10th OceanSITES Steering Team meeting

Date: 03-05 November 2014

Location: Hotel Armação, Porto de Galinhas Beach, Pernambuco, Brazil

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Meeting information: http://www.jcomm.info/oceansites2014

Revision Information

Date	Prepared by	Reviewed by	Version
03 Dec 2014	C Gallage	U. Send	V1.0
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1 INTRODUCTION

The 10th Steering Team and 7th Data Management Team meetings of OceanSITES were held jointly with the Tropical Atlantic Variability (TAV) Meeting, PIRATA-19 Meeting, and the Brazil-European Union (EU) Dialogues in Marine Research Meeting. This was motivated by the idea of fostering cross-fertilization between these communities and merging logistics and reducing travel for regional participants. All the meetings were hosted by the Federal University of Pernambuco at the Convention Center of the Hotel Armação, Porto de Galinhas Beach, Pernambuco, Brazil.

Meeting Organizersand co-chair, Dr. Uwe Send, provided a short plenary presentation on behalf of the Co-chairs to all participants of the joint meeting. He reviewed the challenges in obtaining funding for the meeting and thanked the participants for making it happen. Dr. Send discussed the structure and overview of OceanSITES for those new to the program and invited regional and enhanced Brazilian participation.

The Steering Team Meeting (reported here), and the Data Management meeting (reported separately) took place over four days in Recife, Brazil. During the first day, the meeting included all participants including the TAV and PIRATA community (more than 100), while during days 2-4 the OceanSITES meetings were held separately. The OceanSITES meetings were well attended with 23 participants from 11 different countries and all disciplines and diverse expertise.

A list of OceanSITES attendees is provided in Appendix A.

Goals and agenda items provided to participants before meeting:

i. Overview of important developments/events since last meeting (new Project Office lead, new DMT chair, deep microcat inventory, POGO meeting, CLIVAR panels and OOPC, news from NODC and NDBC, etc)

ii. Outline and discuss meeting goals and best approach to meet them (break-out groups, overnight homework, etc)

iii. Review OceanSITES system status, including data holdings, and discuss challenges
   - determine an agreed and executable way to engage members and obtain site information and updates
   - determine an agreed and executable way to get data from all sites, routinely

iv. Review “how-to” documents and invite potential new members/participants from South America to join with new sites

v. OceanSITES contribution to the Deep Observing Network
   - review of microcat inventory and instrument categories
   - agreement on procedures for operating and calibrating the sensors
   - cooperation with SeaBird for assessment and improvement of deep sensors and

their
calibration
- process to choose sites, including application and decision making
- requirement to deliver data rapidly; best way to visualize and disseminate rapid data

vi. Options/path to implement sites in regions that have large gaps
- how should they be chosen
- how can implementation be stimulated and supported
- how can different communities, agencies, PIs be brought together to share this (OceanObs09 vision)

vii. Agree on the best way forward to enable sharing of platforms and sensors

viii. How can users be developed, e.g. modellers, GSOP members, etc, how can we increase OceanSITES awareness (even within the other program and panels)
- which products can we generate that make it attractive to them
- what requirements do they have (sustained data, easy data access, useful locations/ variables…)

ix. Improved interaction with other programs
- needed steps to engage CLIVAR panels, OOPC, and new OOPC sister panels (biogeochem and ecosystem)
- needed steps to engage OOPC and CLIVAR on the Deep Ocean Observing Network
- needed steps to engage GCOS and CLIVAR on making progress on MOIN – the backbone multidisciplinary observing network

x. Discuss question from GSOP whether OceanSITES can serve CLIVAR process study timeseries

xi. Resume work on concrete requirements and measures of success (metrics)

xii. Define and agree on achievable concrete products and indicators; determine path to get there

xiii. Discuss idea of having OceanSITES student projects or summer schools, analyzing data from one site at a time

xiv. What should be done with the MOIN document (backbone network of minimalist identical multi-disciplinary sites), what has happened with it recently?

xv. Identify follow up work with GCOS and CLIVAR

xvi. Improve OceanSITES website
- Improving the evidence of the value of long ocean time series
- Faciltating use of deep ocean time series
- Best practices documents
- Iconic images and examples for download and use by others

xvii. Funding, outreach, capacity building, future meetings

xviii. Provide guidance and input to/work with the Data Management Team

2 SCOPE OF THE MEETING

2.1 The Co-Chair of OceanSITES introduced the new chair of the DMTJulie Thomas and the new Project Office (PO) Coordinator Champika Gallage to the group. Meghan Cronin and Doug Wallace led the Steering team discussions throughout the meeting. During the first session, which included participants from all joint meetings, Meghan Cronin explained that an overarching goal of the meeting was to create and update the set of documents defining the OceanSITES program, including among other documents, (1) the OceanSITES mission statement, (2) benefits of being an OceanSITES, and (3) how to become an OceanSITES. Input from the full group was solicited and helped inform discussions on these topics throughout the meeting. Doug Wallace also led a discussion about the present and future OceanSITES in the Tropical and South Atlantic, and a discussion on the role of island stations and coastal reef stations.

2.2 During the second day, the OceanSITES meeting was separate from the other (TAV/PIRATA) groups, allowing for more in depth discussion of the different documents defining the OceanSITES program. Meghan presented the draft Charter document that had been created by a few members of the Executive Board (EB) for discussion. A majority of the participants commented that the proposed document was too lengthy and needed to be shortened to make the content more concise. Following is a list of comments/recommendations received from the participants;

- Include some information on how the OceanSITES are funded
- Include statement why fixed time series are unique,
- Include something about the unique value of OceanSITES
- Where should we include the statement about rationale: in Charter, in How-To, or also a sentence in Mission Statement ?
- Indicate that OceanSITES provides one type of measurements which is part of a larger ocean observing system in some places, and for some variables it's the best approach we have
- Include the argument that OceanSITES can be representative; can get spatial variability from other networks but for time variability need time series
- Many sensors are not yet appropriate for floats or gliders if we want multidisciplinary observations; inter-calibration for floats/gliders could be helped with reference sites
- Require one motivation statement in the mission statement.

2.3 After lengthy discussions members agreed to develop seven documents to describe and capture the activities of the OceanSITES, instead of one long document. The text in these documents can be used for multiple purposes, like websites, for presentations, for proposals, etc. Members were asked to join breakout groups to work on these 7 documents. Documents to be created:

- Charter (Governance Document)
- Mission Statement
- How to become an OceanSITE
- Performance Metrics
- Goals and Objectives
- What is an OceanSITE
- Benefits of joining OceanSITES
- Obligations of the OceanSITES (this was later folded into the other documents like the Charter, How-to-become, and Goal&Objectives document, in order to give more

weight and visibility to the benefits (they must outweigh and be larger in number than the obligations)

3 OCEANSITES MISSION

3.1 Many commented on what should be incorporated in the mission statement. Accordingly it was suggested to include the unique features of OceanSITES: collect, deliver, promote the use of high-quality data from long-term, high-frequency, multi-disciplinary observations at fixed location in the open ocean.

3.2 Many recommended including a rationale together with the mission statement to further explain the unique features of the OceanSITES.

3.3 Breakout groups worked during the meeting and afterhours to complete respective tasks. After many hours of discussions in breakout groups and in plenary session the Mission Statement was finalized as follows:

Mission:
The mission of OceanSITES is to collect, deliver and promote the use of high-quality data from long-term, high-frequency observations at fixed locations in the open ocean.

OceanSITES typically aim to collect multidisciplinary data worldwide from the full-depth water column as well as the overlying atmosphere.

Rationale:
Time series at critical or representative locations are an essential element of the global ocean observing system. They can provide: a unique view of the full temporal behavior of a system; accurate reference and long-time baseline data; and the maximum possible range of interlinked variables from the seafloor to the atmosphere while enabling shared resources.

4 OCEANSITES CHARTER

4.1 The Chair of the session provided the first draft of the Charter document created by a few members of the Executive Board for discussion.

4.2 Again, many commented that the provided draft version was too long; most charters are about 2 pages.

4.3 Suggestions were made to include terms of references as an appendix and motivation context could be few bullet points.

4.4 Many agreed that the Charter needs to be static and should address who and what is OceanSITES. Items that may change over time should be included as Appendices.

4.5 Names of the teams; Steering Team/Committee, Data Management Team/Committee, should be clear and finalized (project, program, steering committee, steering panel). Steering Committee name was chosen to justify travel in some countries.

4.6 A team led by Doug Wallace and Diane Stanitski developed the Charter document.

5 HOW TO BECOME AN OCEANSITE

5.1 Participants commented on the existing draft document on “How to become an OceanSITE”.

5.2 Many commented that there is lot of repetition, characteristics are repetitive; should have short concise statements, and then refer to the other documents, and (maybe) a webpage. The benefits should be upfront and probably high up on the website, not buried in a document. Need to define what an OceanSITE is to see whether a new site fits in, and make clear what the selection/decision criteria are. The steps how-to-become an OceanSITE can just be short bullets.

5.3 Information for each site should provide to the project office in the template provided (best in table format).

5.4 NDBC wants to know how much data to expect to manage and forecast their data storage requirements. Therefore this document should explain how often data will need to be submitted.

5.5 There is a document on “how to become a data provider” and that needs to be mentioned/referenced in the “how-to become an OceanSITE” document.

5.6 Some members also reminded that it is required to define the documents correctly, (i.e. how to be an OceanSITE and how to become an OceanSITE are two different documents).

5.8 Using plain language is beneficial for all level of readers. Collecting all statements in one place will minimize/avoid repetition.

6 BENEFITS OF JOINING OCEANSITES

6.1 Members indicated long list of benefits of joining the OceanSITES. Some suggested using words carefully to convey the message and to avoid political flavor.

6.2 OceanSITES can address the speed and magnitude of climate change by providing access to high quality long term data sets. The information we get from OceanSITES can put a number to the climate change. These benefits should be captured in the document.

6.3 Some members indicated the importance of OceanSITES for training and capacity building; and the broad benefits for multi-disciplinary OceanSITES observations, e.g. island sites with

people conducting experiments.

6.4 OceanSITES should be considered “Research Aggregate Devices” (RAD), with time series reference data providing context and links to process studies. Process studies can also leverage off of the OceanSITES infrastructure and coordinated fieldwork. In this way, OceanSITES can provide hubs for individual process studies making them into a global network of process studies.

6.5 The leading edge of climate science is the interaction with humans. OceanSITES needs to better address the socioeconomic applications/requirements, and may need to consider social sciences to become more meaningful and attract more funding. For example, there is now a requirement to provide to NOAA how data are being used, and how society will benefit. Social scientists are being invited to NOAA. In Cape Verde there was a very successful capacity building meeting which helps small island states be more educated in international negotiations. Another example from NOAA coral reef OA program where NOAA is providing open-ocean reference data for island/reef impacts resulting from human activity.

6.6 Based on the discussions, a breakout group led by Co-chair Uwe Send provided the first draft document on “Benefits of joining OceanSITES” Provided in Appendix B.

7 PERFORMANCE METRICS

7.1 Discussions of performance metrics began by elaborating on characteristics of performance metrics. The performance measurement indicators are specific, measurable, achievable, relative to something (a target number of sites, target data delivery) and has a time constraint.

7.2 It was agreed that performance metric should start with the mission statement, and then tasks. Each task has measurable metrics.

7.2 These metrics are important, because this is how OceanSITES will present itself to the world and how its success can be judged.

7.3 Some members suggested starting with fewer statements and simple measures. More metrics can be added to the list as progress is made.

7.4 Performance metrics should be based on goals, not on objectives and could focus on the collection, delivery, and promotion and the use of OceanSITES data. One example could be “operating some number of OceanSITES per year”, or develop and post some number of products/indicators per year; or holding meetings, peer-reviewed publications, etc.

One challenge will be to come up with a target number of OceanSITES for the network.

7.6 Some suggested tying the performance metric data collection period to the meeting time frequency. This way, it is easier and practical to report on those metrics during a meeting where metric discussions are an agenda item.

8 PRODUCTS AND INDICATORS

Start in DMT, or take one indicator at a time and work on that in Exec calls and until next meeting. Data management team has format for that. Simple thing is show aggregated time series on website of quantities of interest (ph or Chl at many locations around the world).

9 NETWORK/PROGRAM UPDATES

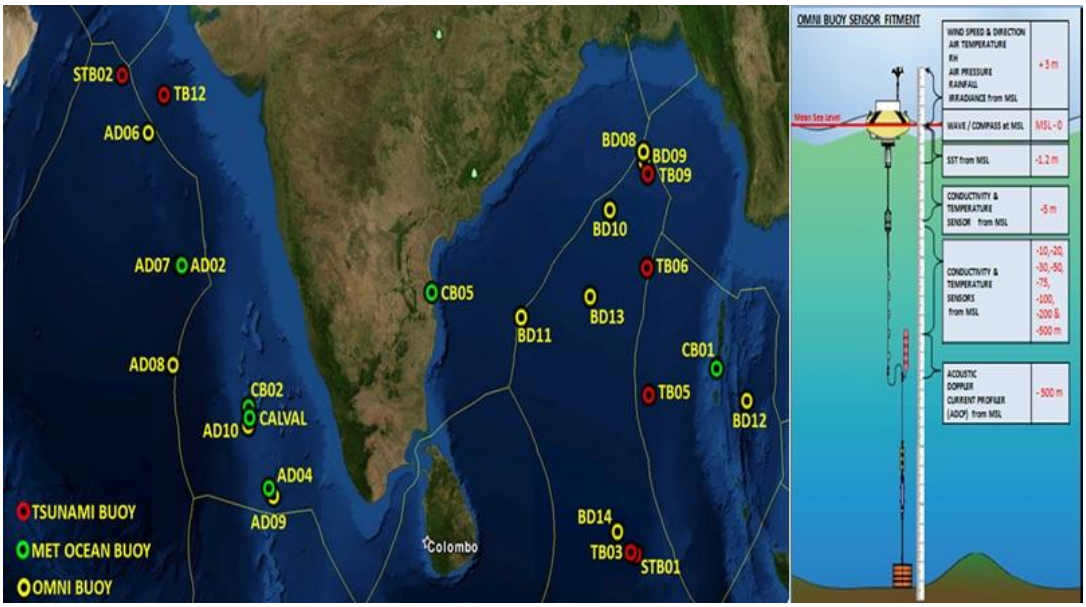
The Network Status was reviewed and updated. All presentations are made available on the OceanSITES website (http://www.oceansites.org/meetings/index.html)

9.1 Pattabhi Rama Rao presented " *Ocean Observing System (OMNI Buoy Network, Bay of Bengal Observatory)*" and "*Long term current measurements in the equatorial Indian Ocean using deep-sea moorings*"

9.1.1 OMNI buoys measure met, precipitation, radiation and T/S to 500m, sub-surface current profiles up to 100 m ,waves; executed by National Institute of Ocean Technology (NIOT). Under Tsunami Early Warning Programme NIOT maintains 5 sites in Bay of Bengal and Arabian Sea to provide water level data along with sea bed temperature. NIOT also maintains CAL VAL site in Arabian Sea for satellite data validation. NIOT and NCOAR jointly deployed and maintained the subsurface IndArc mooring at Arctic, which is collecting the T/S and current parameters. Overall about 23 moored buoys are maintained by NIOT

9.1.2 Agency decided 12 buoys network is the optimal for OMNI array sustainability.

9.1.3 Most OMNI buoys are just outside EEZ and those data can be shared in delayed mode. DMT will discuss how to get them into OceanSITES format and onto the GDAC. Work needed to get the data from 2010 onwards.



9.1.4 OMNI buoy network helps in tracking and predicting cyclones. Many examples on how OMNI buoys assisted the cyclone prediction were presented.

9.1.5 Bay of Bengal observatory: one site at 18N 89.5E, surface mooring with measurements down to 100m; data only available after 2 years so cannot be part of OceanSITES formally, but the early data are now available.

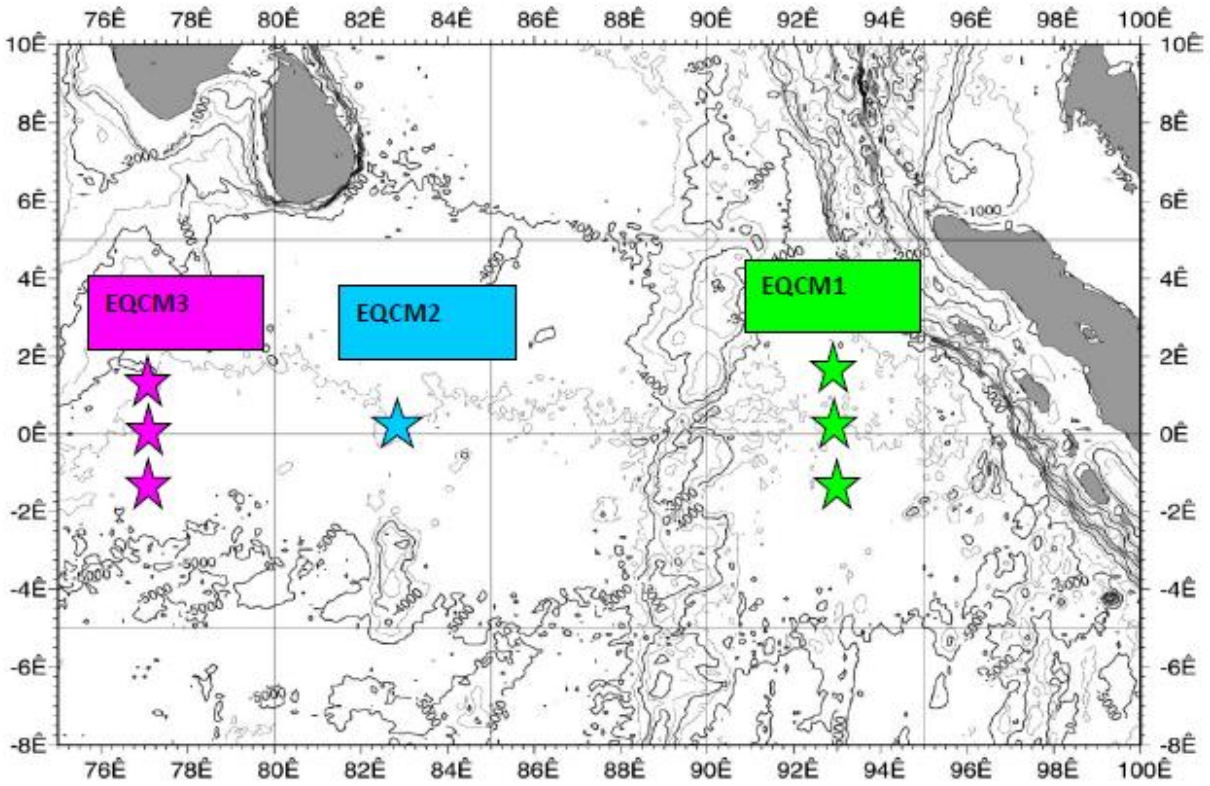
9.2 Pattabhi Rama Rao also presented "*Long term current measurements in the equatorial Indian Ocean using deep-sea moorings*"

8.2.1 Current Meter mooring project has been operational since 2000. Currently 7 moorings are operational.

9.2.2 Ship time on "Sagar Kanya" was available to service the moorings after 4 years. Recovery of moorings is expected during 29Oct-10Nov 2014.

9.2.3 Each of the 7 moorings has one upward looking 75kHz ADCP at 350m and RCMs at 3 levels of nominal depths of 1000m, 2000m and 4000m.

9.2.4 As part of Microcats project, 4 deep SBE Microcats are in place, 3 placed at 77E mooring and 1 placed at 83E mooring. Data are available in OceanSITES format.



9.3 Carmen Grados presented the status of Peruvian Ocean time series data "*Initiatives for Sustained Ocean time series data*|"

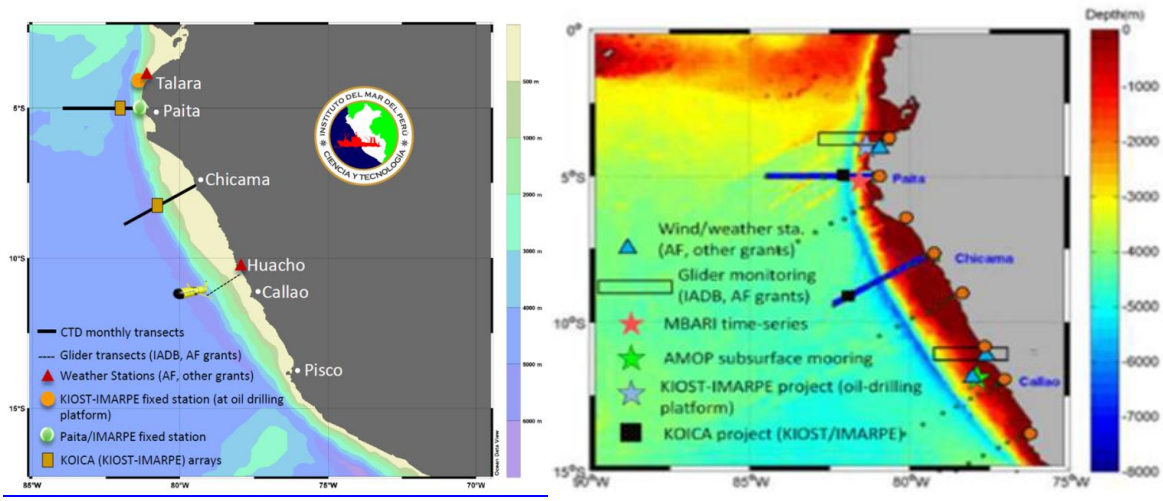
9.3.1 IMARPE conducts scientific research of the Peruvian sea providing advice to the Peruvian Government on sustainable use of the marine ecosystem particularly for fishing and aquaculture, conservation of biodiversity, prevention of climatic hazards and protection of aquatic environment.

9.3.2 The Department of Oceanography and Climate Change conducts five research programs on coastal circulation, upwelling, coastal oceanography, fisheries oceanography, climate change modeling and adaptation.

9.3.3 This presentation highlighted the national importance of the long-term time series observations. Benefits are for many sectors; research, timely delivery of data and information to Peruvian Government and most importantly National and regional capacity building.

9.3.4 4 Until recent time, long-term observations were only available from coastal stations and ship sections. Current plan is to have moorings on 2 hydrograph sections (5S and 8S), a shallow water mooring at 4°S. These initiatives are realized in cooperation with the Korea Institute of Ocean Science and Technology (KIOST). The shallow (delayed-mode) mooring (4°S) will be implemented since December 2014. Budget to launch the deep moorings will be defined by December 2015.

The SC agreed to invite IMARPE to join OceanSITES with the sites that were presented, and IMARPE accepted.



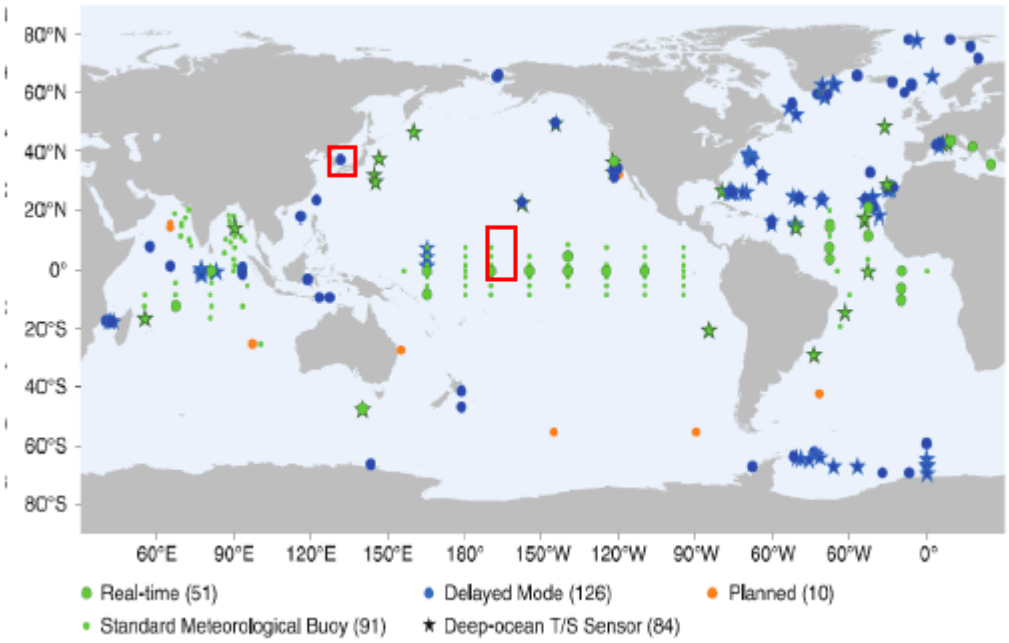
9.4 Chang KI presented the "OceanSITES status from Korea".

9.4.1 Korea maintains 3 sites in total; 2 in tropical Pacific and 1 in East/Japan Sea. Potential new sites in Southern Ocean and Amundsen Sea. There are long term plans to install sites in

South Pacific after 2016.

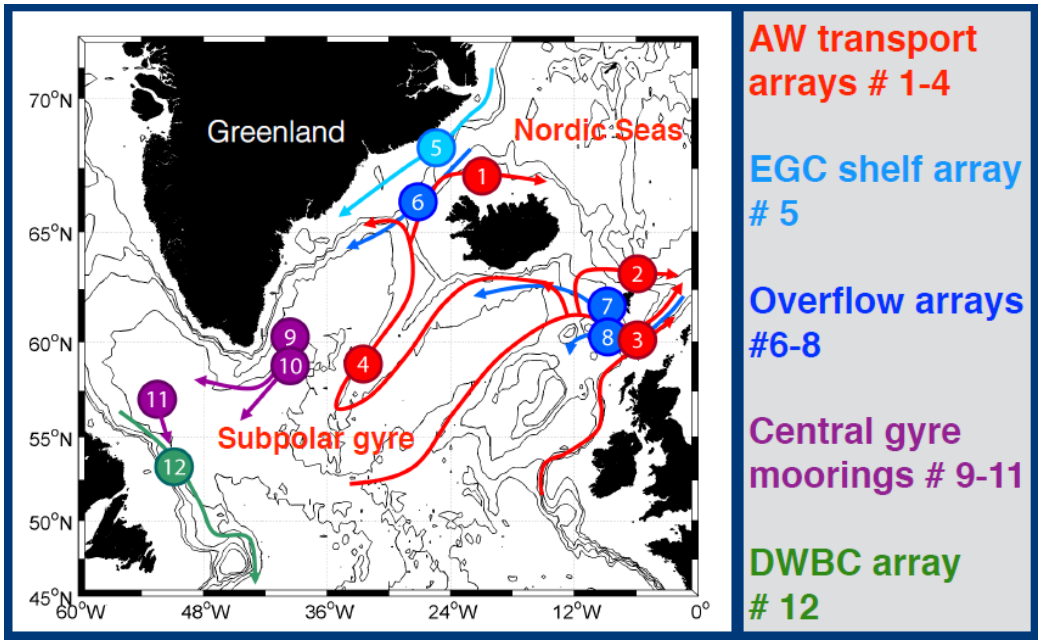
9.4.2 EC1 was operational from 1996 recovered in 2012 and provided quality controlled data to OceanSITES. 2 EJS stations in 2000m and 3500m with deep Microcats operate with Russian collaboration. One of these moorings was sustained for 3-4 years.

9.4.3 Long-term plan is to try the southern subtropical gyre site, using the new research vessel. Research proposals for the new vessel can be submitted in 2015. Requested assistance from OceanSITES to prepare the proposal.



9.5 Laura de Steur presented the NACLIM (North Atlantic CLIMate) status

9.5.1 NACLIM maintains large number of moorings with long records in the program. Currently data are only available in the national data center. Products are also being generated (transports, etc).



9.5.2 Derived time series data will only be available to public once the project is completed in 2016. NACLIM data are available upon request contacting the data center PIs.

9.5.3 NACLIM meeting concluded reformatting into OceanSITES data is too much work due to issues with time, funding, and unclear of the benefits of OceanSITES. However some sites are already part of OceanSITES and future OSNAP sites will use OceanSITES format.

9.5.4 Products (transports) may be easier to provide, but need metadata, some quality flags proposed. Want a good way to provide such data to OceanSITES.

9.6 Peter Jansen presented the status of "Australian Blue Water Observing System (ABOS)"

9.6.1 Peter Jansen is the engineer for logistics and data delivery (to IMOS and to OceanSITES). 4 sites SOTS, EAC, ITF, Polynya mooring. IMOS-Polynya was destroyed by an iceberg and new one deployed in 2014. Data from the 2012 recovery will be quality controlled and sent to OceanSITES database.

9.6.2 EAC 7 moorings including 2 deep microcats, data from 18-month 2012 deployment on OceanSITES; ITF 3 moorings, data from 2010 and 2012 are in OceanSITES data portal

9.7 Karen Grissom presented the new web portal on OceanSITES at NDBC

9.7.1 NOAA had requested to make OceanSITES more visible on their website. Karen presented the preview of planned website. This is a site with a map (all data in NDBC including PIRATA etc), hovering over symbol shows information and link to project website, etc. It is recommended to make sure NODC does not duplicate the work NDBC is doing.

9.8 Doug Wallace presented the updates on Canadian activities.

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9.8.1 This presentation elaborated on Atlantic Ocean Observation Strategy. No real term Ocean observing systems in the eastern coast (identified areas in yellow).

9.8.2 Discissions are on the way with industry mainly oil explorers to collaborate with the already happening activities to establish long term observations There are four sentinel regions (RAD researcher aggregation devices). Each should have/be 1 OceanSITE.

9.8.3 Canadian funding is available especially for infrastructure. However it requires cost sharing opportunities ideally international.

9.9 Adrienn Sutton presented the status update of NOAA CO2/OA Mooring Network

9.9.1 There are 17 open-ocean NOAA sites; all are in OceanSITES except new Iceland site which needs to be added.

9.9.2 It is required t to add CO2 fluxes on PIRATA. Next steps are identifying synthesis products (using Foundation support); here OceanSITES could help since otherwise their data synthesis products are mainly coastal.

9.9.3 They are looking into establishing a new data portal; maybe in Monaco .This may focus on incorporating biological data. Also next is to decide the key biological variables to include. It is required to address data flow in DMT session.

9.10 Molly Baringer presented on RAPID-MOCHA

9.10.1 Brought all RAPID data including PIES in NetCDF format, but not in OceanSITES format yet. A goal was suggested to transfer all data into OceanSITES format during the

meeting. This was achieved on the last day.

9.10.2 South Africa will have deep water moorings in the water . However problems identified with ship time and with sharing data. French moorings also would share data. Meeting with the SAMOC group would be helpful to get few OceanSITES from SAMOC array.

9.11 Meghan Cronin presented the status of KEO, JKEO, S1, and PAPA stations

9.11.1 All JAMSTEC OceanSITES, including S1, are no longer operational due to funding issues. These stations may move to tropics.

9.11.2 KEO now has a sediment trap mooring operated by JAMSTEC. This presentation also described the history of the KEO, JKEO, NKEO (short term research buoy as part of Hot Spot process study). KEO has been upgraded to be a typhoon buoy, and the KEO group is working with hurricane community to use the data in real-time.

9.11.3 PAPA station has a wave buoy next to it; a noise reference station will also be added this year. This is an opportunity for OceanSITES to partner with wave data community. There also may be opportunities to have wave buoys next to other OceanSITES stations.

9.12 Diane Stanitski presented the NOAA perspective of “OceanSITES: Some recommendations for Communication, Coordination, Collaboration and Next Steps “

9.12.1 This presentation highlighted information about good practices to secure funding. Some of those points are listed below.

- Include funding request for meeting attendance in annual work plans
- Acknowledge funding agency support, which helps ensure continued funding
- Provide advance notice of publications, interviews, uses of OS data – funding agencies can highlight this to their public relations person and in annual reports
- Cite examples of value added in request for funds
- Add metrics to web site and show progress made
- Effectively promote shared, interdisciplinary use of expensive long-term observation platforms and sites
- Share funding recommendations from other funding agencies or countries with group

9.12.2 Diane also pointed to the importance of communication and promotion of activities. She suggested to organize sessions at conferences around OceanSITES science; keep website fresh with updates, successes, highlight the performance indicators on OceanSITES making it widely available; create a standard letter inviting participation; regularly update community/request hot items to share; add education/outreach component, student involvement, and train next generation. OceanSITES website is a good place for these.

9.12.3 Moorings are an expensive part of OceanSITES and it’s important to show that many

disciplines, programs, countries are benefitting. One example is that IOOS is looking at OceanSITES format, and also that data managers from all 23 FixO3 sites mentioned that they will output data in OceanSITES format;

9.12.4 Collaboration with other groups is another key activity for OceanSITES. IOCCP (inviting OceanSITES member to participate in training course for biogeochem sensors next June). Interact with other programs/communities. Global Climate Dashboard in climate.gov website where variables can be displayed can be a place to include some OceanSITES indicators/products.

10 SEEDING/ASSISTING WITH NEW SITES, STARTING NEW SITES

10.1 The question came up several times, including in previous meetings, should we add more OceanSITES to the network? OceanSITES does not have funds to start new sites by itself.

10.2 There were several options proposed:

- Help others get borrowed equipment to get something off the ground, this initial site operating could then be used to convince funding agencies of the value, or the borrowed equipment can fill the time period while own inventory is slowly built, or the new site might act as a RAD, attracting others to participate and adding sensors, hardware, logistic, shiptime, etc
- Help a country/agency/PI to advocate that this is important and provide them with expertise
- Island sites are interesting new sites that could be started, partly with the help of OceanSITES, if a PI/country/agency has some plan/intentions for it
- What to do about completely new sites that nobody is planning yet ? The consensus was that OceanSITES does not have mandate nor the funding for new sites, but is willing to work with the communities/bodies that have a mandate to help implementation (partners, sharing of effort, logistics, data management)

10.3 Some members suggested including the proposed new sites (either OceanSITES vision or proposed from a PI and reviewed by OceanSITES) on a map on the website. Some also suggested writing endorsement letters. OceanSITES will also broadcast for equipment loans to others to help off the ground, brokering partnerships. Applications for help or endorsement need to be filtered by the Exec. Show somewhere on website the new sites that people are trying to get off the ground, with a short description of who and why and what they need. However the group should develop a well documented process for this.

10.4 OceanSITES would need to write something that explains the gaping holes. GOA-ON came up with new additional needed sites. But have to be careful about not taking away priority from other sites that are struggling. Need to find a champion (PI) first who will push a new site considered ? Can try to extract from scientific literature or meeting documents to see where gaps are. Or use Longhurst provinces. Can OceanSITES prepare/publish a paper (about OceanSITES goals etc) which has some gaps/vision sites. Or go to CLIVAR and GOOS and SOLAS/IMBER

panels to ask where they need new sites. Publish a strategy paper, and get input/comments from the other panels. Need one of these processes to get buy-in or a mandate to recommend new sites. SC committee should consider further publishing a peer-reviewed paper. Also add a session at a conference.

10.5 It is important to look back at the mission and objectives of OceanSITES to make these decisions. Decisions must be based on the high quality, sustained, multidisciplinary, etc. features of the OceanSITES. The highest value comes from serving many disciplines.

10.6 Finally group concluded that OceanSITES should actively pursue only new sites that serve multiple disciplines, however this group cannot decide this alone, consultation with SOLAS, CLIVAR, etc. is required to make that decision.

11 OCEANSITES CONTRIBUTION TO DEEP OBSERVING NETWORK

11.1 For the deep microcat program it is necessary to check where deep ocean observations would be most important, and whether those are essential for OceanSITES. The argument was easy for existing sites; making use of existing infrastructure, showing value of what we have can be a quick response. There was some discussion about consideration of where deep ocean warming is occurring and expected. It was decided that this should not be used for prioritization as it might lead to a biased estimate of observed deep ocean warming.

11.2 The process for allocating deep microcats needs to be explained on the website

a) Existing moorings
Application/proposals can come from PIs or SC or EC to add a deep microcat to an existing EC mooring, but if someone else's mooring is proposed then operators must have agreed to it. EC will review these and allocate microcats.

b) New sites
Request has to come from DOOS, OceanSITES can help. If DOOS recommends new sites, and PIs are willing to implement them, then OceanSITES can contribute microcats.
Get DOOS to embrace the repeat hydrography crossover microcats siting. All input from DOOS should be reviewed by OceanSITES. Write a short letter to DOOS to get guidance. Take that to POGO DOOS workshop. Check on Southern Ocean OceanSITES moorings available.

11.3 OceanSITES PIs should preferentially start new sites (recommended by DOOS) if this has the potential to grow into a full multidisciplinary OceanSITES station.

11.4 For the deep microcat program, one recommendation was to be careful that these microcats are not used to do only T/S without following the overarching multidisciplinary objective.

11.5 A task team led by R. Lukas is creating a guide for making deep ocean microcat measurements. Such a guide will be very useful for many groups and will help ensure that these measurements are of highest quality.

12 INTERACTIONS WITH OTHER COMMUNITIES (INCLUDING MODELLING)

12.1 Go to and invite other programs (CLIVAR and GOOS panels, OTN, etc).

12.2 Go to and invite model assessment/intercomparison/reanalysis teams, convince modellers to output data at OceanSITES locations

12.3 For comparison with models, ask to get model output at OceanSITES stations in OceanSITES NetCDF format. NOAA SURFA is already showing reanalysis products together with OceanSITES. NCEP already outputs model data at the wave buoy data. Biochemical models need validation. We can ask GSOP to output high-frequency data and statistics; how do we reach operational model groups. Go to GSOP and GODAEOceanVIEW in Toulouse in December – need to send someone there.

13 TRAINING AND OUTREACH

13.1 Outreach could be helped via Curt Schwahr at Google Ocean if they can use the OceanSITES data.

13.2 For helping sites process their data, some raised the question, is a summer school better or an internship/fellowship the better path? OSNAP has a virtual institute NAVIS, the students are meant to work together on specific topics (this is NSF SAVI funded), typically 2 students with 2 PIs.

13.3 The needs for each site may be different, i.e. one science student for data crunching. OceanSITES can help bring the students and people together. OceanSITES can also try to engage computer science students which helps to state a scientific question (or computer science question) in order to get funding and students. It is required to find out more about the data set, for example case New Zealand.

14 FUTURE MEETING

14.1 Location and Date of Next Meeting was discussed. Next meeting location will be at NOC, Southampton, UK.

14.2 It was decided to have the next meeting in February 2016. Project Office was asked to run a doodle poll to get the availability of participants.

15 WRAP UP AND ACTIONS

15.1 Action Items from the meeting are in Appendix C.

15.2 The Steering Committee Meeting concluded at noon on November 05, 2014.

Appendix A

MEETING ATTENDEES

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Appendix B

Benefits for PI or program to join OceanSITES

A. Be part of a large network of partners which
   - Enhances your chances of successful funding applications
   - facilitates collaboration
   - provides technical and scientific assistance
   - shares expertise
   - provides logistical accesses including ship time

B. Gain access to and enhance usership of infrastructure
   - gain access to other OceanSITES moorings, sensors, mooring hardware
   - demonstrate value of your own infrastructure by finding additional partners
   - act as a RAD (researcher aggregating device)
   - added sensors enhance value and quality of your own observations

C. Get assistance for initiating new sustained time-series programs
   - get scientific endorsement
   - get help to find instrumentation for loan during initial phases of development of an observatory
   - get access to sensor, engineering, operations expertise
   - get access to documentation describing “best practice” and to “user guides”.
   - gain visibility for your new effort, including dissemination

D. Gain access to and assistance with
   - an internationally recognized and widely used time-series data format
   - best practices (data QA and QC)
   - regional DACs
   - other global data sets

E. Through GDAC mechanism
   - satisfy funding agency requirement for public data access
   - enhance dissemination and user community of your data
   - make your data part of a global data set
   - assure long-term archive of your data

F. Impacts of your observations
   - contribute to indicators and products resulting from OceanSITES
   - become a reference or anchor site for other programs
   - increase global awareness of your program and data
   - access to measurable data use
   - recognition in the international scientific community
   - increased recognition in your own country

G. Contribute to or become part of other regional or international programs
   - CLIVAR, GOOS, DOOS, IMBER

H. Gain access to training and student resources

I. Gain access to OceanSITES leadership opportunities (Steering Committee, Executive Committee, Chair candidature)

J. Contribute to socioeconomic value/benefits/issues
   - Providing ocean health information
   - Enabling or validation predictive systems
   - Training next generation earth scientists and observers, engineers
   - Ecosystem management/services
   - Products, indicators, hazard warning for agencies, policy makers, public

Appendix C
ACTION ITEMS

	Action Item	Responsible individual(s)	Expected completion date	Status
1	Finalize Draft Mission Statement	U.Send	09-Nov-2014	Completed
2	Finalize Draft What is an OceanSITES	R. weller	01-Mar-2015	
3	Finalize Draft Benefits document	U. Send	31-Jan-2015	Completed
4	Finalize Draft Governance Document	D. Wallace	31-Jan-2015	
5	Finalize Draft Goals and Objectives Document	K.Grissom	31-Jan-2015	
6	Finalize Draft Performance Metrics Document	M. Cronin	31-Jan-2015	
7	Finalize Draft Shortened “How to Become an OceanSITES document” (refer to technical doc)	R. Weller	31-Jan-2015	
8	Edit and approval of all 7 documents by Exec and dissemination to entire SC	Exec. Board /Project Office	31-Mar-2015	
9	Approval of final version of all 7 docs and posting on website (as html, pdf, and ppt slides)	Project Office	31- May -2015	
10	Create a standard letter inviting participation in OceanSITES	Project Office	31-Mar-2015	
11	Consider initiative for Island Sites	D. Wallace	31- May -2015	
12	Work with PIRATA to get their data in high res and also data from other sensors on the moorings	R. Weller	31- May -2015	
13	Work with Brazil to include open-water moorings near islands in OceanSITES	U. Send	31-Mar-2015	
14	Engage Brazil in UK SOG site	R. Lampitt/M.Pagnani	31-Mar-2015	
15	Assist Korea in starting new S.Pac. Gyre site (write endorsement, add on map, add to new section on website)	R. Weller with Project Office	31- May -2015	
16	Korea to identify a data manager for Korean OceanSITES data	KI Chang	31-Mar-2015	
17	Assist IRD Noumea to seed a SPOT mooring (allocate microcats, broadcast request for releases)	Project Office on behalf of chairs	31- May -2015	
18	Work with NACLIM to facilitate data delivery	L. De Steur	31-Mar-2015	
19	Make maps interactive (hovering shows menu for 1-pager, data access, or project website link)	Project Office	31-Mar-2015	

20	Work/meet with SAMOC on including open-ocean and deep platforms (US, France, S.Africa)	M. Baringer	31- May -2015	
21	Collect publications	Project Office	ongoing	
22	Explain process to propose microcat allocations to existing sites on the website and in emails	T. Trull	30-April-2015	
23	Discuss microcat allocations and DOOS initiative for NEW microcat sites at POGO deep obs workshop	U. Send	31-May-2015	
24	Take list of proposed moorings to equip with microcats to DOOS for endorsement	Exec. Board	30-April-2015	
25	Propose to DOOS that they add an initiative/effort to install microcats at hydrograph cross-overs	Exec. Board	30-April-2015	
26	Section on web sites with new sites someone is trying to start and that OceanSITES supports (state what they need/look for,…)	KI with Project Office	30-April-2015	
27	Draft letter “endorsing” proposed site with placeholder rationale	Project Office	31-May-2015	
28	Attend CLIVAR, IMBER, GOOS, SOLAS, GOA-ON meetings to solicit community input for new sites	Steering Com.	TBD	
29	Attend CLIVAR, IMBER, GOOS, SOLAS, GOA-ON meetings to solicit user and sharing of platforms/equipment	Steering Com.	TBD	
30	Contact Climate Model and operational model and biogeochem model communities to output at OceanSITES	Exec. Board	31-May-2015	
31	Write refereed paper describing Reinvasion OceanSITES with visions (regions) where new sites needed	D. Wallace/R. Weller	30-April-2015	
32	Response to TPOS2020 request as to how to prioritize existing and proposed OceanSITES in Tropical Pacific	U. Send	09-Nov-2014	Completed
33	Start work on 1 indicator/product	Steering Com.	TBD	
34	Contact S.Nodder to find out how best to help (summer school, 1 intern, virtual student center)	U. Send	30-April-2015	
35	Organize OceanSITES session at major conference	R.Lampitt,/R.Lukas/ M.Honda	TBD	
36	Poll for next meeting in Southampton	Project Ofice	31-Jan-2015	
37	Finish deep TS document	Exec. Board	31-Mar-2015	

Appendix D
Abbreviations

ABOS	Australian Blue Water Observing System
ADCP	Acoustic Doppler Current Profiler
CLIVAR	Climate and Ocean: Variability, Predictability and Change
DMT	Data Management Team
DOOS	Deep Ocean Observing Strategy
EB	Executive Board
EEZ	Exclusive Economic Zone
EU	European Union
GCOS	Global Climate Observing System
GDAC	Global Data Acquisition Center
GOA-ON	Global Ocean Acidification Observing Network
GOOS	Global Ocean Observing System
GSOP	Global Synthesis and Observations Panel
IMARPE	Instituto del Mar del Perú
IMBER	Integrated Marine Biogeochemistry and Ecosystem Research program
IOCCP	International Ocean Carbon Coordination Project
JAMSTEC	Japan Marine Science and Technology Center
MOCHA	Meridional Overturning Circulation and Heatflux Array
NACLIM	North Atlantic CLIMate
NDBC	National Data Buoy Center
NOAA	National Oceanic and Atmospheric Administration
NODC	National Oceanographic Data Center
NIOT	National Institute of Ocean Technology (India)
OOPC	Ocean Observations Panel for Climate
PIRATA	Pilot Research Moored Array in the Tropical Atlantic
PO	Project Office
POGO	Partnership for Observation of the Global Oceans
RAPID	Rapid Climate Change program
RCM	Rotor current meter
SOLAS	Surface Ocean - Lower Atmosphere Study
TAV	Tropical Atlantic Variability