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Réunion partenaires des projets Argo

Discussions technologie

N. POFFA - E. LEYMARIE - G. LE PROVOST

29/09/2022

- | Présentation des sujets de discussion et de l'organisation [5 min]
- | Constitution de 3 groupes et installation dans les espaces dédié [5 min]
- | Temps d'échange en groupe sur les 3 sujets [45 min]
- | Restitution interactive dans l'amphi [25 min]

- | Réduire l'impact environnemental de nos activités, y compris des profileurs
- | Augmenter la durée de vie des profileurs
- | Faciliter la mise en œuvre opérationnelle des déploiements & récupérations



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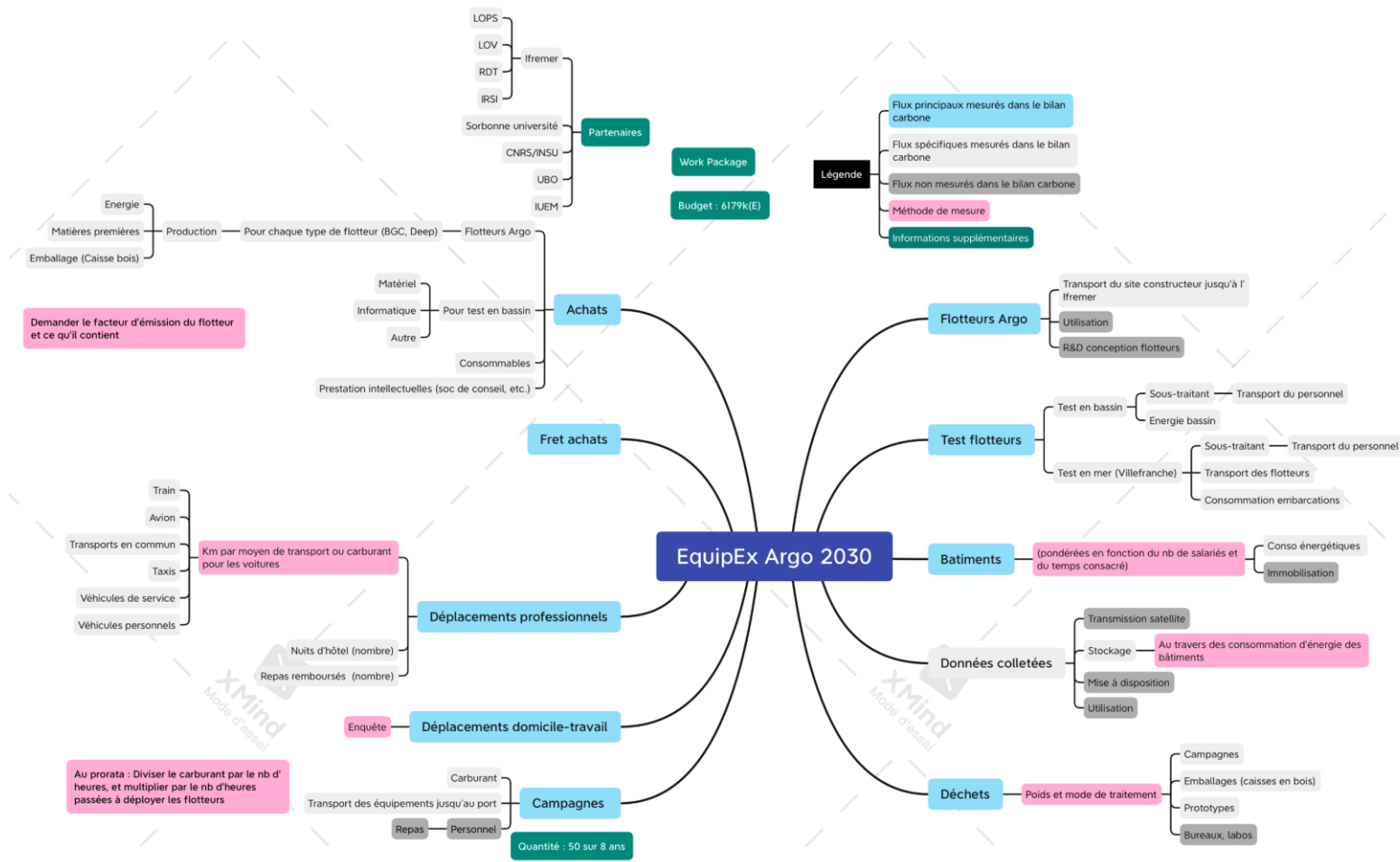
Discussion:

Réduire l'impact environnemental de nos activités, y compris des profileurs

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29/09/2022

Réduire l'impact environnemental de nos activités





Recent developments to reduce the environmental impact



- ▶ New electronics with less rare metals
- ▶ Better choice of some electronics/mechanical components



- ▶ Optimisation of the profiler energy consumption, via the mechanical, electronic and software design
- ▶ Very high-capacity battery technology, which allows maximum energy storage in minimum volume

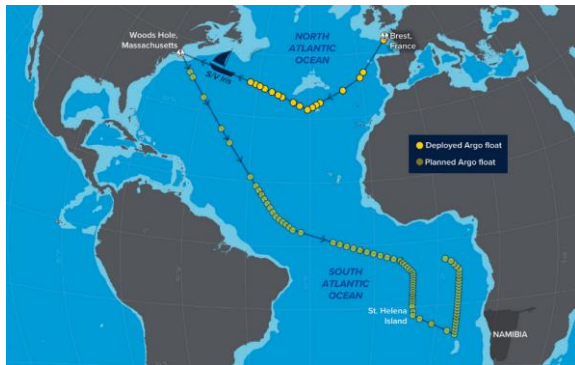


- ▶ Less and less polluting material
- ▶ Evolution towards no TBTO for every float

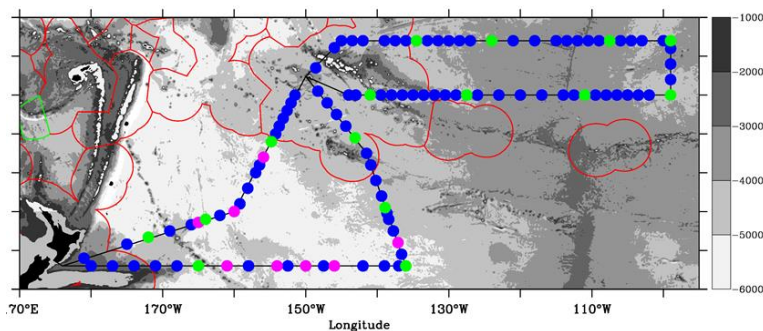


- ▶ The impact of dead floats can also be limited by using or designing recovery systems





SV Iris (Blue Observer) – 26m
2021 cruise : 95 floats over 3 months
17,500 nautical miles – 700L gasoil



RV Kaharoa (NIWA) – 28m
2022 cruise : 110 floats over 2 months
13,000 nautical miles – 50,000L gasoil



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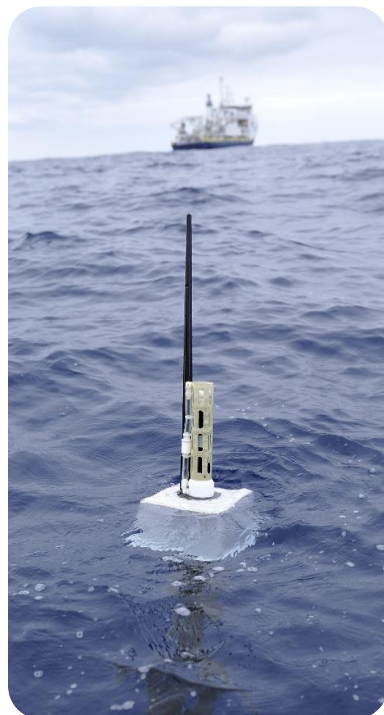
Provov



© Olivier DUGORNAY/Ifremer

2000 dbar max.
up to 250 CTD cycles
33 kg

Arvor



© Olivier DUGORNAY/Ifremer

2000 dbar max.
up to 250 CTD cycles
20 kg

Provov-BGC



© Stéphane LESBATS/Ifremer

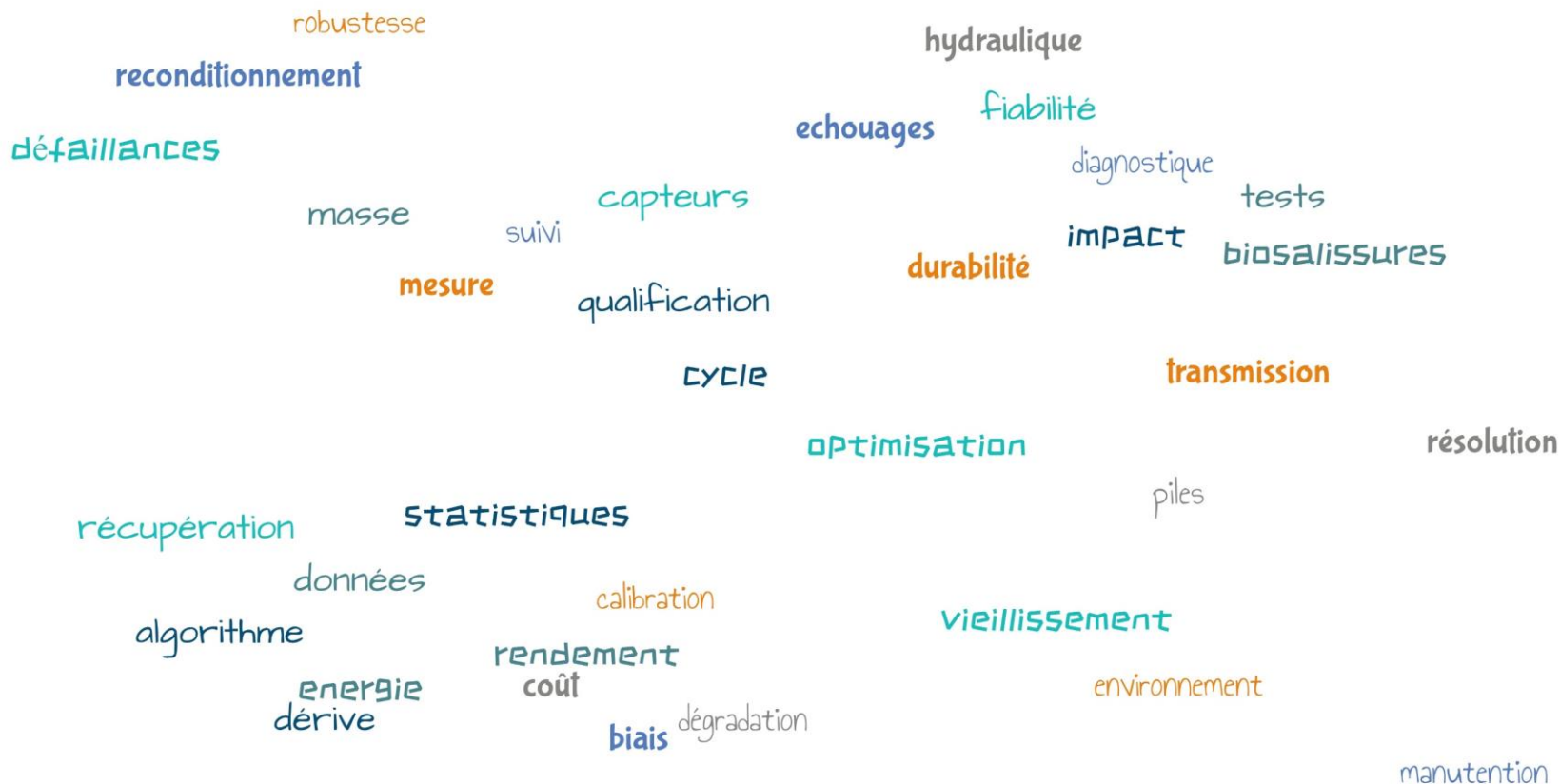
2000 dbar max.
up to 6 external sensors

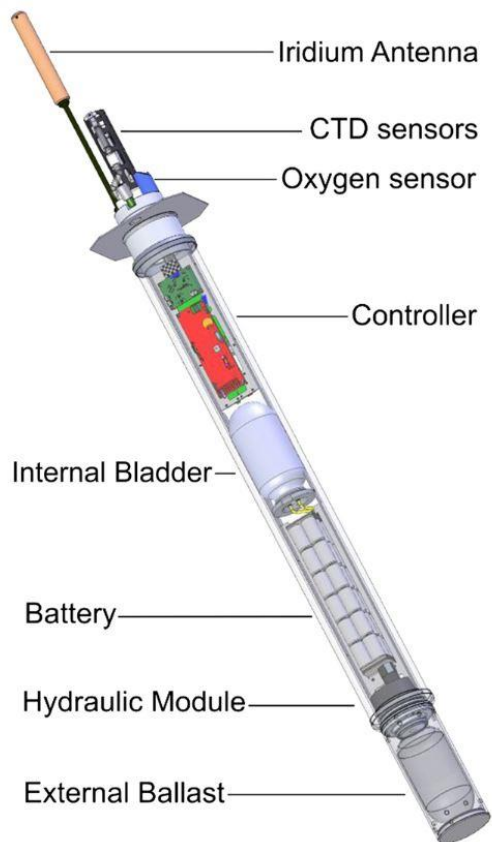
Deep-Arvor



© Patrick ROUSSEAU/Ifremer

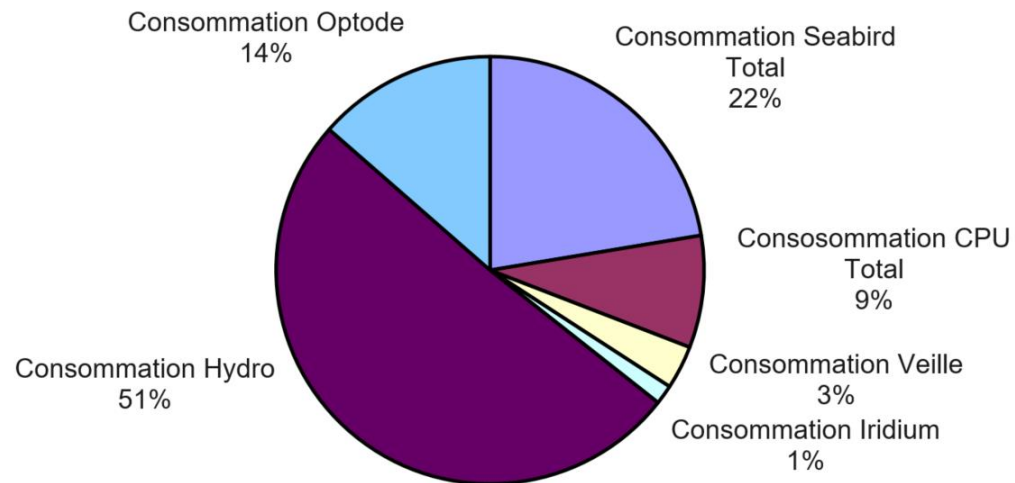
max 4000 dbar
up to 150 CTD cycles
26 kg





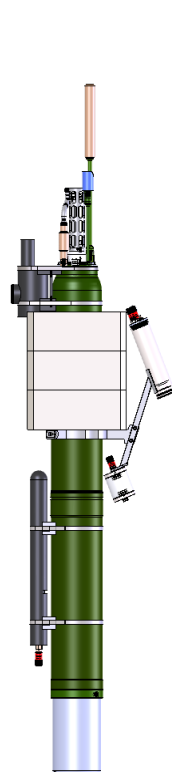
© Ifremer

Vue interne Deep Arvor



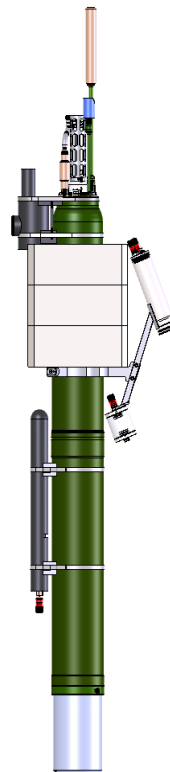
Répartition des consommations typiques Deep Arvor

- Full BGC @2m résolution
 - Classique 200 profiles / 5.5 years
 - Jumbo 300 profiles / 8.2 years
- Full BGC + UVP, @1m résolution
 - Classique 150 profiles / 4.2 years
 - Jumbo 225 profiles / 6.3 years



CTS5

SBE41CP +6 sensors
(Full BGC + UVP)

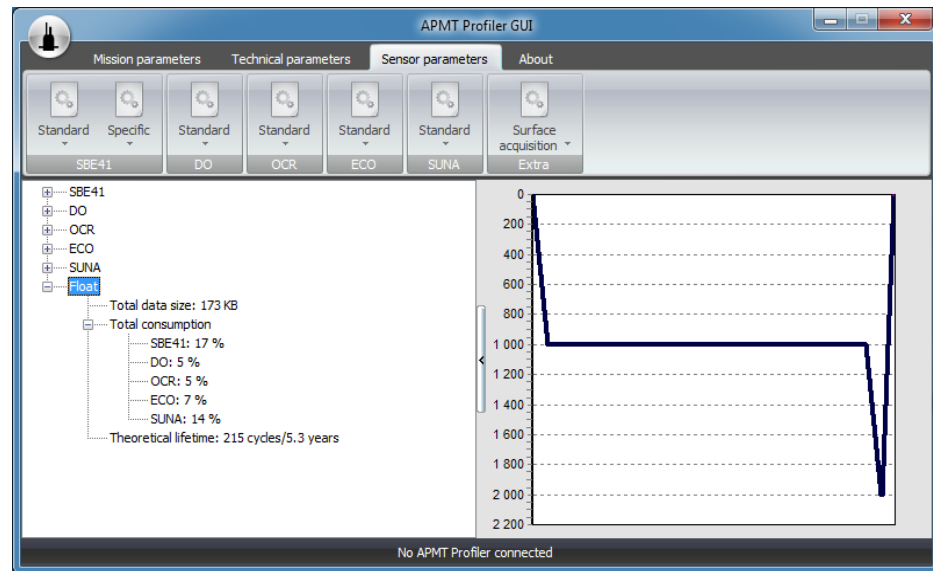
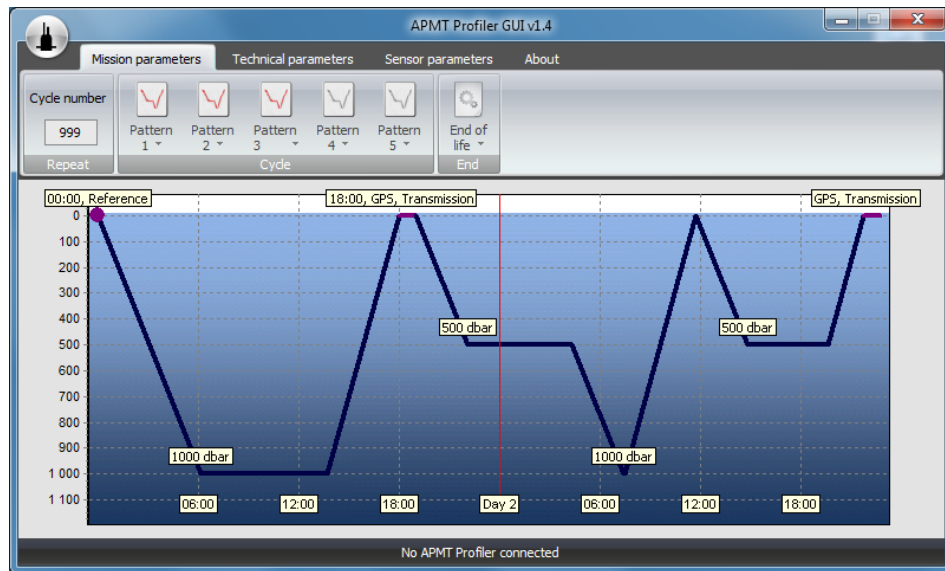


CTS5 Jumbo

+18,5 cm + 60%
Energy

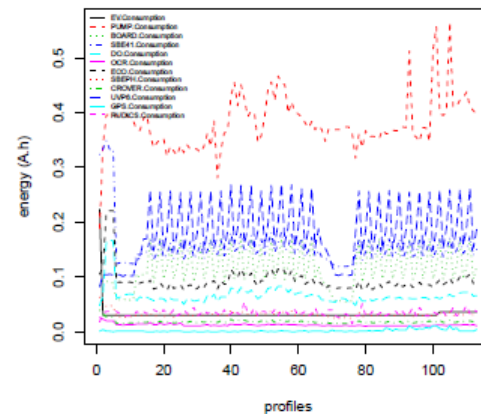
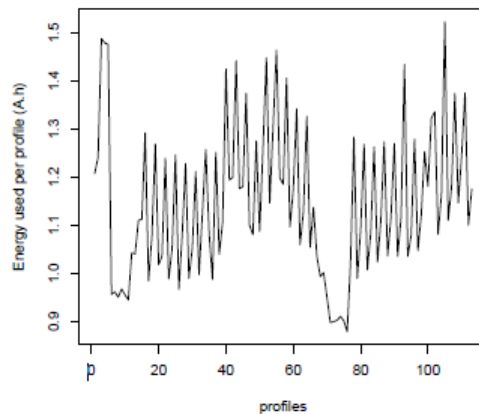
Provor CTS5 : GUI

- Pre-mission programming
- Energy budget and life expectancy
- Remote command at sea

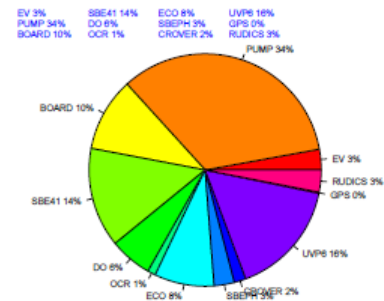
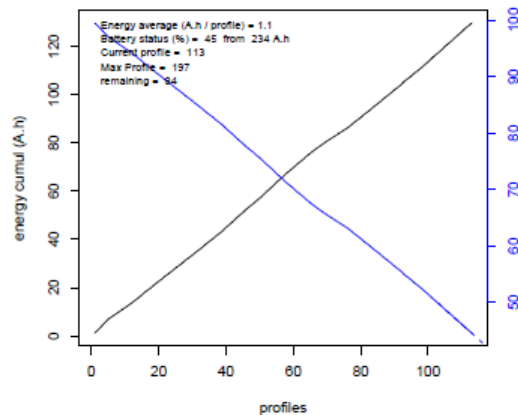


Augmenter la durée de vie des profileurs

lovuse002b



!! CAUTION BETA VERSION !!



Estimation énergie temps réel



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I Déploiement

- Manipulation des flotteurs en particulier BGC
- Autotest et déploiement

I Récupération

- Quel flotteur / Quand / Comment
- Faciliter la récupération
- Comment gérer les refits des profileurs récupérés





Préparation sur le pont avant déploiement

```
COM8 - PuTTY
.....
19-05-10 06:49:24 : SYSTEM > APMT v1.07.009 [ OK ]
19-05-10 06:49:24 : SYSTEM > Serial number=0xFFFF [ OK ]
19-05-10 06:49:24 : SYSTEM > Initialization [ OK ]
19-05-10 06:49:40 : SYSTEM > USEA v1.00.009 [ OK ]
19-05-10 06:49:51 : SYSTEM > The float is armed for cycle 103 [ OK ]
19-05-10 06:49:57 : RUDICS > Modem configuration [ OK ]
19-05-10 06:50:12 : USEA > Update configuration [ OK ]
19-05-10 06:50:37 : SYSTEM > Maintenance enabled for 90 seconds [ OK ]
19-05-10 06:52:07 : SYSTEM > Autotest (full mode) [ OK ]
19-05-10 06:52:07 : USEA > Initialization [ OK ]
19-05-10 06:52:17 : SBE41 > Cut-off pressure=5 dbar [ OK ]
19-05-10 06:52:19 : SBE41 > Sample rate=fast [ OK ]
19-05-10 06:52:28 : CHECK > FRAM memory [ OK ]
19-05-10 06:52:28 : CHECK > FLASH memory [ OK ]
19-05-10 06:52:28 : CHECK > Memory card is not available [ WARNING ]
19-05-10 06:52:28 : CHECK > Ti is not available [ WARNING ]
19-05-10 06:52:29 : CHECK > Pi=1012.5 mbar [ OK ]
19-05-10 06:52:30 : CHECK > Pe=0.0 dbar [ OK ]
19-05-10 06:52:33 : CHECK > Vbatt=11.0 V [ OK ]
19-05-10 06:52:34 : CHECK > RTC=19-05-10 06:52:34 [ OK ]
19-05-10 06:52:34 : CHECK > Water inside detection [ OK ]
19-05-10 06:52:34 : CHECK > USEA [ OK ]
19-05-10 06:52:43 : CHECK > Sensor OCR [ OK ]
19-05-10 06:52:43 : CHECK > Sensor ECO [ OK ]
19-05-10 06:52:43 : CHECK > Te=21.60 degC [ OK ]
19-05-10 06:52:54 : CHECK > Modem [ OK ]

<<< The float is ready for launch !!! >>>
```

Show mode utilisable sur PC ou téléphone



Utilisation d'un diable et déploiement