



# The Role of the Program Scientist

## Program Scientists are scientists

In my case:

Ph.D. in Physics, University of Alabama in Huntsville

Astrophysicist, Marshall Space Flight Center

Project Scientist, Goddard Space Flight Center

Program Scientist, NASA HQ

Director, NASA HQ

**The PS is the senior NASA scientist responsible for a flight program or project's science content to carry out an SMD science investigation.**

- The PS is **not** your mission advocate.
- The PS is the Headquarter's scientist most interested in your success.



# The Role of the Program Scientist

## **PS may be responsible for a Program ... or a mission ... or both**

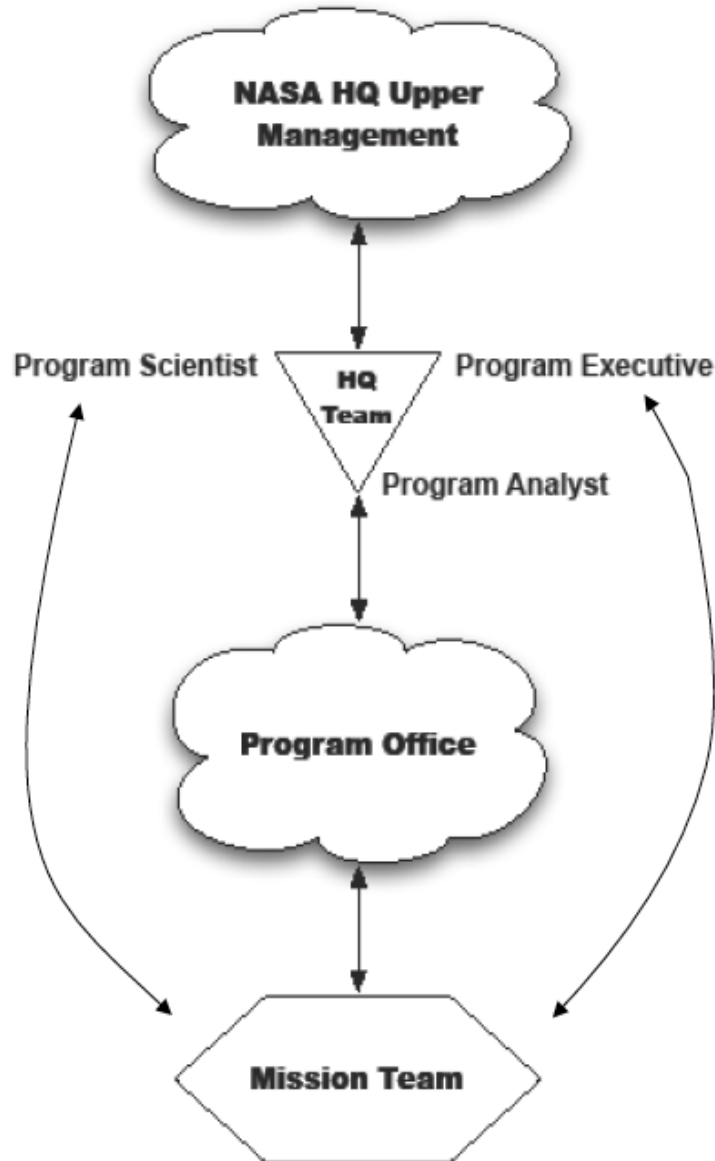
- Major program lines have Lead Program Scientists (e.g., Madhulika Guhathakurta for Living with a Star). *Duties* include AO formulation, oversight of proposal evaluation and down-selection processes, PI debriefings. Most visible to Explorer PI teams during pre-Phase A and Phase A activities.
- Individual missions also have Program Scientists. Play largest role beginning with down-selection, Phase B and beyond.

## **PS are rarely working full time on one mission**

In my case (until a few weeks ago...)

- Program Scientist: Solar Terrestrial Probes Program
- Program Scientist: Magnetospheric Multiscale mission
- Program Scientist: Theory Program
- Division Strategic Planning Lead
- Explorer Program Acquisition Scientist

# The Role of the Program Scientist



**The governance model and responsibilities are defined and well documented**

The Division Directors rely on the Program Executive (PE) at Headquarters (HQ) to track implementation of flight program responsibilities. The PEs work closely with the Program Scientist (PS) for science issues and the Program Analyst (PA) for budget issues.

The PS, PA and PE maintain regular communication. All participate fully in decisions and meetings relevant to mission planning, including those at the Centers.



# The Role of the Program Scientist

- The PS is SMD's interface with the Project Scientist and/or the PI for an AO-selected mission.
- The PS monitors science management and program execution and ensures the science of the mission remains viable and true to strategic objectives during development of the mission.
- The PS is the steward of the Level-1 science requirements. The PS is a partner with the PE on decisions relevant to mission formulation, design, development, and oversight.



# Responsibilities of the Program Scientist

## **INITIATES PROJECTS (PRE-PHASE A, PHASE A)**

Solicits scientific investigations for selection--supported by the PE and Program Manager. The PS:

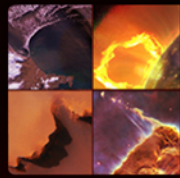
- Writes and issues investigation AOs
- Manages the proposal peer-review process
- Develops the investigation-selection recommendation
- Presents recommendation to the Selection Committee and to the SMD AA
- Prepares the selection press release
- Prepares acceptance and rejection letters
- Debriefs proposers.



# Responsibilities of the Program Scientist

## **FORMULATES PROJECT ARCHITECTURE (PHASE B)**

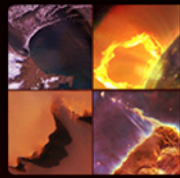
- Establishes program-level science requirements, with advice from Science Working Groups, and works with the PE to achieve their documentation.
- Develops and establishes scientific policies with advice from a Science Working Group, where appropriate.
- Develops science operations architecture.
- Works with the PI/Project Scientist and Science Working Group to oversee development of the draft Project Data Management Plan.
- Works with the PI/Project Scientist and Science Working Group to oversee development of a prioritized science descope plan.
- Works with the PE to review progress and results of Phase B studies and in developing and evaluating trades and options, such as descopes, that may influence the scientific capability of the mission.
- Administers changes in the program's scientific content.



# Responsibilities of the Program Scientist

## **MONITORS IMPLEMENTATION (PHASE C, D)**

- Works with PE and updates plans and program commitment documentation.
- Works with PE and monitor/reviews finalization of agreements.
- Works with PE and assesses program/project progress against program-level requirements, schedule, and budget.
- Oversees and monitors development of the plan for science implementation and science operations.
- Oversees and evaluates calibration/validation planning activities and preparations for environmental data records development.
- Monitors evolution of the project to ensure that scientific capabilities are maintained.
- Keeps NASA advisory bodies informed of progress and any capability trade studies being contemplated.
- Supports preparation of launch documentation.
- As launch approaches, briefs upper management on the project's scientific capabilities and briefs press and advocacy groups, playing a key role in education, public outreach, and public affairs.
- Participates in the final mission reviews prior to launch, to ensure that program-level science requirements will be satisfied and that the project is ready to enter the operations phase.



# Responsibilities of the Program Scientist

## **SUPPORTS SCIENCE MISSION OPERATIONS (PHASE E)**

- Works with PE and assesses project performance against program-level requirements, schedule, and budget.
- Monitors science operations for instruments and data.
- Ensures proper data delivery and archiving, according to the approved Project Data Management Plan.
- Oversees development and issuance of solicitations for ongoing General Observer programs, data analysis programs, and other related science investigations.
- Reports results and recommends selections to upper NASA management, specifically to the Selecting Official, unless a specific mission has a different designated selection process.
- Oversees development and issuance of solicitations through NASA Research Announcements (NRAs) for coordinated multi-instrument and multi-satellite observing programs, data analysis programs, other related science investigations, and interagency and international collaborations.
- Plays a key role in education, public outreach, and public affairs during science operations, including support for public affairs events such as NASA Science Updates.
- Participates in lessons-learned forums.