Poster clusters

Title: Climate of the 20th Century Plus
Chairs: Daithi Stone (dstone@lbl.gov) and Jim Kinter (ikinter@gmu.edu)
Session: 2.1 - Intraseasonal to Interannual
Description: The C20C+ project uses climate models and observational data products to study climate variations and changes over periods of up to 150 years. Current activities include detection and attribution of changes in extreme weather, development of relevant observational products and modelling tools, the contribution of the atmosphere to climate variability, and variations and trends in precipitation.

Title: Climate Variability and Predictability Over the Indo-Pacific Ocean
Chair: Dongliang Yuan (dyuan@qdio.ac.cn)
Session: 3.2 - Ocean and climate dynamics
Description: The Pacific and Indian Oceans span over two-thirds of the global tropical domain. The variability of the ocean in this part of the globe is of great importance to the global climate variations and predictability. Among them, ENSO and Indian Ocean Dipole (IOD) are the strongest interannual climate modes that interact over and through the Indonesian seas. Under global warming, the ENSO and IOD are subject to long term variations. In this session, studies about the ocean circulation in the Indo-Pacific Ocean and its climatic effects, the Indo-Pacific warm pool and its role in climate variability and predictability, the interactions of Pacific and Indian Ocean climate variabilities through the atmospheric bridge and the oceanic channel, and the effects of the Indo-Pacific warming on the long term variations of monsoon and typhoon are encouraged to submit abstracts for discussions and information exchange.

Title: Atlantic Meridional Overturning Circulation
Chair: Gokhan Danabasoglu (gokhan@ucar.edu)
Session: 2.2 - Decadal
Description: The Atlantic meridional overturning circulation (AMOC) is thought to play a major role in interannual to decadal and longer time-scale climate variability as well as in prediction of the earth's future climate on these time scales. We invite modeling and observational (proxy and instrumental) studies focusing on the role of AMOC in climate and its variability and prediction, including work on AMOC's climate, ecosystem, and societal impacts.

Title: Coordinated Ocean-ice Reference Experiments (CORE-II)
Chair: Gokhan Danabasoglu (gokhan@ucar.edu)
Session: 3.2 - Ocean and climate dynamics
Description: A major focus of the CLIVAR Ocean Model Development Panel (OMDP) has been the development of the Coordinated Ocean-ice Reference Experiments phase II (CORE-II) framework which now represents the foundation of the CMIP6 Ocean Model Inter-comparison Project (OMIP). The cluster will present OMIP and updates to the forcing data sets and show results from ocean – sea-ice coupled simulations participating in the CORE-II effort.

Title: Extratropical Frontal- and Meso-scale Air-Sea Interaction
Chairs: Shoshiro Minobe (minobe@sci.hokudai.ac.jp), Ping Chang (ping@tamu.edu), Steve Griffies (stephen.griffies@noaa.gov)
Session: 3.2 - Ocean and climate dynamics
Description: Recent studies revealed that oceanic fronts and meso-scale eddies play important roles in air-sea interaction. Here, oceanic fronts include steep gradients of sea-surface temperature, western boundary currents releasing vast heat and moisture, Antarctic Circumpolar current fronts, sea-ice fronts and etc. High-resolution observations and numerical modellings have demonstrated that oceanic fronts and meso-scale eddies can induce substantial atmospheric responses in not only marine atmospheric boundary layer but also free troposphere including basin-scale remote responses in some cases. Therefore, these effects are important in understanding of both the mean climate and climate variability/change, and can provide improved climate forecast at seasonal-to-decadal timescales, as well as regional information of climate change. On the other hand, our understanding on how frontal- and meso-scale air-sea feedback can affect ocean circulations and oceanic response to natural climate variability and climate change needs to be further improved. This poster cluster will highlight recent advancements in extratropical frontal- and meso-scale air-sea interaction. Contributions of modeling (either realistic or idealized) and observational studies of atmospheric responses to the ocean, oceanic responses to the atmosphere and of coupled feedbacks at frontal- and meso-scales will be welcomed.

Title: Comparability of oceanic nutrient data
Chairs: Michio Aoyama (r706@ipc.fukushima-u.ac.jp) and Malcolm Woodward (EMSW@pml.ac.uk)
Session: 6 - Future of Climate and Ocean Science
Description: To allow the global community in the future to be able to more accurately detect changes in oceanic nutrient levels, caused by human impact and shifting physical processes, it is important to establish mechanisms for improving the quality of reported oceanic nutrient data. SCOR WG147 "Towards comparability of global oceanic nutrient data", has been established to encourage the use of certified nutrient reference materials, and to advise on improvements in the analysis of nutrients around the world, members and collaborators of the group will present a poster cluster discussing different aspects of this issue.

Title: Understanding and Predicting Subseasonal Extreme Events
Chairs: S.-Y. Simon Wang (simon.wang@usu.edu) and Kathy Pegion (kpegion@gmu.edu)
Session: 2.1 - Intraseasonal to Interannual
Description: The cluster focuses on the increasingly important week 3-4 forecast of extreme events, the research needs and how to communicate with users about utilizing the forecast. Emphasis is also given to predictability and prediction issues that are potentially different for warm vs. cold season predictions

Title: PRIMAVERA: High resolution climate processes
Chairs: Malcolm Roberts (malcolm.roberts@metoffice.gov.uk)
Session: 3.2 - Ocean and climate dynamics
Description: PRIMAVERA is a European Union-funded Horizon 2020 project which aims to develop a new generation of advanced and well-evaluated high-resolution global climate models capable of simulating regional climate with unprecedented fidelity. We will assess the impact of resolution in atmosphere, land, sea-ice and ocean models (for the latter up to eddy-resolving scales) on the simulation of a wide variety of climate processes particularly relevant for European climate variability and change. https://www.primavera-h2020.eu/

Title: ENSO Diversity: Past, Present, and Future
Chairs: Antonietta Capotondi (antonietta.capotondi@noaa.gov)
Session: 2.1 - Intraseasonal to Interannual
Description: El Niño Southern Oscillation (ENSO) is the dominant mode of tropical Pacific climate variability at interannual timescales, with large impacts worldwide. ENSO events differ in amplitude, temporal evolution, and spatial patterns, and these inter-event differences appear to deeply affect the nature of associated atmospheric teleconnection patterns and ENSO event impacts. This poster cluster highlights the many aspects of ENSO diversity in past, present, and future climates, examines the predictability of different event types, and explores the differences in their impacts.

Title: Tropical Atlantic Variability and Predictability
Chairs: Noel Keenlyside (noel.keenlyside@gfi.uib.no), Ping Chang (ping@tamu.edu) and Peter Brandt (pbrandt@geomar.de)
Session: 3.2 - Ocean and climate dynamics
Description: Prediction of equatorial Atlantic variability and associated climatic impacts remains a challenge. There are changing views on the mechanisms for interannual variability, and how ocean dynamics modifies the large-scale thermodynamic ocean-atmosphere interactions. Further, our understanding of eastern boundary upwelling systems is growing through increased observations and targeted modelling experiments. The impact of mean systematic errors on variability and predictability remains to be understood. This poster cluster aims to bring together research in this topic to identify current research gaps and future research directions.

Title: Internal Wave Driven Mixing
Chairs: Sonya Legg (sonya.legg@noaa.gov)
Session: 3.1 - Mixing and Stirring
Description: This poster cluster will describe work of the multi-institutional USCLIVAR climate process team, and our international collaborators, on parameterization of mixing by internal waves in ocean climate models. The poster cluster will cover all aspects of the problem, from observations, to numerical process studies, global internal wave modeling, and parameterization frameworks for global models, as well as consider the impacts of parameterized mixing on global ocean circulation and climate.

Title: Ocean and cryosphere interactions in a warming climate
Chairs: Lynne Talley (ltalley@ucsd.edu), John Fyfe (john.fyfe@canada.ca) and Inga Smith (inga.smith@otago.ac.nz)
Session: 3.2 - Ocean and climate dynamics
Description: This poster cluster (4 word ID: "Ocean and cryosphere interactions") welcomes observational and modeling treatments of climate-relevant interactions between the oceans, ice shelves, and sea ice in both the Northern and Southern Hemispheres, including atmospheric forcing that connects the ocean and cryosphere. Sea ice extent responses to the warming climate differ, decreasing in the Arctic while increasing in the Antarctic. Ice sheet mass loss in both hemispheres is well documented and contributes to global sea level rise. These cryospheric changes can include coupling with adjacent ocean properties.

Title: Eastern boundary upwelling systems (EBUS)
Chairs: Enrique Curchitser (enrique@marine.rutgers.edu)
Session: 3.3 - Upwelling and Frontal Zones
Description: Eastern boundary upwelling systems (EBUS) cover less than 3% of the world ocean surface yet they have a significant role in the climate system, and are home to the largest contribution of ocean biological productivity with up to 40% of the reported global fish catch. Coupled with the vast coastal human populations, these

regions play key biological and socio-economical roles. There are common features to eastern boundary upwelling regions: wind-driven flows, alongshore currents, steep shelves and large vertical and offshore nutrient transports. Despite the commonality, each of the main upwelling systems exhibits substantial differences in their circulation, primary productivity, phytoplankton biomass, and community structures. The reasons for these differences are not fully understood.