U.S. NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 24-058

Dear Colleague Letter: Supporting Computing & Networking Research for a National Discovery Cloud for Climate (NDC-C)

February 20, 2024

Dear Colleagues:

With this Dear Colleague Letter (DCL), the National Science Foundation's (NSF) Directorate for Computer and Information Science and Engineering (CISE) Division for Computer and Network Systems (CNS) wishes to encourage the research community to submit proposals to the Computer Systems Research (CSR) program or the Networking Technology and Systems (NeTS) program in support of the creation or enhancement of a National Discovery Cloud for Climate (NDC-C). Proposals must be submitted to the SMALL Projects category in NSF CISE: Core Programs solicitation. The NDC-C is an NSF initiative to pilot efforts to build an integrated national-scale cyberinfrastructure capable of supporting end-to-end climate research and education. This DCL complements the DCL NSF 24-024 from the Office of Advanced Cyberinfrastucture (OAC). Today, progress across all areas of science and engineering (S&E) depends on broad access to advanced computing, data, networking, and software resources. Among the areas where access to such resources will drive transformative advances is climate-related S&E, including research in modeling, adaptation, and mitigation. Many recent S&E community reports have called for such cyberinfrastructure (CI) resources aimed at climate-related S&E efforts. For example, the recent National Academies of Sciences, Engineering, and Medicine (NASEM) report, *Next-Generation Earth Systems Science at the National Science Foundation* (2021), notes the need for computational and modeling infrastructure working synergistically with observations to advance Earth systems science.

To this end, submissions to this DCL from the computer and network systems community are invited to propose research efforts that can be undertaken to address computing, data, networking, and software elements supporting an NDC-C. Examples include (but not limited to):

- Enhancing existing computing, data, and networking resource providers to deploy required software stacks and federate with the NDC-C;

- Exploring computing/data/networking resource federation and interoperability requirements for elements of the NDC-C;
- Augmenting edge-to-core-to-cloud services to enable data collection, movement, and integration with computational and data resources; and
- Exploring new public datasets repositories or hardware/software computational resources for advancing climate science.

PROPOSAL PREPARATION AND SUBMISSION

Proposals must follow the guidance contained in the NSF Proposal and Award Policies and Procedures Guide (PAPPG) and the CISE: Core Programs solicitation for the SMALL Projects category.

Proposers are requested to contact the program officers mentioned below prior to submitting a SMALL Projects proposal to the CISE CNS Core programs (CSR and/or NeTS) by providing a one-page description via email in which the subject header should start with "NSF DCL: NDC-C Query".

When submitting your proposal, the project title should be of the form "CSR: Small: NDC-C: Title" or "NeTS: Small: NDC-C: Title". Please also include "NDC-C" as a keyword in the Project Summary and a description of the relevance of the proposed work to NDC-C goals in the Project Description. After submitting the proposal, the NSF-assigned proposal number should be emailed to the following program directors with the subject header starting with "NSF DCL: NDC-C Proposal Submitted". The proposal submitted in response to this DCL should be submitted by April 15, 2024.

- Deep Medhi, Program Director, CISE/CNS;
- Daniela Oliveira, Program Director, CISE/CNS

Any questions should be directed to both dmedhi@nsf.gov and doliveir@nsf.gov, with copy to ndcc-queries@nsf.gov

Sincerely,

Dilma Da Silva, Acting Assistant Director
Directorate for Computer and Information Science and Engineering (CISE)