8th Biogeochemical-Argo Workshop
October 14-15 2019, Villefranche sur-mer

Introduction
Hervé Claustre & Ken Johnson
**Biogeochemical-Argo – Development**

**Roots in Optics**
Ocean Color Community

**Roots in Chemistry**
Dissolved Oxygen

**Broad Community Interest & Support**

**Joining Efforts**
Science Plan and Implementation Discussion

- US Ocean Carbon & Biogeochemistry Scoping Workshop, 2009, Moss Landing, USA
- IOCCG WG on Bio-Optical Sensors on Argo Floats
- SCOR WG 142 on QC Procedures for $O_2$ and other BGC Sensors on Floats and Gliders
- Various Community White Papers (OceanObs’09)
- Technology Maturation and several small/medium Scale Pilots and Regional Deployments

Planning for a Global Network Meeting
11-13 January 2016, Villefranche-sur-Mer, France
Science & Implementation Plan

Research Topics
• Carbon Uptake
• OMZs and Nitrate Cycling
• Acidification
• Biological Carbon Pump
• Phytoplankton Communities

Management Topics
• Living Marine Resources
• Carbon Budget Verification

6 Core BGC-Variables
• O₂
• NO₃
• pH
• Chl a
• Suspended Particles
• Downwelling Irradiance

BGC-Argo Global Network Design
• 1000 Floats Array Size (0.25x core-Argo)
• Deployment of ~250 Floats / Year for sustained Operation
• ~27M USD / Year for sustained Operation
• Data Management following Argo Standards
A BGC-Argo Task team has been recently set-up

The BGC-ADMT task team has been established under the mandate to drive and enhance the development of BGC data management procedures following the scientific guidance of the BGC-Argo Steering Team, stimulate communication, engagement and operational consistency among regional BGC Data Assembly Centers (DACs), and support the general advancement of the Argo program.
BGC-Argo Task team: terms of reference

Mandate
The BGC-ADMT task team is a representative group that will act on behalf of the broader global BGC-Argo community. The team will operate synergistically with the established Argo program and associated ADMT in support of the unified “Argo 2020 vision” (Roemmich et al., 2019). It has been established under the mandate to drive and enhance the development of BGC data management procedures following the scientific guidance of the BGC-Argo Steering Team, stimulate communication, engagement and operational consistency among regional BGC Data Assembly Centers (DACs), and support the general advancement of the Argo program.

Specific functions
- Review existing operational procedures and help manage the maintenance of associated documentation
- Raise issues, stimulate discussion, and encourage analysis related to the development of updated (and standardized) processing and quality control procedures
- Foster participation and involvement by all regional DACs to work toward global compliance and consistency in BGC processing and data management
- Adequately communicate any significant changes to accepted BGC operational procedures to appropriate BGC community representatives
- Help coordinate the implementation of any processing updates across DACs
- Serve as liaison between DACs to assist in the sharing of resources and information
- Report to the BGC-Argo Steering Team

Governance
The BGC-ADMT task team will be co-chaired by two BGC-ADMT task team members selected by the BGC-Argo Steering Team and will work closely with regional BGC DAC representatives on issues relevant to the group’s mandate, as they arise. Any progress related to BGC issues and developmental milestones made throughout the year will be reported to the BGC-Argo Steering Team and summarized at the regular annual ADMT meetings.
Three new BGC-Argo Data managers

- Christina Schallenberg for CSIRO, Australia
- David Nicholson at WHOI, USA
- One CNRS open position in France / IMEV-LOV, starting in January 2020
BGC-Argo Task team first video conference, from US (very early) to Australia (quite late)....
On the Future of Argo: A Global, Full-Depth, Multi-Disciplinary Array
QC and adjustment sequence during float lifetime

Float deployment

DAC Real Time QC
Automated procedures

PARAMETER_DATA_MODE="R"
Only raw data available

Initial DMQC
Operator Analysis

PARAMETER_DATA_MODE="D"

DAC Real Time QC
Automated procedures
and adjustment

PARAMETER_DATA_MODE="D"
Raw and adjusted data available

Repeated DMQC
Operator Analysis

DAC Real Time QC
Automated procedures
and adjustment

PARAMETER_DATA_MODE="A"
Raw and adjusted data available

Final DMQC
operator Analysis

PARAMETER_DATA_MODE="D"
Raw and adjusted data available

Float death
Monitoring of the network R, A & D

CHLA: 71348 profiles
16737 / 54611 / 0

bio-index profiles for all DACs

BBP: 71347 profiles
71347 / 0 / 0

CDOM: 32444 profiles
32444 / 0 / 0

DOXY: 177725 profiles
96910 / 3056 / 77759

NITRATE: 35070 profiles
3847 / 9646 / 21577

PH: 13564 profiles
2370 / 651 / 10543

DOWN_IRR: 34017 profiles
34017 / 0 / 0

PAR: 33398 profiles
33398 / 0 / 0

CP: 4849 profiles
4849 / 0 / 0
Preferential journals
BG C-Argo network evolution over one year
<table>
<thead>
<tr>
<th>WMO</th>
<th>PROJECT Name</th>
<th>PI Name</th>
<th>SENSORS</th>
<th>DATE Start</th>
<th>Nº Profiles</th>
<th>LATs</th>
<th>LONs</th>
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<td>Tom Trull</td>
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<td>L. Tuomi</td>
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<td>Dimitris Kassis</td>
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A BGC-Argo “project office”

- Sponsored by Explorations of Monaco (governments + foundations + Oceanographic Institute)
- A JCOMMOPS part-time position
- Officially hosted at Oceanographic Museum and daily operated at IMEV-LOV
- Initially funded for two years, followed by evaluation.
BGC-Argo “project office” term of reference: support and promote the network

• Organization of the interaction within our community
  – Help in the coordination of the development of the network
  – Support for meeting organization...
• Newsletters, website, social media, bibliography, organization of events...
• Representation at certain meetings
• Develop the awareness on other end-user community
• Modelers, satellite ocean color, needs for new products....
• Capacity building
  – Specific case of Small Island Developing States (SIDS)
    • Possible support with floats
• Help in the development of an outreach / adopt a float program at an international level
Access to conference rooms of the Oceanographic Institute
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>13:30-14:00</td>
<td>Hervé Claustre / Ken Johnson. Introduction / general objectives of this meeting</td>
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<tr>
<td>14:00-14:15</td>
<td>Udaya Bhaskar. DAC: BGC Argo data management-India</td>
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<td>14:15-14:30</td>
<td>Violetta Paba. DAC: BGC Argo data management-UK</td>
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<td>14:30-14:45</td>
<td>Kensaku Kobayashi. DAC: BGC Argo data management-Japan</td>
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<td>14:45-15:00</td>
<td>Christina Schallenberg. DAC: BGC Argo data management-Australia</td>
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<td>15:00-15:15</td>
<td>Anh Tran / Edouard Leymarie. DAC: BGC Argo data management-Canada</td>
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<td>15:15-15:30</td>
<td>Thierry Carval, Catherine Schmechtig. DAC: BGC Argo data management-coriolis</td>
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<td>15:30-16:00</td>
<td>Pause</td>
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<td>16:00-16:15</td>
<td>Xiaogang Xing. DAC: BGC Argo data management -China</td>
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<td>16:15-16:30</td>
<td>Josh Plant. DAC: BGC Argo data management-US</td>
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<td>16:30-16:45</td>
<td>Josh Plant. Setting up a periodic report on anomalies in BGC profiles</td>
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<td>16:45-17:00</td>
<td>Matt Donnelly. Re-calculating derived BGC parameters: metadata that is perfect, poorly formatted or missing</td>
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<td>17:00-17:20</td>
<td>Henry Bittig. Combining b and c trajectory</td>
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<td>17:20-18:00</td>
<td>R,A,D definition for BGC</td>
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<td></td>
<td>Discussion on how we should organize DM for floats in the same area</td>
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For all presenters: please send 5-10 line summary of your presentation to Catherine and myself before the end of the meeting.

Thanks!