NATIONAL SCIENCE FOUNDATION
2415 EISENHOWER AVENUE
ALEXANDRIA, VIRGINIA 22314

NSF 23-101

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

May 9, 2023

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

1. Early-concept Grants for Exploratory Research (EAGER) proposals, and
2. Supplemental funding requests to active CNS research awards (supplements are limited to strictly less than 20% of the original award amount)

in support of a National Discovery Cloud for Climate (NDC-C).

Today, progress across all areas of science and engineering 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 science and engineering, including research in modeling, adaptation, and mitigation. Many recent S&E community reports have called for such cyberinfrastructure (CI) resources aimed at climate 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 outline efforts that can be undertaken to address computing, data, networking, and software elements for the NDC-C. In particular, the NDC-C will federate and provide access to computing, data, software, and networking resources. Submissions should explain how the proposed computing and networking systems research for cloud-based data modeling and analysis would advance climate-related science and engineering. Proposals and supplemental funding requests should clearly describe the approach, expected outcomes,

and budget for the proposed effort.

Submissions should outline efforts that can be undertaken to achieve these goals, such as:

- 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;
- Enhancing existing bare-metal access hardware cloud and underlying network services to support NDC-C advancements;
- Augmenting edge-to-core-to-cloud services to enable data collection, movement, and integration with computational and data resources; and
- Developing a repository of research, artifacts, datasets, and experiments available on CI to facilitate future research and training compute efforts in climate-related science and engineering.

This DCL identifies two types of funding opportunities: Supplements to extend existing CNS awards and EAGERs. Supplements are welcomed to extend existing CNS awards.

CALL FOR PROPOSALS AND SUPPLEMENTAL FUNDING REQUESTS

Proposers are required to contact a program officer prior to submitting an EAGER proposal or a supplemental funding request, and to follow the preparation and content requirements specified in the NSF Proposal and Award Policies and Procedures Guide (PAPPG).

For supplemental funding requests under this DCL,

- PIs must submit a one-page summary of the proposed topic and approach not later than June 12, 2023.
- The one-page summary should be sent to the award's cognizant program director, with a cc to the program directors listed below. and the subject header should start with "NSF DCL 23-101: Supplement request for Award #:" followed by the award number of your original award.
- PIs for selected topics will be notified not later than June 26, 2023 whether a supplemental funding request may be submitted. The supplemental funding request must be prepared in accordance with the guidance in PAPPG Chapter VI.E.5 and must be submitted via Research.gov not later than July 14, 2023. The supplement proposal must include a copy of the invitation letter with the submission. Supplemental funding requests submitted without an invitation from a CNS program officer will be Returned Without Review. The summary of the proposed work section must not be more than 4 pages.
- The amount for the supplement must be strictly less than 20% of the original award

amount, less any supplements already awarded for that award (with the exception of REU & RET supplements).

For EAGER proposals under this DCL,

- PIs must submit a one-page Concept Outline of the proposed topic and approach not later than June 12, 2023.
- The one-page summary should be sent to the program directors listed below, with the subject header as "NSF DCL 23-101: EAGER request".
- PIs for selected topics will be notified not later than June 26, 2023 whether a full EAGER proposal may be submitted. The full EAGER proposal must be prepared in accordance with the guidance in PAPPG Chapter II.F.3 and submitted via Research.gov not later than July 14, 2023. In accordance with the PAPPG, the email confirming approval to submit a EAGER proposal must be uploaded in the "Program Officer Concurrence Email" section of Research.gov.
- It is anticipated that awards will be made by September 30, 2023.

PIs interested in responding to the above requests (or with other questions pertaining to this DCL) are strongly encouraged to contact one of the following NSF/CISE program directors:

- Deep Medhi, Program Director, CISE/CNS, telephone: (703) 292-2935, email: dmedhi@nsf.gov; or
- Alex Jones, Program Director, CISE/CNS, telephone: (703) 292-8950, email: alejones@nsf.gov.

Sincerely,

Margaret Martonosi, Assistant Director
Directorate for Computer and Information Science and Engineering (CISE)