

United Nations Framework Convention on Climate Change 20th Conference of Parties (UNFCCC COP20), Lima Peru, 1-12 December 2014

Informal UK report with focus on ocean acidification and the involvement of the international OA research community

1. Context of climate change negotiations

The 20th Conference of Parties of the UN Framework Convention on Climate Change (http://unfccc.int/meetings/lima_dec_2014/meeting/8141/php/view/dailyprogramme.php) was held in Lima, Peru from 1st to 12th December 2014. Between 15 and 20,000 governmental, intergovernmental and non-governmental delegates from 195 countries attended.

Delegates had arrived in Lima in positive mood, aware of new announcements on climate mitigation action by the US, China and EU, plus news that the UN-backed Green Climate Fund was on course to raise US\$10 billion by the end of 2014. However, serious international disagreements remained, and there was only limited progress in developing the foundations of an international pact to cut greenhouse gas emissions, due to be finalised in Paris, December 2015. At the end of the summit, 33 hours in overtime, the countries taking part finally agreed to adopt a four page document (<http://unfccc.int/resource/docs/2014/cop20/eng/l14.pdf>) that explains the types of national climate targets they will need to deliver in the next six months, together with a pathway towards an agreement to address climate change at the next UNFCCC COP in Paris. The latter included a set of “elements” that will form the building blocks for the new deal, to be the subject of further (and likely intense) negotiations throughout 2015.

The COP20 outcome resulted in mixed responses. Christiana Figueres, the UN’s lead climate official, said the meeting had been “challenging” but demonstrated willing towards a global deal. Manuel Pulgar Vidal, Peru’s environment minister and chair of the talks considered that the process had moved forward despite an agonising few final hours. However, green groups were unimpressed. A statement signed by Oxfam, Greenpeace and Christian Aid said it had left the world on course for warming of “4°C or worse.” See more at: <http://www.rtcc.org/2014/12/14/late-deal-in-lima-saves-un-climate-talks-from-collapse/#sthash.YNljR55y.dpuf>.

From the ocean’s perspective, there were several encouraging developments:

- In the Ocean section of the COP website, ocean acidification was mentioned either along with other climate related ocean stressors or as individual articles in both English and Spanish: <http://www.cop20.pe/en/ck/acidificacion-de-los-oceanos-el-otro-problema-del-co2/>, <http://www.cop20.pe/en/ck/500-mil-millones-de-volkswagen-escarabajos-vertidos-en-el-mar/>.
- A link to the PML film on OA *Ocean Acidification: Connecting science, policy, industry and the public* was given in the official COP website: <http://www.cop20.pe/en/tags/ocean-acidification/>.
- The majority of delegates are aware of ocean acidification; countries referred to it much more frequently than at previous UNFCCC COPs (five years ago, very few of them were aware of it).

- Ocean acidification was included in the Subsidiary Body for Scientific and Technological Advice (SBSTA) document 8b http://unfccc.int/meetings/lima_dec_2014/in-session/items/8698.php on systematic observations. At one point during the COP it was excluded but an intervention resulted in its re-inclusion.
- Policy makers themselves are raising the issue, e.g. Ronny Jumeau, Seychelles Ambassador for Climate Change and SIDS Issues: <http://stakeholderforum.org/sf/outreach/index.php/223-cop20-day9-mountains-water-oceans/11849-cop20-day9-the-missing-oceans> and the UNFCCC Secretary General herself (see Section 4.1 below).
- Requests for copies of ocean acidification PowerPoint presentations were received from several coastal and island nations.



The entrance to the COP20 venue

Information on ocean acidification and other climate-related ocean stressors was made available to COP participants by a collaboration of national and international organisations through an exhibition booth, together with engagement through a wide range of meetings specific side-events, interventions and press interviews, as detailed below.

Three side events were held with focus on ocean acidification and related changes (each hosted in a different pavilion at the COP), together with a public event. At these events, experts and PhD students presented and discussed information on the causes and impacts of climate-related ocean stressors.

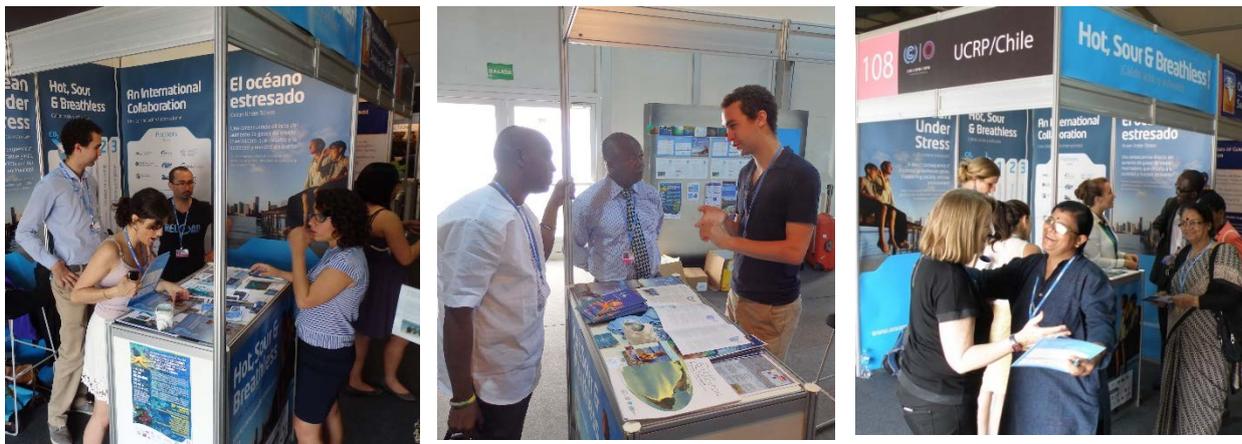
2. Exhibition booth: Hot, Sour & Breathless

The English/Spanish exhibition booth “Hot, Sour and Breathless” was jointly supported by the UK Ocean Acidification research programme and Plymouth Marine Laboratory (UK), the BIOACID programme (Germany), Scripps Institute of Oceanography (USA), and the Ocean Acidification International Coordination Centre hosted by the International Atomic Energy Agency. Spanish translations were provided by the Centro de Investigación e Innovación para el Cambio Climático, Chile. The overall aim was to ensure that the important role of the ocean in climate change processes, impacts and adaptation is properly recognised in the UNFCCC process, including its relevance to preparations for COP21 in Paris at the end of 2015.

The exhibition booth and associated knowledge exchange materials were coordinated by PML. However, all the members of the booth team (listed at end of this section) contributed to engaging the delegates, explaining the science behind the three ocean stressors (warming, acidification and

deoxygenation), and producing the communication materials. Experienced scientists and students from both North and South America contributed to the successful engagement of delegates at the booth over the full two weeks of the COP.

The exhibition booth was very popular with a near-constant flow of delegates keen to learn more about the effects of climate change on the ocean. Compared to our first foray to the UNFCCC COP in Copenhagen in 2009, most delegates have now heard of ocean acidification, in addition to the other two stressors (higher temperature, lower oxygen). Nevertheless, they were not always aware of its potential effects on ecosystems, aquaculture and human society and were pleased to receive the summaries for policy makers and other outreach material.



Above: the Hot, Sour and Breathless exhibition booth. Left: Knowledge exchange materials on ocean acidification and other ocean stressors

Communications products and pop-up banners were also displayed in the EU and Peruvian pavilions, and at the Ocean Pavilion at Voices for Climate (a parallel event open to the public). At the latter, the Spanish versions of children's animation *The Other CO₂ Problem* and the film *Ocean Acidification: connecting science, policy, industry and the public* were shown.

Carol Turley, James Johnson and others brought exhibition display panels and outreach literature and material for the stand with them on their flights. That turned out to be vital, since there were several days delay on shipped consignments (of leaflets, reports, films etc), that also affected many other exhibitors. Some of the material is available on www.oceanunderstress.com, including Spanish versions. We also supplied Spanish material for Peruvian and Chilean scientists for future distribution to their decision-makers and outreach in Latin America.

The following individuals directly assisted with the exhibition booth:

Noah Ben-Aderet (Scripps, USA); Kathryn Furby (Scripps, USA); Natalya Gallo (Scripps, USA); Laura Ramajo Gallardo⁺ (Centro de Investigación e Innovación para el Cambio Climático (CIICC), Chile); Victor Aguilera⁺ (Universidad de Antofagasta, Chile); Michelle Graco (IMARPE/UPCH, Peru); Barbara Jacob (Centro de Investigación e Innovación para el Cambio Climático (CIICC), Chile); Jennifer Le (Scripps, USA); Lisa Levin (Scripps, USA); James Johnson* (Plymouth Marine Laboratory, UK); Sierra Joy Stevens-McGeever (Scripps, USA); Nelson Lagos Suarez (Centro de Investigación e Innovación para el Cambio Climático (CIICC), Chile); Carol Turley** (Plymouth Marine Laboratory, UK); Phil Williamson* (Natural Environment Research Council (NERC) and University of East Anglia, UK).

*Accreditation through Intergovernmental Oceanographic Commission of UNESCO

⁺ Funded by the Ocean Acidification-International Coordination Centre (OA-ICC, IAEA)

3. **Side-events with ocean acidification involvement**

3.1 **US Center – *What goes up in the air, also goes into the sea*** (3 December)

Panel: Libby Jewitt (NOAA), Carol Turley (PML), Natalya Gallo (Scripps), Nelson Lagos Suarez (CIICC), Laura Ramajo Gallardo (CIICC), David Osborn (IAEA)



Panel members at US Center side-event

The panel of experts from across the Americas and Europe covered different aspects of ocean acidification, leaving the audience with the following key messages:

- Ocean acidification is happening now and it's serious. It's caused by CO₂ and reducing emissions urgently will reduce it
- Some of our most productive fishing areas may be the ones most vulnerable to ocean acidification impacts
- These impacts of ocean acidification will be stronger in highly vulnerable coastal communities relying on marine productivity
- Ocean acidification is already affecting productive Latin-American coasts with important economic and social impacts
- Key to addressing ocean acidification will be substantial and sustained investment, accelerated research, and enhanced collaboration at a global scale
- A global network of observation is essential so we know what is happening, where, and so people can be prepared.

This event was live webcast and the video can be found at:

<https://www.youtube.com/watch?v=VaaavN1J1XY>

3.2 **UNFCCC official side-event – *Data, knowledge management and innovations for climate action*** (4 December)

Phil Williamson (NERC/UEA) discussed data management issues for ocean acidification in the wider context of information collection, collation and analysis for global climate change. Other Panel members: Pradeep Monga (UNIDO), Daniel Schensul (UNFPA), Satya Triparthi (UNORCID), Koko Warner (UNUO, Ilaria Famian (IFAD) and Jukka Vosakainen (CTCN). A summary film (not including all aspects of the discussions) is at: <https://vimeo.com/113816215>.

3.3 Peru Pavilion – *Ocean acidification interaction with multiple stressors and their impact on marine organisms* (5 December)

Panel: Carol Turley (PML; *also Moderator*), David Osborn (IAEA/OA-ICC), Lisa Levin (Scripps), Libby Jewitt (NOAA), Dimitri Gutierrez (IMARPE, UPCH), Michelle Graco (IMARPE/UPCH), Marco Lardies (UAI, MUSELS), Nelson Lagos Suarez (CIICC).



Panel members at Peru Pavilion side-event

The Spanish sub-titled version (of the PML film *Ocean acidification: connecting science, policy, industry and the public*, available at www.oceanunderstress.com was launched at this event to great acclaim.

3.4 Voices for Climate, Ocean Pavilion – *Ocean acidification interaction with multiple stressors and their impact on marine organisms* (6 December; public event)

Panel: Carol Turley (PML), Phil Williamson (NERC/UEA), David Osborn (IAEA, OA-ICC), Lisa Levin (Scripps), Michelle Graco (IMARPE), Nelson Lagos Suarez (CIICC)



Panel members at Ocean Pavilion side-event

Following the public viewing of the Spanish subtitled showing of the PML film, the Panel gave non-technical presentations on ocean acidification and other stressors, and discussed with the public the impacts of such changes on marine organisms, as well as the issues faced with communicating these impacts.

3.5 EU Pavilion – *Ocean Acidification: understanding the threats and reducing the impacts* (6 December)

Panel: Carol Turley (PML), Dorothee Herr (IUCN), Phil Williamson (NERC/UEA), David Osborn (IAEA), Cesar Toro (IOC-UNESCO), Sakhile Koketso (CBD). **Moderator:** Keith Alverson (UNEP)

The Panel reviewed the links of ocean acidification to climate change; its consequences for marine organisms, ecosystems and human society; and the policy responses that can be developed to reduce its impacts.

4. Raising the ocean profile at other events

4.1 World Meteorological Organisation (WMO) Press Conference



UNFCCC Executive Secretary Christiana Figueres.

The sense of urgency at the Lima COP was underlined by the World Meteorological Organization, which revealed at a Press Conference on the third day of the meeting that 2014 was on course to be the warmest on record: <http://www.rtcc.org/2014/12/14/late-deal-in-lima-saves-un-climate-talks-from-collapse/#sthash.YNljR55y.dpuf>

The UNFCCC Executive Secretary Christiana Figueres, speaking at the WMO Press Conference, talked passionately about ocean warming and ocean acidification stating:

"The heat is being absorbed by the oceans. There is no doubt that the ocean continues to warm and that on a very, very consistent basis and what it is doing frankly is doing us a little favour. They are absorbing the heat that could have gone to the land, and paying the price. The acidification of the oceans is really not to be underestimated and the price that we're paying in the oceans is something that we perhaps don't notice because we don't pay as much attention there because we as humans live on the land. But those beings that live in the ocean are certainly noticing this and the ocean is giving us a tiny little bit of respite at the cost of those who are living in the ocean to those who live on land. This is a situation that we can no longer afford."

<http://unfccc6.meta-fusion.com/cop20/events/2014-12-03-10-02-state-of-the-global-climate-in-2014-with-wmo-deputy-secretary-general-and-unfccc-executive-secretary>

Carol Turley subsequently presented a 'Listen to the Ocean' globe to Christiana Figueres, and thanked her for speaking so passionately at the WMO Press Conference. Christiana seemed thrilled to receive it and said '...it [the globe] is wonderful, beautiful; I always listen to the ocean, thank you so much'.

4.2 IPCC Plenary and side event on findings of 5th Assessment Report on Climate Change

Following the key opening addresses from the nations at the COP, the Intergovernmental Panel on Climate Change (IPCC) held a plenary to discuss its 5th Assessment Report (AR5) and to launch a related video: <https://www.youtube.com/watch?v=6yiTZm0y1YA>.

Carol Turley queried the lack of mention of ocean acidification in the IPCC film despite it being extensively covered in the AR5. Chris Field (Co-Chair IPCC) stated that ocean acidification is important and that the awareness of it should not be diminished. IPCC would consider adding ocean acidification to the film.

At another IPCC side event, Hans Pörtner (AWI), leader of one of the ocean chapters in the AR5 Working Group II report, gave a presentation on *Ecosystem Impacts and Food Security*, which included an assessment of terrestrial and oceanic impacts at different global temperature increases and pH decreases:
http://www.ipcc.ch/news_and_events/docs/COP20/SED%20Part%201/IPCC_Lima_Poertner_12min.pdf

4.3 High Level Session: Transition to Low Carbon Society, Indonesia Pavilion

Sir David King, UK Foreign Secretary's Special Representative for Climate Change, gives UK's perspective on a transition to a low carbon society, how climate change is a global problem threatening humanity that requires local actions. He mentions that the UK has contributed £8 billion to the International Climate Fund to help facilitate this. When questioned, during the panel discussion, he says that ocean acidification is a serious threat to ecosystems on which we all depend and we ignore the ocean at our peril. Other members of the panel called for an increase in the numbers of MPAs and the French spokesperson said that there was a need to develop strategies for adaptation for coastal communities which were supported by financial institutions.

5. Media coverage

Carol Turley and James Johnson approached press representatives at the media centre on a number of occasions to discuss ocean stressors, offering interviews (with Spanish and English experts and young concerned scientists) and digital versions of media-relevant material (summaries, quotes, images, etc). Much of the press activity below resulted from this proactive approach.

5.1 Telesur – Peru National Channel

Nelson Lagos Suarez (CIICC), Carol Turley (PML) and Barbara Jacob (CIICC) were interviewed on 4 December by Peruvian national television regarding the three ocean stressors and their impacts. The film was aired shortly after on the evening news, and a shortened version can be found at: <https://www.youtube.com/watch?v=McJ2ZHE-EU0&feature=youtu.be>

5.2 Al Jazeera (global broadcaster, particularly in the Middle East)

Al Jazeera were present at the COP creating a series of climate change films looking at deforestation, glacial change, impacts on indigenous species and impacts on the ocean. They contacted us after seeing the exhibition booth for our participation in the ocean aspect of their reporting.

Following this Carol Turley (PML) and Yuri Hooker (marine biologist from Peru) were interviewed on location in Lima's fish market and at sea at Palomino Island 10 km off Lima populated by sea lions to discuss the impacts on the ocean. The film was shown on the Al Jazeera network every hour for 24 hours on 10 December and the ocean footage can be found at: <http://www.aljazeera.com/video/americas/2014/12/changing-ocean-chemistry-imperils-eco-system-2014121016353646618.html>

Nick Clark is considering the preparation of a written follow-up.

5.3 Climate Change TV

Carol Turley (PML) was interviewed for Climate Change TV at the UNFCCC COP20 in Lima.

Carol explained that ocean acidification is occurring at the fastest rate ever in Earth's history with significant impacts on marine organisms. As 1 billion people depend on marine protein as a main protein source and engage in aquaculture for their livelihoods, adaptation is an important issue.

The interview can be found at: <http://climatechange-tv.rtcc.org/2014/12/10/cop20-carol-turley-plymouth-marine-laboratory/>

5.4 La Tercera daily

Nelson Lagos Suarez (CIICC) wrote an article post-COP in La Tercera daily (Chilean newspaper):

<http://mobile.latercera.com/noticia/opinion/correos-de-los-lectores/2014/12/896-609798-9-desafios-de-la-cumbre-de-lima.shtml>

5.5 Article on Peruvian website

An article on ocean stressors by reporter Claudia Chavaz for Peruinforma followed interviews with Natalya Gallo and Jennifer Le (Scripps students) at the exhibition booth:

<http://peruinforma.com/medio-ambiente/sobre-el-cambio-climatico-y-lo-que-el-oceano-dice-hoy-a-la-humanidad/>

5.6 Scripps students' website: Ocean Scientists for Informed Policy

Scripps students attending the COP have a website "Ocean Scientists for Informed Policy" with films, images, articles and blogs about their experience from the COP in Lima:

<http://oceanscientists.org/?view=featured&start=8>

Blog: <http://oceanscientists.org/index.php/blog/53-the-power-of-babble>

Films: <http://oceanscientists.org/index.php/videos>

5.7 Other coverage

Other associated media articles have included:

<http://internationalpoliticalforum.com/cop20-day-5-storm-on-the-water/>

<http://blogs.cfr.org/patrick/2014/12/12/no-blue-no-green-climate-change-and-the-fate-of-the-oceans/>

<http://cleantechnica.com/2014/12/11/cop20-two-days-climate-chorus-lima/>

<http://allafrica.com/stories/201412101699.html>

<http://voices.nationalgeographic.com/2014/12/08/now-starring-as-diplomat-bianca-jagger-defends-forests-at-un-climate-talks-in-peru/>

<http://ifad-un.blogspot.co.uk/2014/12/cop20-day-four-getting-uns-climate-data.html>

<http://stakeholderforum.org/sf/outreach/index.php/223-cop20-day9-mountains-water-oceans/11849-cop20-day9-the-missing-oceans>

*Carol Turley, James Johnson & Phil Williamson
7 January 2015*