

# CVP Program Information Sheet

## Program Name

Climate Variability and Predictability Program

## Program Mission

The Climate Variability and Predictability (CVP) Program supports research that enhances our process-level understanding of the climate system through observation, modeling, analysis, and field studies. This vital knowledge is needed to improve climate models and predictions so that scientists and society can better anticipate the impacts of future climate variability and change.

The CVP Program sits within the Earth System Science and Modeling (ESSM) Division of the NOAA Office of Oceanic and Atmospheric Research (OAR) Climate Program Office (CPO). CVP is a critical component of the integrated research enterprise at CPO and maintains important connections to the other CPO program areas, such as Climate Observations and Monitoring (COM) and MAPP (Modeling, Analysis, Predictions and Projections). To achieve its mission, the CVP Program supports research carried out at NOAA and other federal laboratories, NOAA Cooperative Institutes, and academic institutions. The Program also coordinates its sponsored projects with major national and international scientific bodies including the World Climate Research Programme (WCRP), the International and U.S. Climate Variability and Predictability (CLIVAR/US CLIVAR) Program, and the U.S. Global Change Research Program (USGCRP). The CVP program sits within NOAA's Climate Program Office (<http://cpo.noaa.gov/CVP>).

## Focus for FY24

Advancing understanding of multi-year to decadal climate variability and predictability for US climate prediction

## Funding for FY24

It is anticipated that there will be \$2M available in FY24 for this competition. It is anticipated that most awards will be at a funding level between \$175,000 and \$300,000 per year for up to 3 years, depending on the availability of funding. Projects will start in FY24.

---

## Competition Information

### Background

There is growing need and interest in skillful prediction systems to provide information on drought and heat events, extreme precipitation and floods, marine heatwaves, and other compounding and cascading extremes in a changing climate<sup>1</sup>. Complementing NOAA Research, the CVP program supports process-understanding research that serves as the foundation for continued advancements in such systems. The ocean is an important driver of climate variability across timescales, while other drivers of variability and sources of predictability - land, atmosphere, cryosphere and their interactions - are essential to shorter timescales. This motivates the need for quantifying the mechanistic relationships between ocean and atmosphere, ocean-atmosphere- cryosphere, and land-atmosphere so that we can better describe these variations, how well they are coupled, and how well our models simulate them. The goal of this work is to identify state, mechanisms, and sources of predictability on the multi-annual to decadal timescale, which will help to lead to future improvements in skillful multi-year to decadal prediction systems for climate. Understanding of the Earth System, processes governing its variability, and predictability are critical to advancing future prediction systems.

In Fiscal Year 2024, CVP program is building on its earlier FY2020 investments and continuing its focus on *multi-year to decadal variability and predictability*. In FY20, CVP funded ten 3-year projects<sup>2,3</sup> focused on the Atlantic and Pacific Ocean Basins and the Atlantic Meridional Overturning Circulation (AMOC)'s relationship to U.S. sea level rise. CVP program is expanding the scope to consider multiyear to decadal climate variability and predictability of *the Earth System*; and the *full suite of impacts* related to AMOC.

The FY24 competition maintains a program focus on topics of national<sup>4,5</sup> and international interest<sup>6,7</sup> and complements NOAA's R&D and lays the groundwork for forward-looking products and services across time -scales, including NOAA's contributions to World Meteorological Organization<sup>8</sup>, the NOAA Climate Ecosystem and Fisheries Initiative<sup>9</sup>, and NOAA's historic Inflation Reduction Act investments<sup>10</sup>. Research outcomes from this

---

<sup>1</sup> [CPO Societal Challenges Framework](#)

<sup>2</sup> [Webinar series of CVP Decadal Variability and Predictability Projects](#)

<sup>3</sup> [CVP Awards Announcement FY19 \(20\) and Funded Project Abstracts](#)

<sup>4</sup> [US CLIVAR Societally Relevant Predictions Workshop \(2022\)](#)

<sup>5</sup> [US CLIVAR US AMOC Science Team Workshop \(2022\)](#)

<sup>6</sup> [WCRP CLIVAR Decadal Climate Variability and Predictability Final Report \(2019\)](#)

<sup>7</sup> [US AMOC Science Team Report \(2018\)](#)

<sup>8</sup> [WMO Decadal Prediction](#)

<sup>9</sup> [Climate Ecosystems Fisheries Initiative](#)

<sup>10</sup> [NOAA's Inflation Reduction Act Investments](#)

---

solicitation will provide the foundation for and feed into future efforts to build out national prediction and projection capabilities.

## **Competition Information**

**In FY24, CVP is interested in data analysis and/or coupled-modeling studies focused on the process-level understanding of the role of the ocean, land, atmosphere, and/or cryosphere on multi-year to decadal timescales in a changing climate, in two priority areas:**

1. Investigation of mechanisms (including processes related to internal, natural and/or anthropogenic external forcing) that govern variability of the coupled climate system and its predictability on the multi-year to decadal timescale within long-term observation data and/or model data. Emphasis is placed on processes and their predictability that influence, or have downstream connections to the U.S. and its territories' climate and extreme events.
2. Investigation of the relationship between the Atlantic Meridional Overturning Circulation (AMOC) and impacts (historical, current, and/or future) on sea level, cryosphere, biogeochemistry, hydroclimate, or others, with a focus on furthering understanding of impacts important to the U.S. and its territories

Proposed work should identify state, mechanisms, and sources of predictability on the multi-year to decadal timescale in a changing climate. Proposals should articulate how anticipated results/project outcomes could help lead to future improvements, further modeling research to improve skillful multi-year to decadal prediction systems, or further research related to skillful predictions of climate and its extremes, for the U.S. and its territories.

Projects that are funded will be expected to participate in a PI working group that meets monthly and develops a scope and work plan which will strengthen collaboration across the projects and with NOAA, and enhance decadal variability and predictability research outcomes. If interested in serving as a co-lead of the working group, PIs are encouraged to articulate this in their proposal's work plan.

## **Collaborative Opportunities with NOAA:**

CVP encourages, but does not require, collaborations between the external community and NOAA centers, laboratories, cooperatives institutes, and programs and affiliated projects that complement and accelerate NOAA Research. A recorded webinar will be made available of on-going related NOAA Research and potential collaboration opportunities on the CVP website shortly following the publication of the CPO Notice of Funding Opportunity.

In addition to the NOAA Research community mentioned above, potential collaboration opportunities with stakeholder-facing programs are highlighted below:

- [National Integrated Drought Information System](#) advances drought science and drought preparedness across the nation. As a complement to NIDIS's research portfolio, CVP encourages projects that identify state, mechanisms, and sources of predictability on the multi-year to decadal timescale in a changing climate that have relevance or connections to the U.S. and its Territories drought events.
- [The National Heat Health Information System](#) portfolio supports applied research on heat and health impacts and their drivers. As a complement to NIHHS applied

---

research, CVP encourages projects that identify state, mechanisms, and sources of predictability on the multi-year to decadal timescale in a changing climate, related to or have downstream connections to the U.S. and its Territories' extreme heat events.

- [Climate Adaptation Partnerships \(CAP\)/Regional Integrated Sciences](#) and Assessments (RISA) program is an applied research and engagement program that expands society's regional capacity to adapt to climate impacts in the U.S. As a complement to CAP/RISA, CVP encourages projects with a regional focus or projects that focus on processes important to decision making needs identified through existing stakeholder-focused workshops, reports, or councils.

**Program Contact information:** For additional program announcement information, investigators should contact the following CVP Competition Managers: Virginia Selz; [Virginia.Selz@noaa.gov](mailto:Virginia.Selz@noaa.gov) and Jose Algarin; [Jose.Algarin@noaa.gov](mailto:Jose.Algarin@noaa.gov).

Letters of Intent should be submitted directly through this [Google Form](#). CVP will **only** accept and review LOIs submitted through this form. In the event that investigators need to submit an LOI after the date specified in the NOFO, please contact directly the Competition Managers for guidance.

**Webinar:** A webinar will be offered to potential applicants for background on the CVP program and this solicitation, and related research on-going at NOAA, soon after publication of this announcement. For Information on webinar timing and registration procedures please check the CVP website; prior to when the webinar is held, potential applicants can also [sign-up](#) to receive an email notification.

## Data Information and Sharing Plan

**Data Management Guidance** The Responsible NOAA Official for questions regarding this guidance and for verifying accessibility of data produced by funding recipients: Virginia Selz [virginia.selz@noaa.gov](mailto:virginia.selz@noaa.gov)

**Data Accessibility:** The CVP Program requires that public access to grant/contract-produced data be enabled in one of the following ways (select one):

- Funding recipients are planning to submit data to NOAA National Centers for Environmental Information (NCEI), which will provide public access and permanent archiving<sup>1</sup> Point of Contact for NCEI is Nancy Ritchey ([Nancy.Ritchey@noaa.gov](mailto:Nancy.Ritchey@noaa.gov))
- Data are to be submitted to an International Council for Science (ICSU) World Data System facility: <https://www.icsu-wds.org/community/membership/regular-members>)
- An existing publicly accessible online data server at the funded institution is to be used to host these data (describe in proposal).
- Data are to be submitted to a public data repository appropriate to this scientific domain (describe in proposal).
- Proposal may request permission not to make data publicly accessible (proposal to explain rationale for lack of public access, and if funded approval to be obtained from Responsible NOAA Official listed above).
- Archival of data at an established Cloud Computing facility, if cost effective and reliable

**Technical recommendations:** The CVP Program requires the following data format(s), data access method(s), or other technical guidance:

- Data must be made available in a common machine-readable non-proprietary format with appropriate metadata and clear labels and descriptors. Use of netCDF is encouraged.
- Data should be available via public and discoverable data portals, as described above.
- At a minimum, investigators should plan to archive and make available modeling data used in producing any figures in publications from research supported by their grants, as well as data that support conclusions reached in papers or stated publicly. Only those data which are necessary for demonstrating reproducibility of published results need be archived and made public unless otherwise required as part of the solicitation.
- In situ observational data collected during the field campaign should be made freely available to the public either 2 years after collection and validation or at the time of publication, whichever is sooner.
- Model data should be made available for at least 3 years after it is initially published or made otherwise publicly available.

**Resources:** Proposals are permitted to include the costs of data sharing and/or archiving in their budgets within solicitation specified proposal cost limit. Proposed methods and approaches should use reasonable means to minimize data management costs.

---