NOAA FORM 58-5 (4-04)

	National Oceanic and Atmospheric Administration	NOAA Administrative Order 216-110B (this is an update)	
	NOAA ADMINISTRATIVE ORDER SERIES	DATE OF ISSUANCE (OCAO completes)	EFFECTIVE DATE January 13, 2025
	SUBJECT: MANAGEMENT AND GOVERNANCE OF HIGH-PERFORMANCE COMPUTING FOR RESEARCH AND DEVELOPMENT		

SECTION 1. PURPOSE.

This Order establishes a National Oceanic and Atmospheric Administration (NOAA) policy for managing high-performance computing (HPC) resources for research and development (R&D) as a corporate asset in support of NOAA's mission.

SECTION 2. SCOPE.

01. This Order applies to all NOAA research and development HPC (as defined below), including on-premises and cloud, and to the personnel and organizations which use it.

02. NOAA's HPC for research and development provides computational resources that are used to advance research, including environmental modeling systems and operational products and services for multiple user needs both nationally and internationally. HPC is critical to environmental modeling and prediction capability as well as observation, data analysis, and product development.

SECTION 3. DEFINITION.

High-Performance Computing (HPC) – The unified system for solving NOAA's largest computational problems, composed of supercomputer systems and associated communications, analysis, visualization and storage systems, and application and systems software with all components well-integrated and linked over a high-speed network.

SECTION 4. POLICY.

01. HPC is a corporate asset that will be managed to effectively execute NOAA's research R&D activities and priorities to meet NOAA's mission.

02. NOAA's R&D HPC will be governed by an HPC Board. The HPC Board membership will include Line Office representatives, at the Senior Executive level, or their designee, appointed by the Line Office Assistant Administrators or Director. The HPC Board shall be co-chaired by the NOAA Chief Information Officer (CIO) and a

NOAA Line Office representative, at the Senior Executive level that is a current HPC Board member. The co-chair Line Office representative will rotate among the NOAA Line Offices on an annual basis.

03. NOAA shall establish strategic R&D priorities for HPC on an annual basis, informed by NOAA R&D strategy in coordination with the NOAA Science Council (see NAO 216-115B),[1] that guide HPC allocation decisions. R&D priorities for HPC shall be communicated through a strategic guidance memorandum (SGM) to the HPC Board.

    a. The SGM will be authored by a balanced team including representatives from each NOAA Line Office and will be provided to the HPC Board in a timely manner ensuring HPC allocation deadlines are met.

    b. The SGM shall be used by the HPC Board to support the review of existing allocation of HPC, the identification of new requirements and potential users, consideration of the long lead missions of research programs, the need for sustained resources, and to mitigate the challenges that arise in a resource-constrained environment.

    c. The SGM shall include, to extent possible, requirements for future HPC procurements to be used by the HPC Board in procurement decisions.

04. Implementation of this order will be described in a procedural handbook that inherits the authority of this order. The procedural handbook must, at a minimum, include:

    a. Allocation procedures;
    b. Process for any science program at NOAA to request HPC (cloud and on premises);
    c. Process for tracking usage and adaptively allocating unused computing hours;
    d. Clear decision-making criteria for HPC allocation and communication of allocation decisions;
    e. Procedures for maximizing use of cloud-based HPC for emerging and established science needs;
    f. Procedures for plain language allocation reporting;
    g. Procedures for proposing new HPC allocations; and
    h. A process for and when NOAA science programs can provide funding to secure HPC capacity.

SECTION 5. RESPONSIBILITIES.

01. The NOAA Earth System Integration Board (ESIB) chair and the NOAA CIO are responsible for implementing this policy.

[1] www.noaa.gov/organization/administration/nao-216-115b-research-and-development-in-noaa

02. The ESIB:

a. Shall develop the SGM in a timely manner that meets the requirements of NOAA HPC allocation decisions and maintain procedural guidance on developing the SGM. The ESIB, as necessary, may delegate this responsibility to a subcommittee or a team of subject matter experts.

b. Shall clearly communicate, in coordination with the CIO, the process for and when NOAA science programs can provide funding to secure HPC capacity.

c. Shall review annually HPC allocation decisions and HPC use and ensure alignment with ongoing and emerging NOAA science priorities outlined in the SGM in coordination with the HPC Board.

03. The NOAA CIO:

a. May establish a High-Performance Computing and Communication (HPCC) Program to support fulfilling the HPC requirements and responsibilities of the CIO.

b. Shall manage the day-to-day execution of HPC and ensure access to HPC to those users who require it based on HPC allocation.

c. Shall ensure the establishment and maintenance of an HPC Board including:

i. Serving as a co-chair;
ii. Ensuring NOAA Line Offices identify a co-chair that rotates across Line Offices on an annual basis, as established through this order; and
iii. The functioning of the HPC Board, including providing executive secretariat support;

d. Shall ensure the successful integrated management of the following HPC functions:

i. Acquisition Management;
ii. Resource Management;
iii. Architecture Management; and
iv. Long-term planning, in coordination with the HPC Board and ESIB, including priorities for technology and standards necessary to ensure the effective transition of research to operations.

e. Shall conduct external and internal HPC collaboration management;

f. Shall track metrics for HPC funding, usage, and other factors as requested by the HPC Board, ESIB and NOAA leadership and report on these metrics no less than annually to the HPC Board and the ESIB.

04. The NOAA HPC Board shall manage HPC governance including:

a. Provide enterprise HPC services to enable the agency's mission, and improve linkage between HPC solutions and NOAA mission requirements;

b. In coordination with NOAA's Acquisition and Grants Office (AGO), define, acquire, and deliver HPC to meet business needs in accordance with the NOAA HPC Strategy and other leadership priorities as defined in the HPC Guidance Memo;

c. Allocate new HPC resources and reallocate current HPC resources as needed to meet NOAA priorities;

d. Manage HPC performance to maximize its efficient use;

e. Review, on an annual basis, whether the allocation of HPC resources is fulfilling R&D needs for HPC. This review shall be codified in a plain language report authored by the HPC Board and presented to the ESIB. The annual report shall also serve to communicate NOAA's HPC procurement decisions to NOAA, and external stakeholders where appropriate, as established by this order;

f. Maximize the effectiveness of HPC solutions;

g. Effectively adopt latest HPC technologies to drive efficiencies;

h. In collaboration with the ESIB, identify emerging and future uses of HPC and include these in NOAA's HPC implementation plans;

i. Form sub-committees or technical teams, and establish and maintain governance and procedures of its committees, as required to carry out its duties including an HPC allocation committee, with representation from each NOAA Line Office, to allocate HPC based on the SGM, and report as requested to the ESIB and the Science Council on allocation decisions; and

j. Develop and maintain the procedural handbook for this order.

05. Users of NOAA HPC resources shall follow the appropriate procedures included in the procedural handbook for any science program at NOAA to request HPC and propose new allocations. Users are encouraged to track and communicate requirements through these processes and will utilize their allocation effectively.

SECTION 6. REFERENCES.

The OCIO will maintain a list of applicable reference materials and access to their electronic editions on the OCIO website at http://www.cio.noaa.gov/nao.html. The following are some of the primary reference materials for this Order.

The Federal Information Technology Acquisition Reform Act (FITARA), passed in December 2014, strengthened the role of agency CIOs and provided greater accountability for the delivery of IT capabilities across the Federal Government. To assist with agency implementation, OMB released OMB Memorandum M-15-14: Management and Oversight of Federal Information Technology in June 2015.

FITARA outlines specific requirements related to:

1. Agency CIO Authority Enhancements;
2. Enhanced Transparency and Improved Risk Management in IT Investments;
3. Portfolio Review;
4. Data Center Consolidation Initiative[2];
5. Expansion of Training and Use of IT Cadres;
6. Maximizing the Benefit of the Federal Strategic Sourcing Initiative;
7. Government wide Software Purchasing Program;
8. NOAA Enterprise Architecture; and
9. Office of Management and Budget Circular No. A-130, Management of Federal Information Resources.

SECTION 7. EFFECT ON OTHER ISSUANCES.

01. This Order supersedes NOAA Administrative Order (NAO) 216-110, Management and Governance of High-Performance Computing issued May 26, 2006.

Under Secretary of Commerce
for Oceans and Atmosphere
and NOAA Administrator

Office of Primary Interest:

- NOAA Office of the Chief Information Officer (OCIO)

[2] www.whitehouse.gov/wp-content/uploads/2019/06/M-19-19-Data-Centers.pdf