

Regional Integrated Sciences and Assessments (RISA) Program

The NOAA Climate Program Office's (CPO) Regional Integrated Sciences and Assessments (RISA) program supports research teams that help expand and build the capacity of those seeking to prepare for and adapt to climate variability and change. RISA teams conduct innovative, interdisciplinary, user-inspired, and regionally relevant research that informs resource management and public policy. Central to the RISA approach are commitments to process, partnership, and trust building. CPO funds ten different RISA teams across the United States (US) and Pacific Islands, many of which are a model for interdisciplinary science and assessment.

NOAA's RISA program is a part of CPO's Climate and Societal Interactions (CSI) division. CSI provides leadership and support for decision support research, assessments and climate services development activities in support of adaptation. In addition to RISA, CSI's programs include the International Research and Applications Project (IRAP), the Sectoral Applications Research Program (SARP) and the Coastal and Ocean Climate Applications program (COCA). CPO also manages integrated information systems, such as the National Integrated Drought Information System (NIDIS; drought.gov) and the National Integrated Heat Health Information System (NIHHIS; <http://climate.gov/nihhis>).

This section contains the details of the RISA competition for FY 2017. We are soliciting proposals to fund one RISA team in the region of Arizona/New Mexico (Competition 1). In addition, we are soliciting proposals to fund one RISA team in up to two of the following regions of the US: California/Nevada and the Midwest (Competition 2). The total number of regions funded will depend on Congressional appropriations. An increase in the RISA program budget in FY 2017 will be required in order to fund all three regions.

This information sheet provides further detail about the following components of the call for proposals:

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1. Geographic Scope

Regions have been an organizing influence for both decision makers and scientists working on climate adaptation. Recognizable climate patterns, such as the El Niño Southern Oscillation (ENSO), emerge at the regional level where our understanding of observations and models coalesce. Critical resources for society are managed in a context of regional systems, such as water supply and human populations. Multiple scales of governance (local, state, and federal) with complex institutional relationships can be examined across a region. Climate information (i.e. data, science, research, etc.) developed within these contexts and working across spatial and temporal scales resonates with people making decisions on the ground.

NIDIS is tasked with building a national drought early warning system by developing a network of regional drought early warning systems (DEWS). Each DEWS aims to utilize new and existing partner networks to optimize the expertise of a wide range of federal, tribal, state, local and academic partners in order to make drought and climate science readily available, easily understandable and usable for decision makers; and to improve the capacity of stakeholders to better monitor, forecast, plan for and cope with the impacts of drought. NIDIS DEWS include California-Nevada DEWS, Midwest DEWS, and the Intermountain West DEWS (which is made up of what was the Upper Colorado River Basin DEWS (that consisted of the states of Colorado, Utah and Wyoming) and has been expanded to include the state of Arizona and western New Mexico). Applicants are encouraged to learn more about the DEWS relevant to their proposed region at drought.gov.

When determining the geographic scope of your RISA, applicants should consider what is manageable to balance effectively working with stakeholders across an appropriate regional geography and being an effective RISA. Current RISA regions generally cover two to four states, large watershed boundaries, or issue-focused areas (e.g., the urbanized, heavily populated corridor between Boston, New York, and Philadelphia). The geographic focus should also allow for work within and across sectors. For example, a geographic focus defined by a watershed area should not preclude research on urban health or agriculture, and vice-versa.

Competition 1 - Arizona and New Mexico Region

The RISA program is soliciting proposals for one region comprising the states of Arizona and New Mexico in FY2017. The funding of this region is dependent on Congressional appropriations. This region will receive funding from RISA and NIDIS, with an anticipated two thirds of total funding from RISA and one third of total funding from NIDIS.

Competition 2 - California-Nevada and Midwest Regions

The RISA program and NIDIS are soliciting proposals for two additional regions:

- **California and Nevada**
- **Midwest:** To include a subset of the region of Ohio, Indiana, Illinois, Iowa, Kentucky,

Minnesota, Missouri, and Wisconsin (2-4 states is generally a manageable RISA region). Note that the Great Lakes RISA team, GLISA, partially covers this region with a focus on the Great Lakes. Any geographic or topical overlap with GLISA should be addressed in the proposal.

The funding of competition 2 is dependent on Congressional appropriations. In addition, the availability of funds to award a RISA in both regions of California-Nevada and the Midwest is contingent on an increase in the RISA program budget. If funded, these two regions will receive funding from both RISA and NIDIS. If funded, it is anticipated that for each of these regions half of total award funding will come from RISA and half from NIDIS.

Applicants are encouraged to contact the RISA Program team at NOAA's Climate Program Office: oar.cpo.risa@noaa.gov.

Applicants are also encouraged to speak with NOAA's Regional Climate Services Director(s) (RCSD; <https://www.ncdc.noaa.gov/rcsd>) in their region regarding how the priorities in the region relate to the mission of NOAA as well as the priorities of federal, regional, state and local partners. For further information about the DEWS, applicants are encouraged to speak with Alicia Marrs (alicia.marrs@noaa.gov) for the regions of California-Nevada and Arizona-New Mexico and Courtney Black (courtney.black@noaa.gov) for the region of the Midwest.

2. Issue Focus

Applicants should consider tackling interconnections among multiple issues relevant to a region as opposed to an individual project addressing site-specific analysis. Climate variability and change will have implications for a myriad of interconnected management and planning decisions in the region. From their own research and interactions with decision makers, applicants should identify the most important climate-sensitive issues and management challenges for their proposed region. Special consideration should be given to those communities or stakeholders in the regions for whom there is currently less direct engagement with climate information science and service providers/entities. Applicants should also consider NOAA mission-oriented topics that could benefit from the work of a RISA who could integrate information from and work across multiple issues. RISA activities should address a number of the societal challenges identified in NOAA's Next-Generation Strategic Plan (NGSP): i) climate impacts on water resources; ii) coasts and climate resilience; iii) sustainability of marine ecosystems; and iv) changes in the extremes of weather and climate. These efforts support NOAA's vision to create and sustain enhanced resilience in ecosystems, communities, and economies, as outlined in the NGSP. We do not, however, anticipate that a proposed RISA would work solely in these areas.

Specific issues of focus will naturally vary for each region, but there are overarching themes that may be addressed. Implications of climate variability and change on water management issues are of concern in many regions and contexts. For instance, competing needs across vulnerable sectors and scales (e.g. urban to rural); intersections of water management issues across communities, agriculture, industry, and public lands; and drought impacts and the use

of climate and drought information (e.g. seasonal outlooks, evapotranspiration data, early warning information) in planning may be areas of focus.

Emerging threats or vulnerabilities to communities, resources, and ecosystems due to climate variability or change, including extreme events, such as wildfire, flooding, drought, and other hazards could be investigated. The implications for risk response and resilience and preparedness planning in the context of these threats could be considered. Urban areas are also an important frontier for understanding the physical and societal impacts of climate variability and change, particularly in the context of vulnerable populations, public health, coastal flooding, and other issues. The RISA approach may also be well suited in some regions to investigating climate-sensitive issues that arise at the intersection of communities (local and state; urban and rural) and surrounding public, managed, or working lands and private industry.

For each region, it is important for applicants to consider how they will work with additional regional networks where applicable (e.g. USDA Climate Hubs and Cooperative Extension, DOI Climate Science Centers (CSCs) and Landscape Conservation Cooperatives (LCCs)) as well as existing NOAA assets in the regions (e.g. NIDIS regional Drought Early Warning Systems, National Integrated Heat Health Information System, Regional Climate Centers, Regional Climate Services Directors, National Weather Service offices, Sea Grant, etc.).

For climate and conservation management issues, applicants must identify what a RISA would uniquely offer on these issues in comparison to what a Department of Interior's Climate Science Center or other regional entity is or will be addressing. Similarly, for climate and agricultural issues, applicants should identify a RISA niche that is distinct from USDA Hubs efforts. While distinguishing RISA efforts from those of other regional networks is important, we encourage applicants to consider where they could partner with these, and other, networks to achieve their outcomes, and how the work of a RISA would benefit from these interactions.

The partnership between RISA and NIDIS is longstanding and has served both the NIDIS network of regional drought early warning systems and the need to improve our understanding of the drought among a set of interacting conditions in watersheds across the country. As we continue to advance this partnership, research and engagement conducted within the RISAs is needed to help advance development and implementation of the regional drought early warning systems and deepen our understanding of information systems and their connections to long-term drought resilience planning and implementation processes.

NIDIS aims to develop, through regional networks and partnerships, more readily accessible and useable drought, climate, weather, and water-related information as well as an improved understanding of the information (e.g. observation and monitoring networks, tools, research) available for a drought early warning. DEWS are intended to foster development of information, tools, and pathways to assess current stakeholder and information networks and drought impacts; identify monitoring and forecasting gaps; and test innovations across all DEWS regions. Rapid and broad needs assessments are crucial to provide an initial framing for region, watershed, state & county issues and information needs. RISAs contribute to the understanding of how communities and economic sectors utilize and integrate drought

information in resource management decisions and how they can improve preparation, planning, mitigation and management. Some of the ways RISAs contribute include: projects that incorporate consultation with stakeholders; information that is most useful for decision-making to reduce vulnerability; models and tools that bring this information to decision makers; and strategies for improving NIDIS' engagement with communities in drought preparedness.

Applicants should address their specific research contributions to drought risk communication, risk assessment, forecasting, management and evaluation within the context of regional trends and contributions to further development of drought early warning systems. Proposed activities in regions with NIDIS regional Drought Early Warning Systems (DEWS) (see www.drought.gov, regional programs) should include a significant component on how the proposed RISA efforts will contribute to the DEWS in that region.

3. Research Objectives

Applicants should review the Evaluation Criteria set forth in the Federal Funding Opportunity associated with this competition. These criteria include Technical/Scientific Merit, Project Costs, Qualifications of Applicants, and Importance/Relevance and Applicability to Program Goals. This section includes a description for the RISA program objectives and other critical factors for addressing those evaluation criteria.

RISAs support CSI by meeting the following objectives:

- Understand decision contexts for using climate information
- Develop actionable knowledge through interdisciplinary research
- Maintain diverse, flexible networks for sharing knowledge
- Innovate services to enhance the use of science in decision-making
- Experiment with different programmatic frameworks for connecting science with users (see Section 4)

Understanding Decision Contexts

Climate information can support decisions to adapt to a changing environment, but only if the climate research community and decision makers work together to understand each other's needs and limitations. RISA teams are effective because they have been able to create lasting relationships with decision makers from the public and private sectors including local, regional, and state governments, federal agencies, tribal governments, utilities, the business community, and national and international non-profit organizations. Through these relationships, RISAs learn about specific decision contexts within and across different sectors of society, advancing our overall understanding of the use of science. RISA teams investigate climate impacts on sectors such as, but not limited to: fisheries, water, wildfire, agriculture, public health, transportation and coastal zone management, and enable the use of climate information (historical data, impacts assessments, regional outlooks and projections, etc.) and other early warning information to support both short- and long-term planning and decisions.

Developing integrated, interdisciplinary knowledge

RISA teams use their understanding of different decision contexts to develop and co-produce knowledge tailored to suit specific needs for climate information across different timescales and, more broadly, for context-specific scientific knowledge. RISAs characterize climate extremes, variability and change using paleoclimatic records, instrumental data, and climate predictions and projections. Each method or analytical technique in this portfolio brings its set of uncertainties and particular deficiencies, some of which are large or only partly characterized and poorly quantified. Integrating information across this mixed portfolio produces a more comprehensive characterization of a changing climate including the potential for extreme events outside the range of climate change models. RISAs integrate climate science with interdisciplinary knowledge to assess impacts, vulnerability, and risks and to inform and evaluate adaptive response options and tradeoffs. RISA's interdisciplinary knowledge base helps understand the interaction between climatic and non-climatic stressors.

Maintaining knowledge networks

RISAs work at the interface of science and society to increase capacity for making decisions in a rapidly changing environment. RISA processes and products are designed as systems for learning and knowledge-exchange sustained through lasting relationships between researchers and organizations or individuals engaged in climate-related decision making. As societal awareness of climate risk grows, climate information is being infused into public spheres in richer ways placing more emphasis on innovation of different methods for providing actionable knowledge. The experimental and innovative nature of RISAs extends beyond "snapshot" assessments or tools or products alone.

Innovating Services

RISA teams strengthen the development of climate services in the public and private sectors by bridging science and service communities. RISAs innovate and enhance capabilities that can be incorporated into successful tools and practices into ongoing services. RISAs work closely with applied scientists who provide predictions and projections of weather and climate, with cooperative extension and outreach professionals, and communications experts. These experimental services include, but are not limited to:

- Climate impacts trainings
- Climate outlooks and outlook fora
- Climate extension
- Communication tools (visualizations, white papers, reports, etc.)
- Decision support tools and information systems for drought, climate, water supply and availability, agriculture and other impacts

Costs

Core RISA and NIDIS work can be proposed at \$600,000-\$700,000 total per year for up to 5 years. All three regions being competed overlap with a NIDIS Regional Drought Early Warning Systems (DEWS), and if awarded, all three regions will be funded by a combination of RISA & NIDIS funds. Because of the substantial NIDIS DEWS activities in the regions of California and Nevada and the Midwest, proposals for these two regions should ensure that half of total

funding per year is aligned with NIDIS objectives (see www.drought.gov, especially the NIDIS Implementation Plan for further information). In the Arizona and New Mexico region proposals should ensure that one third of the total funding per year is aligned with NIDIS objectives.

Additional resources:

Websites

NOAA RISA:

www.climate.noaa.gov/risa

NIDIS: www.drought.gov/

National Climate Assessment: <http://nca2014.globalchange.gov/>

National Climate Assessment Regional and Sectoral Technical Input Reports:

<http://www.globalchange.gov/engage/process-products/NCA3/technical-inputs>

NOAA Next Generation Strategic Plan: <http://www.ppi.noaa.gov/ngsp/>

Quarterly Climate Impacts and Outlooks:

<http://www.drought.gov/drought/content/resources/reports>

Reports & References

NRC. 2009. Informing Decisions in a Changing Climate. Washington, D.C.: The 2946 National Academies Press. (R. Correll, Chair) 2947

NRC. 2010. ACC: Informing an Effective Response to Climate Change. Washington, 2948 DC. National Academies Press. (D. Liverman and P. Raven, Co--- Chairs) 2949

NRC. 2010. ACC: Advancing the Science of Climate Change. Washington, DC. National 2950 Academies Press. (P. Matson, Chair) 2951

NRC. 2010. ACC: Adapting to the Impacts of Climate Change. Washington, DC. 2952 National Academies Press. (K. Jacobs and T. Wilbanks, Chairs)

NOAA. 2016. The National Integrated Drought Information System. Report to Congress.

[https://www.drought.gov/drought/sites/drought.gov.drought/files/media/whatisnidis/Documents/rpt_FINAL_NIDIS%20CongReport_Jan2016.pdf]

NOAA. 2012. The National Integrated Drought Information System. Implementation Plan.

[<https://www.drought.gov/drought/documents/national-integrated-drought-information-system-implementation-plan>]

4. Program Design

The end-to-end nature of the dialogue between the climate scientists and the stakeholder network provides the perfect setting for social scientists and outreach experts to evaluate the overarching issue of the role of science in supporting policy and decision-making, particularly climate science. RISA teams are expected to have some form of evaluation of their efforts in the region (e.g., the impact of the RISA on decision making in the region as well as the influence of stakeholder input on the team's science agenda). Teams should consider evaluation questions and methods as part of their research agenda. For example, how well is the team doing stakeholder engagement, developing tools, and reflecting on that process?

RISA teams maintain diverse structures for program leadership and management. This diversity is critical for maintaining healthy relationships between multiple institutions,

leveraging scientific capabilities within regions, and learning new ways to develop science in support of society. In developing a RISA program, it is important to consider how the team and activities will be managed. It is critical for RISA teams to have staff (often Program Managers) who facilitate and manage team integration. Details about how Program Managers will manage advisory structures, engagement, and coordination with other entities should also be considered.

5. Additional Factors for Proposal Preparation

This section is intended to provide additional information for successful submission for both competitions. For the RISA competitions, only one application per team will be accepted.

5.1 Letters of intent

Interested applicants for all competitions are highly encouraged to submit a 1-2 page Letter of Intent (LOI) outlining plans for your proposal. These should be submitted as a pdf to the RISA Program Managers via oar.cpo.risa@noaa.gov.

5.2 Specifics about the proposal

Proposals that can show that they are building on what is already known from the published literature about the proposed topic (e.g., value of climate information, decision making under uncertainty, use/transfer of new scientific information, integrated modeling of natural and human systems, impact of climate on sector activities, sectoral decision making analyses) prove that the PIs have a comprehension of the topic and that their proposed work will augment the existing science and engagement. Information about the activities of currently funded RISA teams is listed on the RISA website at climate.noaa.gov/risa. For questions about the NOAA application forms please contact Stewart Carrera (stewart.carerra@noaa.gov). RISA proposals should indicate a start date of September 1, 2017. For questions about the content of the proposal, you may contact the RISA Program team at oar.cpo.risa@noaa.gov.

5.3 Nature of investigator teams

Multidisciplinary teams of investigators are often best suited for addressing the complex issues related to climate, society and enhanced adaptation through the use of science and technology. Previous successful projects/teams have integrated strong social with natural or physical science components to form a more comprehensive analysis of the dynamics of climate-human interactions. Finally, the proposal should include an explanation of the roles of the investigators and how the team will interact and integrate the multiple components. Investigators who will not be requesting funds for salaries must also be listed, along with their estimated time of commitment.

5.4 Partners

We encourage partnerships and collaborations between researchers and critical decision-making institutions in the region of study including: NOAA and other federal agencies, non-

governmental organizations, boundary organizations, international organizations and regional networks, extension services, state and local governments, and representative private sector organizations. Any in-kind time should be reported within the proposal.

Letters of support, or commitment, from partners are encouraged to accompany the proposals.

5.5 Cost--sharing

Cost leveraging and in-kind sharing of resources is encouraged and should be reported within the proposal.

5.6 Interaction with NOAA

Applicants whose proposals are chosen for funding will be expected to undertake an ongoing dialogue with the NOAA Climate Program Office (CPO). In particular, following the review process and before final selection of proposals by CPO program managers, successful applicants should expect to participate in virtual meetings with NOAA and its partners to discuss and possibly adjust the project narrative and budget.

Funded applicants will be expected to submit annual reports, respond to periodic data and information requests, and participate in dialogues involving the RISA network of investigators. The RISA awards are anticipated to be cooperative agreements and thus will require a high level of collaboration with CPO (including both RISA and NIDIS programs), as well as other entities within NOAA and NOAA's partner agencies.

An annual work plan for the funding received from NIDIS will need to be developed and approved by the Program Manager for the award. The applicant should expect to, at a minimum, participate in conversations with the applicable NIDIS regional drought coordinators for the region in the development of these annual work plans. The plan should include, but not be limited to, the following elements essential to the realization of program priorities: overall objectives; progress and next steps; anticipated outcomes and deliverables; a general timeline of planned activities; staff involved; and a financial plan/budget.

5.7 Page limits

The total page limit for proposals is 60 pages. The statement of work for the overall RISA program, excluding references and figures, should be no more than 25 pages. A separate statement of work specific to the drought related activities that will be supported by NIDIS (one third for Arizona-New Mexico; one half for California-Nevada and the Midwest) should also be included to provide further detail on the proposed drought activities and milestones. This drought specific statement of work should not exceed 10 pages. Note that the statement of work for the overall RISA program (25 pages) should demonstrate how the NIDIS and additional RISA activities are connected and integrated into a cohesive program approach.

Vitae should be included for all key investigators. Only lead investigators need to include current and pending support. Letters of support, budget tables, budget justifications, subcontract information, Federal forms, Vitae, Current and Pending Support, and Data

Management Plans are not included in the page count for this competition.

Because the NOAA budget forms are designed for 4 years or less, please submit two SF424A forms, one for years 1-4 and the second for year 5 and the budget total. Note that all Federal forms (SF424, SF424A, SF424B, CD511) and other mandated forms are *not* part of the required page limit.

6. Webinars to discuss the RISA competition

RISA Program Managers will hold webinars to discuss the RISA competition. Please check the RISA competition webpage for the webinar schedule.

To sign up to receive the webinar information, please send an email with the subject line, “RISA FFO Webinars,” to RISA Program Office at amrith.sagar@noaa.gov.

In addition, information on the FY17 Federal Funding Opportunity will be posted on the RISA website:

<http://cpo.noaa.gov/ClimatePrograms/ClimateandSocietalInteractions/RISAProgram/RISAFederalFundingOpportunityFY17.aspx>

7. Data Management Guidance Requirements

Responsible NOAA Official

For questions regarding this guidance and for verifying accessibility of data produced by funding recipients: oar.cpo.risa@noaa.gov

Data Accessibility

NOAA requires public access to grant-produced data. The use of open-standard formats and methods for data sharing is encouraged. Applicants must describe their approach in the Data/Information Sharing Plan section of their application (see the RISA Federal Funding Opportunity for more information on this requirement). Below are examples of methods to enable public access to grant-produced data:

- Data are submitted to the NOAA National Centers for Environmental Information (NCEI), which will provide public access and permanent archiving.
- Data are to be submitted to one of the following relevant International Council for Science (ICSU) World Data System facilities: <https://www.icsu-wds.org/community/membership/regular-members>.
- Data are submitted to another NOAA facility (other than NCEI), which will operate a publicly accessible online data server for these data.
- An existing publicly accessible online data server at the funded institution is to be used to host these data.
- Data are to be submitted to a public data repository appropriate to this scientific domain.
- Funding recipients will establish their own data hosting capability.
- Proposal may request permission not to make data publicly accessible (the application should include a rationale for lack of public access, and if funded approval will need to be obtained from the Responsible NOAA Official listed above).

Resources

Proposals should include the costs of data sharing or archiving in their budgets.