

## Charge to the Review Team

Purpose of the Review: Laboratory scientific reviews are conducted every four years to evaluate the quality, relevance, and performance of research conducted in OAR laboratories to both internal and external interests, and to help strategically position the laboratory in its planning of its future science. These reviews are intended to ensure that OAR laboratory research is linked to the National Oceanic and Atmospheric Administration (NOAA) Strategic Plan, relevant to NOAA Research mission and priorities, and consistent with NOAA planning, programming, and budgeting.

Each reviewer will independently prepare their written assessments; federal reviewers will create a five to ten page report summarizing the individual assessments. Federal reviewers will not analyze individual comments or seek a consensus of the reviewers.

Scope of the Review: This review will cover the chemical sciences research of the Earth System Research Laboratory in Boulder, Colorado over the last four years. The specific research areas to be included in the review are: 1) Chemical Transformation and Long Range Transport, 2) Regional Air Quality, 3) Stratospheric Ozone, 4) Aerosols and Climate, 5) Carbon Dioxide, Methane, and Climate, and 6) Non-CO<sub>2</sub> Climate Gases.

### Focus Areas for Review/Questions to be Addressed:

1. **Quality:** Assess the quality of the laboratory's research and development. Assess whether appropriate approaches are in place to ensure that high quality work will be performed in the future. Assess progress toward meeting OAR's goal to conduct preeminent research as listed in the "Indicators of Preeminence."
  - How does the quality of the laboratory's research and development rank among Research and Development (R&D) programs in other U.S. federal agencies? Other science agencies/institutions?
  - Are appropriate approaches in place to ensure that high quality work will be done in the future?

Indicators of Preeminence: Types of Indicators can include the following; not all may be relevant to each laboratory.

- a. A lab's total number of refereed publications per unit time and/or per scientific Full Time Equivalent staff (FTE).
- b. A list of technologies (e.g. observing systems, information technology, numerical modeling algorithms) transferred to operations/application and an assessment of their significance/impact on operations.
- c. The number of citations for a lab's scientific staff by individual or some aggregate.
- d. A list of awards won by groups and individuals for research, development, and/or application.
- e. Memberships and involvement in prestigious organizations (e.g., the National Academy of Sciences, National Academy of Engineering, or fellowship in the American

Meteorological Society, American Geophysical Union or the American Association for the Advancement of Science etc.).

f. Service of individuals in technical and scientific societies such as journal editorships, election to boards or executive level offices, service on U.S. interagency groups, service of individuals on boards and committees of international research-coordination organizations.

g. A list of research products, information and services and an assessment of their impact by end users, including participation or leadership in national and international state-of-science assessments.

h. Evidence of collaboration with other national and international research groups, both inside and outside of NOAA as well as reimbursable support from non-NOAA sponsors.

i. Significance and impact of involvement with patents, Cooperative Research and Development Agreements (CRADAs) and other activities with industry.

j. Other forms of recognition from NOAA information customers such as decision makers in government, private industry, the media, education communities, and the public.

k. Contributions of data to national and Global Earth Observing System of Systems (GEOSS)-related data bases and programs, and involvement in international quality-control activities to ensure accuracy, precision, inter-comparability, and accessibility of global data sets.

2. **Relevance:** Assess the degree to which the research and development is relevant to NOAA's mission and of value to the Nation.

- Does the research address existing (or future) societally relevant needs (national and international)?
- How well does it address issues identified in the NOAA research plans or other policy or guiding documents?
- Are customers engaged to ensure relevance of the research?
- Are there R&D topics relevant to national needs that the laboratory should be pursuing but is not? Are there R&D topics in NOAA and OAR plans that the laboratory should be pursuing but is not?

3. **Performance:** Assess the overall effectiveness with which the laboratory plans and conducts its research and development, given the resources provided, to meet NOAA Strategic Plan objectives and the needs of the nation. The evaluation will be conducted within the context of three sub-categories: research leadership and planning, effectiveness, and transition of research to applications.

3a. ***Research Leadership and Planning.*** Assess whether the laboratory has clearly defined objectives, scope, and methodologies for its key projects.

- Does the laboratory have clearly defined and documented scientific objectives, rationale and methodologies for key projects?
- Has the scope of key projects been identified including methods for determining when areas of investigation should end or be transitioned to operations or information services?

*3b. Efficiency and Effectiveness.* Assess the efficiency and effectiveness of the laboratory's research and development, given the laboratory's goals, resources, and constraints and how effective the laboratory is in obtaining needed resources through NOAA and other sources.

- Does the laboratory execute its research in an efficient and effective manner?
- Is the laboratory organized and managed to optimize the conduct and planning of research, including the support of creativity?
- How well integrated is the work with NOAA's planning and execution activities? Are there adequate inputs to the planning process of NOAA's Programming, Planning and Budgeting and Execution System (PPBES)?
- Is the proportion of the external funding appropriate relative to its NOAA funding?
- Are human resources adequate to meet current and future needs? Is the laboratory organized and managed to ensure diversity in its workforce?
- Are appropriate resources and support services available?

*3c. Transition: How well has the laboratory delivered products?* Assess laboratory's effectiveness in transitioning and/or disseminating its research into applications (operations and /or information services).

- How well is the transition of research to applications and/or dissemination of knowledge planned and executed?
- Are there appropriate interactions with stakeholders and customers? Are end users of the research and development involved in the planning and delivery of applications and/or information services?
- Are the research results communicated to stakeholders and the public?

#### Proposed Schedule and Time Commitment for Reviewers

The on-site review will be conducted over a three day period – January 29-31, 2008, in Boulder, Colorado. Two teleconferences are planned with the Deputy Assistant Administrator for OAR, who will be the liaison with the review team and for the completion of the report. The goal of the first teleconference, to be scheduled in November 2007, will be to discuss the charge to you, a reviewer, as well as the scope of the review, focus areas for the review questions to be addressed, and initial information provided to reviewers that addresses the questions. In the second phone call, scheduled for mid-January 2008, the Deputy Assistant Administrator will discuss the draft review agenda and the proposed template for reviewers to use for their assessments. During this call, we ask that you as a reviewer identify any additional information needs. All relevant information requested by your review team will be provided, both in hard copy and on the review website by mid-December.

Each reviewer is asked to independently prepare their written assessments; federal reviewers will create a five to ten page report summarizing the individual assessments. Federal reviewers will not analyze individual comments or seek a consensus of the reviewers. We request that within 45 days of the review, the review team provide the draft summary report to the Deputy Assistant Administrator, OAR. Once the report is received, OAR staff will review the report to identify any technical clarifications needed and will send the clarifications to the review team within 30 days. The final individual assessments and the summary report are to be submitted to the

Assistant Administrator, OAR within 30 days of receiving OAR technical clarifications on the draft report

Each reviewer is asked to independently prepare their written assessments; the Chair, a federal employee, will create a five to ten page report summarizing the individual assessments. The Chair will not analyze individual comments or seek a consensus of the reviewers. We request that within 45 days of the review, the review team provide the draft summary report to the Deputy Assistant Administrator, OAR. Once the report is received, OAR staff will review the reports to identify any technical clarifications needed and will send the clarifications to the review team within 30 days. The final individual assessments and the summary report are to be submitted to the Assistant Administrator, OAR within 30 days of receiving OAR technical clarifications on the draft report

#### Review Team Resources:

The Deputy Assistant Administrator will provide resources necessary for the review team to complete its work.

1. Review Team Support: Information to address the focus areas of the review will be prepared and posted on a password-protected web page for reviewers. The first round of information will be compiled and posted in November and the second major update, to respond to reviewers' requests, will be provided by mid-December. A hard copy of all the information on the website will also be provided to reviewers by mid-December.
2. Travel arrangements for the onsite review will be made and paid for by OAR.