

AMOS-ICSHMO 2018 Conference report

Alex Sen Gupta, Laurie Menviel, Angela Maharaj, Andrea Taschetto, Jeanette Dargaville and James Renwick

Over 6 sunny days from February 4th 2018, the University of New South Wales Sydney (Australia) hosted the 12th International Conference on Southern Hemisphere Meteorology and Oceanography (ICSHMO) in conjunction with the 25th annual national conference of the Australian Meteorological and Oceanographic Society (AMOS). The university was bustling with 600 weather and climate scientists, industry delegates and stakeholders from 28 different countries. The program featured over 40 thematic sessions under the themes of weather, ocean processes, atmospheric processes, climate, land surface processes, Antarctic science, climate services, community engagement and education.

The conference was opened by Prof. Emma Johnston, the Dean of Science of UNSW and head of the Applied Marine and Estuarine Ecology laboratory, who highlighted the amazing progress of climate science over the century as well as the important role of climate, weather and oceanography research for society. The benefits of climate research were echoed by the AMOS President, Mary Voice, as well as the Chair of the AMS Scientific and Technological Activities Commission for Meteorology, Oceanography of the Southern Hemisphere, James Renwick.

The primary theme of the conference was “translating our science into practical outcomes for the benefit of society”. This important goal was central to the RH. Clarke lecture given by the Director of the CSIRO Climate Science Centre, Helen Cleugh, who discussed new initiatives across CSIRO’s recently established Climate Science Centre and the rest of the Australian community to enhance the connection between climate science and adaptation and mitigation solutions, particularly in the Australian/New Zealand region. The impact of climate change on agriculture and heat extremes was further discussed by keynote speaker Dr. Claudia Tebaldi, a senior scientist at the National Center for Atmospheric Research, USA. A number of sessions were also devoted to this goal including ‘Climate services for decision makers’.

Weather extremes and in particular tropical cyclone activity in future climates was the subject of the keynote presentation by Greg Holland, a Willis Senior Scientist at the National Center for Atmospheric Research, USA. Heralding the start of the new Australian Research Council (ARC) Centre of Excellence for Climate extremes the conference had a number of sessions covering impacts of extremes, event detection and attribution, future changes and marine extremes.

Australia witnessed the devastation wrought by marine heat waves by recent events on the Great Barrier Reef. During his plenary lecture, Prof. Terry Hughes, Director of the ARC Centre of Excellence for Coral Reef Studies, James Cook University, gave a sobering account of the back to back bleaching events (2016 and 2017), that have led to unprecedented coral mortality, particularly over the northern reef.

Throughout the conference there was a strong focus on Southern Ocean dynamics, including sea-ice changes, and its impact on the Antarctic ice-sheet. High-profile questions were

discussed including the destabilisation of the West Antarctic ice-sheet via subsurface melting associated with circulation changes – a critical uncertainty for future sea-level projections, the counterintuitive growth of Antarctic sea-ice over recent decades, and the unprecedented and sudden drop in sea-ice cover over the last year.

In recognition of his leadership and advocacy for Antarctic science research, Prof. Matthew England, from the University of New South Wales, was awarded the prestigious Tinker-Muse Prize for Science and Policy in Antarctica for 2017. He received his award from the Committee Chair of the Tinker Muse prize, Prof. Peter Barrett (Victoria University of Wellington, New Zealand), and the Australian delegate of the Scientific Committee on Antarctic Research (SCAR), Prof. Steven Chown (Monash University). For this occasion, Prof. England gave a plenary talk on mechanisms leading to the recent sea-ice expansion in the Southern Ocean. The event coincided with SCAR's 60th birthday!

The climate sciences community recognizes the imperative to better communicate our research results to a broad audience. To this end, a number of workshops including: 'How scientists can talk to the media, politicians and stakeholders', 'A practical workshop to help deliver your message' and 'charting a path for more effective communication'. A highlight was the "Australian Television Weather presenters as Climate Educators" hosted by the Monash Climate Change Communication Research Hub, which included a panel of national weather presenters discussing how to include climate information as part of weather reports.

Science communication and the role of advocacy was also the theme of an excellent plenary talk on "science communication hits and misses" by the Director of Goddard Institute for Space Studies, NASA, Gavin Schmidt. Gavin Schmidt, along with Terry Hughes, Helen Cleugh, Claudia Tebaldi and Greg Holland, also participated in the Public Forum: *Myth-Busting Climate Change*. This free Q&A event was held in partnership with the UNSW Grand Challenge on Climate Change and led by Craig Reucassel, host of ABC TV's War on Waste. A large public audience, of about 200 persons, learned about and asked questions around climate change and its impact on the environment, health, society and the economy.

Two special sessions were organised to honour two champions of Australian science. Many of Professor Ian H. Simmonds' past students and collaborators packed a room to celebrate his lifetime of research and mentoring. Similarly, a packed session met to talk about Indo-Pacific oceanography in honour of the late Gary Meyers who spent many years at CSIRO, Hobart before becoming director of the Integrated Marine Observing System.

The conference was generously supported by a number of sponsors including BOM, CSIRO, ARC Centre of Excellence for Climate Extremes, Vaisala, NSW office of Environment and Heritage, NCI, Capstan, Bushfire and Natural Hazards CRC, as well as a number of partner institutions. Additional funds were used to support plenary speakers, special sessions, workshops and conference child care. Critically it also allowed the support of over 40 participants, primarily early career researchers from low to middle income economy nations. As a result, over 120 students actively participated in AMOS-ICSHMO, with many extremely high quality research talks and posters. Elisa Jager (University of Wollongong) and Maxime Colin (UNSW) were awarded a prize for the best student talk and poster, respectively.

The combined 25th AMOS national conference and 12th ICSHMO was a resounding success with fascinating science, great collaborations and beautiful views of the Sydney Harbor bridge and Opera house during the sunset cruise dinner.

The location of the next ICSHMO, to be held in 2021 (?) has yet to be decided.



Gavin Schmidt, Claudia Tebaldi, Greg Holland, Terry Hughes and Helen Cleugh during the Public Forum on Myth-Busting Climate Change.