

Fiscal Year 2025 Program Information Sheet: Understanding and Assessing Drought in a Changing Climate

Program Name

National Integrated Drought Information System (NIDIS) Coping with Drought

Program Mission

The National Integrated Drought Information System (NIDIS), authorized in 2006, is a multi-agency partnership that coordinates drought monitoring, forecasting, and information, and supports planning at national, state, and local levels across the country. The mission of NIDIS is to help the nation move to an increasingly proactive approach to understand and manage drought risks and impacts, and to improve long-term drought resilience. Since its inception (2006), and through two subsequent reauthorizations (2014, 2018), NIDIS has been working with various federal, state, local and tribal agencies as well as a network of researchers, academics, resource managers, and policymakers. This collaboration forms the basis for the national and regional Drought Early Warning Systems (DEWS). These systems are not simply in place to disseminate forecasts and assess drought, but to encourage innovation by integrating new, locally relevant drought information and supporting the introduction of new technologies that detect and communicate drought risks and warnings.

The overarching goals of NIDIS, as defined by the public laws authorizing the program ([P.L. 109-430](#), [P.L. 113-86](#), and [P.L. 115-423](#)), related to this competition are to 1) provide effective drought early warning for the nation; 2) conduct research and monitoring activities to better understand length, severity, and impacts of drought and the role of extreme weather events and climate variability in drought, 3) collect, integrate, and communicate information on key indicators and impacts of drought to inform timely drought assessments, 4) support improvements in seasonal, sub-seasonal, and low flow water prediction; and 5) provide timely data, information, and products that reflect watershed differences in drought conditions.

Over the last several years, concerns have been raised about the intensity, duration, and frequency of droughts changing in the future. This poses new challenges for drought assessment. Current methods for assessing drought conditions do not consistently and deliberately consider drought in the context of climate change, thereby unintentionally promoting drought response strategies that are limited in building long-term resilience in a changing climate.

In November 2023, the NOAA Climate Program Office and NIDIS released the [Assessing Drought in a Changing Climate Technical Memorandum](#) based on a technical workshop co-hosted by NIDIS and the U.S. Department of Agriculture Climate Hubs. The Technical Memorandum is the result of input from more than 100 subject matter experts, who during the meeting identified priority actions and outstanding research questions aimed to address this issue. This Technical Memorandum is the focus of the FY25 NIDIS Coping with Drought grant competition.

Program Authority

Focus for FY2025

For FY2025, the Coping with Drought: Understanding and Assessing Drought in a Changing Climate competition will be focused on **improving drought indicator performance to account for non-stationarity**¹ with the goal of more accurate drought assessments that support communities in preparing for, mitigating, and responding to drought.

Funding for FY2025

In FY25, approximately \$2 million will be available for the first year of funding for approximately 8 new awards pending budget appropriations. It is anticipated that most awards will be at a funding level between \$50,000 and \$250,000 per year over 2 years for a total of \$500,000. A total of 8 projects may be funded.

Competition Information

Research has shown drought indicators² are sensitive to climate change and non-stationarity. More specifically, drought indices and models, which represent physical drought indicators, are very sensitive to the reference period chosen to assess current conditions. When applying drought indicators and assessing drought and drought impacts, there needs to be an acknowledgement of, and systematic accounting for, regional to sub-regional differences in non-stationarity. Climate change might be affecting current drought indices and indicators in similar or different ways. When combining the complications of regional differences and climate change, consider regions where aridification or humidification may be complicating the ability of drought indices to differentiate drought from long-term change. Thus, improved drought indicator performance requires better scientific understanding of spatial-temporal sensitivities. This topic area also addresses challenges that impact drought indicator performance, including: changes in variability and extreme events; changes in snowpack and melt dynamics; and changes in processes like evapotranspiration. There is also an opportunity to move towards more sophisticated approaches to incorporate non-stationarity statistics in drought indices and assessments. This could include exploring new approaches or modifying existing ones, validating these approaches, and the dissemination to drought practitioners with accompanying documentation for application to drought assessment.

Exemplar research questions include:

1. How well do current drought indices depict drought conditions, and are they effective given regional differences in non-stationarity?
2. How is the regional variability of drought indicators and indices changing over time, with climate change?

¹ Non-Stationarity: the status of a time series whose statistical properties (mean, variance, etc.) are changing through time. For the purposes of this funding opportunity we are considering non-stationarity due to anthropogenic climate change or natural processes.

² For this competition a drought indicator is defined as a physical manifestation of drought within the climate system while an index is a statistical representation of those indicators.

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3. How can existing or new drought indicators or indices (e.g. snowpack, groundwater, etc.) be utilized or adapted to improve drought assessment and predictability in a changing climate?
 4. In some climates, low-frequency, high-intensity precipitation events are becoming more common. How are these events reflected in drought indicators and/or indices, and how does impact drought assessment temporally and spatially?
 5. How can drought indices better reflect how the intensity of an event affects drought conditions? In the case of high-intensity precipitation events, are there conditions when current drought indices no longer accurately represent drought on the ground? If so, how can these times be objectively identified?

Guidelines for Applicants

Project funds will be awarded as Cooperative Agreements, thus ensuring a working partnership and substantial interaction between the Project PIs and the NIDIS Program, NOAA scientists, and other relevant staff. Projects will be expected to submit biannual progress reports and respond to periodic data and information requests including quarterly calls to ensure co-production.

Proposals will:

- Clearly demonstrate collaboration and partnership to include decision-makers from relevant sectors and communities (across all levels of government). These partners should be part of an integrated project team that will contribute subject matter expertise and/or who are the beneficiaries of the results of the proposed research to ensure the results are assimilated, utilized, and enhance drought assessment, planning, early warning, response and mitigation within the NIDIS DEWS after the completion of the project. This may include representatives from the public and private sectors; academia; local, regional, tribal, and federal governmental entities; non-governmental organizations (NGOs); environmental groups; citizen groups, etc.
- Demonstrate relevance to the NIDIS national and regional priorities and clearly state how outcomes contribute to needs articulated in the [Assessing Drought in a Changing Climate Technical Memorandum](#).
- Demonstrate support of diversity, equity, inclusion, and environmental justice in their proposals, not only through the required statement but in their project teams and in engagement with partners where appropriate through the proposed work.
- Include travel to an all-PI meeting which we will work with successful applicants to schedule in conjunction with a major scientific conference near the end of the grant period of performance.

Proposal may:

- Demonstrate work that complements or builds upon other funding sources.
- Demonstrate external contributions (e.g., in-kind contributions and/or funding) to be leveraged with these federal research funds, though there are no match or cost-share requirements.

Additional Considerations:

- Research that provides concrete applications to drought assessment, planning and decision making will be given preference.

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- Applicants are encouraged to be aware and consider integration of research results into regional Drought Early Warning Systems, especially where there is geographic overlap. The Strategic Actions Plans for each regional DEWS are available on the DEWS pages which can be found through <https://www.drought.gov/dews>.
 - Investigators are strongly encouraged to submit an LOI prior to developing and submitting a full proposal using the [FY25 CWD Understanding and Assessing Drought in a Changing Climate submission form](#). Investigators unable to submit via the form should email their LOI to britt.parker@noaa.gov. If you email your LOI you will receive confirmation of receipt, if you do not please follow-up.

Additional General Guidelines for Applicants

Successful applicants who accept a NOAA award under this solicitation will be bound by the Department of Commerce Financial Assistance Standard Terms and Conditions. This document will be provided in the award package in NOAA's Grants Online system at <http://www.ago.noaa.gov> and at <http://go.usa.gov/hKbj>. Specifically, pursuant to 2 CFR §200.315(d)(1), NOAA will have the right to obtain, reproduce, publish, or otherwise use all data produced under an award under this solicitation. Additionally, pursuant to 2 CFR §200.315(b), NOAA will have a royalty-free, nonexclusive and irrevocable right to reproduce, publish, or otherwise use any copyrightable work developed under this award for Federal purposes. Federal purposes under this solicitation include collecting and integrating information on the key indicators of drought in order to make usable, reliable, and timely drought forecasts and assessments of drought, including assessments of the severity of drought conditions and impacts; and communicating those drought forecasts, drought conditions, and drought impacts to stakeholders including the public. (P.L. 109-430, P.L. 113-86, and P.L. 115-423).

All products, tools and deliverables produced via this competition will reside in the open access / open source domain, freely available to the public for the benefit of all. In addition, where applicable, products, tools and results will be hosted on the U.S. Drought Portal (www.drought.gov), any documents are required to be 508 compliant, and any data or information required to replicate the deliverable should be made available to NIDIS.

This competition lead will be holding an informational webcast to discuss the background of the programs and expectations for this competition, as well as to address questions related to the development and submission of letters of intent and proposals. For times and accessibility, please monitor the [Climate Program Office Grants website](#).

A Checklist for Applicants is available to assist applicants in ensuring their application is complete. Please find the checklist on the [Climate Program Office Grants website](#) under this competition.

The National Integrated Drought Information System (NIDIS) Coping with Drought will be managed by Britt Parker at britt.parker@noaa.gov.

Administrative questions regarding the Federal Funding Opportunity (e.g. proposal formatting or submission guidelines) should be directed to Diane Brown at diane.brown@noaa.gov.

