

## CLIVAR Early Career Scientist Outreach

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Established from the foundations of the successful scientific programmes of WOCE (World Ocean Circulation Experiment) and TOGA (Tropical Ocean Global Atmosphere), CLIVAR has been one of the WCRP (World Climate Research Programme) projects at the forefront of climate variability science since the early 1990's. During this time the CLIVAR network of scientists have played a key role in establishing major multinational observational networks across all the ocean basins (e.g. the Indian Ocean network and the Argo array in the Southern Ocean).

However, to date no official link or network has been established between early career research scientists (ECS) and the established scientists of the CLIVAR network. As WCRP evolves its structure, projects and activities, to better serve current and emerging scientific priorities and become relevant for societal needs, so too does CLIVAR. This offers CLIVAR a unique opportunity to capitalize on this period of change and to engage the early career scientists, researching ocean and atmospheric science across the current CLIVAR research opportunities (listed below).

1. Intraseasonal, seasonal and interannual variability and predictability of monsoon systems
2. Decadal variability and predictability of ocean and climate variability
3. Trends, nonlinearities and extreme events
4. Marine biophysical interactions and dynamics of upwelling systems
5. Dynamics of regional sea level variability

To this end, CLIVAR is now in the process of setting up an Early Career Scientist (ECS) network. The rest of this document will detail the steps taken to date, and the reasoning behind these decisions. Many of the decisions that have been made are a reflection of the advice received from Jenny Baeseman and David Carlson and the work they undertook during the International Polar Year (IPY) in 2008, setting up the Association of Polar Early Career Scientists (APECS) network.

Full details of the outreach, education and communication successes achieved during the 2008 IPY, including the establishment of the early career scientist network and the key lessons learnt, are detailed in the following document:

[Provencher J, Baeseman J, Carlson D, Badhe R, Bellman J, Hik D, Huffman L, Legg J, Pauls M, Pit M, Shan S, Timm K, Ulstein K, Zicus S \(2011\) Polar Research Education, Outreach and Communication during the fourth IPY: How the 2007–2008 International Polar Year has contributed to the future of education, outreach and communication. Paris: International Council for Science \(ICSU\).](#)

## The first steps in establishing the CLIVAR ECS Network

### 1. Web Page

A web page has been set up on the CLIVAR website dedicated to ECS ([www.clivar.org/ECS](http://www.clivar.org/ECS))

On this webpage is currently (as of May 2013) briefly detailed:

- What is CLIVAR?
- How one can qualify for the ECS network?
- What one could gain from joining the ECS network?
- What one can do immediately to help establish the network?

The purpose of this page is to give a brief overview of what CLIVAR sees the ECS network as, during the infancy of the project. However, it is made clear that CLIVAR ECS desires input from the ECS signing up to the network, and does not want to be a top down approach. It was also stressed that anyone interested in getting involved with the network and interested in helping to set it up should get in contact personally. It is hoped that the ECS website will ultimately act as a focal point for the ECS community, in the same way that the APECS website does for polar ECS ([www.apecs.is](http://www.apecs.is)).

### 2. Network Registration

Embedded within the CLIVAR ECS webpage is a sign up sheet, where people who are interested in the ECS network can sign up and leave their details. This data is collected within the CLIVAR CiviCRM database. Jenny Baseman was very helpful to talk to with regards to the most useful information to ask for on such a form. Key points that were noted from the discussing with Jenny were:

- **Know what you want the data for.**

Do you just want email addresses to send out a monthly newsletter?

Do you want to be able to contact specific research areas to get input on CLIVAR specific science?

Within CLIVAR ultimately we want to be able to have networks of ECS scientists associated with the range of research opportunities (e.g. sea level, upwelling, extreme events etc.)

- **Ask for information that will help you better understand your audience.**

Specifically information about research interests, institution, career stage and country, to name a few.

The following information is currently being collected:

**Title:**  
**Name:**  
**Current Employer/Institution:**  
**Email Address:**  
**Address:**  
**Country:**  
**Nationality:**

**Personal Web Page:**  
**Year of graduation for most recent degree:**

**Gender:**  
 Male  
 Female

**Career Stage**

- Undergraduate
- Masters
- PhD
- Post-Doctoral
- Other

- Sea level variability
- Paleoclimate
- Ocean-ice interactions
- Ocean-atmosphere interactions
- Seasonal prediction
- Other

**General Research Interest:**

- Atmosphere
- Cryosphere
- Oceans (biological)
- Oceans (physical)
- Oceans (chemical)
- Modelling (Global climate)
- Modelling (Regional climate)
- Modelling (Oceans)
- Modelling (Numerical parameterization)
- Observational (Process studies)
- Observational (Experimental)
- Observational (Meso-macrocosm)
- Other

**Region of Interest**

- Asia
- Africa
- Australia
- Americas
- Atlantic (North)
- Atlantic (South)
- Pacific (North)
- Pacific (South)
- Indian Ocean
- Southern Ocean
- Other

**Research focus:**

- Monsoonal systems
- Intraseasonal
- Interannual variability
- Decadal variability
- Extreme events
- Marine biophysical interactions
- Upwelling systems

**Wider research interests:**

- Socioeconomics and sustainable development
- Climate change (Adaptation)
- Climate change (Mitigation)
- Climate change (Prediction)
- Climate change (Health)
- Education and outreach
- Science and policy
- End user needs
- Other

Once the ECS webpage was live on the CLIVAR website and the signup sheet active, it was advertised by Lisa Goddard and Martin Visbeck (CLIVAR SSG co-chairs) to their respective institutions. Information about it was also posted on social media feeds (Twitter and Facebook) and on the CLIVAR website front page news feed.

### 3. Survey

In order to determine what registered individuals actually want and need from a CLIVAR ECS network a survey was designed asking specific questions, which might help to steer the future development of the network. The survey was conducted through surveymonkey ([www.surveymonkey.com](http://www.surveymonkey.com)). It is an online resource in which different types of survey questions can be designed and then sent out or posted on a website as a link. The results are then collected and presented in table and graphical format for analysis. The CLIVAR ECS Network survey can be found here.

[A link to a pdf version of the online survey can be found here.](#)

The survey was advertised on the CLIVAR ECS website and in a specific email newsletter sent out to the people who had registered for the network during the development of the survey. Currently 33 people have completed the CLIVAR ECS survey, during the month it has been available online.

The full results of the survey are discussed in greater detail in the [CLIVAR ECS survey report<sup>1</sup>](#). However, key results of the survey suggest that 94% of the individuals who completed the survey would be interested in the opportunity to attend a CLIVAR SSG meeting and participate in the discussions and 84% would like to work with the CLIVAR SSG in setting up the ECS network, within the existing CLIVAR organization.

#### **4. ECS Newsletter**

A welcome newsletter was sent out on 25<sup>th</sup> March, welcoming the subscribers to the network and advertising EGU and the ECS survey. The newsletter can be accessed via the following link (<http://us4.campaign-archive2.com/?u=e95bd74f92719b8560b3cbcd6&id=8d2dfb8fa2>).

The advertisement of EGU included the CLIVAR townhall meeting, which offered a good opportunity for people new to CLIVAR to come along and find out about the programme. It was also asked if any ECS were available to meet up for an informal drink. This was included at the suggestion of Jenny Baeseman who, from her experience with APECS, found that often the most productive and useful information gathering, and potentially decision making exercised occurred in less formal environments.

#### **5. ECS and SSG**

It was decided to invite some early career scientists to the CLIVAR SSG-20 meeting in Kiel (6-9<sup>th</sup> May 2013). At this stage the ECS network registration had only just been made live and we did not have a network of people to contact asking them to submit their interest in attending the meeting. This would be the preferable pathway for future events where the CLIVAR SSG chose to invite ECS to meetings and workshops.

Instead, Lisa Goddard suggested that we approach some of the NOAA Climate and Global Change Post doctoral candidates. This programme not only included individuals researching scientific areas similar to CLIVAR but also the appointments also came with travel money attached to them, so there would potentially be capacity for travel funding outside WCRP. As a result of this one ECS from MIT is attending the SSG.

During the SSG meeting the ECS attending will be asked to take notes on the meeting from his perspective, particularly noting where ECS may fit into the new CLIVAR structure and what opportunities he sees for ECS within CLIVAR. This information will then be written up and included in the final CLIVAR SSG report.

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<sup>1</sup> The survey report can be found at [http://www.clivar.org/sites/default/files/ECS/Documents/CLIVAR\\_ECS\\_Survey\\_report.pdf](http://www.clivar.org/sites/default/files/ECS/Documents/CLIVAR_ECS_Survey_report.pdf)

## 6. CLIVAR at EGU



Figure 1 Hyperlinked images of the ECS flyer (top) and the CLIVAR research opportunities brochure (bottom)

CLIVAR hosted a townhall meeting at EGU, focusing on the future evolution of CLIVAR in the light of the new WCRP grand challenges. It was decided that this presented a good opportunity to network and contact ECS scientists and publicize the network. Flyers were designed advertising the ECS network, CLIVAR and the townhall meeting. These were distributed during EGU, during poster sessions and at the end of plenary talks. For context this flyer was also distributed with a brochure detailing the new research opportunities within CLIVAR.

The most engagement with ECS was gained by networking during the poster sessions. There were two reasons for this; firstly it was possible to target the CLIVAR specific research being presented; and secondly it engaged the ECS researcher on a personal level, informing them about CLIVAR and the ECS network. The majority of the individuals personally approached and interacted with at the poster sessions also came to the CLIVAR townhall meeting. (It must be noted here that the townhall meeting was on the first day of EGU and only one poster session had occurred, thus relatively few individuals has been approached before the townhall meeting occurred).

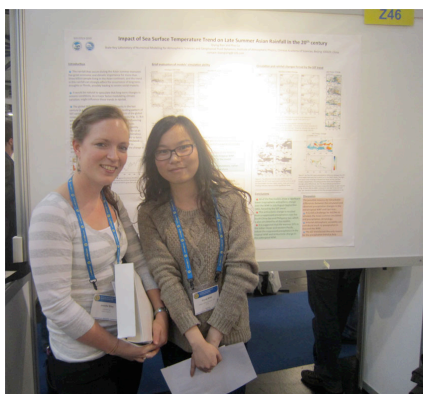


Figure 2 Networking with PhD student Qiyang Bian, from the Institute of Atmospheric Physics, Chinese Academy of Sciences

It would therefore be recommended that engaging with ECS on a personal basis, is the way forward, to get people interested and on board. However, this is a time consuming process and ideally needs a few people networking at once to cover a greater spectrum of people within a confined time frame of a poster session.

The down side of going to EGU is that it is such a broad meeting covering the spectrum of geosciences that it was more difficult to target CLIVAR specific researchers. Perhaps a more appropriate meeting for CLIVAR would be an Ocean Science meeting.

Overall, EGU was a good networking opportunity to spread the word about the CLIVAR ECS. As a result of the 2 days of networking at the conference at least 50 more people signed up to the

network. The townhall meeting turnout was a disappointingly small, although proportionally there was good representation by ECS (30 - 40 % of the total turnout). In future meetings it would perhaps be better to have a stand manned during the day, when conference footfall is at maximum, to advertise both CLIVAR and the ECS network. This would allow a more personal networking interface, interacting with individuals and would also give people a hub, available all week, to which individuals could be directed from information on leaflets and flyers distributed during the meeting.

### **The CLIVAR ECS network April 2013**

Currently there are approximately 200 people signed up to the CLIVAR ECS network. There is clearly a significant interest in a CLIVAR ECS network, which is active and dynamic. In particular ECS are keen to work with the SSG and panels. Thus this should perhaps be a future direction of the ECS network.

Contact has been made preliminarily with a couple of individuals who are interested in becoming more involved with spurring on some other initiatives within the CLIVAR ECS network to make it into a more active and dynamic community. This would include things like ensuring jobs listings are up to date, and working towards some CLIVAR ECS events at future science meetings, such as Ocean Science 2014.

Unlike APECS, which was a grassroots programme, developed entirely by early career researchers in polar science, the CLIVAR ECS network has originated from the CLIVAR SSG recognizing the need to include ECS in the future evolution of CLIVAR. Therefore, the process of initiating the CLIVAR ECS network may not follow the same organic path as APECS did. However, there are key lessons that can be learnt from the APECS documents published (listed above) and the APECS website for inspiring, engaging and informing the CLIVAR ECS network.

### **Future Plans**

- Have a Skype meeting with individuals who have expressed an interest in helping kick start a more dynamic network. Discussions could include, setting milestones to aim for (e.g. an event at a science meeting), choosing specific things to promote on the CLIVAR ECS website (e.g. virtual poster sessions, grant writing tips and advice, job listings, networking tips etc.)
- Get the ECS perspective on the CLIVAR SSG meeting and include in the SSG report. How best ECS could be integrated into the CLIVAR network of the SSG and working groups/panels.
- Develop the CLIVAR ECS website into a more dynamic interface for ECS based upon the outcomes of the Skype chat (point 1).
- Work with CLiC on joint Sea Level grand challenge to inspire ECS. Jenny Baeseman suggested producing a webinar on sea level could be one place to start.