BGC float navigation and parameters

(CTS4 et CTS5-USEA)

How we managed to deploy 206 BGC float

Antoine Poteau

PLAN

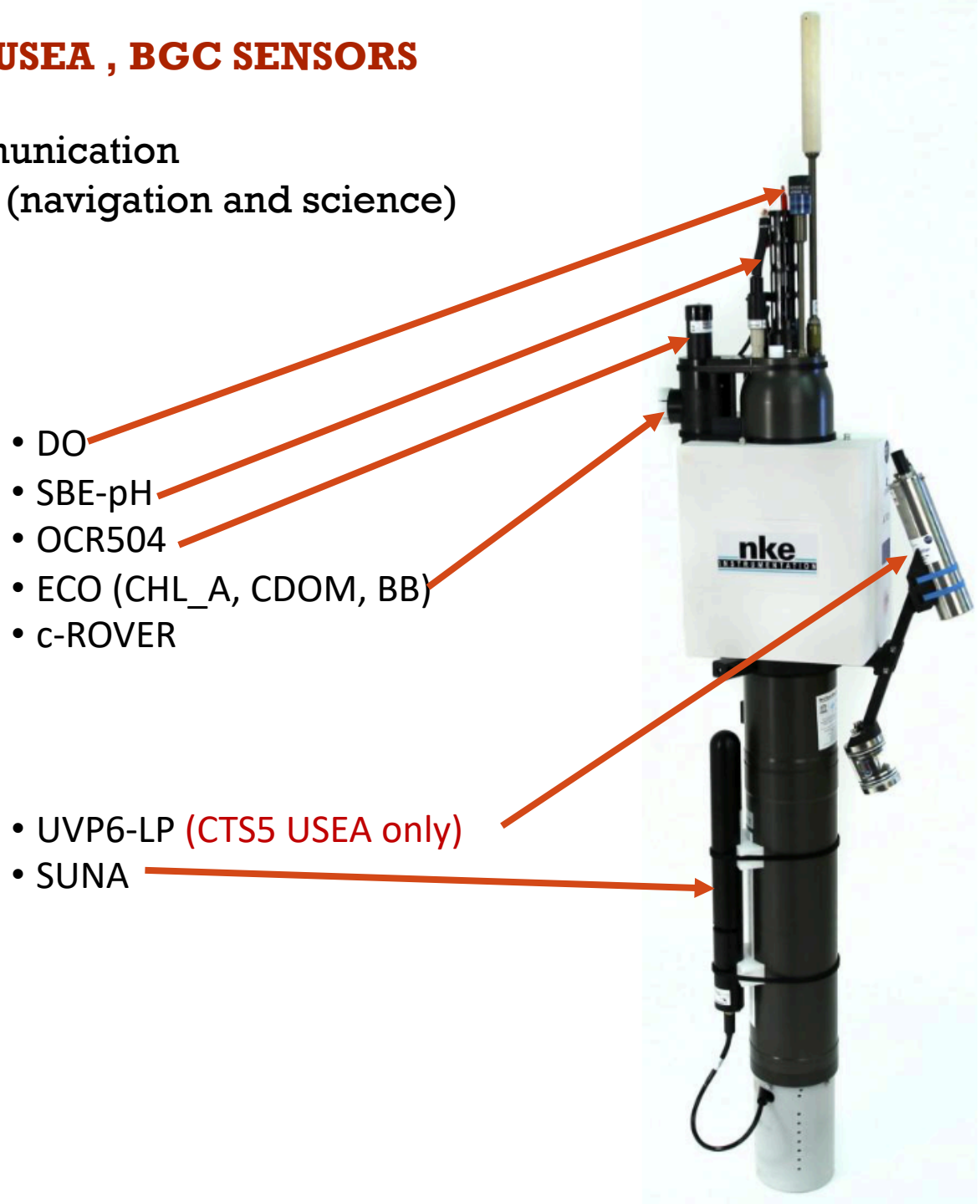
1. CTS4/CTS5-USEA , BGC SENSORS

2. Mission
3. Acquisition

4. 206 deployements (25 differents PI)

1. CTS4/CTS5-USEA , BGC SENSORS

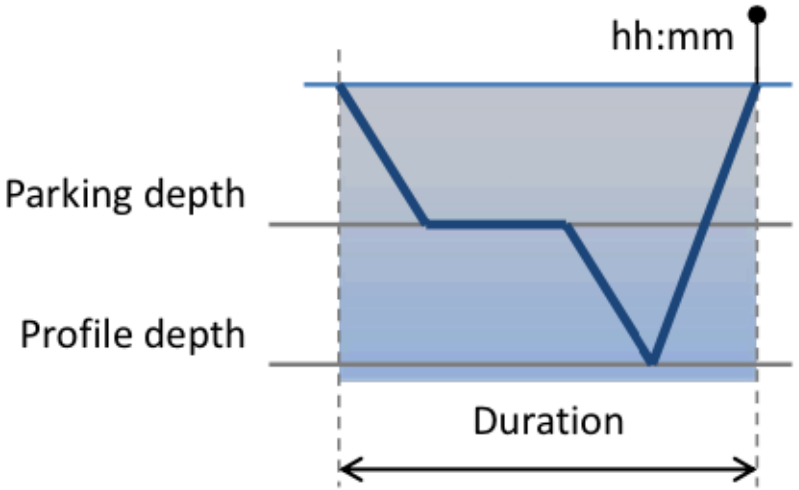
-RUDICS communication
-Double board (navigation and science)

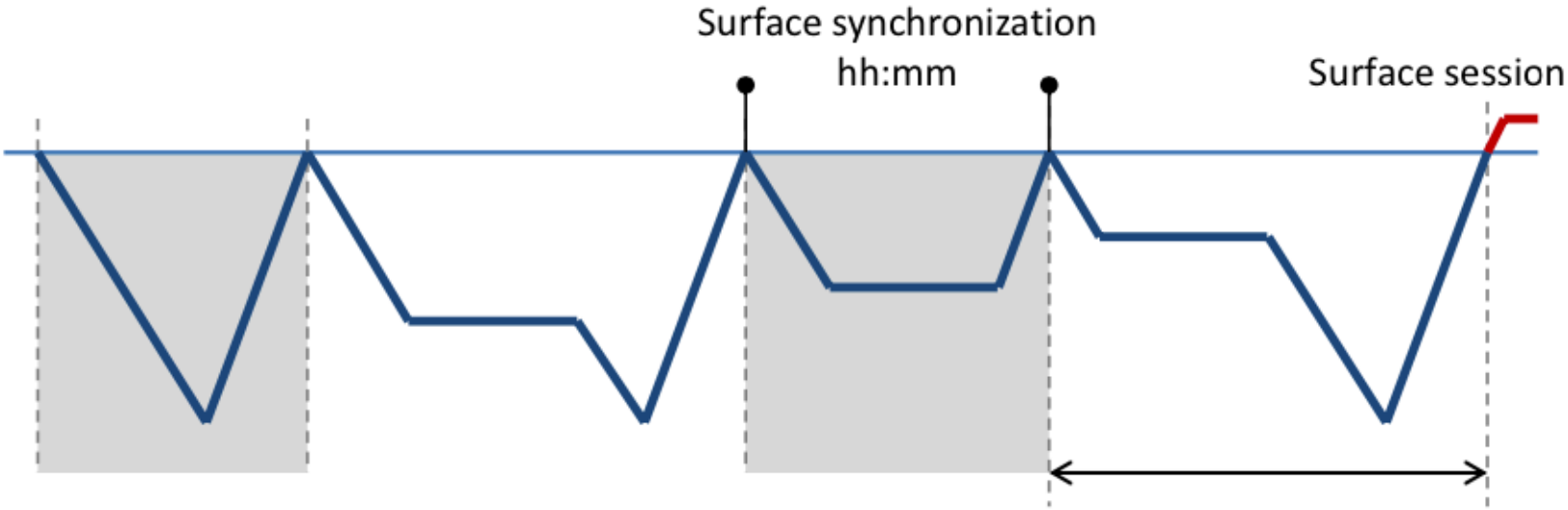


2. Mission

Mission features

- Profile settings:
  - Parking and profile depths
  - Profile duration (CTS5 USEA only)
  - Surface synchronization time
  - Surface session
- Multi-profile: up to 10 different settings
- Profiles are configured independently

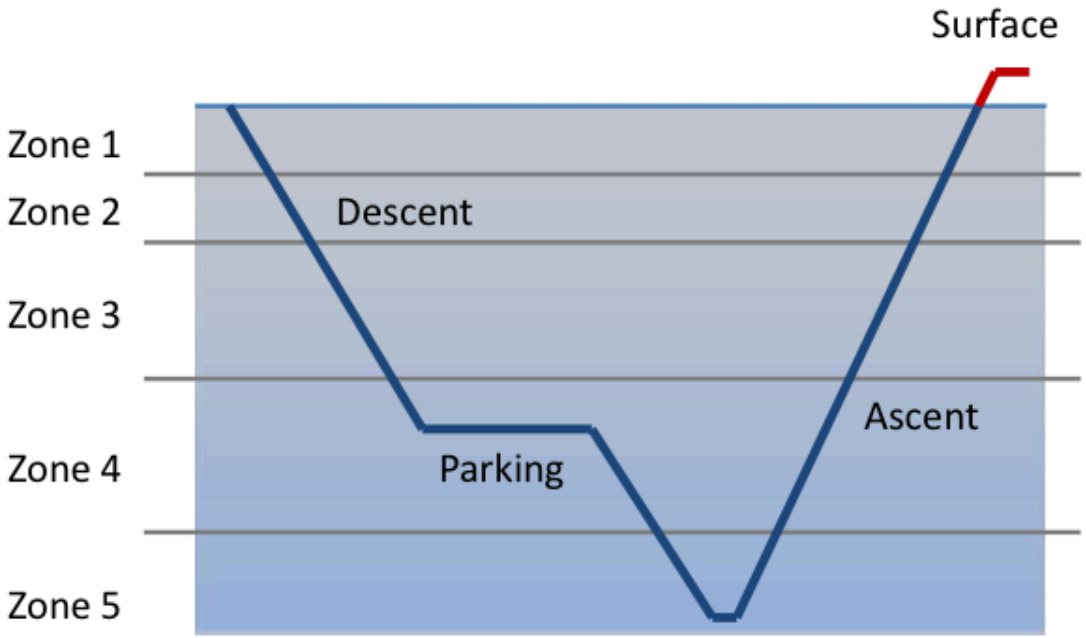




3. Acquisition

Sensor management

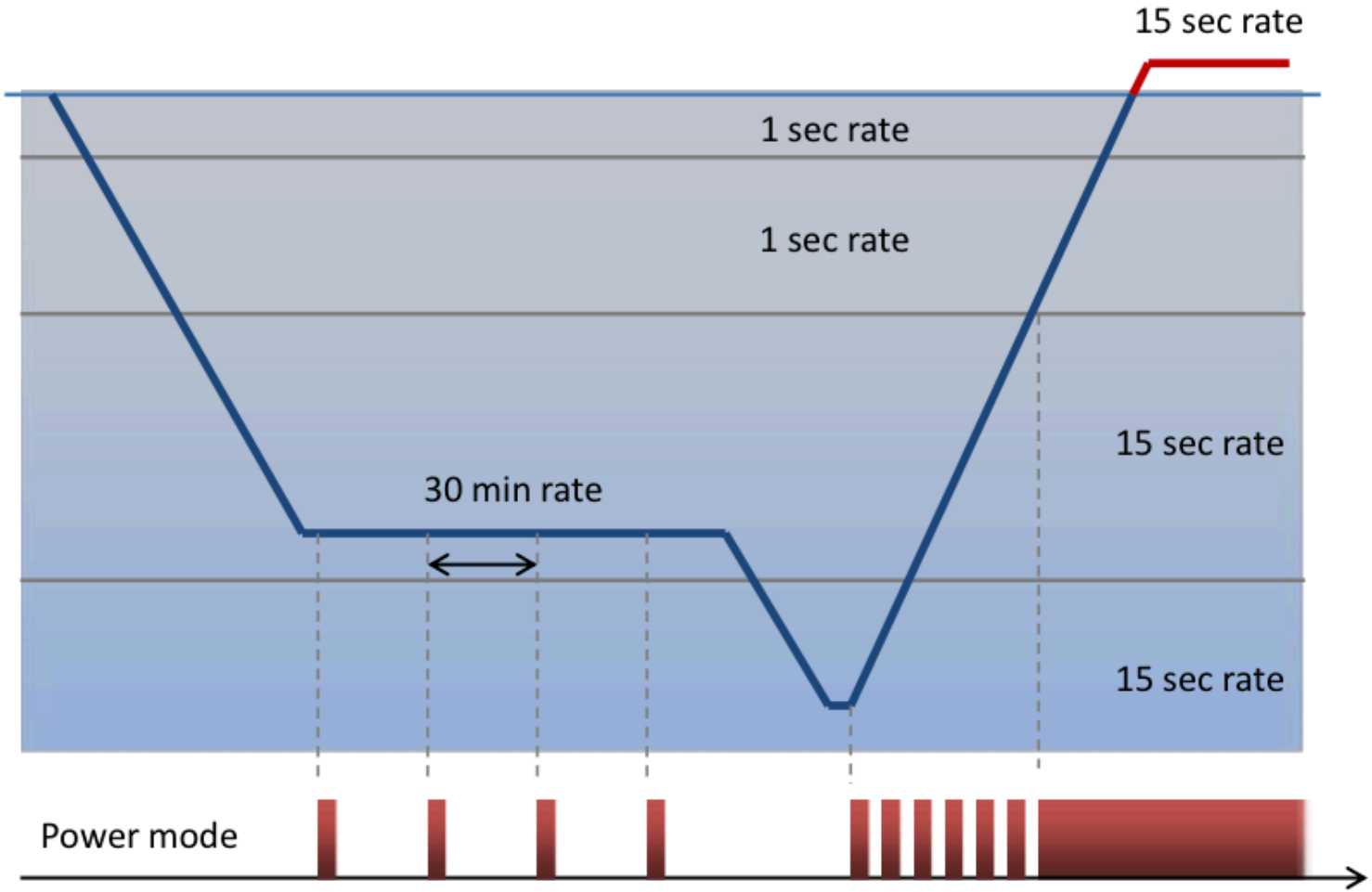
- Water column divided into up to 5 independent zones
- Surface acquisition stage for “in air” measurements
- Sensors are configured independently



3. Acquisition

Acquisition

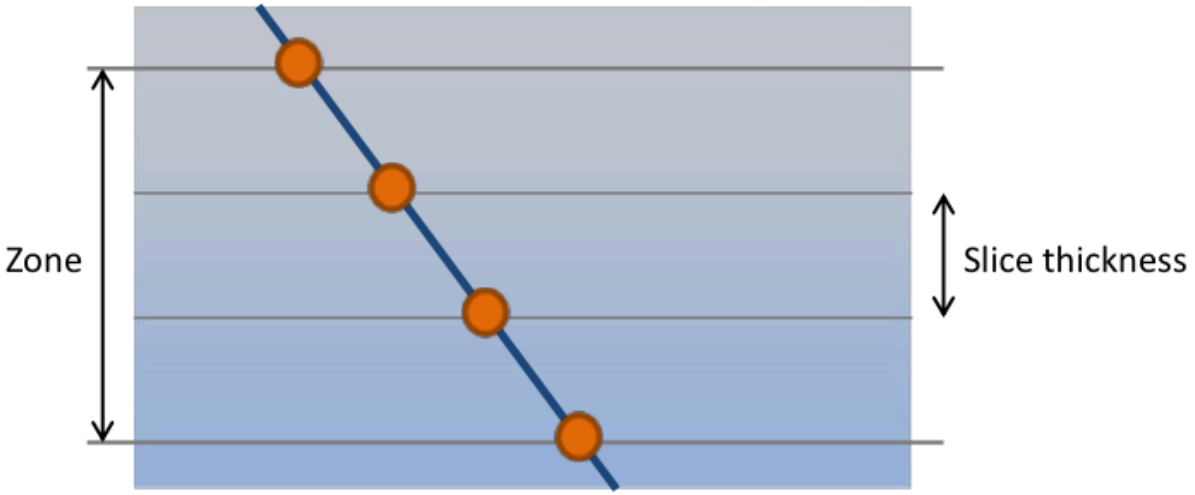
- Independent acquisition methods by zone:
  - Continuous + high sampling rate for high resolution
  - Pulsed + low sampling rate to save energy



3. Acquisition

Zone parameters

- Slice thickness
- Processing type:
  - Raw / Raw with decimation (down to 0.1 dbar resolution) (with decimation CTS5 USEA only)
  - Arithmetic mean (down to 0.5 dbar resolution)
  - Arithmetic mean + Standard deviation + Median



More than 500 parameters

customizable mission

5. 206 deployements for 25 differents PI (principaly in EU)

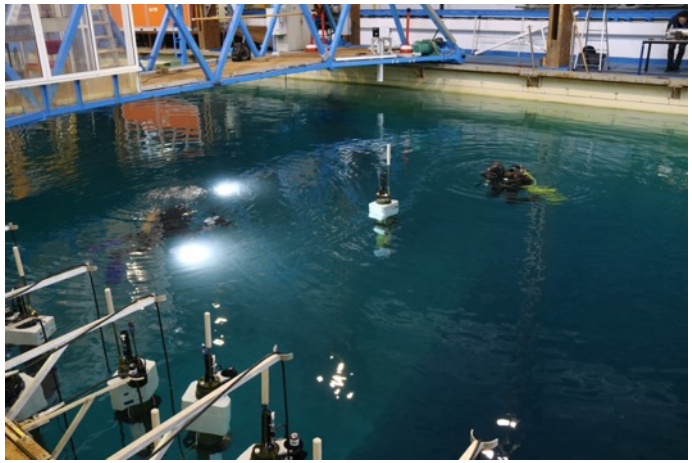
	CTD	O2	OCR504	ECO	pH
0 -> 1db	2s, cont, av/m/s, 1 db	20s, puls, raw, 1 db	60s, puls, raw, 1 db	60s, puls, raw, 1 db	60s, puls, raw, 1 db
1 db -> 10 db	2s, cont, av/m/s, 1 db	10s, puls, raw, 1 db	2s, puls, raw, 1 db	2s, puls, raw, 1 db	2s, puls, raw, 1 db
10 db -> 250 db	2s, cont, av/m/s, 2 db	10s, puls, raw, 2 db	10s, puls, raw, 2 db	10s, puls, raw, 2 db	10s, puls, raw, 2 db
250 db -> 1100 db	2s, cont, av/m/s, 10 db	100s, puls, raw, 10 db	0s, puls, av, 10 db	100s, puls, raw, 10 db	100s, puls, raw, 10 db
1100 db -> 2000 db	2s, cont, av/m/s, 50 db	200s, puls, raw, 50 db	0s, puls, av, 50 db	200s, puls, raw, 50 db	200s, puls, raw, 50 db

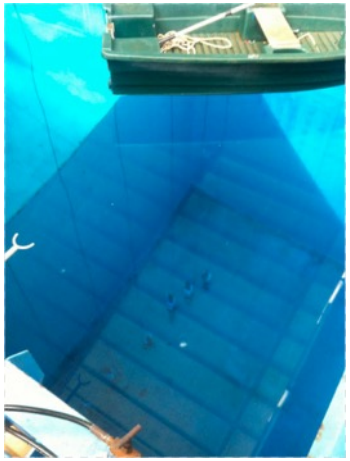
Select by projects:	Profiling	No longer profiling
ALL	71	135
NAOS	25	29
Argo-Italy	4	9
EAIMS	1	5
ATLANTOS	8	1
GMMC_CNES	16	12
UK-Bio-Argo	6	5
remOcean	4	48
SOCLIM	4	4
FPAII-GMMC	1	0
SA-Bio-Argo	1	0
Bay of VLFR	0	1
APMT	1	5
APMT-ICE	0	12
GeoEcoMar	0	1
PEACETIME	0	1
China-Bio-Argo	0	1
Panache	0	1

5. 206 deployements for 25 differents PI (principaly in EU)

Test in IFREMER tank facility

Noé's talk at 14:00 today : Ifremer test-tank facility overview





SAME program FOR ALL floats :

- Profile from 0 to 1000m
- Surface every day at 12 GMT the next day
- Drift at 1000m
- Acquisition in Ascent and Descent

- chlorophyll _a:
  - 1 – 10m : 0.20m resolution
  - 10 – 300m : 1m resolution
  - 250 – 1000m : 10m resolution
  - 1000 – 2000m : 50m resolution

5. 206 deployements for 25 differents PI (principaly in EU)

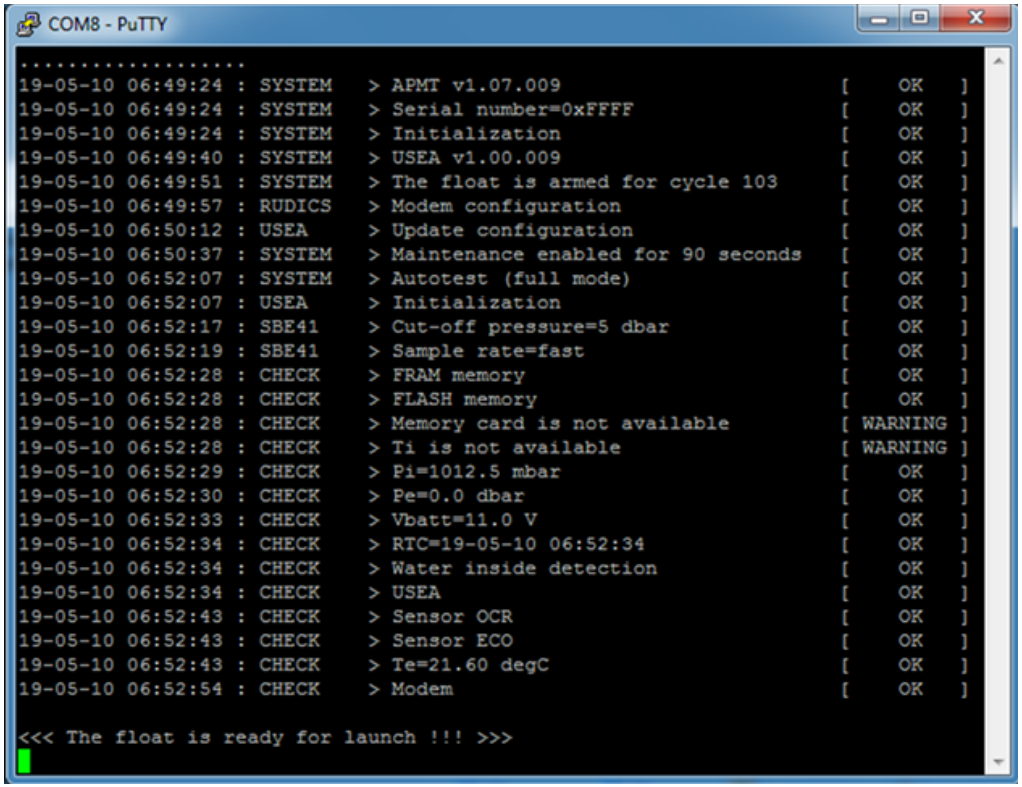
FINAL test before sending to his destination

- Full test off the flaot and sensors
- Full iridium communicatioN
- Collect all the META

Catherine's talk at 10:00 today : Float metadata on DAC – GDAC good practice

Explanation and training the person in charge of deploying the float

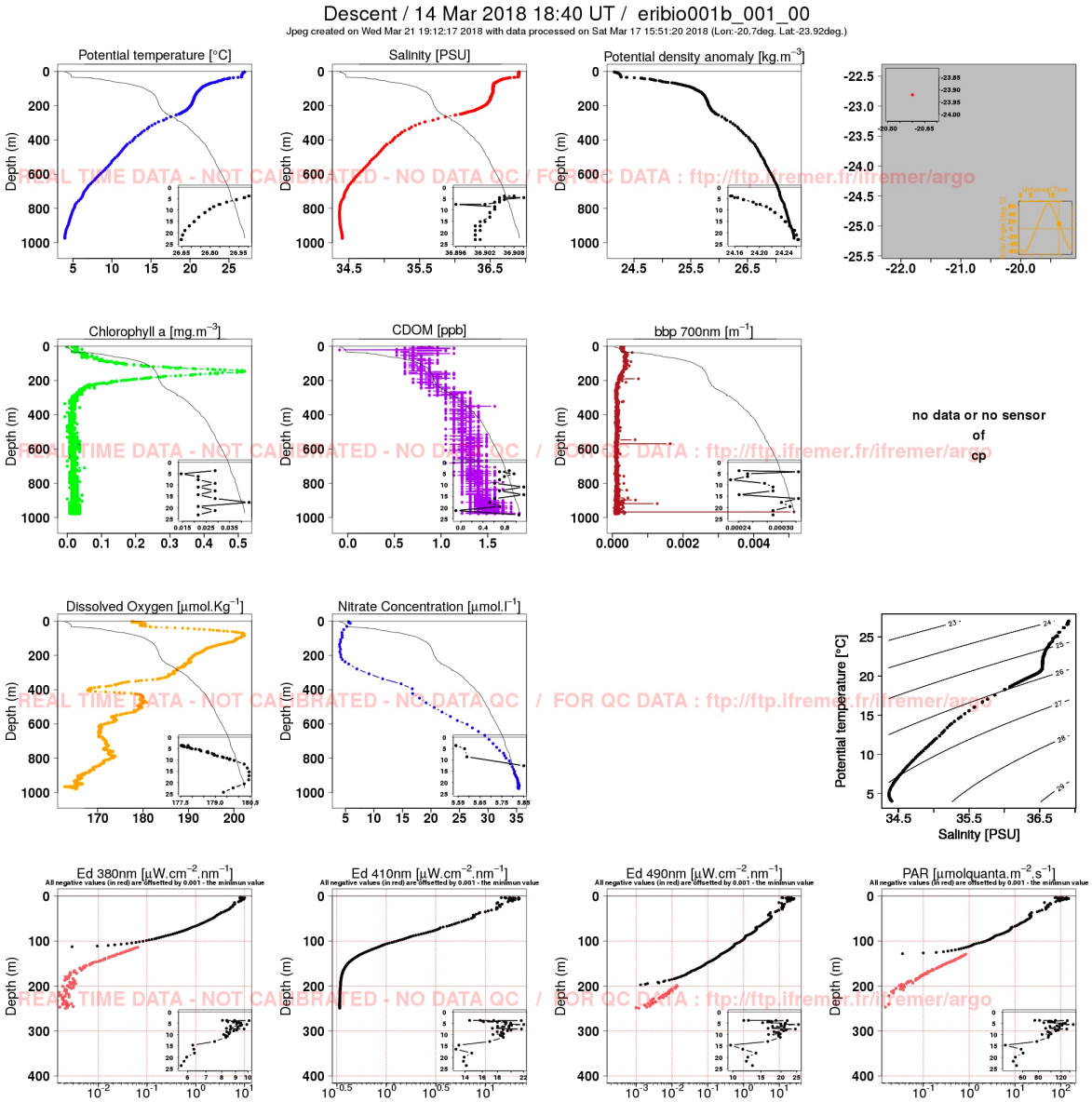
DO a TEST before the departure on the deck (at sea no more stress)



FOLLOW the procedure for the deploiement

5. 206 deployements for 25 differents PI (principaly in EU)

data visualisation of the 1st profil



after 5 days , turn OFF the descent aquisition

5. 206 deployements for 25 differents PI (principaly in EU)

Set the float to his standard monthly mission at 10 days frequency (or 5 days)

Automatic adjustment of time of surfacing (Sunrise Noon Sunset)

At day 0 : surface at noon,
+ 10 days : sunrise
+ 10 days : noon
+ 10 days : sunset

+ 10 days : noon
+ 10 days : sunrise
+ 10 days : noon
+ 10 days : sunset

+ 10 days : noon .....

once a month we are going a 2000m profiles

5. 206 deployements for 25 differents PI (principaly in EU)

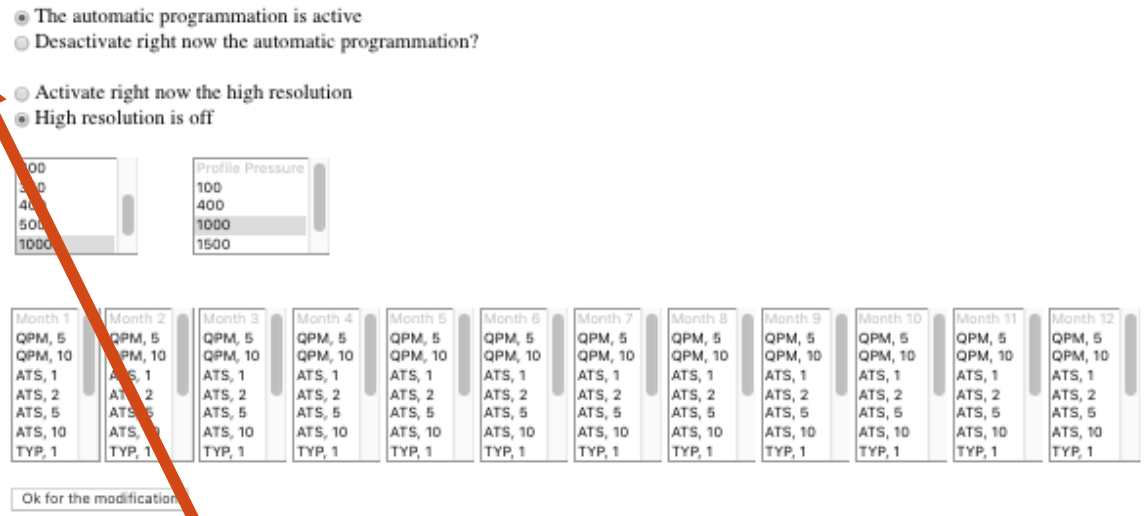
Month per Month mission

We have a atomatique change of the frenquency depend for the aeas

MISSION	MONTH	PROGRAM	DAYS	DRIFT PRESSURE	PROFILE PRESSURE	Activate ?	HR?
eribio002b	1	ATS	5	1000	1000	Y	N
eribio002b	2	ATS	5	1000	1000	Y	N
eribio002b	3	ATS	5	1000	1000	Y	N
eribio002b	4	ATS	5	1000	1000	Y	N
eribio002b	5	ATS	5	1000	1000	Y	N
eribio002b	6	ATS	5	1000	1000	Y	N
eribio002b	7	ATS	5	1000	1000	Y	N
eribio002b	8	ATS	5	1000	1000	Y	N
eribio002b	9	ATS	5	1000	1000	Y	N
eribio002b	10	ATS	5	1000	1000	Y	N
eribio002b	11	ATS	5	1000	1000	Y	N
eribio002b	12	ATS	5	1000	1000	Y	N

For exemple in austral :

Month	Frequency
January	2
February	5
March	5
April	5
May	5
June	5
July	5
August	5
September	3
October	2
November	2
December	2



Bloom perid

5. 206 deployements and 25 differents PI (principaly in EU)

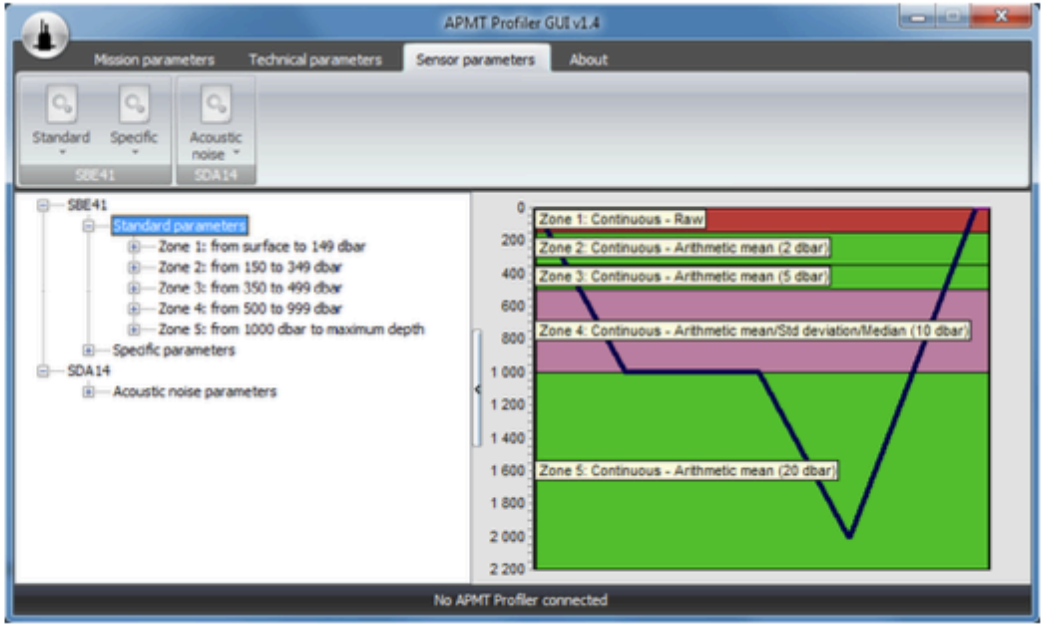
Change mission via a web page (20 validated missions)

n profiles a day every 2, 5 or 10 days
Hight sampling resolution

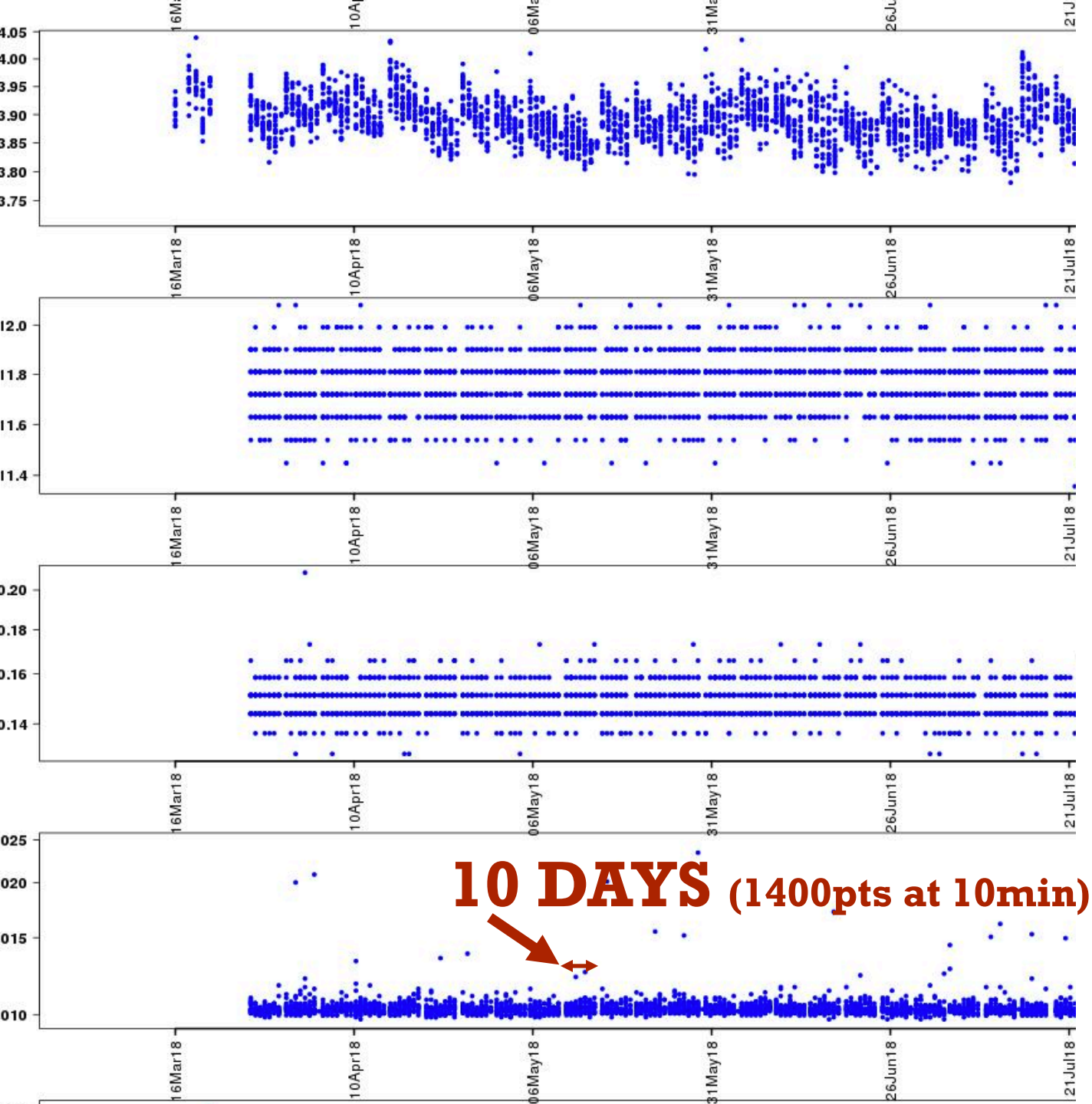
For CTS5-USEA GUI interface :

Sensor parameters

- Set/change acquisition parameters:
  - Power mode
  - Sampling rate
  - Processing type



Edouard's talk at 14:00 today

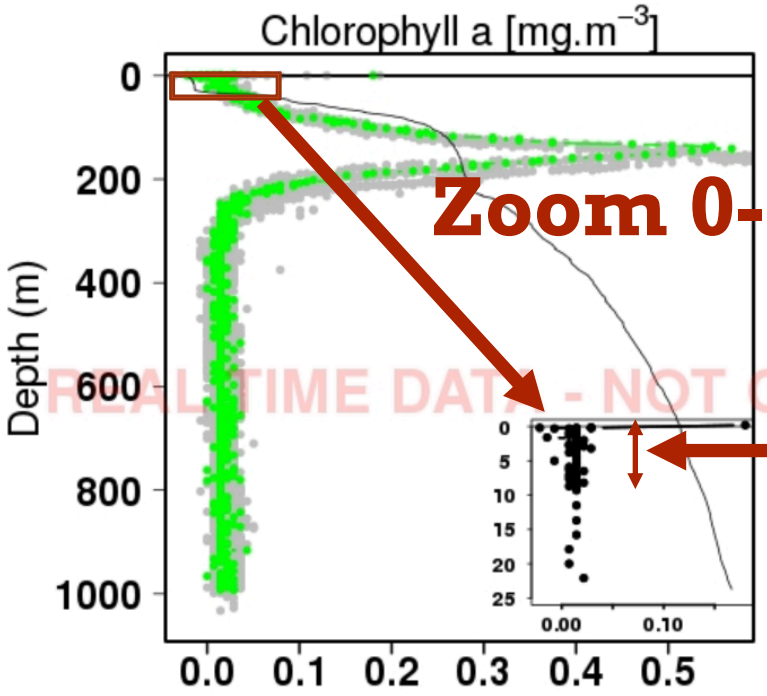


Temp

CDOM

CHl_A

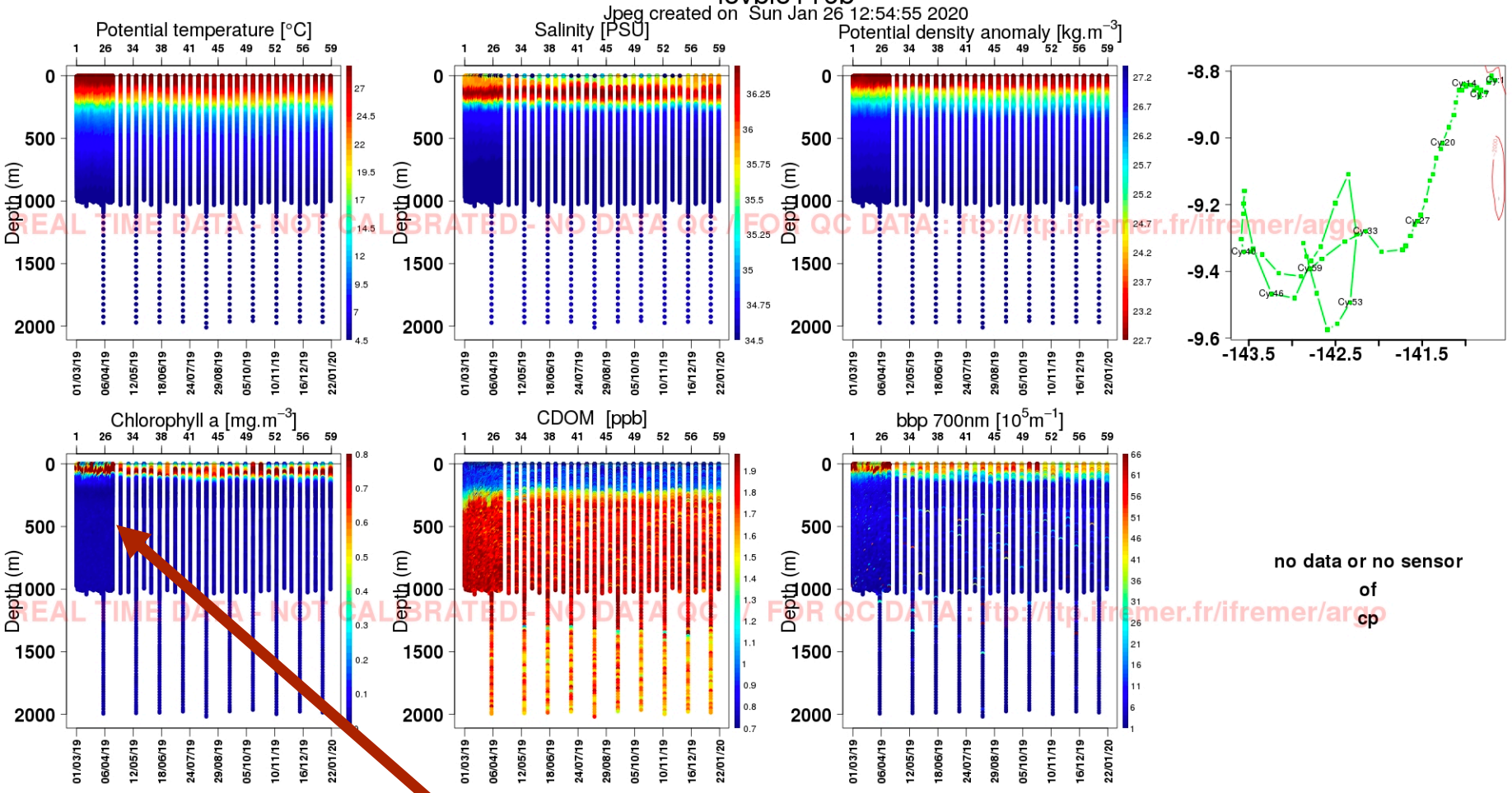
bbp



Zoom 0-25m

0 – 10 metrers

Every 2 sec



Every days

Every days 10 days with a 2000 every month