Charge to Reviewers
NOAA Weather Program Office (WPO)
5-Year Program Science Review
January 24–27, 2023

Purpose of the Review

The National Oceanic and Atmospheric Administration (NOAA) Office of Oceanic and Atmospheric Research (OAR) facilitates program and laboratory science reviews every five years to evaluate the *quality*, *relevance*, and *performance* of research activities supported by its programs and conducted across its laboratories.

This review will be useful for planning, programming, and budgeting efforts, as well as alignment with external interests. Furthermore, it will help the Weather Program Office (WPO) strategically plan for the future. In general, reviews are also intended to ensure OAR's research objectives are linked to NOAA's mission and priorities and connected to other relevant strategic plans, and that the research is responsive to congressional mandates, is of high quality as judged by preeminence criteria, and is carried out with a high level of performance.

Scope of the Review

This external review will cover the programmatic activities and management of the Weather Program Office over the past five years (2017–2022). This will be WPO's first program office review. The programmatic themes/activity areas and related topics for the WPO review include:

Activity Area 1. Organizational Excellence
Activity Area 2. Weather Research Models, Observations and Forecasting Tools
Activity Area 3. Advancement and Transition of Weather Research
Activity Area 4. Effective Communication and Coordination of Weather Research

Schedule and Time Commitment for Reviewers

The review will be held virtually, **January 24–27, 2023**. OAR will hold two teleconferences for the panel in advance of the review, to discuss the review process and answer any questions you may have. To ensure that there is ample time for discussion during the review, several presentations will be pre-recorded and posted on the designated website at least two weeks prior to the review. Panelists are expected to have viewed the pre-recorded material ahead of time, to fully engage in the interactive panel discussions with staff and scientists during the review.

Each reviewer is asked to independently prepare their written evaluations and provide these to the review panel chair. The Chair, Dr. Robert O'Connor, will create a report

summarizing the individual evaluations, due within 45 days of the review to OAR. The chair will not seek a consensus of the reviewers. OAR will send any technical comments within 14 days of receiving the draft report and the panel chair will send a final report no later than 30 days after that.

Description of WPO Activity Areas

The Weather Program Office's (WPO) mission is to find, fund, and foster collaborative weather and air quality research to discover, develop, and transition products, tools, and services for timely and accurate weather and air quality forecasts. WPO is currently in the process of updating its strategic plan, which is anticipated to be finalized prior to the review. These activity areas are cross-cutting.

Activity Area 1. Organizational Excellence

This activity area is intended to evaluate WPO's office management, including strategic plans and direction, budget execution, hiring practices, office restructure, and diversity, equity, inclusion, and accessibility (DEIA) initiatives.

WPO facilitates world-class research, transitions research to operational products and applications, and seeks to improve how the public receives information to make weather-related decisions. Over the last five years, WPO has embraced organizational excellence to create an internal framework to meet stakeholder and partner needs while supporting NOAA's mission. Over the last five years WPO grew substantially, guided by two strategic plans, spanning 2019–2021 and 2022–2026.[1]

WPO's growth necessitated thoughtful hiring practices to nurture a collaborative culture. The increase of office personnel has facilitated the need to restructure the organization of the office's programs, through the creation of divisions and teams. This approach allows WPO to support professional development for employees—from student interns to senior staff. WPO prioritizes diversity, equity, inclusion and accessibility (DEIA), as part of its strategic plan goals . WPO's staff have received numerous awards for career achievements and DEIA accomplishments.

Our Administrative Team helps WPO achieve its mission through budget management and execution, overseeing contracts, and logistics. Annual Operating Plan measures and milestones for the office reflect WPO's immediate focus areas and benchmarks on the path to achieving WPO's strategic goals.

Across all WPO programs, WPO works together to coordinate its annual funding opportunity. Publishing one annual WPO-wide competition reduces individual program workload and streamlines the process for our principal investigators (PIs).

[1] Currently under development, and is anticipated to be complete prior to the WPO Program Review, January 2023.

Activity Area 2. Weather Research Models, Observations and Forecasting Tools
Under this activity area, WPO seeks recommendations and evaluations of the Subseasonal to Seasonal (S2S), Earth Prediction Innovation Center (EPIC), Observations, and Phased Array Radar (PAR) programs. WPO maintains a critical role in weather observation coordination, advancing data assimilation, and model development. WPO recognizes that improvements in weather observing technologies need to occur concurrently with model improvements.

The Subseasonal to Seasonal (S2S) Program supports projects to improve the utility of subseasonal to seasonal forecasts. Funded projects may assist progress in data assimilation, modeling within the United Forecast System (UFS) suite, or post-processing techniques to improve both scientific understanding and model fidelity of reproducing phenomena influencing the physical system, particularly for high-impact or extreme weather. S2S funds a range of projects from lower readiness level (RL) projects to higher RL projects that work with NOAA operational centers in the National Weather Service's Climate Testbed.

The primary goal of the Earth Prediction Innovation Center (EPIC) is to enable the world's most accurate and reliable operational numerical forecast model by partnering with the modeling community. EPIC strives to improve community access to the UFS, and hosts community engagement activities to gather requirements and facilitate the use of cloud and high-performance computing resources. This approach to earth system modeling aims to improve current weather prediction and develop models that adapt to future change.

The Observations Program advances observation systems that are mission-effective, integrated, adaptable, and affordable. A core function is to invest in innovative observing technologies extending from the surface through the troposphere, including planetary boundary layer, snowpack, soil moisture, hurricane, temperature, and precipitation extremes. The Observations Program also leads the project management of the Phased Array Radar (PAR) Program. This entails the cross-NOAA coordination and development of core documents (charter, requirements, risk register, executive briefings, congressional reports) and formal acquisition documents for risk reduction research and development activities that are critical for NWS Analysis of Alternatives for future radars. In addition, WPO jointly administers the Verification of the Origin of Rotation Experiment (VORTEX-SE/USA) Program with the National Severe Storms Laboratory.

Activity Area 3. Advancement and Transition of Weather Research
Under this activity area, WPO seeks recommendations and evaluations on the Research to Operations/Applications (R2X), Testbeds, Joint Technology Transfer Initiative (JTTI), Air Quality, and FACETS programs. WPO works to find, fund, and transition research for use by NWS and the broader weather enterprise.

The R2X Program coordinates research transitions in WPO, tracking research projects transitioning to operation, application, knowledge, and use by WPO's partners and stakeholders. WPO works with NWS and the Technology Partnerships Office (TPO) to standardize and manage transition plans for funded research.

The Testbeds Program coordinates projects and resources for the Hydrometeorological Testbed, Winter Weather Testbed, Hurricane Ocean Testbed, and Hazardous Weather Testbed. Together, these workshop environments provide opportunities for operational and research communities to test forecast and tool improvements with forecasters to assess readiness for operations.

The Joint Technology Transfer Initiative (JTTI) funds research with potential for impactful operational use, with the goal of transferring relevant science and technology to NWS. JTTI collaborates with the Testbeds Program to test and demonstrate projects as they advance RLs in preparation for transfer to NWS.

The Air Quality Program—recently renamed the Fire Weather and Atmospheric Composition Program—aims to advance air quality forecasts by coordinating and investing in air quality research and development. Likewise, the Fire Weather Program supports this emerging field to improve fire weather forecasts.

Lastly, this activity area will cover the FACETs Program, which stands for Forecasting a Continuum of Environmental Threats. FACETs is a framework that extends across OAR labs and programs and with NWS to nurture research collaborations and assist in the collaborative R2O transition process. FACETs focuses on modernizing the creation, communication, and effective dissemination of a continuous flow of risk-based, calibrated probabilistic hazard information to empower effective response.

Activity Area 4. Effective Communication and Coordination of Weather Research

WPO seeks recommendations from the review panel regarding the office's Social Science Program, as well as its coordination and collaboration efforts. These include, but are not limited to: coordination of processes and activities to successfully transition research to operations and applications; communication and interpretation of policies that guide our efforts; and collaborations with internal and external partnerships to NOAA, and across the weather enterprise.

WPO's Social Science Program (SSP) funds social, behavioral, and economic sciences (SBES) projects with an aim to provide research-guided recommendations to the greater weather enterprise, and to incorporate user perspectives into physical science research. Partnerships with NWS, National Science Foundation (NSF), academia, and private industry enables results from SSP-funded research to enhance operational forecasts with actionable information for the public by understanding and addressing gaps between research and societal applications.

On behalf of OAR, WPO coordinates reporting requirements related to the Weather Research and Forecasting Innovation Act of 2017. In addition to coordinating OAR efforts for the Weather Act, WPO's Supplemental Program oversees three supplemental appropriations: the Improving Forecasting and Assimilation (IFAA) portfolio of the Bipartisan Budget Act of 2018 (Disaster Related Appropriation Supplemental (DRAS)); the Improving Forecasting of Hurricanes, Flood, and Wildfires (IFHFW) portfolio of the Additional Supplemental Appropriations for Disaster Relief Act of 2019; and Disaster Relief Supplemental Act (DRSA2) of 2022: Wildfires, Hurricanes, Extreme precipitation, and Floods (WHEF). The Supplemental Program coordinates projects across NOAA to improve severe weather forecasting and observational data assimilation, including research targeting forecast improvements related to heavy precipitation, hurricanes, floods, wildfires, and other hazards.

External to NOAA, WPO participates in the Interagency Council on Advancing Meteorological Services (ICAMS). ICAMS is an interagency group that works to implement policy across Federal agencies in support of meteorological services. WPO also works to improve partner engagements within NOAA (e.g., the NOAA Water Initiative Service Delivery Team; Weather Water and Climate Board, particularly the NOAA Modeling Board; the Weather Team; the Water Team) and with other Federal agencies (e.g., NSF, Federal Emergency Management Agency (FEMA), Federal Highway Administration (FHWA), Environmental Protection Agency (EPA), National Aeronautic and Space Administration (NASA) and the Centers for Disease Control and Prevention (CDC)).

Evaluation Guidelines

NOAA guidance asks reviewers to consider the ***Quality***, ***Relevance***, and ***Performance*** of WPO and provide an overall rating for each activity area reviewed. For each area, each reviewer will provide one of the following overall ratings:

- *Highest Performance:* WPO greatly exceeds the satisfactory level and is outstanding in almost all areas.
- *Exceeds Expectations:* WPO goes beyond the satisfactory level and is outstanding in many areas.
- *Satisfactory*: WPO meets expectations and the criteria for a satisfactory rating.
- *Needs Improvement:* In general, WPO does not reach expectations and does not meet the criteria for a satisfactory rating. The reviewer will identify specific problem areas that need to be addressed.

In addition to overall ratings for each activity area, if possible, the reviewers will assign ratings to the subcategories of Quality, Relevance, and Performance within the activity area reviewed. The narrative below provides criteria descriptions, evaluation questions to consider, and indicators. The scoring matrices in the appendix summarize this information.

1. **Quality:** Evaluate the quality of WPO's research and development (R&D) portfolio. "Quality" is "a measure of the novelty, soundness, accuracy, and reproducibility of a specific body of research" (NOAA Administrative Order (NAO) 216-115). This refers to the merit of R&D that is funded by WPO and the resulting communication, outputs, and knowledge shared with the scientific community. In order to assess the quality of WPO's R&D portfolio, consider the following evaluation criteria and questions:

   - **Quality Rating Criteria:**
     - *Satisfactory* rating - WPO funds research projects that add to the growing body of meteorological physical and social science research by contributing new knowledge, data, and technological advancements. WPO expends its targeted percentage of funds for funding competitions, and executes the peer review process on time. Program staff participate in professional scientific societies and other external organizations, provide strategic leadership to the community, have a firm grasp on the direction of the science, and receive awards and/or recognition for leadership in their respective fields.

   - **Evaluation Questions to consider:**
     - How well does WPO support new ideas and research concepts?
     - How significant to the weather community are the outputs (e.g., scientific knowledge, data, and technological advancements) that WPO funds?
     - How effective are WPO's processes and approaches for finding, evaluating, and funding quality scientific research that significantly contributes to the field?
     - How involved in scientific societies and other organizations are WPO staff members, and do any of them hold leadership positions in these organizations?
     - Are WPO staff members considered scientific leaders in their respective areas (e.g. understanding key research issues/gaps, identifying collaborative solutions to address gaps)?
     - How well are proposal reviews conducted; are they useful in selecting quality research proposals?
     - Are appropriate subject matter experts selected for WPO competition proposal review processes?

   - **Indicators of Quality:** Indicators can include, but not be limited to the following (Note: not all may be relevant to each Program):
     - Contributions of knowledge to national and international research. This might include knowledge sharing activities, such as: the number of refereed publications, citations, reports, presentations, articles in which the individual served as a peer reviewer, and other measures (often in the form of an index) that represent the value of WPO-sponsored publications to the advancement of knowledge and understanding.
     - Evidence of scientifically accepted/valid methodologies used to produce outputs and certainty of results considered.

- Contributions of data and/or models to research, databases, and programs, and involvement in quality-control activities to ensure accuracy, precision, inter-comparability, and accessibility of global data sets or modeling systems.
- Advancement of outputs/transitions (e.g. observing systems, information technology, numerical modeling algorithms, knowledge about a technology, research-guided recommendations) towards operations/application.
- Assessments of the significance/impact of outputs and transitions (e.g. observing systems, information technology, numerical modeling algorithms, knowledge about a technology, research-guided recommendations) on operations.
- Awards/accolades received by WPO staff members for contributions to the weather enterprise.
- Staff membership and participation in scientific conferences, webinars, networking opportunities, outreach, and other events involving the weather community.
- Elected positions on boards or executive level offices in scientific societies and/or other organizations (e.g., the National Academy of Sciences, National Academy of Engineering, American Meteorological Society, American Geophysical Union, American Association for the Advancement of Science, etc.).
- Service of WPO staff in technical and scientific societies such as journal editorships, U.S. interagency groups, advisory boards, and international research-coordination organizations and committees.
- Evidence of WPO staff collaborating, engaging, and interacting with internal, external, national and international research groups, including other Federal agencies, Cooperative Institutes, academia, and private-sector organizations.

2. **Relevance**: Evaluate the degree to which WPO funded research and development (R&D) is relevant to NOAA's mission and of value to the Nation. "Relevance" is "a measure of how well a specific body of funded research supports NOAA's mission and the needs of users and the broader society" (NAO 216-115). This primarily refers to the value of R&D to users beyond the scientific community. Relevance includes not only hypothetical value, but actual impact. It considers the question, "What would not have happened if you did not exist, and how much would society have missed?" Examples of ways the impact of R&D can be realized include the application of scientific knowledge to policy decisions, the improvement of operational capabilities at NOAA's service lines and other collaborating institutions, or licensing of inventions for commercial use.

   - **Relevance Rating Criteria:**
     - *Satisfactory* rating - WPO's program activities and funded projects show linkages to NOAA's, OAR's, and WPO's mission and strategic plans, other key policy/guiding documents, and is of value to the Nation. Additionally, WPO engages with stakeholders to develop research priorities collaboratively, and funds projects to meet operational needs.

- **Evaluation Questions to consider:**
  - How well do WPO program activities and/or funded projects address existing (or future) societally relevant needs?
  - How effective are WPO's processes and approaches for finding, evaluating, and funding relevant scientific research?
  - How well does WPO's portfolio contribute to NOAA's mission and the needs of users and broader society?
  - How well does WPO address issues identified in relevant strategic plans or other policy/guiding documents, including those provided by the external community (e.g. EISWG and SAB recommendations)?
  - How robust is WPO's engagement with NOAA stakeholders to ensure the development of relevant R&D priorities?
  - Are there any other R&D priorities and/or activities that WPO should be pursuing? If so, what are they and why should they be a priority for WPO?
  - Are there any other R&D priorities or activities that are relevant to the nation's needs that WPO should be pursuing? If so, what are they and why should they be a priority for WPO?
  - How well does WPO solicit and incorporate feedback from key stakeholders?

- **Indicators of Relevance:** Indicators can include, but not be limited to the following (Note: not all may be relevant to each program):
  - Results of written customer surveys and interviews.
  - A list of WPO activities and funded projects and how they support NOAA objectives, linked to various WPO, OAR, and NOAA strategic plans, focus areas, research priorities, policies, and legislation (e.g., Weather Act).
  - A list of research products, information and services, models and model simulations, and an assessment of their impact by end users, including participation or leadership in state-of-science assessments.
  - A list of all projects that have identified a recipient for project outputs, and have signed transition plans that are collaboratively developed between the Principal Investigators and the receiving office, organization, or entity.

3. **Performance**: Performance is "a measure of both effectiveness (the ability to achieve useful results) and efficiency (the ability to achieve quality, relevance, and effectiveness in timely fashion and with little waste)" (NAO-216-115). It refers to the effectiveness and efficiency with which program activities are organized, directed, funded, and executed. Assessing performance may include considerations of technical execution, finances, workforce, infrastructure, and leadership necessary to achieve WPO's goals. This involves understanding the quality of management, including interaction with stakeholders, clear articulation of strategic direction, as well as the balance of WPO's portfolio across time frames and intended applications.

   Evaluate the overall effectiveness with which WPO plans and executes its research and development objectives to meet NOAA's mission and priorities, and the needs of the

Nation, given the resources provided. The evaluation will be conducted within the context of three sub-categories: **a) Research Leadership and Planning, b) Efficiency and Effectiveness, c) Research Transition Management.**

- **Performance Rating Criteria:**
  - *Satisfactory* rating - WPO has documented scientific objectives and strategies through strategic and implementation plans (e.g., Annual Operating Plan) and a process for evaluating and prioritizing activities. This includes meeting at least half of its performance measures and milestones in the Annual Operating Plan. The WPO director, deputy director, and program managers work across the office's portfolio as a team, to improve effectiveness and efficiency of administrative processes, operations, and research transitions.

A. Research Leadership and Planning: Assess whether WPO has clearly defined objectives, scope, and methodologies for its key projects.

- **Evaluation Questions to consider:**
  - Has WPO clearly defined and documented scientific objectives, rationale, and methodologies for key projects?
  - How effective are WPO's processes and approaches for developing strategic objectives, prioritizing program activities, and creating strategic plans?
  - How effective are WPO's processes and approaches for developing performance measures, milestones, and annual operating plans?
  - How effective are WPO's processes and approaches for reviewing progress towards strategic goals, objectives, and milestones, and identifying risks and issues?
  - How effective are WPO's processes and approaches for selecting and/or continuing projects and program activities that are linked to NOAA's mission and address stakeholder and societal needs?
  - Does WPO have the capacity (i.e., staff, time, resources) to respond to unanticipated events (such as supplemental funding, unexpected congressionally-directed funding, etc.), or opportunities that require new research and development activities?
  - How effective are WPO leadership and managers at fostering a culture that is conducive to achieving WPO's mission?
  - How effectively does WPO work towards identifying and overcoming institutional, managerial, resource, or other barriers that prevent the team from working effectively?
  - How well does WPO leadership nurture a diverse, equitable, inclusive, and accessible organizational culture? If not, what could be changed (either organizational or managerially) to further nurture a DEIA culture in the office?
  - How well does WPO leadership provide professional development opportunities for WPO staff? If not, what could be changed (either organizationally or managerially) to offer more opportunities?

- **Indicators of Leadership and Planning:** Indicators can include, but not be limited to, the following (Note: Not all may be relevant to each Program):
  - WPO Strategic Plans.
  - Program/Project Implementation Plans.
  - Active involvement in the NOAA planning and budgeting process.
  - AOP planning and tracking.
  - Joint AOP milestones across programs that can be used as a metric for working effectively as a team.

B. Efficiency and Effectiveness: Assess the efficiency and effectiveness of the WPO's work, given strategic goals, resources, and constraints and how effective WPO is in obtaining needed resources through NOAA and other sources.

 Evaluation Questions to consider:

- How *effective* are WPO's budget, research management, and transition management practices given its goals, resources, and constraints?
- How *efficient* are WPO's budget, research management, and transition management practices given its goals, resources, and constraints?
- How well do the processes and/or approaches WPO employs monitor project management and execution of projects and programs?
- Does WPO routinely meet milestones and deliverables?
- Does WPO manage grants effectively, including timely distribution of funds, communication with awardees, and oversight of spending, reporting, and award closeout?
- Does WPO's organizational structure optimize the conduct and planning of research, including the support of creativity? If not, what could be changed to further optimize it?
- Is NOAA's and OAR's planning execution activities well integrated into the planning and execution processes within WPO?
- Is there an appropriate balance of intramural and extramural research and development funding? Why or why not?
- How does WPO leverage relationships with internal and external collaborators and stakeholders? Does this engagement maximize research outputs? Why or why not?
- Does WPO offer all of the appropriate resources and support services available to all of DOC and NOAA? What are some resources or support services that are missing that could be useful for WPO employees?
- Does WPO have sufficient infrastructure to support high quality work? Why or why not? If not, what is needed to improve the infrastructure?
- Is WPO making investments in the right places? If not, what investments could be made differently and why?

Indicators of Efficiency and Effectiveness: Indicators can include, but not be limited to, the following (Note: Not all may be relevant to each Program):

- Results of customer service surveys (i.e., WPO Grantee Customer Service Survey).
- List of active collaborations and articulation of benefits.
- Funding distribution.
- Program demographics.
- Appropriate streamlining of processes within and among programs.

C. Research Transition Management: Evaluate WPO's effectiveness and efficiency in managing the transition of research to applications.

Evaluation Questions to consider:

- How *effective* are WPO's transition management practices given its goals, resources, and constraints?
- How *efficient* are WPO's transition management practices given its goals, resources, and constraints?
- How involved are stakeholders or potential adopters in the transition planning process?
- How satisfied are stakeholders, potential adopters, and principal investigators with WPO's transition management practices?

Indicators of Research Transition Management: Indicators can include, but not be limited to, the following (Note: Not all may be relevant to each Program):

- Customer service surveys (i.e., WPO Grantee Customer Service Survey)
- A list of outputs/transitions (e.g. observing systems, information technology, numerical modeling algorithms) transferred to operations/application and an assessment of their significance/impact on operations/applications.
- Significance and impact of involvement with patents, Cooperative Research and Development Agreements (CRADAs), and other activities within and across the weather enterprise.
- Discussions or documentation from WPO stakeholders.
- Efficiency of the transition process from research to operations/applications, to the extent that WPO is able to control the process.

Appendix: Scoring Matrix

Quality is a measure of the novelty, soundness, accuracy, and reproducibility of research funded by WPO, as well as the communication, products, and knowledge shared with the scientific community.

QUALITY Element	Needs Improvement	Satisfactory	Exceeds Expectations	Highest Performance
Novelty	Scientific projects are duplicative	Scientific projects add to the field	Scientific projects contribute significantly to the field	Scientific projects are breakthrough advancements
Soundness, accuracy, and reproducibility	Science funded is not sound, accurate, or reproducible	Science funded is sound, accurate, and reproducible	Science funded exceeds expectations in soundness, accuracy, and reproducibility	Science is top ranked among research intuitions
Knowledge sharing from funded research projects*	Few publications, reports, and presentations relative to projects funded	A modest number of publications, reports, and presentations relative to projects funded	Large number of publications, reports, and presentations relative to funded projects with a large number of citations	Multiple bibliometric indicators show very high value of research to advancement and communication of knowledge
Technology Development from funded research projects*	Few or no technologies (e.g., observing systems, information technology, numerical modeling algorithms) transitioned to operations/application and/or advance RL	Technologies are shepherded through the transition process to operations/application	Technologies are nurtured through the operations/application transition process	Technologies transferred to operations/application and assessment shows transformational impacts by receiving unit
Data Contributions*	Little contribution to data systems or poor quality, inaccurate, or inaccessible data	Contributions of data streams and involvement in developing databases that are quality controlled to ensure accuracy, precision, interoperability, and accessibility	Prior column plus contributions are numerous and significant	Shows leadership in developing or contributing to data streams with high impact to society
Outreach and Communications*	Little outreach is conducted, communications are unclear	Outreach fulfill basic needs; communication is clear	Outreach efforts, products, communications, and education programs	Outreach and education results in transforming public behavior

			meets and exceeds basic needs	
WPO Staff are Leaders in their Fields	Staff are do not participate in scientific societies and do not hold any leadership positions	Staff participate in scientific society and other organizations but do not have formal leadership positions	Staff are actively involved in scientific societies and other organization with some holding leadership positions	Numerous staff members are involved in scientific societies and other organizations who hold leadership positions
Awards and Recognitions	Staff have not received awards or other forms of recognition	Staff have received awards and/or recognition	Staff have received multiple awards and/or recognitions	Staff have received numerous, prestigious awards and/or recognitions

***WORK PRODUCT AREAS** (Publications, Technology Development, Data Contributions, Outreach and Communications) - Not all work product areas are applicable to all programs. For example, some programs may have funded project portfolios focused on research at various readiness levels that prioritize various outputs, e.g., publications, transitions, technology development, and/or knowledge sharing. Reviewers should indicate the 2 to 4 work product areas on which they believe the program should be scored for quality.

Relevance is a measure of how well a specific program and its activities supports NOAA's mission and the needs of users and the broader society.

RELEVANCE Element	Needs Improvement	Satisfactory	Exceeds Expectations	Highest Performance
Mission Linkage	Program activities only weakly linked to NOAA mission	Program activities linked to NOAA mission	Program activities strongly linked to NOAA mission	Program activities addresses specific aspects of NOAA mission
Strategic Plan Linkage	Program activities are weakly linked to OAR and program strategic plans	Program activities are linked to OAR and program strategic plans	Program activities are strongly linked to OAR and program strategic plans	Program activities address specific aspects of OAR and program strategic plans
Value to Society	Program activities do not address existing or future societally relevant needs	Program activities address societal needs	Program activities are applied to policy decisions, improve operational capabilities of NOAA's service lines, and/or result in inventions for commercial use	Program activities improve important policy decisions, revolutionize operational capabilities, and/or result in transformational inventions for commercial use
Responsiveness to Stakeholder Needs	Program funds research intended to meet stakeholder needs, but does not meet stakeholder needs	Program funds research that aims to meet the needs of stakeholders	Program builds trusted relationships with stakeholders and funds research that meets needs and exceed expectations	Program iterates with stakeholders to fund high-impact research with benefits for stakeholders and society

Performance is a measure of both effectiveness (the ability to achieve useful results) and efficiency (the ability to achieve results in timely fashion and with little waste). It considers how the Weather Program Office is progressing relative to targets and milestones as well as how the office and programs are strategically directed (leadership, planning, etc).

PERFORMANCE Element	Needs Improvement	Satisfactory	Exceeds Expectations	Highest Performance
Office Leadership	Managers do not function as a team, work to improve operations, or foster culture conducive to achieving mission	Managers function as a team, work to improve operations, and fosters diversity, equity, and inclusion	Managers nurture a diverse, equitable, and inclusive organizational culture that supports creativity and maximizes staff morale and productivity, and implements effective succession planning	Managers demonstrate visionary thinking and flexibility in responding to emerging needs, capabilities and unanticipated events. Leadership serves as a model for other organizations
Strategic Planning	Lack of strategic plan, lack of effective process for planning office activities	Objectives documented in strategic plans, with a process for evaluating and prioritizing activities	Planning process results in selecting/continuing projects that are linked to NOAA's mission and address stakeholder and societal needs	Strategic planning drives results and serves as a model for other organizations
Effectiveness	Key performance targets and milestones in Annual Operating Plan (AOP) missed without explanation, or non-existent	Meaningful, timely progress towards performance targets and milestones in AOP. Key products delivered. Satisfactory project management	Performance targets and milestones in AOP are challenging and are met or exceeded in most cases	Office performance substantially advances NOAA goals beyond expectations
Efficiency	Financial, staff, and/or time resources not used wisely	Operates with efficiency (efficient use of financial resources, workforce, time)	Leadership navigates planning and budgeting processes at the office, OAR, and NOAA levels and with external partners	Program uses novel efficiencies and/or partnerships to achieve mission
Managing Transition of Research to Applications	Program ineffectively manages research transitions	Program manages research transitions	Program effectively manages research transitions, and exceed users' expectations	Transition management is model for others