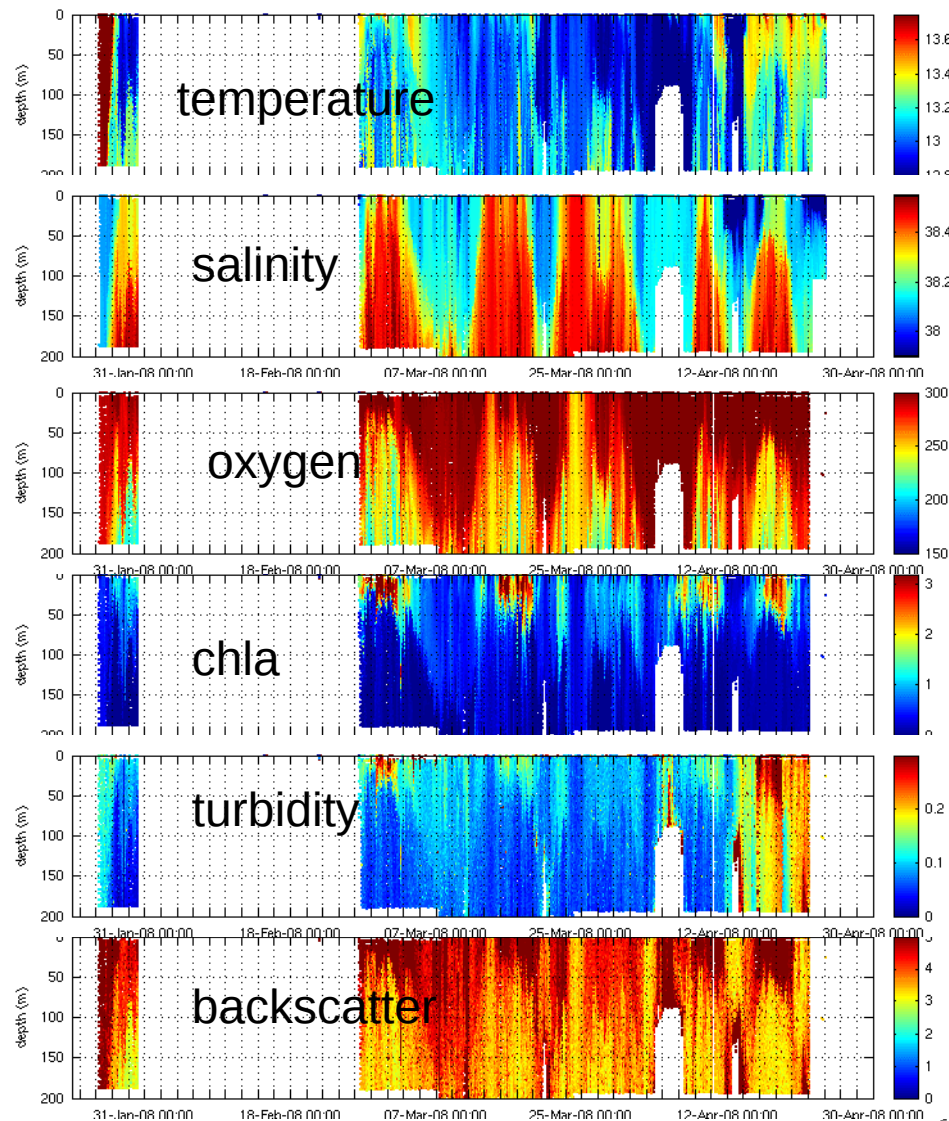
9 gliders in the North Western Mediterranean Sea [24/01/2008 – 30/04/2008]



9 gliders in the North Western Mediterranean Sea [24/01/2008 – 30/04/2008]



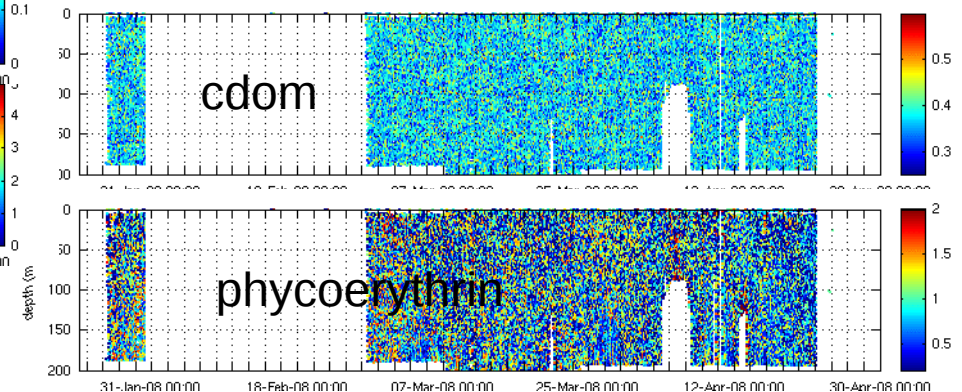
Post Calibration – sensors – biogeochemical processes



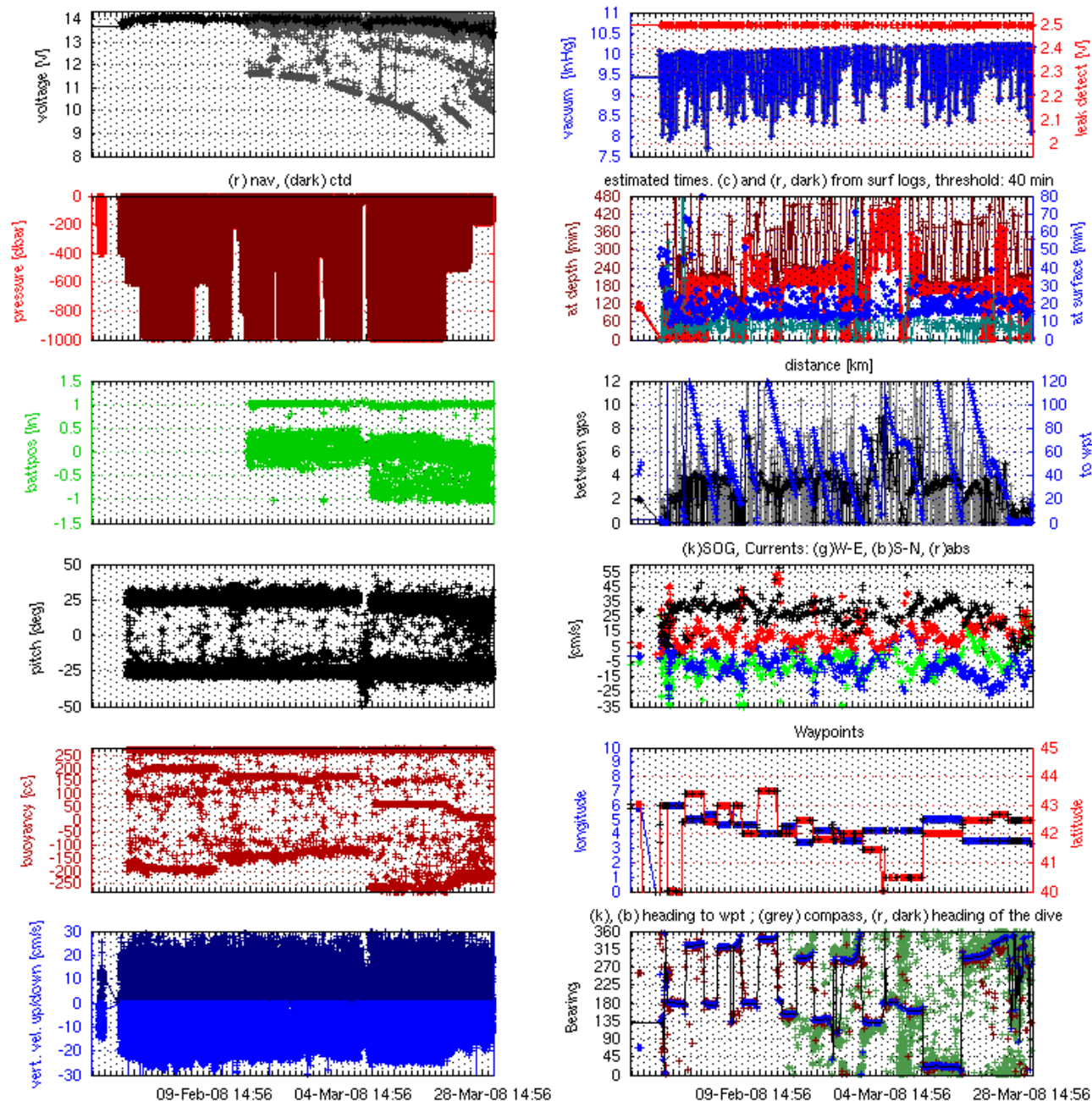
Pytheas

- Cruises comparisons with classical “Rosette” measurements+ water samples
- Cross-calibration

???



9 gliders in the North Western Mediterranean Sea [24/01/2008 – 24/04/2008]



Ex. Himilcon

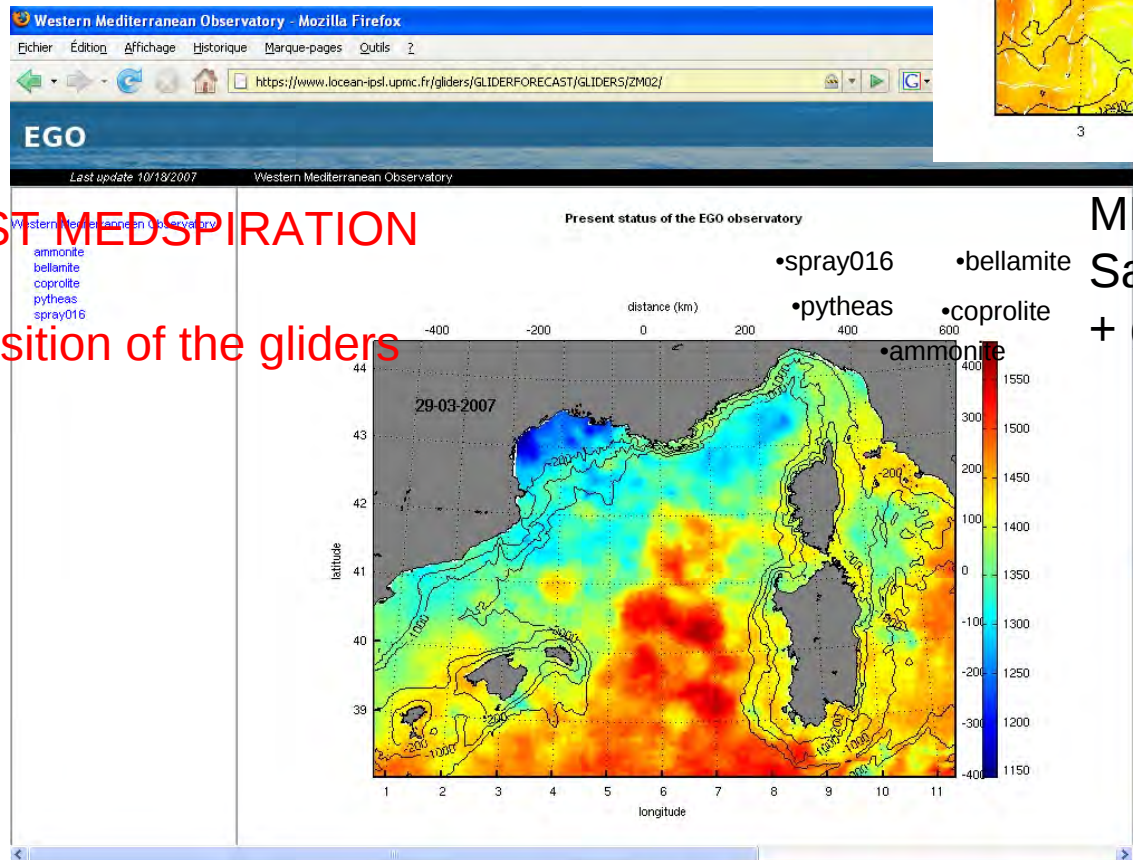
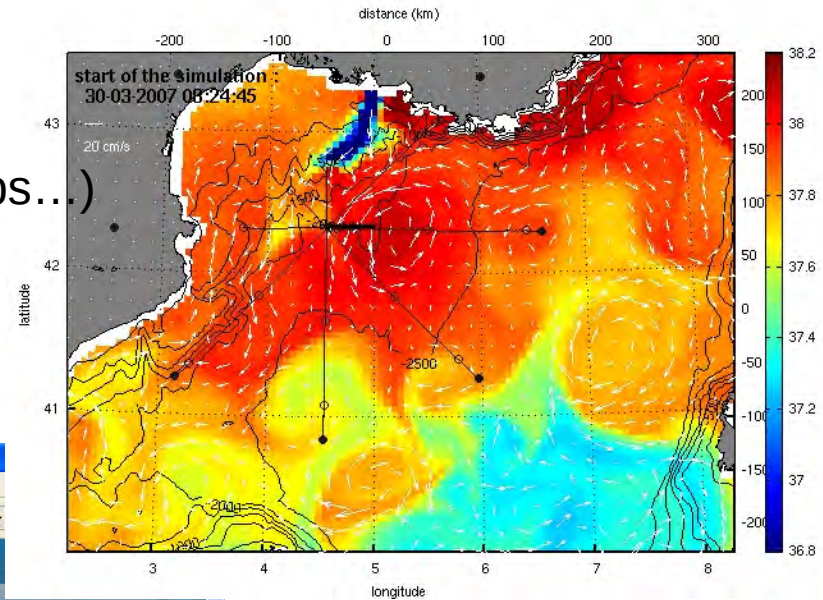
Health watch!

Batteries,
Buoyancy pump
Pitch,
Vertical/horizontal velocities
Communication
Leakdetect
Vacuum
Heading

From data files but also
logs on land, argos data,...

Need for additional information

- Other gliders
- Other measurements (Satellite, floats, ships...)
- Ocean forecasts

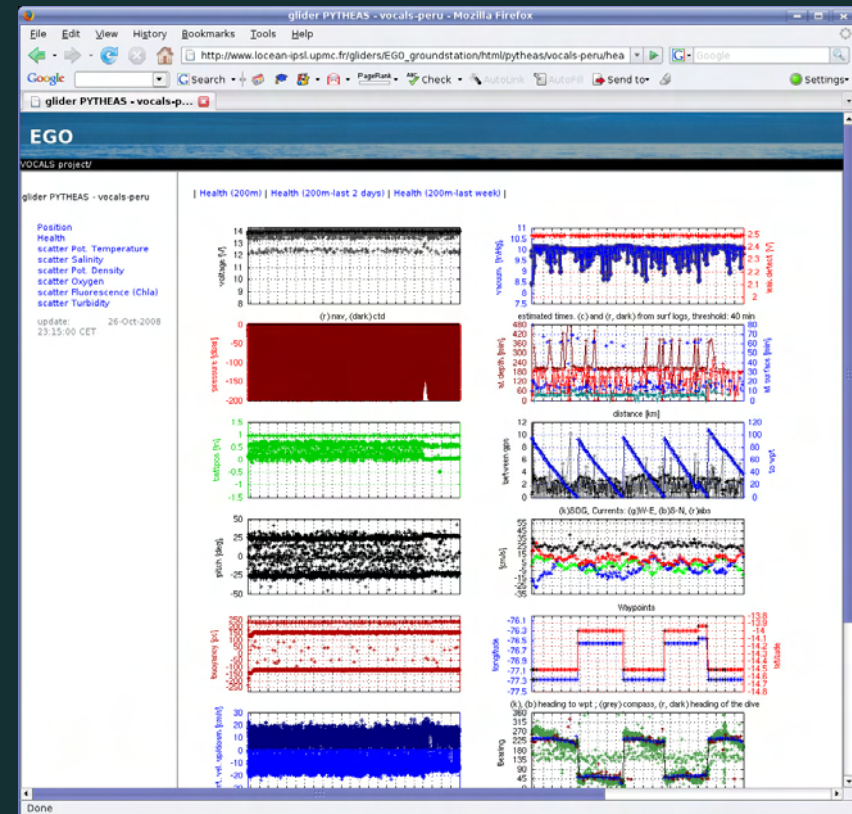


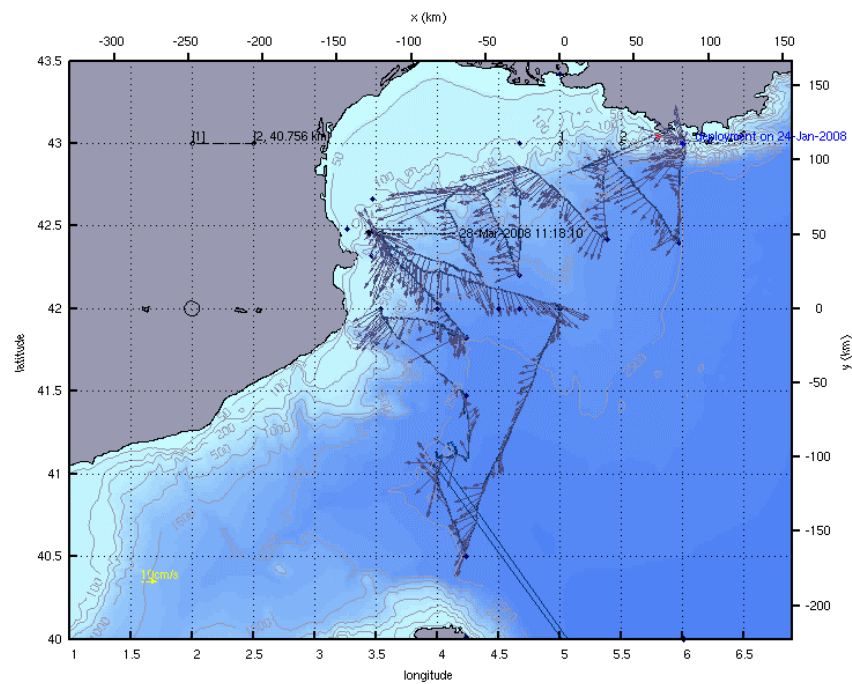
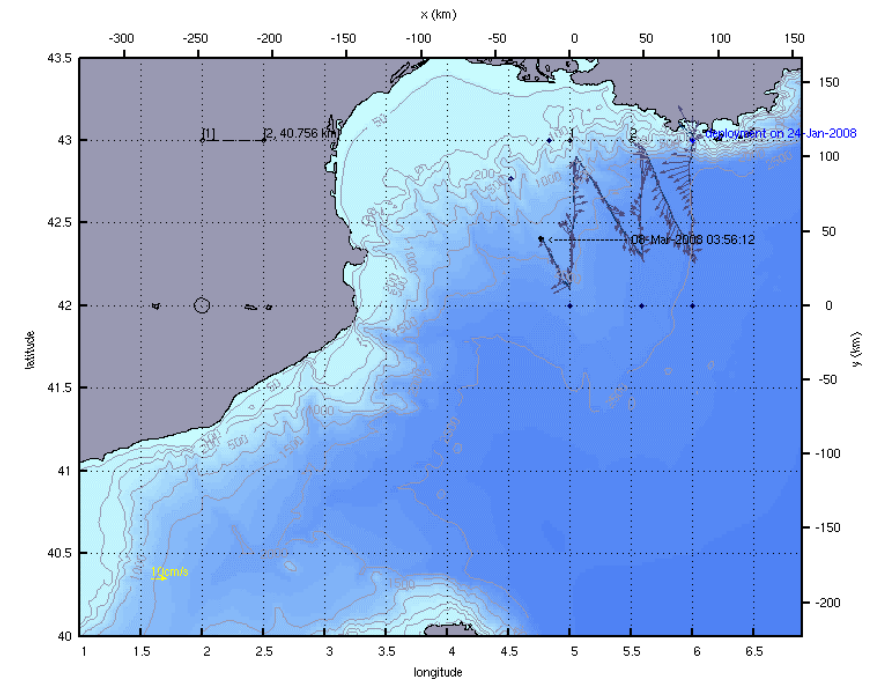
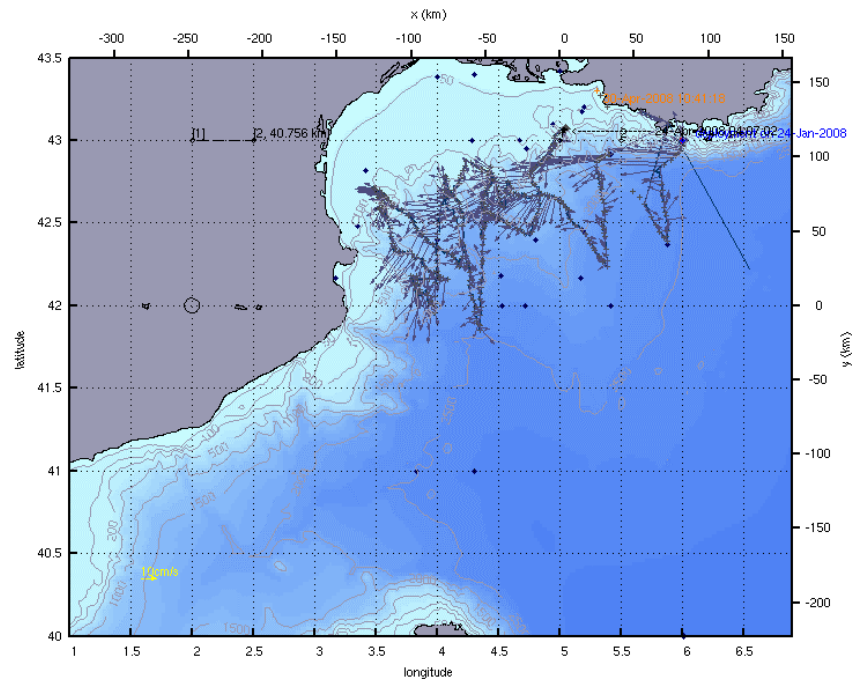
SST MEDSPIRATION

position of the gliders

MERCATOR surface
Salinity and currents
+ glider trajectories simulations

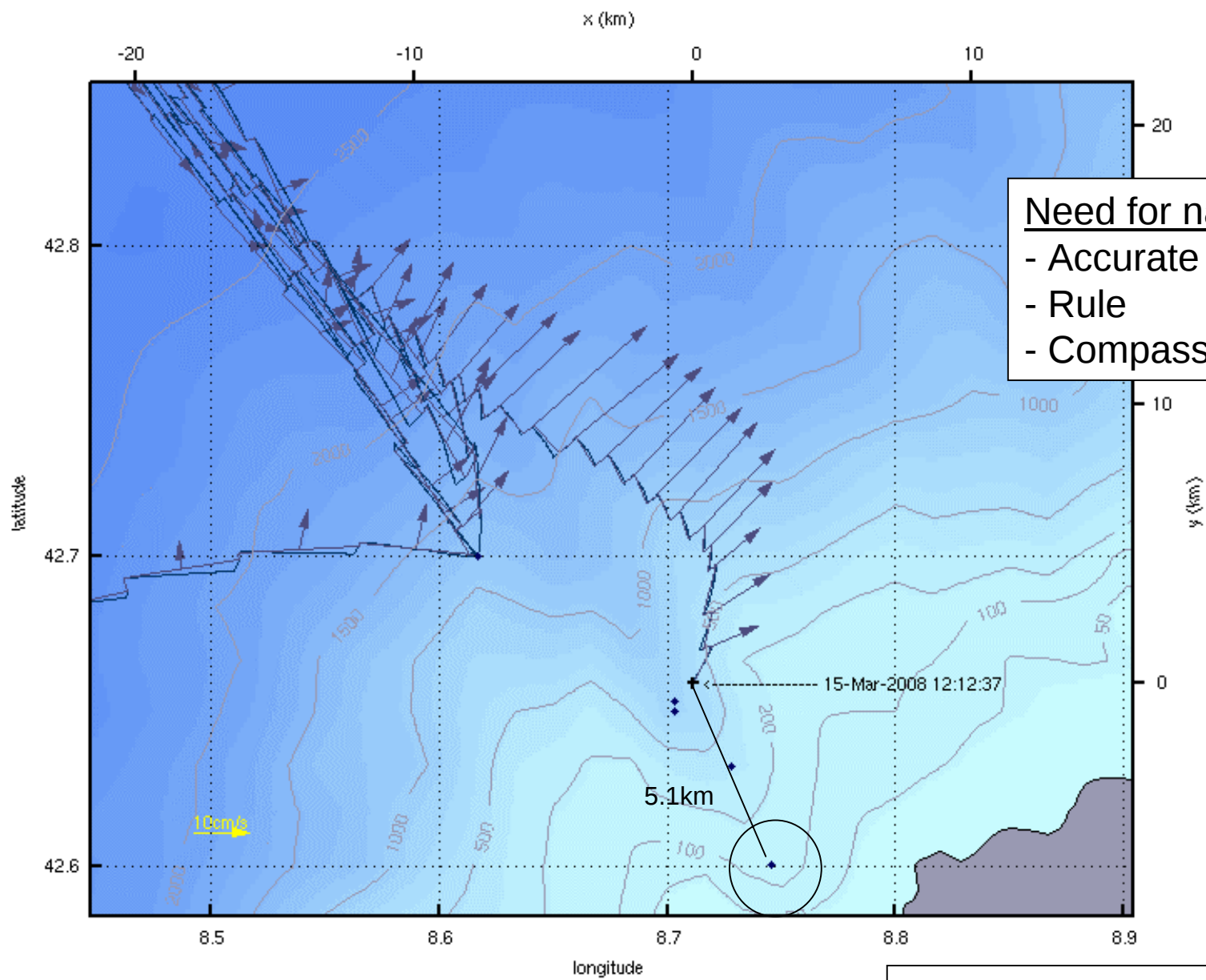
Same as oceanographic data
Health watch for a fleet of gliders
-Centralised information
-Intercomparisons





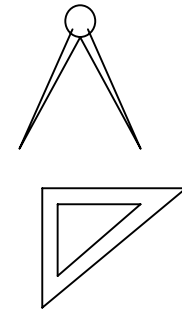
Complex trajectories

Coordination of several gliders

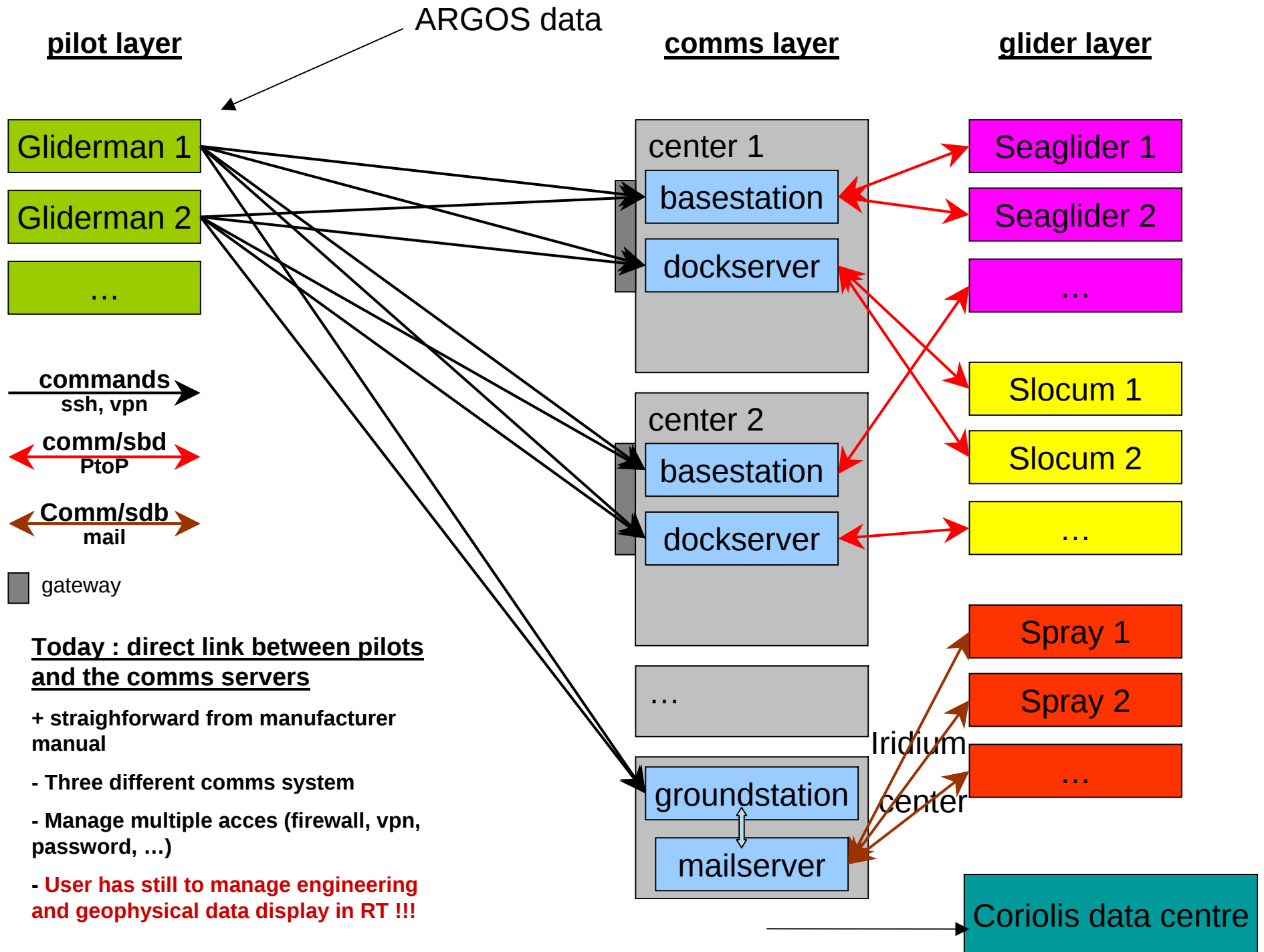


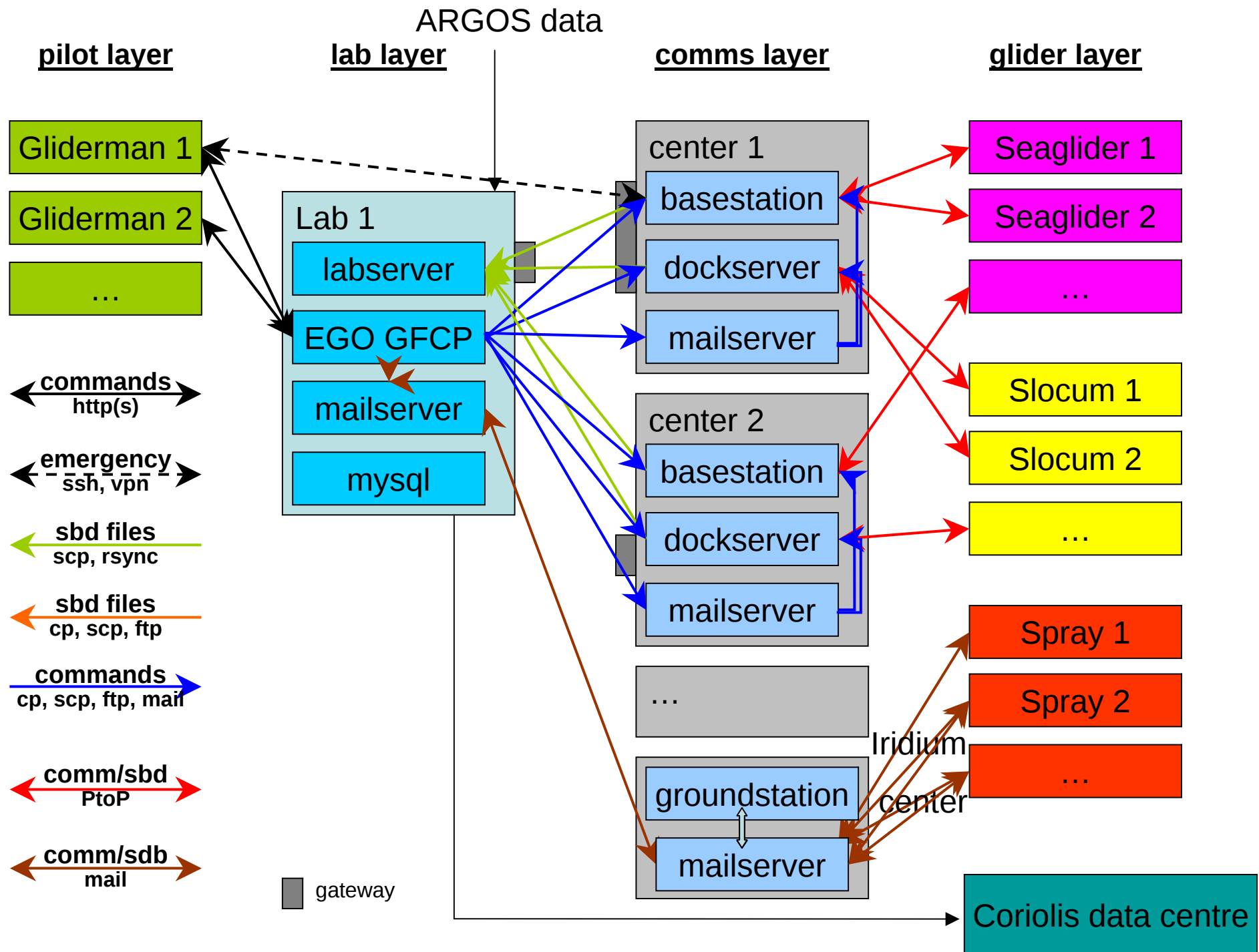
Need for navigation tools

- Accurate bathymetry
- Rule
- Compass



Complex trajectories
(Steering a glider to the coast)





EGO login page - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://www.locean-ipsl.upmc.fr/gliders/EGO/private/login.php?ref=/gliders/EGO/private ratp

Google ratp Search PageRank Check AutoLink AutoFill Send to ratp Settings

EGO login page

EGO

Login or Sign in

Home

- How does a glider work?
- Why are gliders Important?
- Atlantic Observatory
- Mediterranean Observatory
- South West Pacific Obs.
- South East Pacific Observatory

EGO Restricted Area

Resources

- + Technical notes
- + Links
- + Maintenance
- + Pictures
- + References
- + Weather forecasts

Members

Contact

Yahoo Group

WELCOME TO THE EGO RESTRICTED AREA

Your computer *mic92-13-88-165-230-196.fbx.proxad.net / 88.165.230.196* is not in our database.
Please log in manually.

EGO Members Enter your username and password in 181 Username: testor Password: ***** Log In	New user? Click here to create an account. Forgot password or username? Click here.
--	---

EGO Workshops and Glider Schools

- + **NEW** 3rd EGO Workshop and Glider School
- + 2nd EGO workshop
- + 1st EGO workshop

EGO Gliders Deployments

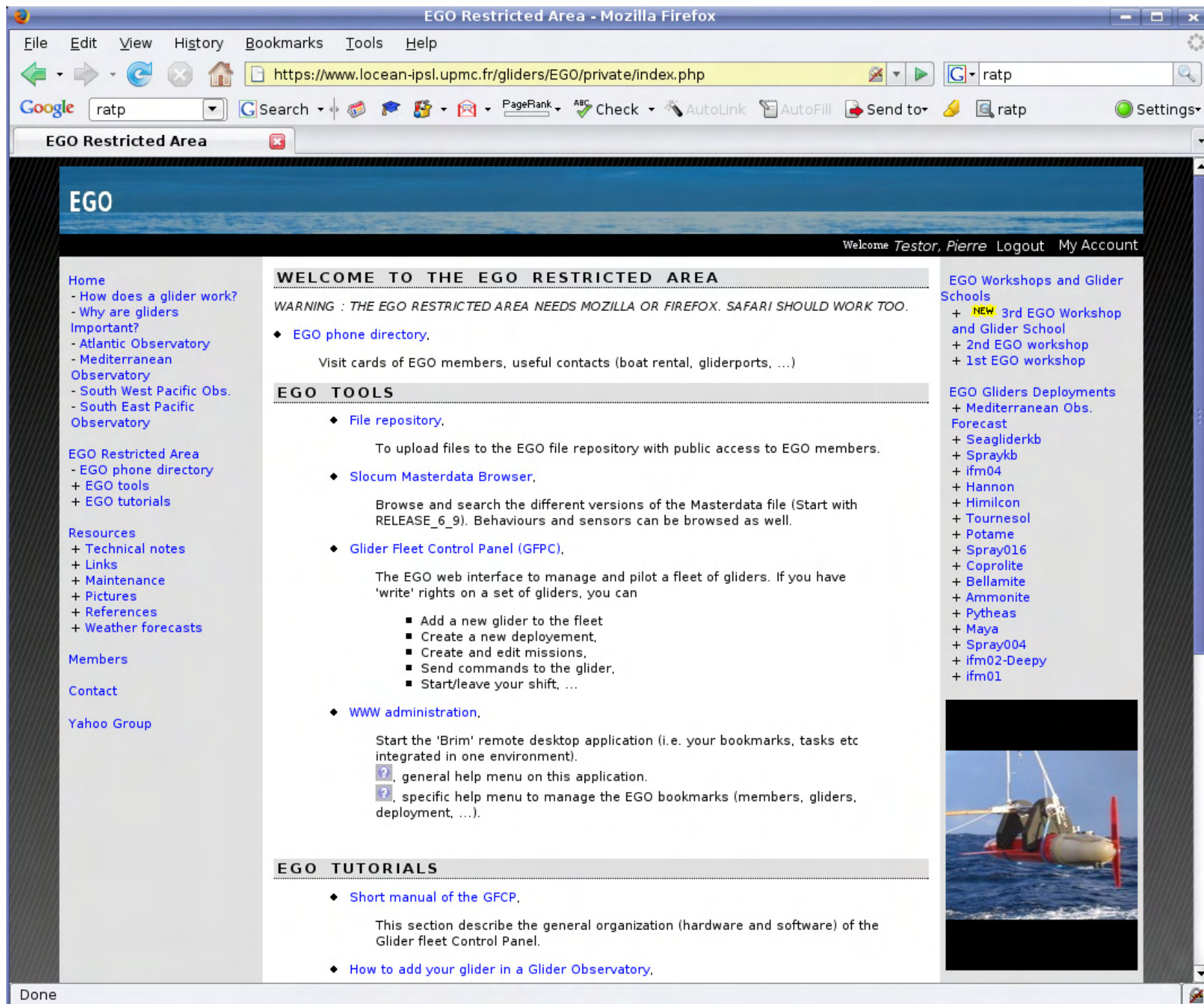
- + Mediterranean Obs. Forecast
- + Seagliderkb
- + Spraykb
- + ifm04
- + Hannon
- + Himilcon
- + Tournesol
- + Potame
- + Spray016
- + Coprolite
- + Bellamite
- + Ammonite
- + Pytheas
- + Maya
- + Spray004
- + ifm02-Deepy
- + ifm01

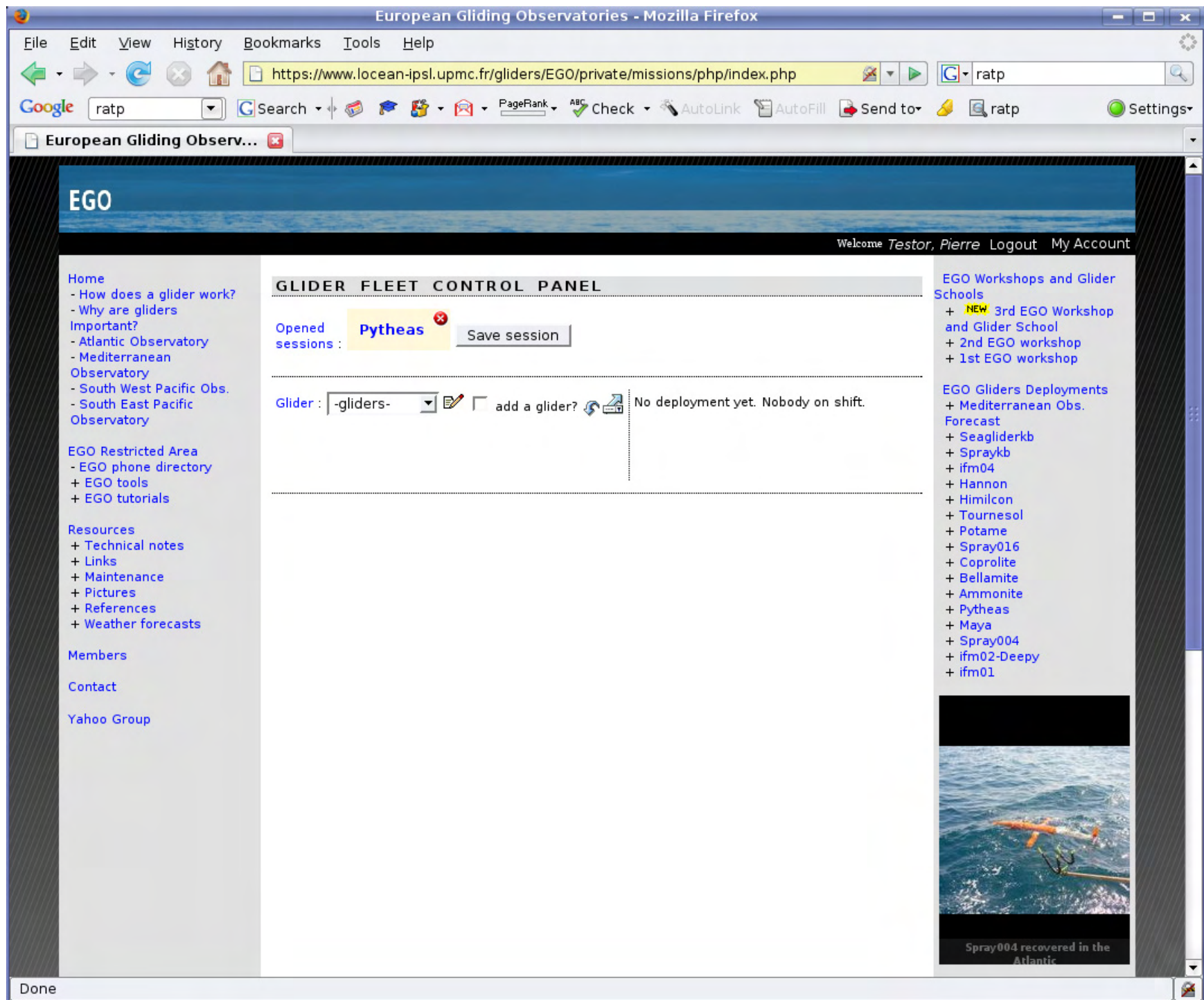


ifm01 recovered in the Ionian

Done

www.locean-ipsl.upmc.fr





EGO

Welcome *Testor, Pierre* Logout My Account

GLIDER FLEET CONTROL PANEL

Opened sessions : **Pytheas**

Glider : Pytheas ☐ add a glider? Persons on shift :

Deployment:   

☒ Start ☐ Stop ☐

Test

☒ Pierre Testor
☒ Vincent Echevin
☐ Laurent Bequery

Missions : EGO2008.MI -select an activ

Config : -Config- -select an acti     Blandine Lheveder

Sciconfig : Karim Bernardet [Edit the log book](#)

Info : BALASTING.TXT -select an actio Sunday 26 Oct 07:39:32 CET 2008
Echeyn Vincent Il y a eu un truc

Cfg :   bizarre au milieu de la journée du 24 on le voit sur pitch et batpos.

Persons on shift :

 Laurent Mortier Cpt

 Pierre Testor

  Vincent Echevin

 Laurent Beguery

 Alexis Chaigneau

 Aurelie Albert

 Katerina Goubanova

  Blandine Lheveder

 Karim Bernardet

[Edit the log book](#)

Sunday 26 Oct 07:39:32 CET 2008
Echevin, Vincent Il y a eu un truc
bizarre au milieu de la journée du
24 on le voit sur pitch et batpos.
C'est un pb lié à la transmission
des données? il manque aussi des

Define parameters for plots, forecast, ...

Pytheas real time plots

Pytheas dirs@dockserver | with an ssh tunnel

GMC Client Tools | with an ssh tunnel

[EGO2008.MI] [SURFAC41.MA] [SURFAC40.MA] [GOTO_L40.MA] [YO40.MA] [SAMPLE40.MA]
[structure.m]

EGO Workshops and Glider Schools

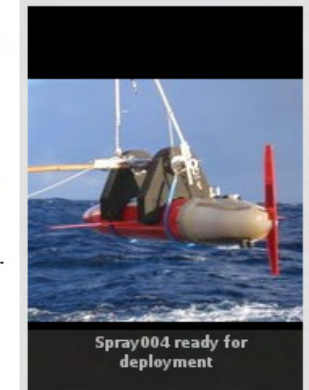
- + **NEW** 3rd EGO Workshop and Glider School
- + 2nd EGO workshop
- + 1st EGO workshop

EGO Gliders Deployments

- + Mediterranean Obs.

Forecast

- + Seagliderkb
- + Spraykb
- + ifm04
- + Hannon
- + Himilcon
- + Tournesol
- + Potame
- + Spray016
- + Coprolite
- + Bellamite
- + Ammonite
- + Pytheas
- + Maya
- + Spray004
- + ifm02-Deepty
- + ifm01



deployment

Session 'pytheas'

Person on shift

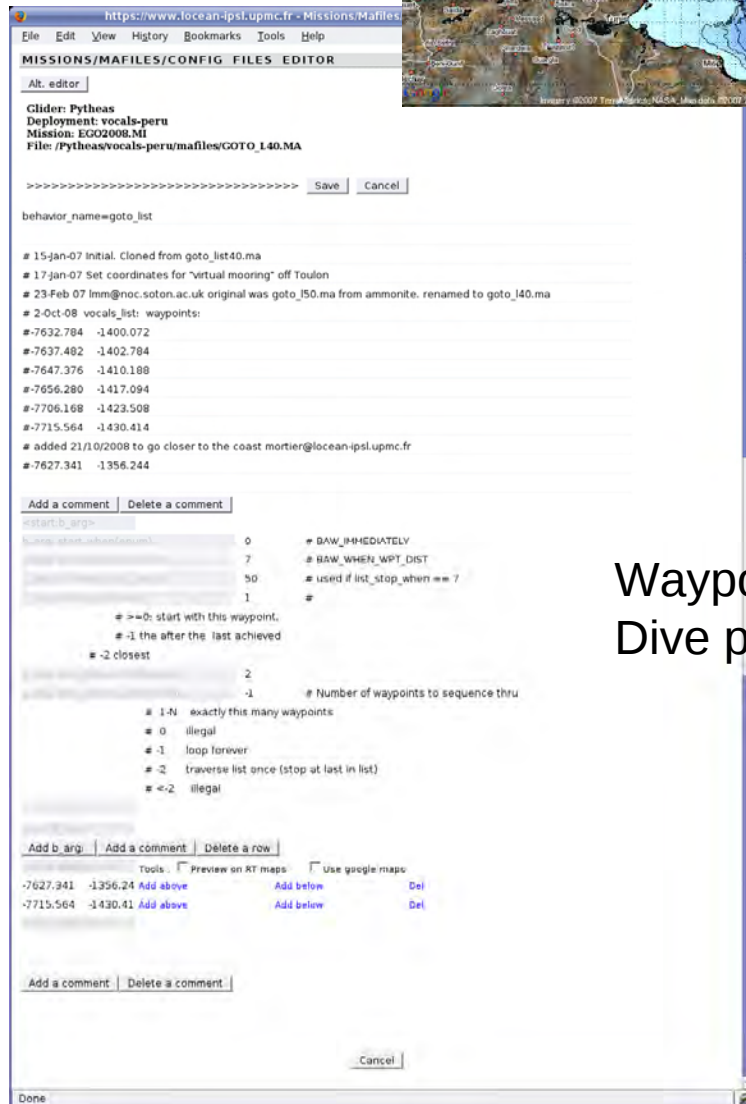
Alerts!

xfer

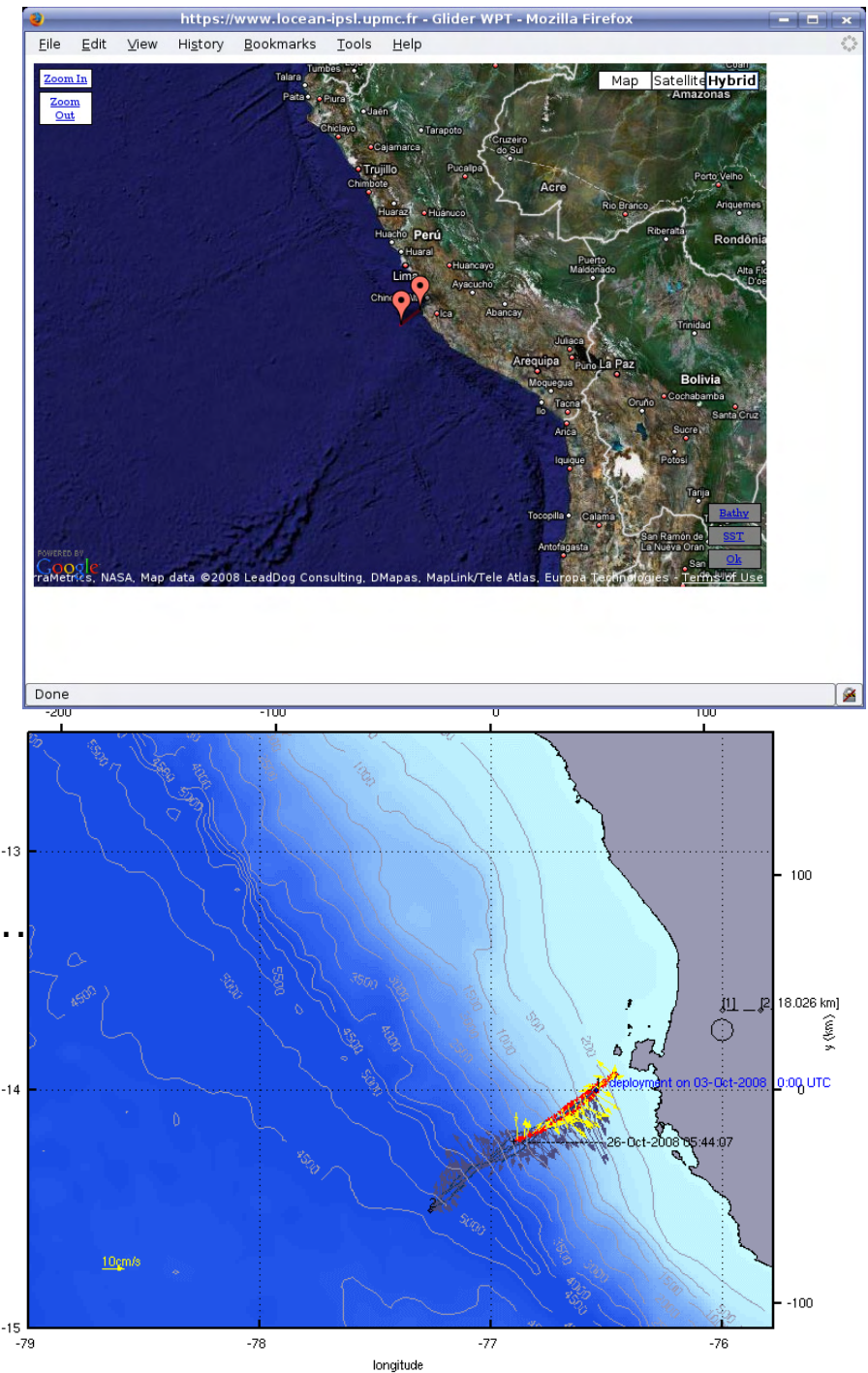
Selection and edition of config files

logbook

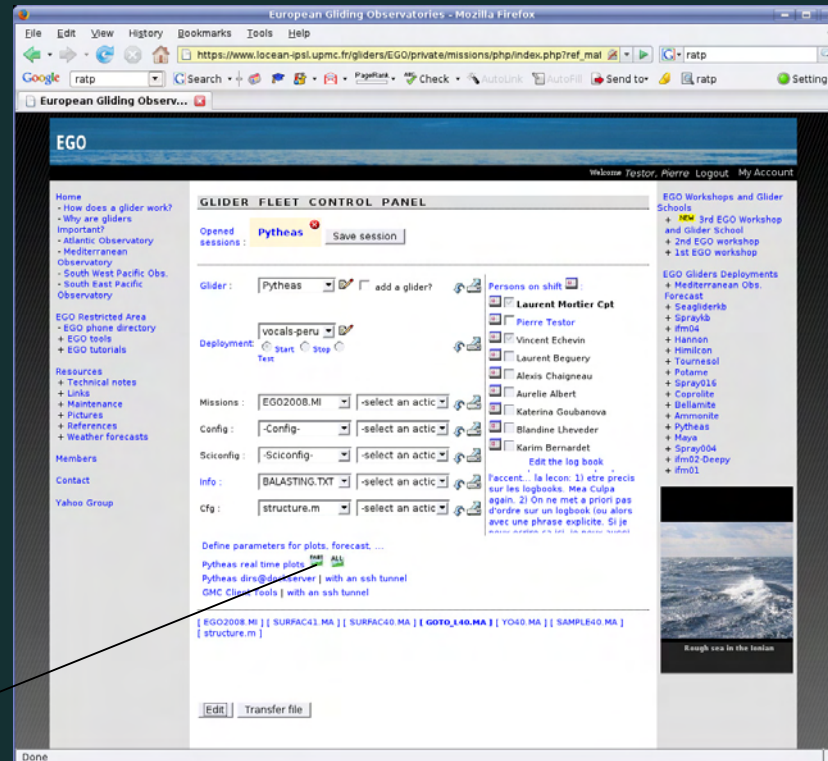
Selection/edition/xfer of config files

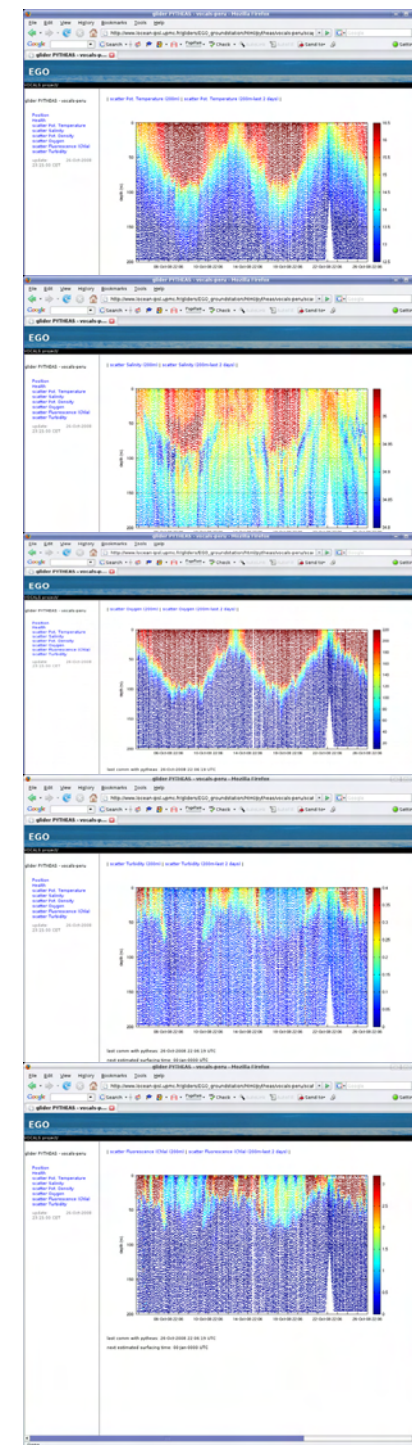
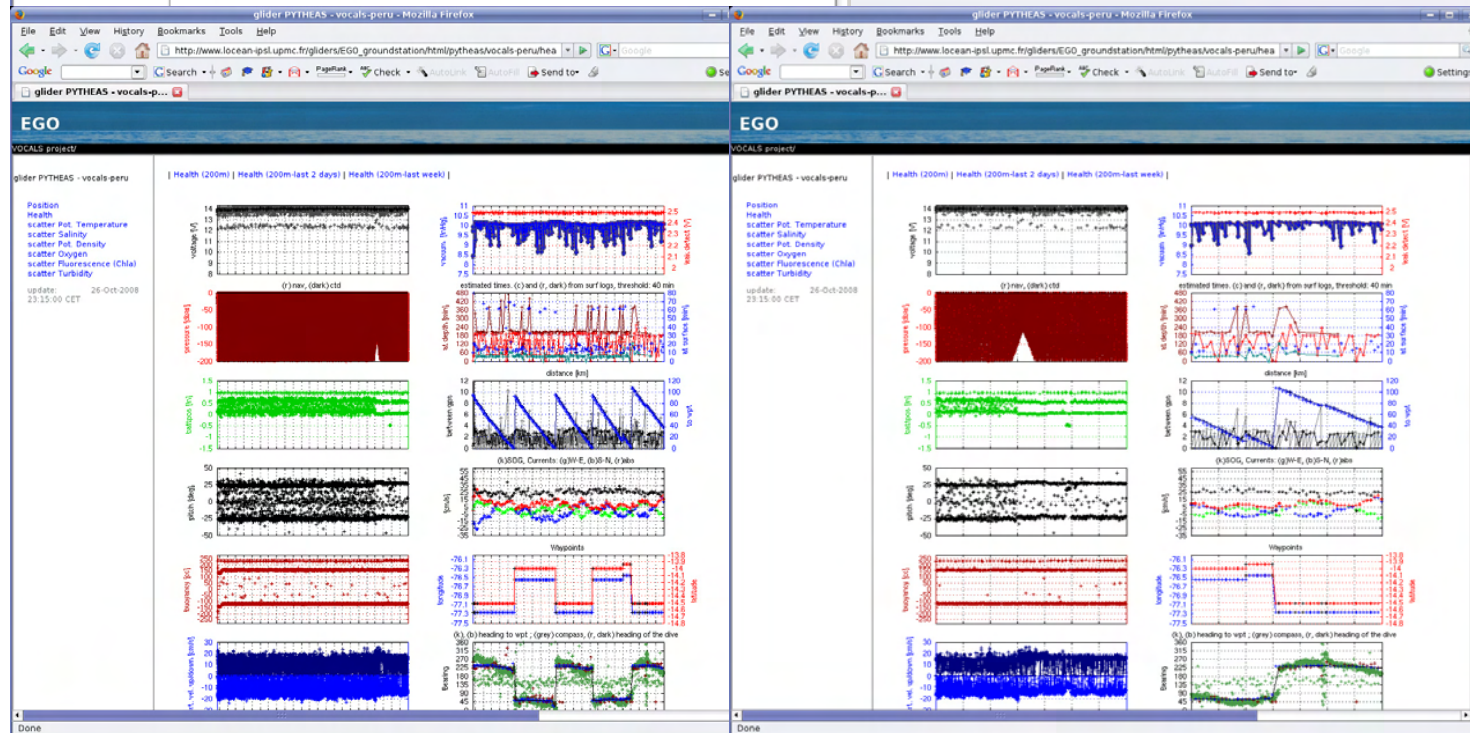
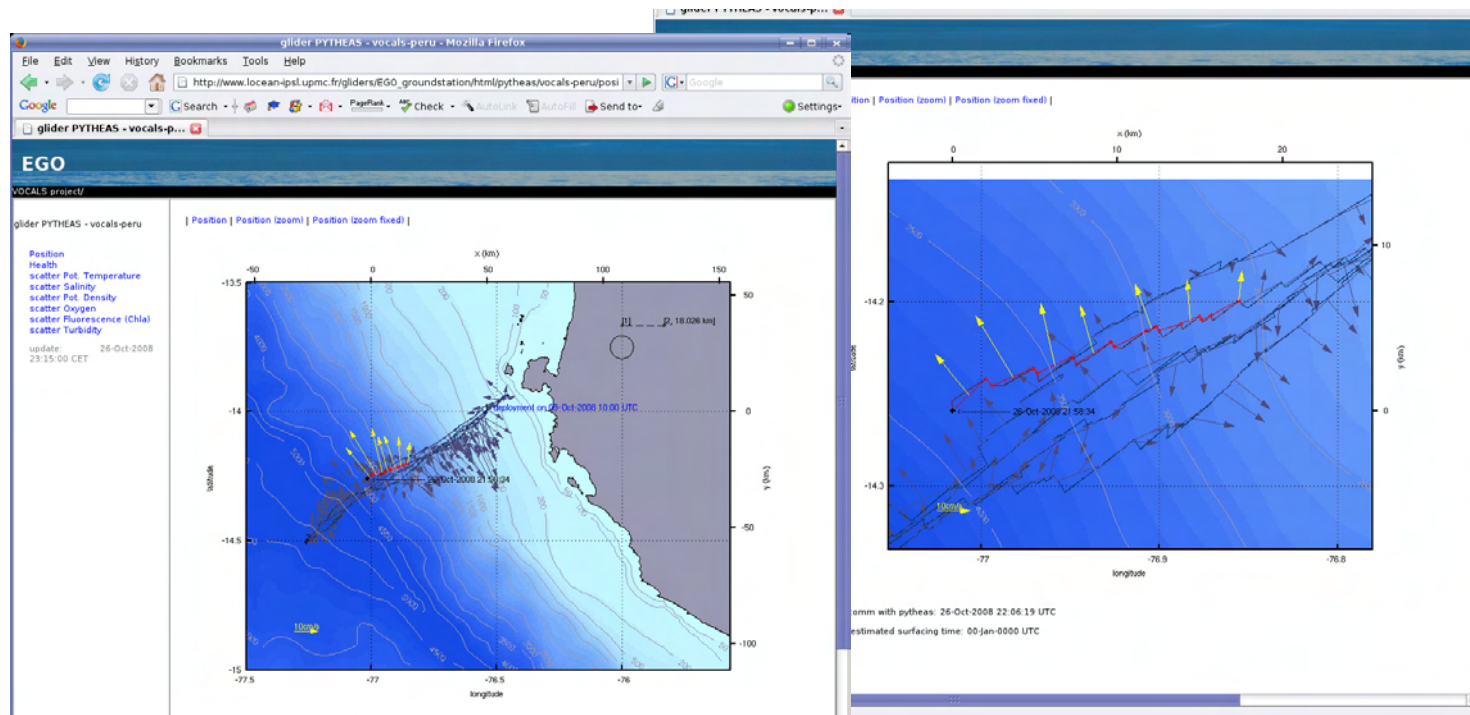


Waypoint list,
Dive parameters...



Make Plots





http://localhost:8080/ Glider characteristics - SeaMonkey

File Edit View Go Bookmarks Tools Window Help

Spraykarim	dt insu	Spray	Detail
Sglib	dt insu	Seaglider	Detail
Myspray	dt insu	Spray	Detail
Toto	dt insu	Spray	Detail
Gliderkarim	dt insu	Spray	Detail

21 registered cards

Detailed characteristics

Glider Name : **Myspray**

Owning Institution : **dt insu**

Main user (define rights) : **Bernardet Karim**

Type : **Spray**

Serial number : **999**

IMEI : **0000000000000000**

Firmware version : **0702**

Default to glider dir (Secom only) :

Default data server : **karim.bernardet@ifremer.fr**

Public or private : ☒ Public ☐ Private To be dis

Card no 58, added on 2008-10-16 15:35:32 by kbemard

[Update this card](#)

Deleting cards : [Display delete buttons](#)

[Close](#)

[Report in wahmaster](#)

Done

The screenshot shows a web browser window with the address bar displaying 'http://localhost/~gliderman/EGO/private/missions/php/index.php'. The browser's interface includes a menu bar (File, Edit, View, Go, Bookmarks, Tools, Window, Help) and a toolbar with buttons for Back, Forward, Reload, and Stop. The page content is organized into a sidebar on the left and a main content area. The sidebar contains links for Home, Bookmarks, Mozilla.org, MozillaZine, Mozdev.org, and CGI. The main content area features a form for mission management with sections for Glider (Myspray), Deployment (test161008), Missions (MAMISSION MI), Info, and Cfg. A table of missions is displayed, showing details such as mission ID, name, and status. The browser's status bar at the bottom indicates the page is loaded.

The screenshot shows a web browser window with the address bar displaying 'http://localhost/~gliderman/EGO/private/missions/php/index.php'. The browser's interface includes a menu bar (File, Edit, View, Go, Bookmarks, Tools, Window, Help) and a toolbar with buttons for Back, Forward, Reload, and Stop. The page content is organized into a sidebar on the left and a main content area. The sidebar contains links for Home, Bookmarks, Mozilla.org, MozillaZine, Mozdev.org, and CGI. The main content area features a form with fields for Glider (Myspray), Deployment (test161008), Missions (MAMISSION MI), Info, and Cfg. Below the form, there is a section titled '[MAMISSION MI]' with buttons for Edit and Transfer file. At the bottom, a terminal window displays a log of mission data, including dates, times, and coordinates.

Key

File Edit View Go Bookmarks Tools Window Help

MISSIONS EDITOR FOR SPRAY

```

# 0004 Spray CFG Updated 29Sep2006 2049 UTC Diver 171
MD HSDG Huntington Beach Inshore Route
P Route: Nroute, Now, End, Dir, Date, Time, DiveP
WR 10 8 1 0 29Sep2006 2049 171
# Route List: v, lv, detect, circle, approach date time diveP
Wv 1 1 1 0 0 29Sep2006 2049 171
Wv 2 2 1 0 0 29Sep2006 2049 171
Wv 3 3 1 0 0 29Sep2006 2049 171
Wv 4 10 1 0 0 29Sep2006 2049 171
Wv 5 5 1 0 0 29Sep2006 2049 171
Wv 6 6 1 0 0 29Sep2006 2049 171
Wv 7 7 1 0 0 29Sep2006 2049 171
Wv 8 8 1 0 0 29Sep2006 2049 171
Wv 9 9 1 0 0 29Sep2006 2049 171
Wv 10 10 1 0 0 29Sep2006 2049 171
# Waypt Lat, Index, Lat, Lon, Date, Time, DiveP
WW0 33.458 -117.790 26Sep2006 1942 95
WW1 33.627 -118.100 26Sep2006 1942 95
WW2 33.545 -118.077 26Sep2006 1942 95
WW3 33.592 -117.989 26Sep2006 1942 95
WW4 33.506 -117.997 26Sep2006 1942 95
WW5 33.566 -117.853 26Sep2006 1942 95
WW6 33.498 -117.855 26Sep2006 1942 95
WW7 33.508 -117.774 26Sep2006 1942 95
WW8 33.347 -117.829 26Sep2006 1942 95
WW9 33.417 -118.034 26Sep2006 1942 95
WW10 33.506 -117.997 26Sep2006 1942 95
# Re-Settable Parameters from Shore Commands
# Value Addr:Label_1 Label_2 Date Time Dive_#

RV 1 66:UseOpt Use_Optical 21Sep2006 1930 0
RV 1 53:UseAR Use_Altimeter 25Sep2006 1410 46
RV 25 75:ARZ1 AR_1st_use_Z 25Sep2006 1410 46

```

RV	Addr	Label_1	Label_2	Date Time	Dive_#
1	66:UseOpt	Use_Optical		21Sep2006 1930	0
1	53:UseAR	Use_Altimeter		25Sep2006 1410	46
25	75:ARZ1	AR_1st_use_Z		25Sep2006 1410	46

Done

about:blank - SeaMonkey

M n1 n2 : GPS settings.

n1 = max time (minutes) to try to get a GPS fix.

legal value = -1 < n1 < 21 minutes.

n2 = action to take when there is a bad GPS fix.

n2 = -3 = head HOME (computed from the last valid fix).

n2 = -2 = steer the last valid heading.

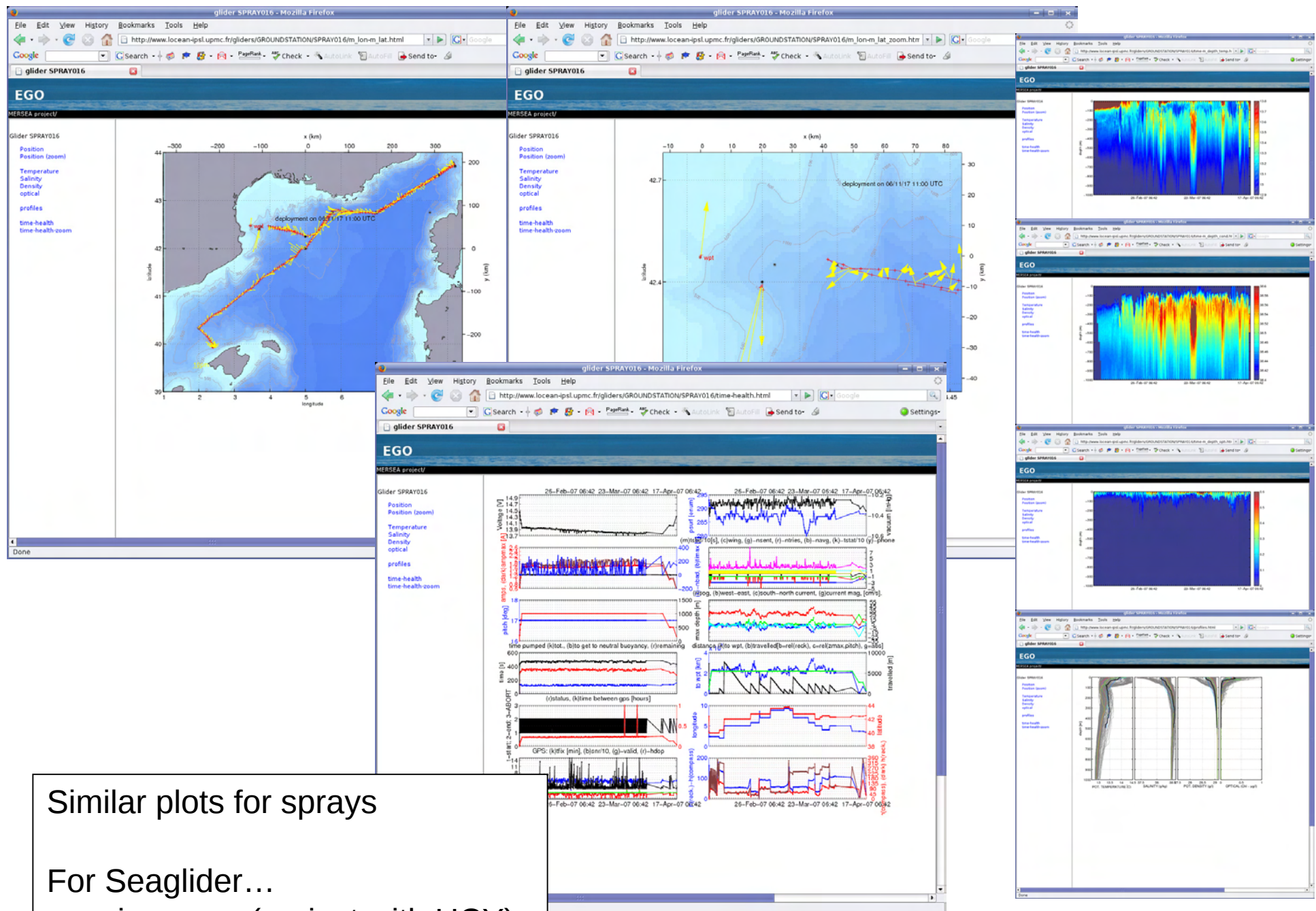
n2 = -1 = do a circle (constant roll=30 degrees).

n2 = 0, 360 = manually steer to this TRUE heading value.

15 GPS_Time

-1 No_GPS_Heading

Submit Close Window



Similar plots for sprays

For Seaglider...
coming soon (project with UCY)

A WEB BASED GLIDER INFORMATION SYSTEM

- Information from various sites/kind (gliders via iridium/argos, other measurements)
- Operational (piloting and data flow to operational models)

Distributed Supervision, Interface for different gliders
incidents/alerts.

Library of “safe” missions (dissemination/archiving)

<http://www.locean-ipsl.upmc.fr/gliders/EGO/>

Information system necessary for cooperative piloting of (fleets of!!!) gliders

Contribution to the EGO community.

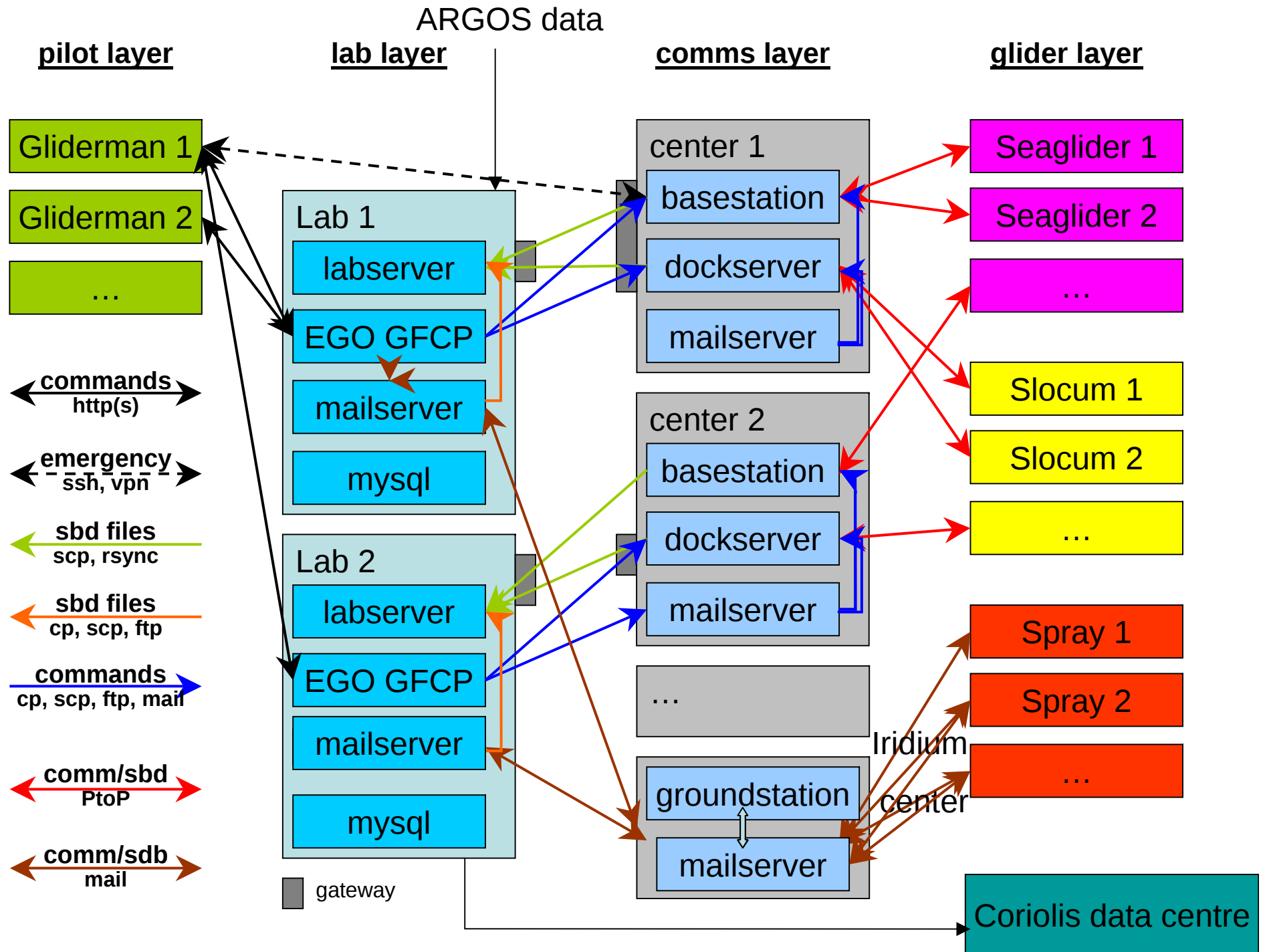
“Open and portable”

Use it!

Future Developments

seaglider ready (tomorrow)

RUDICS (better quality of iridium link and easier management – IPs)



A WEB BASED GLIDER INFORMATION SYSTEM

- Information from various sites/kind (gliders via iridium/argos, other measurements)
- Operational (piloting and data flow to operational models)

Distributed Supervision, Interface for different gliders
incidents/alerts.

Library of “safe” missions (dissemination/archiving)

<http://www.locean-ipsl.upmc.fr/gliders/EGO/>

Information system necessary for cooperative piloting of (fleets of!!!) gliders

Contribution to the EGO community.

“Open and portable”

Use it!

Future Developments

seaglider ready (tomorrow)

RUDICS (better quality of iridium link and easier management – IPs)