

## CLIVAR Atlantic Region Panel Telecon Meeting Minutes

14:00 – 15:30, 31 March 2021, GoToMeeting

### 1. Welcome new members and brief introduction to ARP (5 mins)

All members were invited to give a brief self-introduction (see Annex). The new configuration of ARP membership has a better geographic balance, by including for the first time a representative from the Caribbean region. The terms of reference of ARP are available at [ARP webpage](#) on CLIVAR website.

### 2. Feedback from SSG to ARP (Paquita, 5 mins)

The [26<sup>th</sup> Session of the CLIVAR Scientific Steering Group](#) (SSG) meeting was organised from 8 to 11 March ([APR annual report to CLIVAR SSG-26](#)), and we got a [feedback letter](#) from SSG for the ARP activities. Key points include: 1) The SSG is happy to see us do the mapping for WCRP Lighthouse Activities (LHA). But as the scientific scope of the LHAs are still being defined, the domain specific work of CLIVAR must continue in the meantime; 2) The SSG is glad to see more scientists from the Southern Hemisphere included in the panel. 3) SSG suggests to consider expanding collaboration with PICES/ICES who are focusing on ecosystem variability and predictability, upwelling regions and biogeochemistry; 4) 5,000 CHF has been allocated to the panel for 2021. But we need to inform them how we will use the money by 15 April; 5) The macro turbulence summer school proposed by ARP is postponed to summer 2022, the SSG suggests to have some interaction or coordination with OMDP of which some members are interested in mesoscale eddy parameterization; 6) to enhance early career scientists' participation in panels; and 7) to strengthen cross-panel linkages.

### 3. ARP activities

#### • AMOC Task Team (Eleanor, 5 mins)

The US AMOC Science Team (ST), which has been running for over a decade will be sunseting in 2022. The leadership of the US AMOC ST approached ARP in 2018 and requested CLIVAR to continue some of the legacies and pick up the coordination activities. Since May 2020, the discussion between CLIVAR Atlantic Region Panel and US AMOC ST has been reactivated, and a CLIVAR AMOC Task Team (TT) has now been formulated and approved by the CLIVAR SSG. The CLIVAR AMOC TT is co-chaired by Eleanor Frajka-Williams (APR co-chair) and Eric Chassignet (former ARP member), and with a total of 15 initial members. The terms of reference for the AMOC TT have been drafted and the 1<sup>st</sup> AMOC TT meeting will be organised on 1 April 2021. Besides the general coordination tasks of the AMOC-related activities, there are two specific tasks being identified for the AMOC TT: 1) data and product distribution from AMOC programmes, which has been identified as a current gap among AMOC programmes; and 2) to develop strategies for cost-effective, sustained monitoring of the AMOC (e.g. through OSSEs or OSEs). The CLIVAR AMOC TT will coordinate a virtual workshop on developing the strategies for cost-effective, sustained monitoring of the AMOC in summer of 2021. There is no implication for financial support from WCRP/CLIVAR to the AMOC TT, but coordination and logistic support will be provided by ICPO.

**Tarron:** The major challenge is to achieve the required level of funding and instrumentation for the AMOC researches. To go internationally will help back the local requirements to maintain the AMOC observing systems and secure funding. For example, among the three countries participating in the SAMOC, the funding priority always goes to the edge of the basin

and close to the continent, but actually the major gaps are still in the middle Atlantic. Thus, it is hoped that the CLIVAR AMOC TT can coordinate the trans-basin cooperation (e.g. trans-basin cruises and instrumentation and ship time) and take the priority of AMOC sciences to the funding agencies.

**Eleanor:** That is also the point made by the US CLIVAR and US AMOC ST, as the summary report and priorities provided by the US AMOC ST were really used to take to the US funding agencies.

**Brad:** There is an AMOC related case study in [AtlantOS](#) programme, focusing on better societal use of AMOC observation in the basin-scale, which is the common gap of the large-scale ocean circulation and climate observations. A 1-hour webinar (AtlantOS Ocean Hour) will be organised on April 13, 2021, focus on two overarching questions: (1) How do we use data collected through AMOC observational programs? (2) How can we increase the socio-economic impact of the AMOC programs? Hope the AtlantOS and CLIVAR AMOC TT can be complementary to each other.

**Action 1:** *Brad will share the link for the AtlantOS webinar to ARP members via email (done).*

- **Tropical Basin Interaction Workshop (Ingo, 5 mins)**

[WCRP-CLIVAR Workshop on Climate Interaction Among the Tropical Basins](#) was organised online by the CLIVAR Tropical Basin Interaction Research Foci (TBI RF) on 24-26 February 2021, with plenary talks, e-posters and discussion groups. This is the first online-only workshop organised by CLIVAR. Over 200 participants from 31 countries participated in the workshop. Generally positive feedback received from the participants with some criticism of schedule. Lessons learnt for future virtual events include: 1) to spread the meeting over 5 days; 2) to have longer poster sessions; 3) to provide opportunity for socializing between sessions; 4) to avoid Friday afternoon (US time)/Saturday morning (elsewhere); and 5) the slack channel can be a useful addition.

The major outcomes from the workshop are: 1) to finalise the design of coordinated GCM experiments (pace-maker experiment) participated by several modeling groups; 2) plan for developing inter-basin Intermediate Complexity Models (ICMs); 3) more interaction between ocean basin observational communities, and a session at CLIVAR multi-region panel workshop on ocean observations in 2022; and 4) and more interaction among paleo proxy and climate model communities and set up centralized information sources to make people aware of the available proxy data and how to use them.

The relevant outcomes to ARP are: 1) to develop Cane-Zebiak type model for Tropical Atlantic; 2) to have more interaction between ocean communities (Atlantic, Indian and Pacific Ocean); 3) as there are shortage of paleo proxies in the tropical Atlantic, we need to identify the most pressing questions for TBI (proxies and processes on paleo timescales, e.g. AMOC can be one interesting aspect for it); 4) joint assimilation of early instrumental and paleo data to study multi-decadal variability (e.g. Atlantic Multi-decadal Variability, AMV); and 5) to have more interaction between instrumental/paleo/modeling communities to identify problem areas targets for rapid progress.

**Eleanor:** With the paleo proxies for the tropical Atlantic, were there any time scales that we are missing? As there are a lot of variabilities in terms of how far you could go back versus how well the proxies results are.

**Inga:** I am not quite familiar with this, but for us (TBI RF), we are more interested in the more recent time (e.g. one thousand year).

**Eleanor:** Are there any plan to put together a workshop report?

**Inga:** Yes, a special issue of CLIVAR Exchanges is under preparation by including articles from selected poster presenters, and short article on workshop summaries and logistics. It is expected to be published in May or June. A workshop summary report will also be prepared.

Xxx: What are the next steps after the workshop?

**Inga:** For the next step, the CLIVAR TBI RF will have follow up meetings in 2021 to finalise the design of the GCM experiments and get them running. As a research foci, we cannot do all these experiments, and we need to rely on the participating groups. Some of the TBI RF members have the capability to run the GCM experiments, and people are encouraged to participate in the GCM experiment. Meanwhile, we are also hoping to centralize the available paleo proxy metadata and facilitate the use of paleo proxies. We would also encourage people to work on the Intermediate Complexity Models (ICMs) and Fei-Fei Jin is interested in it.

**Brad:** Regarding the coordination with other groups, it would be easier to formulate the links virtually. The suggestion is for these group to share the plan in the coming years, so we could identify the potential areas to connect, either fundamental scientific questions, or observational or modeling techniques. Then we could add a litter session or section that can bring the partners to discuss together. This a straight forward way to stimulate cooperation.

- **CLIVAR-FIO Summer School on Ocean Macroturbulence and Its Role in Earth's Climate**

[CLIVAR-FIO Summer School on Ocean Macroturbulence and Its Role in Earth's Climate](#) is led by former ARP co-chair Walter Robinson. The workshop was originally planned in 2020, and due to COVID-19, it is now postponed to 2022. The summer school is still planned to be an in-person event, meanwhile, considering participants from nations where COVID vaccinations will likely still not be available by then, we will facilitate virtual participation in the school as well. It was suggested by CLIVAR SSG to involve the CLIVAR Ocean Model Development Panel (OMDP) in the organisation of the summer school as well. Currently, there are two emeritus of OMDP are invited as lecturers for the summer school. We hope by June 2021 we could revisit the speakers and content of the summer school.

Paquita also mentioned the opportunity to have EUREC4A/ATOMC as an option for the topic of the summer school. The EUREC4A overview manuscript is available at <https://essd.copernicus.org/preprints/essd-2021-18/>.

- **PIRATA (Gregory Foltz)**

The 24<sup>th</sup> Prediction and Research Moored Array in the Tropical Atlantic /Tropical Atlantic Variability Meeting ([PIRATA-24/TAV](#)) will be organised virtually from 10 to 14 May, 2021, following to the [PIRATA 23 and 2<sup>nd</sup> TAOS Review Workshop](#) took place in 2018. The meeting aims to have 70-100 participants, and so far, 71 abstracts have been received. Registration deadline: May 2, 2021. The main goal is on the tropical Atlantic science and results, and the path forward. The PIRATA really grows in the past 20 years, as we will have quite broad areas of topics, such as the biogeochemistry and ecosystem sessions, and we will invite speakers from operational weather prediction centers in US and Europe, and talk about the hurricanes and extreme weather connected to climate. The TAOS review will also be discussed during the PIRATA meeting.

- **SAMOC (Maria Paz)**

The SAMOC logistic meeting will be organised in next week. The main goal is to give an update on the AMOC observing systems in the south Atlantic, in particular on the challenges we are facing with the cruises, consolation and activities and how we implement our plans and

enhance continuity of time series. I am happy to see that with the establishment of the AMOC TT, the SAMOC and OSNAP will interact more closely and move towards one-Atlantic, by linking the southern and northern Atlantic together.

- **Pan-CLIVAR workshop (Maria Paz)**

The [pan-CLIVAR workshop](#) titled 'From Global to Local - Cultivating new solutions and partnerships for an enhanced ocean observing System in a decade of accelerating change', which was originally planned in May 2021 at Trieste, Italy, is now postponed to 2022, co-organised by CLIVAR and GOOS. It is built on the recent observing system reviews over the Pacific, Indian and Atlantic basins, in response to new scientific and societal demand. It will a good opportunity to bring the panels together, with an emphasis on participation of developing nation scientists, would allow an exchange of problems, ideas, and solutions, enriching the efforts of each and adding up to a global perspective worth more than the sum of its parts. Maria Paz is in the organising committee of the workshop and she encourages the ARP to participate actively in the workshop.

#### **4. Discussion on ARP future plans (\* leveraging existing activities)**

All ARP members are encouraged to think about what areas we may work together to make real concrete steps and focus on. Three potential themes have been identified: 1) AMOC related; 2) Air-sea interaction (also from Tropics to Arctic); 3) Coastal resilience (linking to WCRP Lighthouse Activity on 'My climate risk'). The discussion was focused on the third theme.

**Susan:** There have been lots of discussions on the [coastal resilience tools](#) developed by TNC in the previous ARP telecons. Looking at the large basin scale processes, their impacts on the coastal regions are also important. We could use the coastal resilience tools to tie the basin scale processes with coastal sea level.

**Eleanor:** It is also linked to the AMOC. There is a [WCRP Grand Challenge on Regional Sea Level Change and Coastal Impacts](#) (SL GC).

**Regina:** There has been discussion with the WCRP Lighthouse Activity (LHA) on 'My Climate Risk' to host the SL GC. But out of the Working Package of the SL GC, there is only one that is relevant to the 'My Climate Risk' LHA. Unlike the top-down approach implemented by SL GC, this LHA is implemented in a bottom-up approach through establishing 'Lab', one of the topics that I am going to push is on 'Ocean', by including the sea level and other components, such as extremes and their impacts on marine ecosystem (e.g. marine heatwave and its downstream impact to the coast). We are not doing pure scientific researches, but should bring together the existing researches (mainly in global north) and make it more meaningful (to global south).

**Eleanor:** There is a distinction between the SL GC (in broader scale) and the TNC resilience tools (link directly to the local impacts on coastal communities).

**Susan Bates:** The tool is applied in different ways depending on region. You can see where it has been implemented at [maps.coastalresilience.org](https://maps.coastalresilience.org) and see the Virginia specific implementation at [maps.coastalresilience.org/virginia](https://maps.coastalresilience.org/virginia). For the marine heatwaves, it happened in the Chesapeake Bay and it killed off eelgrass and had negative impacts on clams and oysters. I am always wondering if it is in this case the warm pool eddies shading off the Gulf Streams, and whether with the slow-down of the Gulf Stream, there will be more marine heatwave along the coast regions.

**Paquita:** Are there any AGU session being planned on the coastal resilience? I am wondering if we could think about proposing one.

**Regina:** So far the LHA on 'My Climate Risks' is only planning for small workshop but not a session that is open to general public. We are now working with the [Himalaya University Consortium](#) on the extremes and risks on Himalayan and high-latitude/high-altitude region. We don't have an idea

**Tannecia Stephenson:** The Caribbean is also interested in sea level variability, marine heatwaves and impacts.

**Franck:** I am interested in participating the WCRP LHA on 'My Climate Risk'.

**Action 2:** The panel will have more discussions in the next ARP meeting on the areas with gaps of coordination where ARP or subset of ARP could help advance. The panel will also discuss on submitting session proposals for big meetings (AGU, OSM) or organising workshops in the next meeting.

## 5. Any Other Businesses

- Funding request to WCRP (to be submitted by 15 April 2021)

The CLIVAR SSG encourages the use of online meetings for panel business, wherever possible, as WCRP recommends that 50% of meetings going forward to be conducted online, with the goal of reducing carbon footprint. Training for early career scientists and workshops will have priority for travel funding in future. However, the SSG also acknowledges that in-person meetings can provide important interactions which are difficult to replicate online, and will therefore continue to be needed to some extent. To this end, the SSG has decided to allocate 5,000 CHF for this year to each panel, which may be used for an in-person panel meeting, or facilitating a virtual meeting, publication, or other relevant activity. Funding requests needs to be submitted by April 15<sup>th</sup> at the latest.

Tarron suggested to use the fund for some publications from the panels, such reports, flyers, etc. e.g. we could print out some copies of the Tropical Atlantic Observing System (TAOS) review report. Jing mentioned that there might also be cost needed for the layout of the TAOS review report.

**Action 3:** Paquita/Eleanor will check with Sabrina on the status of the TAOS review report.

**Action 4:** The next ARP telecon will be organised in two month, and Jing will set up a doodle poll for scheduling telecon.

## Annex: ARP members and their expertise

**Paquita Zuidema**, ARP co-chair, University of Miami

An atmospheric scientist, working on marine and low cloud processes; quite a bit field work in the southeast Atlantic; now is planning to do an atmospheric field work in sub-Arctic, looking at air exchanges between Arctic and mid-latitude.

**Eleanor Frajka-Williams**, ARP co-chair, National Oceanography Center, UK

Physical oceanographer, PI for the RAPID project which measures the AMOC in the 26N, project in the Labrador Sea and Weddell Sea (?). From the north to the south.

**Brad de Young**, Memorial University of Newfoundland, Canada

Oceanographer, involved in several related programmes, such as the OSNAP, north Atlantic AMOC programme, the Labrador Sea, Chair of AtlantOS basin scale initiative to developing ocean observing, co-chair of Ocean-Gliders (the international network of Glider activities).

**Susan Bates** (The Natural Conservancy, TNC)

Used to work on large scale climate variability and ocean interaction in UCAR in the past 10 years. Now fully involved in coastal resilience, which obviously involves the sea level rise. But what TNC is doing here is trying to take what has been done in science and turn it to something that can be used by the general public or planning commissions or government (science-decision). One of the approaches is the coastal resilience tools.

**Maria Paz Chidichimo**, Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)/Servicio de Hidrografía Naval, Argentina

Physical oceanographer, used to work in the RAPID arrays in the north Atlantic at Max-Planck-Institute in Germany, and postdoc in ACC. Now, I am part of the SAMOC in the south Atlantic as an in-situ observing oceanographer; interested in boundary current and AMOC monitoring arrays; member of Ocean Observations Panel of Climate (OOPC).

**Gregory Foltz** (NOAA AMOL)

Oceanographer, ocean's role in the extreme weather and climate; involved in the PIRATA project as well as hurricane in-situ observations in the tropical Atlantic.

**Kemgang Ghomsí Franck Eitel**, Nansen Center in Bergen

Physical oceanographer, currently starting a postdoc in Nansen Tutu Center in South Africa on Sea Level variability along the tropical Atlantic and trying to focus on coastal upwelling; got funding from POGO scholarship last year working 6-month in LEGOS in Toulouse, France on asymmetry and some of the products on Sea Level variability along the Atlantic.

**Laura Jackson**, Met Office, UK

Main focus on the AMOC and north Atlantic circulation, climate models, reanalysis.

**Tarron Lamont**, Department of Environment, Forest and Fisheries, South Africa

Physical oceanographer, research primarily along the South Africa Coastal line, working in the Benguela upwelling region in the Atlantic Ocean; also involved in SAMOC and a PI of SAMBA array along 34.5S; also do some work in the Indian Ocean, e.g. the measurement of the upstream part of the Agulhas leakage; also work in the Southern Ocean focusing on the Southern Atlantic, mainly in-situ, but also various kinds of satellite and remote sensing .

**Ingo Richter**, JAMSTAC, Japan.

Tropical Atlantic variability at inter-annual timescales, GCM biases in the tropical Atlantic, co-chair of CLIVAR Tropical Basin Interaction Research Foci.

**Regina Rodrigues**, Universidade Federal de Santa Catarina, Brazil

Oceanographer, work with Greg on PIRATA programme; also work on TRIATLAS project funded by EU to study the tropical Atlantic and south Atlantic impact on marine ecosystem; member of the CLIVAR TBI RF; co-chair of WCRP Lighthouse Activity on 'My climate risk'.

**Tannecia Stephenson**, University of the West Indies, Mona, Jamaica

Interested in the climate variability in the Caribbean, looking at ocean-atmospheric draggers on Caribbean rainfall, trying to understand the drivers for the historical climate change for the Caribbean and future change. Former fellow at Climate Research Unit in the UK.

**Jennifer Veicht**, South African Environmental Observation Network (SAEON), South Africa

Numerical Modeler, fill the gaps of models in particular on the Benguela upwelling system and eastern boundary systems in general; working together with DFFE in operational forecast system; also part of the Coastal Ocean and Shelf Seas Task Team of (COSS-TT) the OceanPredict; also a member of CLIVAR Eastern Boundary Upwelling System Research Foci.

**Jing Li**, International CLIVAR Project Office (ICPO)

Liaison staff from ICPO to support the ARP and other panels and RFs of CLIVAR.