National Aeronautics and Space Administration

NASA

EXPLORE SCIENCE

The Role of the Program Scientist

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The Role of the Program Scientist

Program Scientists are scientists!

In my case:

B.Sc., Ph.D. in Physics, University College Dublin, Ireland

M.S. in Technical Management, Johns Hopkins University

Research Scientist, USRA, 1997 – 2004

Astrophysicist, Naval Research Laboratory, 2004 – 2018

Program Scientist, NASA HQ, 2018 – present

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

The Role of the Program Scientist

Program Scientists may be responsible for a program … or mission … or both

- Major program lines have Lead Program Scientists (e.g. Jeff Morrill for Living With a Star, Dan Moses for Explorers, Jared Leisner for Solar-Terrestrial Probes)
  - Duties include AO formulation, oversight of proposal evaluation and down-selection processes, PI debriefings
  - Most visible to 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

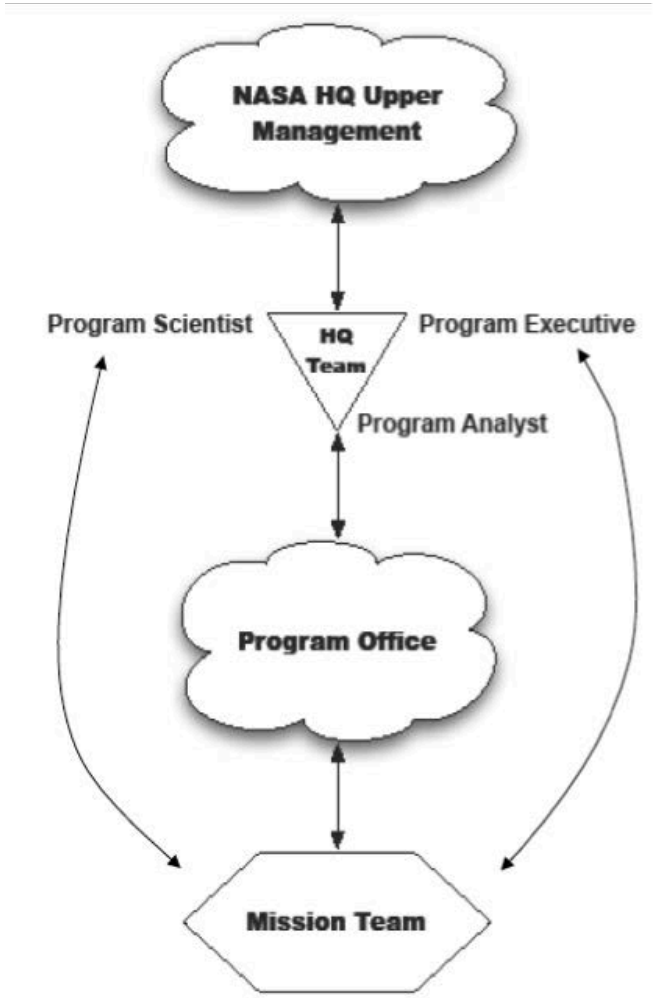
The Role of the Program Scientist

Program Scientists rarely work full-time on one mission

In my case:

- Program Scientist, Solar Orbiter Collaboration (just launched!)
- Program Scientist, PUNCH (SMEX mission in Phase B)
- Program Scientist, HPSMO down-selection
- Discipline Scientist, LWS Science
- Discipline Scientist, USPI program

The Role of the Program Scientist



The governance model and responsibilities are defined and well-documented

The Division Director relies on the Program Executive (PE) at NASA HQ to track implementation of flight program responsibilities. The PE works closely with the Program Scientist (PS) for science issues and the Program Analyst (PA) for budget issues.

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

The Role of the Program Scientist

What does a Program Scientist do? (PI-led missions)

- The PS is the senior NASA scientist responsible for the science content of an SMD science investigation
  - SMD's interface with the PI (upper management ⟷ team)
  - Monitors science management and program execution and ensures that the science of the mission remains viable and true to strategic objectives during development of the mission
  - Steward of the Level-1 requirements (ensures that the science NASA selected is the science NASA gets)
  - Partners with the PE on decisions relevant to mission formulation, design, development, and oversight
  - Advocates at HQ for the science of the mission, and ensures that the team has the resources it needs

Responsibilities of the Program Scientist

PROJECT INITIATION (PRE-PHASE A, PHASE A)

Solicits investigation for selection (supported by the PE):

- Writes and issues investigation AOs
- Manages the proposal review process
- Develops selection recommendations
- Presents selection recommendations to the Selection Committee and the SMD AA
- Prepares the selection press release
- Prepares acceptance and rejection letters
- Answers questions and provides clarification on CSR guidelines
- Debriefs proposers

Responsibilities of the Program Scientist

PROJECT FORMULATION (PHASE B)

- Establishes program-level science requirements (Level-1 requirements) and “rules of the road” for the project, and works with the PE to achieve their documentation
- Works with the PI team to oversee development of the draft Project Data Management Plan
- Works with the PI team 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
- Manages changes in the project’s science content

Responsibilities of the Program Scientist

PROJECT IMPLEMENTATION (PHASE C/D)

- Works with the PE to update plans and program commitment documentation, and to monitor/review finalization of agreements
- Works with the PE to assess progress against program-level requirements, schedule, and budget
- Oversees and monitors development of the plans for science implementation and science operations
- Oversees and evaluates calibration/validation planning activities
- Monitors evolution of the project to ensure that scientific capabilities are maintained
- Keeps NASA upper management and advisory bodies informed of progress
- Supports preparation of launch documentation
- As launch approaches, briefs upper management on the project's scientific capabilities and participates in public affairs activities
- Participates in the final mission reviews before 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

SCIENCE MISSION OPERATIONS (PHASE E)

- Works with the PE to assess 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 data analysis programs, Guest Investigator programs, and other related science investigations
- Reports science results to NASA upper management
- Plays a key role in public outreach and public affairs during science operations
- Participates in lessons-learned forums