

Ad-Hoc Task Force on Big Data

NAC Science Committee

Dr. Erin Smith

Executive Secretary, Big Data Task Force
Strategic Integration and Management Division
Science Mission Directorate

Task Force Membership

- Task Force membership will consist of leading authorities with relevant expertise drawn from industry, academia, independent researchers, and Government institutions
- Good representation expected from Heliophysics, Astrophysics, Earth Science and Planetary Science subject areas
- Since previous draft, increased representation from industry and cyberinfrastructure backgrounds
- All nominees have backgrounds in utilization or administration of large-scale data archives

Task Force Membership

- Broad call for nominations that produced an initial list of 70 potential candidates
- Consultation from
 - 1) SMD Divisions
Earth Science, Planetary Science, Astrophysics and Heliophysics and Office of Chief Information Officer
 - 2) NAC Committees
Science, Aerospace, Technology Innovation and Engineering, Institutional, Human Exploration and Operations
 - 3) Science Committee Subcommittees
Earth Science, Planetary Science, Planetary Protection, Heliophysics, Astrophysics

Feedback from NAC SC to include more 'industry partners'

Task Force Membership

- Current Proposal – 10 seats
 - 1 Chair (Cyberinfrastructure specialization)
 - 1 Aero representative
 - 2 Industry reps
 - Have experience with NASA and use of big data for new science
 - Recommended by multiple sources
 - 6 Discipline representatives
 - Currently have 2 each from Earth Science and Heliophysics, 1 each from Astrophysics and Planetary Science

Task Force Membership: Status

- Nominee package is complete and being routed through NASA approval process
- Preliminary contacting of nominees has begun
- Appointment process similar to that for a Science Committee Subcommittee

Timeline

- Complete consultation with Administrator as required by the Terms of Reference
- Contact nominees to collect required information for review of conflicts of interest (Form OGC 450)
- Complete Review of conflicts of interest and clearance from Office of General Counsel
- Prepare appointment documents for signature by SMD Associate Administrator
- Goal is to hold the first Ad Hoc Big Data Task Force meeting in September 2015



**BIG DATA:
SEIZING OPPORTUNITIES,
PRESERVING VALUES**

Executive Office of the President

MAY 2014



Big Data motivations

- Enable interoperability of NASA data sets (especially Earth Science) with other agencies, such as NOAA and USGS
- Providing interoperable data sets facilitates potentially new science, better use of data for decision support and potentially actionable science information
- Making data more accessible can result in its use for completely new
- Large data sets demand understanding of architecture and tools for current and future needs

Ad hoc Big Data Task Force in part 13.1.vi of NAC science Committee Charter (April 2014)

Terms of Reference

NASA ADVISORY COUNCIL

SCIENCE COMMITTEE

AD HOC TASK FORCE ON BIG DATA

TERMS OF REFERENCE

The Ad Hoc Task Force on Big Data (hereinafter, "Task Force") is an ad hoc task force of the NASA Advisory Council's (NAC) Science Committee supporting the advisory needs of the NASA Administrator, the NASA Science Mission Directorate, the other NASA Mission Directorates, and the NASA Chief Information Officer, as required. The scope of the Task Force includes all NASA Big Data programs, projects, missions, and activities. The Task Force will focus on such topics as exploring the existing and planned evolution of NASA's science data cyber-infrastructure that supports broad access to data repositories for NASA Science Mission Directorate missions; best practices within NASA, other Federal agencies, private industry and research institutions; and Federal initiatives related to big data and data access.

Per NASA Policy Directive (NPD) 1150.11, *Federal Advisory Committee Act Committees*, the Task Force will be managed under procedures that ensure the same spirit of openness and public accountability that is embodied by the Federal Advisory Committee Act (FACA). This includes public meetings as appropriate and public access to Task Force records.

MEMBERSHIP

The membership of the Task Force will consist of leading authorities with relevant expertise drawn from industry, academia, independent researchers, and Government institutions. The Associate Administrator for Science Mission Directorate, after consultation with the Administrator, will appoint the Task Force Chair and the members. Appointments will be for a limited duration not to exceed a two-year term, to be determined by the Associate Administrator for Science Mission Directorate in consultation with the NASA Administrator. The Task Force Chair, in consultation with the Science Committee Chair, will select a Vice Chair from among the members of the Task Force. The Task Force will have between five to ten members.

MEETINGS

The Task Force will meet approximately three times a year, usually in advance of the Science Committee meetings. Task Force meeting agendas will be approved pursuant to NPD 1150.11, by the Task Force Executive Secretary, after coordination with the Task Force Chair, and will be responsive to requests from the Administrator, the Associate Administrator for Science Mission Directorate, and the Council Chair. The Task Force Chair is not a Science Committee member but does report on activities of the Task Force at Science Committee meetings, upon the invitation of the Science Committee Chair. Recommendations of the Task Force shall be transmitted to the Science Committee and the NAC in the same way as subcommittee recommendations under the NAC Charter. In the event of a necessary absence by the Task Force Chair, the Vice Chair will represent the Task Force in the Science Committee meeting. The Vice Chair is not a member of the Science Committee. The Task Force Executive Secretary will publish notices of upcoming Task Force meetings in the Federal Register at least 15 days prior to each meeting.

REPORTING


As appropriate, the Task Force Chair will report on the Task Force's findings and draft recommendations to the Science Committee at the Science Committee's public meetings, for deliberation. Records of each Task Force meeting, including meeting agenda, list of attendees, minutes, and presentations, will be kept by the Task Force Executive Secretary. The meeting agendas, presentations and minutes from Task Force public meetings will be posted to the Science Committee website for public access. After certification of the minutes by the Task Force Chair and Task Force Executive Secretary (not to exceed 90 days following the meeting), the minutes will be posted to the Science Committee website. In addition, the Task Force Executive Secretary will keep detailed financial records, member appointment records, and other pertinent records throughout the year, and provide annual summary input on the Task Force activities to the Science Committee Executive Secretary for NASA's required annual fiscal year report on its FACA advisory committees to the General Services Administration (i.e., FACA Database). The Task Force Executive Secretary will also coordinate with the members to ensure that all legal/ethics requirements pertaining to Special Government Employee appointments are met. The requirements include, but are not limited to, timely filing of annual financial disclosure reports and annual ethics training by a representative of NASA's Office of General Counsel (OGC), and seeking advice from the NASA OGC Ethics Team for any questions concerning Government ethics requirements that may arise.

ADMINISTRATIVE PROVISIONS

The Task Force Executive Secretary will be appointed by the Associate Administrator for Science Mission Directorate, following coordination with the Science Committee Executive Secretary and Council Executive Director. The Task Force Executive Secretary will work with the Task Force Chair to coordinate meetings, agendas, speakers, etc. for Task Force meetings. Staff support and travel funds for the Task Force Chair and members will be provided by the Science Mission Directorate. Other NASA Mission Directorates may provide support for specific activities, as appropriate.

DURATION

The Task Force Terms of Reference will terminate at the discretion of the Administrator, or at the end of two years from the date of signature noted below, whichever comes first. If the Council's Charter is terminated or expires, the Task Force will terminate. If the Task Force terminates, the Task Force terms of reference also terminate, and all appointments to the Task Force terminate.


Charles F. Bolden, Jr.
NASA Administrator

1/8/2015
Date

Terms of Reference

- Explore existing and planned evolution of NASA's science data cyber-infrastructure
- Catalogue best practices within NASA, other Federal agencies, private industry and research institutions
- Investigate federal initiatives related to big data and data access
- As appropriate, the Task Force Chair will report on the Task Force's findings and draft recommendations to the NAC Science Committee at its public meetings for deliberation

Challenges

- Definitions: “Big Data” means different things to different groups.
- Engineering: Architecture, infrastructure and logistics of storing/accessing/using large data sets
- Data rights: IT security, Intellectual Property
- Communication: Visualization, training
 - How do we start asking the right questions to get the most out of big data?
 - What tools do we need? What tools do we have? What tools are being developed?

Discussion Topics

1. What are the opportunities you see in finding synergies in the application of big data across NASA's scientific fields?
2. Within your scientific disciplines are there any particular areas you can identify as benefiting from the work of the Big Data Task Force?
3. What kinds of linkages between scientific disciplines should be established?
4. What topics would the NAC Science Committee want the Task Force to address?
5. What points should be focused on as Task Force is stood up?
6. What kinds of products should the Task Force produce (talks, white papers, formal reports, etc)?