



Call for New US CLIVAR Working Group September 7, 2021

This document describes the purpose and successes of the US CLIVAR Working Groups (WGs), specifies how WGs are established and governed, and invites the US climate science community to develop prospectuses for new WGs starting in early 2022.

Purpose

The US CLIVAR program annually establishes new limited-lifetime, action-oriented WGs of scientists (typically 12-18 members) to coordinate and implement focused activities for the benefit of the scientific community. A major aim of the WGs is to expedite coordinated efforts towards specific scientific activities and objectives, for example: assessing existing or developing new data and modeling products and capabilities, leading community-wide analyses or syntheses of current state of understanding, and/or developing scientific and implementation recommendations on specific subjects for further consideration by US CLIVAR Panels and supporting agencies. Furthermore, WGs should foster wider support of and participation in activities addressing critical scientific challenges and/or US CLIVAR needs. WGs may also serve to facilitate joint activities between US CLIVAR and other national and/or international programs.

Active and Prior Working Groups

Current:

[Emerging Data Science Tools for Climate Variability and Predictability](#)
[Mesoscale & Frontal-Scale Ocean-Atmosphere Interactions and Influence on Large-Scale Climate](#)
[Observations and Modeling of Water Isotopes in the Climate System](#)
[Ocean Uncertainty Quantification](#)

Completed:

[Large “Initial-Condition” Earth System Model Ensembles](#)
[Arctic Change and Possible Influence on Mid-latitude Climate and Weather](#)
[Changing Width of the Tropical Belt](#)
[Decadal Climate Predictability](#)
[Drought](#)
[El Niño-Southern Oscillation \(ENSO\) Diversity](#)
[Large Scale Circulation Patterns Associated with Extremes](#)
[Greenland Ice Sheet – Ocean Interactions](#)
[Heat & Carbon Uptake by the Southern Ocean](#)
[High Latitude Surface Fluxes](#)

[Hurricanes](#)
[Madden-Julian Oscillation \(MJO\)](#)
[Ocean Carbon Uptake in CMIP5 Models](#)
[Salinity](#)
[Upper-Ocean Heat Budget Synthesis for Eastern Equatorial Pacific & Atlantic Oceans](#)
[Western Boundary Current](#)

The WGs have been highly successful in carrying out a variety of productive and remarkably effective activities. Examples of activities of recently completed WGs are summarized below.

- Large Ensembles WG: Developed the Multi-Model Large Ensemble Archive, a centralized data archive of initial-condition large ensembles conducted with 7 CMIP5-class climate models, and the Climate Variability Diagnostics Package, an analysis tool that documents the major modes of climate variability in models and observations. Contributed a *Nature Climate Change* paper on the utility and best practices of large ensembles with multiple Earth system models.
- Decadal Predictability WG: Defined a framework to distinguish natural variability from anthropogenically forced decadal variability, summarized in a *BAMS* paper. Developed a set of metrics for assessing the skill of initialized decadal predictions and their comparison in the context of uninitialized projections, summarized in a *Climate Dynamics* article. Furnished recommendations to the World Climate Research Program (WCRP) Climate Model Intercomparison Project (CMIP) Panel on design and evaluation of decadal prediction runs in CMIP5.
- ENSO Diversity WG: Organized an international, open community workshop surveying the state of understanding of ENSO diversity and concluding that ENSO can be described as a continuum, rather than a bimodal system. Summarized findings in a US CLIVAR Report and cover article “Understanding ENSO Diversity” in the *Bulletin of the American Meteorological Society*. Organized a special collection in *Climate Dynamics* of papers on the definition of metrics for examining diversity in climate models. Informed international planning for the Tropical Pacific Observing System (TPOS-2020), the ENSO MIP endorsed experiment for CMIP6, and the CLIVAR research focus on ENSO in a warming world.
- Southern Ocean WG (joint with Ocean Carbon Biogeochemistry Program): Developed a set of observationally-based metrics for consistent evaluation of Earth System model simulations of heat and carbon uptake in the Southern Ocean in response to a changing climate. Evaluated Southern Ocean biases in CMIP5 model simulations, assessing the role of eddies and identifying critical observational gaps. Summarized findings in a *Journal of Climate* article.
- Tropical Belt WG: Reviewed and assessed which metrics are most appropriate to determine the extent and quantify impacts of tropical width expansion. Evaluated how anthropogenic forcing and natural ocean-atmosphere variability contribute uniquely to decadal timescale changes in tropical width. Explored how tropical widening

manifests through regional-scale impacts (e.g., drought and desertification, tropical cyclone and extratropical storm tracks, monsoon systems). Submitted articles on these topics as part of a larger cross-journal collection of 13 papers, organized by the WG.

Previous WGs have impacts extending beyond the conclusion of their funded lifetimes; each galvanizing a community of researchers to further advance scientific exploration. For example, the MJO WG gave rise to an international World Climate Research Program (WCRP) MJO Task Force which in turn organized a 2011-12 DYNAMO field experiment on MJO initiation; the Drought WG expanded into an international WCRP Drought Interest Group to identify strategic research needs in drought prediction and develop a global drought information system; the Salinity WG Report contributed to the design of an international Salinity Processes in the Upper Ocean Regional Study (SPURS) process study and 2012-13 field experiment to examine the mechanisms controlling the upper ocean salinity budget. The scope, aims, types of activities, and organization of the completed WGs should serve as the basis for follow-on community activities nationally and internationally.

Description and Governance

WGs have in common the following characteristics. They:

- Assemble a team of up to 12 core US scientists to undertake the work (additional international ‘contributing member’ participation is welcomed)
- Develop and implement a work plan describing expected activities, milestones, support needs, and anticipated benefits to the US CLIVAR program and to the larger research community
- Undertake specific tasks that are both achievable and measurable within a 2-3 year lifetime
- Produce informational material to communicate activities and results with the broader community for inclusion on US CLIVAR website and/or published in journals, newsletters, or as US CLIVAR reports
- Encourage community-wide participation whenever possible through open workshops, sessions at science conferences, and webinar series
- Link with one or more US CLIVAR Panels to facilitate planning of the program and enable annual review of the WG progress

In order to link with the Panel(s), proposers of a WG should contact and consult with the current chairs of the appropriate Panel(s). Panel mission statements and membership lists can be found on the [US CLIVAR website](#).

WGs may be formed jointly with other national and international programs (e.g., US Ocean Carbon Biogeochemistry Program, Study of Environmental Arctic Change, Past Global Changes). In such cases the US CLIVAR Project Office (USCPO) should be consulted regarding programmatic cooperation.

The US CLIVAR Scientific Steering Committee (SSC) reviews prospectuses for new WGs. Evaluation criteria include relevance to US CLIVAR goals, focus of activities, prospects for advancing the science within the broader research community, deliverables that are achievable within the 2-3 year time period, and diversity of membership. The Inter-Agency Group (IAG) considers the SSC review in selecting the WG(s) to initiate in the coming year. When approved,

WGs are supported and administered through the USCPO.

The SSC and its Panels will assess the progress of WGs each year. The WG chairs prepare an annual update on activities via webinars to inform the summer Panel meetings.

Membership

The SSC approves the membership of the WG. The SSC considers the suggested membership described in the prospectus and may recommend alternate members. It is recommended that those leading the development of a prospectus **do not** notify prospective WG members until after the proposed WG has been approved and membership has been reviewed and confirmed with the SSC.

Diversity, equity, and inclusion, as core values of the US CLIVAR Program, should be reflected throughout the planning and implementation of a US CLIVAR WG. In identifying potential members, consideration should be given to the diversity across scientific expertise, institutional affiliation, career stage, gender, race/ethnicity, and other demographic factors. WGs are great opportunities for early career scientists (defined as within 7 years of most recent degree for US CLIVAR), and suggested membership lists should indicate earlier career members. The Project Office will assist in addressing and ensuring diversity and inclusion throughout the planning and execution of the Working Group.

Membership of non-US scientists is welcome, but should be limited to no more than six of the maximum 18 members. Such ‘contributing members’ may participate fully in the activities of the WG. However, travel support to non-US members to attend WG meetings and/or workshops is not provided through US CLIVAR.

Financial Support

Up to \$75K is provided to support the activities of a WG during its lifetime. Typical costs include WG meetings, teleconferences, WG-drafted journal article(s), and a modest-sized open science workshop (such support includes typical workshop-related costs and only very limited travel funds).

WGs should focus on utilizing and maximizing efficient use of existing or expected resources. WGs will not be formed to explicitly develop proposals for consideration by agencies.

Submission of Prospectuses for New Working Groups

Each prospective new WG that seeks support must develop and submit a prospectus. The prospectus should be limited to five pages and address the following:

- Motivation: What is the motivation for the WG? Why establish a WG now?
- Tasks: What are the proposed specific tasks (these must be measurable and attainable), timeline of activities (including appropriate milestones), and anticipated outcomes and benefits to US CLIVAR (describing links to appropriate Panel goals, the Science Plan, and agency programs)?
- Publications and Outreach: What plans does the WG have for producing and publishing material suitable for the US CLIVAR website, journals, newsletters, reports, etc.? What

- other programs would the WG activities align with and how would outreach be conducted?
- Reporting: How and to which US CLIVAR Panels will the WG report?
 - Leadership and Suggested Membership: Who will co-chair the WG and what complimentary research experience does each co-chair bring? What is the suggested membership of the WG and what expertise does each proposed member provide? Is there strong diversity in membership?
 - Resource Requirements: What are the activities for which resources are sought: travel, communications, reporting (e.g., the WG will meet once per year for 2 days, hold quarterly teleconferences, organize a 50-participant workshop, and submit for publication a 15-page manuscript)?
 - NOTE: a detailed budget, developed by the USCPO, is not included in the prospectus. Only list the activities to be supported.

Prospectuses from previous WGs provide good models for developing a new WG prospectus, for examples see: [Air-Sea Interactions](#), [Arctic Mid-Latitude Linkages](#), [Large Ensembles](#), [Tropical Belt](#), [Water Isotopes](#), and [Ocean Uncertainty Quantification](#). A template for a new WG prospectus can be [downloaded here](#).

New WG prospectuses due October 15, 2021

Electronic copies of a prospectus (.doc) should be submitted to USCPO (uscpo@usclivar.org). No exceptions will be made for submissions past deadline. The SSC will then consider the requests received and, in consultation with the USCPO and the IAG, will respond as rapidly as possible to facilitate the initiation of the approved WGs in early 2022. Unless otherwise justified, the start date for new WG activities will be March 2022. WGs should plan to complete their tasks by February 2024.

The start of at least one new WG is anticipated through this call. The next call will be in September 2022.

Please contact the USCPO (uscpo@usclivar.org) with any questions regarding the development of a new WG prospectus.