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**STATEMENT OF WORLD CLIMATE RESEARCH PROGRAMME/CLIVAR
ON THE COOPERATION WITH WESTPAC**

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Background

Historically, the “Climate and Ocean: Variability, Predictability, and Change” (CLIVAR) project, one of the World Climate Research Programme’s (WCRP) core projects, has worked towards the coordination of regional and global scientific projects directed at increasing the understanding and prediction of the physical processes that control the ocean’s role in climate. WESTPAC has contributed directly to the CLIVAR objectives by supporting attendance of experts to the CLIVAR Pacific Region Panel meeting in Noumea, New Caledonia, in 2012, and has co-sponsored a Capacity Building Workshop on the Indonesia Throughflow (ITF) held in Bandung, Indonesia, on 13-22 January 2014, organized by the CLIVAR ITF Task Team. The aim was to train regional scientists and students with interests in the ITF and directly engage them in the use of data and tools for monitoring the ITF and understanding its potential impacts on climate. Many other WESTPAC activities indirectly support CLIVAR and the WCRP. CLIVAR co-organized the 5th UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate (UNESCO/IOC-ODC) in September, 2015 by inviting both co-chairs of its Scientific Steering Group (SSG), Detlef Stammer and Annalisa Bracco as lecturers of the training course. On 16th September 2015 WCRP/CLIVAR and IOC/WESTPAC hosted a joint workshop on “Advancing Ocean Climate Observations and Studies in the Indo-Pacific” at FIO with the aim to take stock of previous achievements in ocean observations, modelling and ocean climate studies in the region; build and enhance networks among ocean and climate research communities in the region; exchange strategic directions and further synergize efforts between WESTPAC and CLIVAR by identifying areas of common interest and means of cooperation. The workshop included

presentations from WESTPAC and CLIVAR scientists on their previous achievements, present efforts and future directions for ocean and climate studies, including sustained ocean and climate observations, predictions and services. Following these presentations, participants, including all trainees for the ODC training, provided their suggestions on possible areas and means of cooperation between WESTPAC and CLIVAR.

CLIVAR Open Science Conference 2016 and Early Career Scientist Symposium

The CLIVAR Open Science Conference (OSC) was successfully held in 2016. More than 600 scientists from 50 countries gathered in Qingdao, between September 18 and 25, 2016, for the OSC. The event was titled “Charting the course for climate and ocean research” and marked the 20th anniversary of CLIVAR. During the five days, scientists from around the world showcased major advances in climate and ocean research. By design more than one third of participants were early career scientists who presented their work through 234 posters and oral presentations, including plenary talks. The main objectives of the CLIVAR Open Science Conference were:

- Share knowledge towards improved understanding of the dynamics, the interaction, and the predictability of the coupled ocean-atmosphere system
- Shape ideas to meet emerging ocean and climate science priorities
- Engage with the future generation of climate scientists
- Identify key climate research and stakeholder issues in the Asia-Pacific region
- Develop and strengthen collaborations and initiatives.

We believe WESTPAC has common focuses in aspects like training the future generation of scientists, and identifying key climate research topics in the Asia-Pacific region. Early career scientists also served as daily chairs, poster judges and rapporteurs, in addition to organizing their own 3-days long Symposium connected to the Conference. The Early Career Scientists Symposium (ECSS) was hosted by First Institute of Oceanography (FIO), Qingdao. It was aligned with the 6th UNESCO/IOC Regional Training and Research Center on Ocean Dynamics and Climate (UNESCO/IOC-ODC) in 2016 also held at FIO, and some ODC students also attended the ECSS. The symposium served as a forum to actively engage the ECS and challenge them to seek answers to critical issues in atmospheric and ocean science. As the next generation of scientists, the ECS participants recognized their critical role in shaping the future of climate science by answering pressing research challenges and goals.

New CLIVAR Science Plan

CLIVAR has made public the draft of its 2015-2025 Science Plan in September, 2016, which will guide its research for the next 10 years, and will provide the project with the ability to remain flexible in the changing landscape of scientific research priorities. It reflects the move to greater integration of climate science across disciplines. The implementation will include enhanced interactions with other WCRP projects, but also with elements outside WCRP, including WESTPAC. We welcome comments from WESTPAC on CLIVAR’s new Science Plan. Within the new framework, the traditional CLIVAR panels will maintain a focus on the core activities critical to advancing CLIVAR and WCRP goals; in addition, there is a mechanism to rapidly organize research around new topics, of high societal importance, that could be expected to yield results on a relatively short time. These are the CLIVAR “Research Foci”. To date, six topics have been identified by the CLIVAR SSG as appropriate for this approach: “Regional Sea Level Change and Coastal Impacts WCRP Grand Challenge”, “Consistency between planetary energy balance and ocean heat storage”, “Decadal Climate Variability and Predictability”, “Understanding and predicting weather and climate extremes WCRP Grand Challenge”, “ENSO in a changing climate”, and “Eastern Boundary Upwelling Systems”. All of these topics are of interest to WESTPAC, and CLIVAR would welcome WESTPAC involvement in these activities.

Specific opportunities for collaboration

CLIVAR would like to further explore with WESTPAC activities related to capacity building. The IOC Regional Training and Research Centre on Ocean Dynamics and Climate (ODC) is hosted by the First Institute of Oceanography (FIO), and there are many opportunities for collaboration between CLIVAR and ODC, and this may need to be formalized via discussions between IOC and WCRP.

CLIVAR would also be interested in further discuss with WESTPAC a potential expansion of WESTPAC's internship scheme. The International CLIVAR Global Project Office (ICGPO), also hosted by FIO, could be a hub for training graduates and post-graduates who would like to learn more on science coordination.

CLIVAR is also interested in continue to discuss with WETSPAC on scientific aspects related to the Indonesian Throughflow (ITF) and potential impacts that its variability can have on ecosystems in the region. The CLIVAR Pacific Region Panel (PRP) is the panel responsible for ITF activities in CLIVAR.