

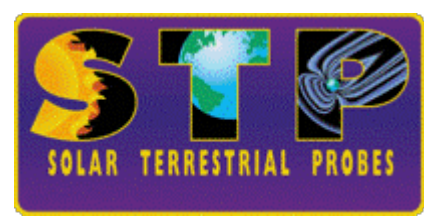
# STP Program Overview

Mike Delmont

*Deputy Program Manager*

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2017 Solar Terrestrial Probes  
IMAP Pre-Proposal Conference  
August 25, 2017



# Solar Terrestrial Probes

**The STP program addresses fundamental science questions about the physics of space plasmas and the flow of mass and energy through the solar system.**

STP program objectives are:

- To describe the system behavior of the magnetic variable star, our sun, and its interaction with the entire solar system.
- To understand the critical physics that link the Sun, Earth, heliosphere, and the interstellar medium.
- To understand the processes and dynamics of the magnetosphere-ionosphere-upper atmosphere system, the near space electromagnetic plasma environment surrounding the Earth.



- Missions driven by the National Academies Decadal Survey and NASA Heliophysics Roadmap
- Instruments selected through competitive AO process
- The STP program addresses fundamental science questions about the physics of space plasmas and the flow of mass and energy through the solar system

## Fundamental Processes

What are the fundamental physical processes and topologies of magnetic reconnection?

How are plasmas and charged particles heated and accelerated?

How is solar wind plasma accelerated?

How are planetary thermal plasmas accelerated and transported?

What governs the coupling of neutral and ionized species?

How do coupled middle and upper atmospheres respond to external drivers and to each other?

How do planetary dynamos function and why do they vary so widely across the solar system?

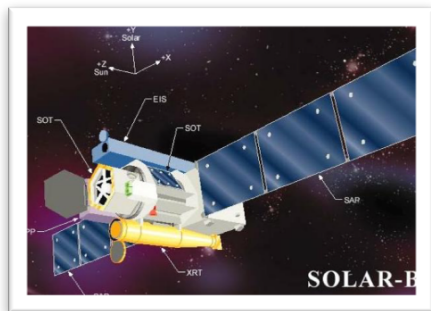
What is the fundamental nature of the solar dynamos and how does it produce the solar cycle?

What is the composition of matter fundamental to the formation of habitable planets and life?

# NATIONAL ACADEMY OF SCIENCES SETS DECADAL PRIORITIES



**Coronal Mass Ejection & Solar Energetic Particle Acceleration Processes**

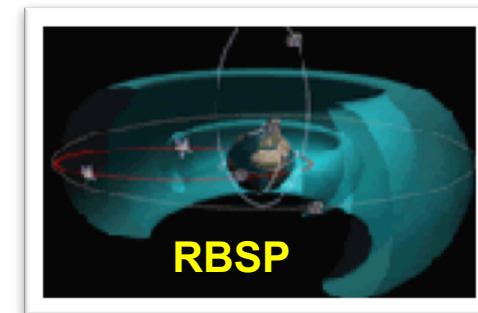
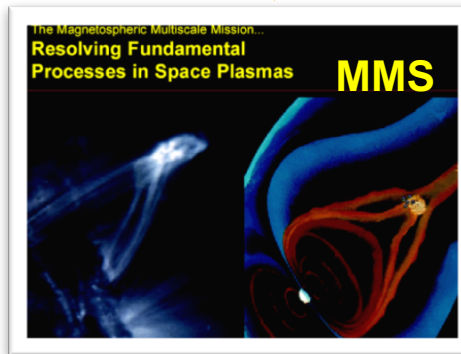


**Mechanisms of Solar Eruptions**

**NAS/NRC Report:  
Solar and Space Physics  
and  
Its Role in  
Space Exploration**

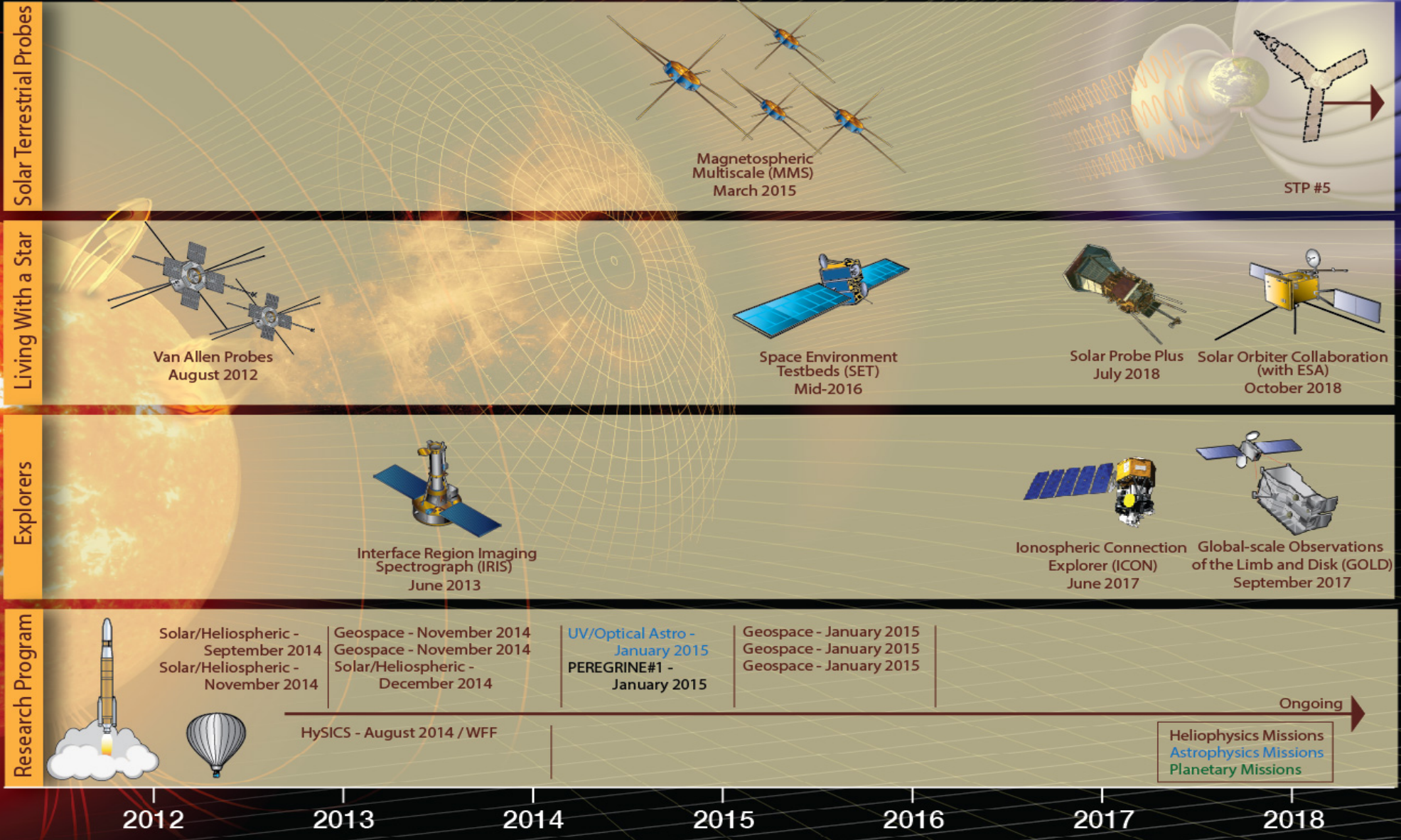


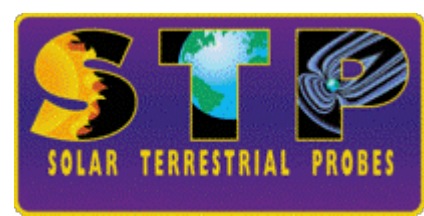
**Solar Dynamics and Prediction**



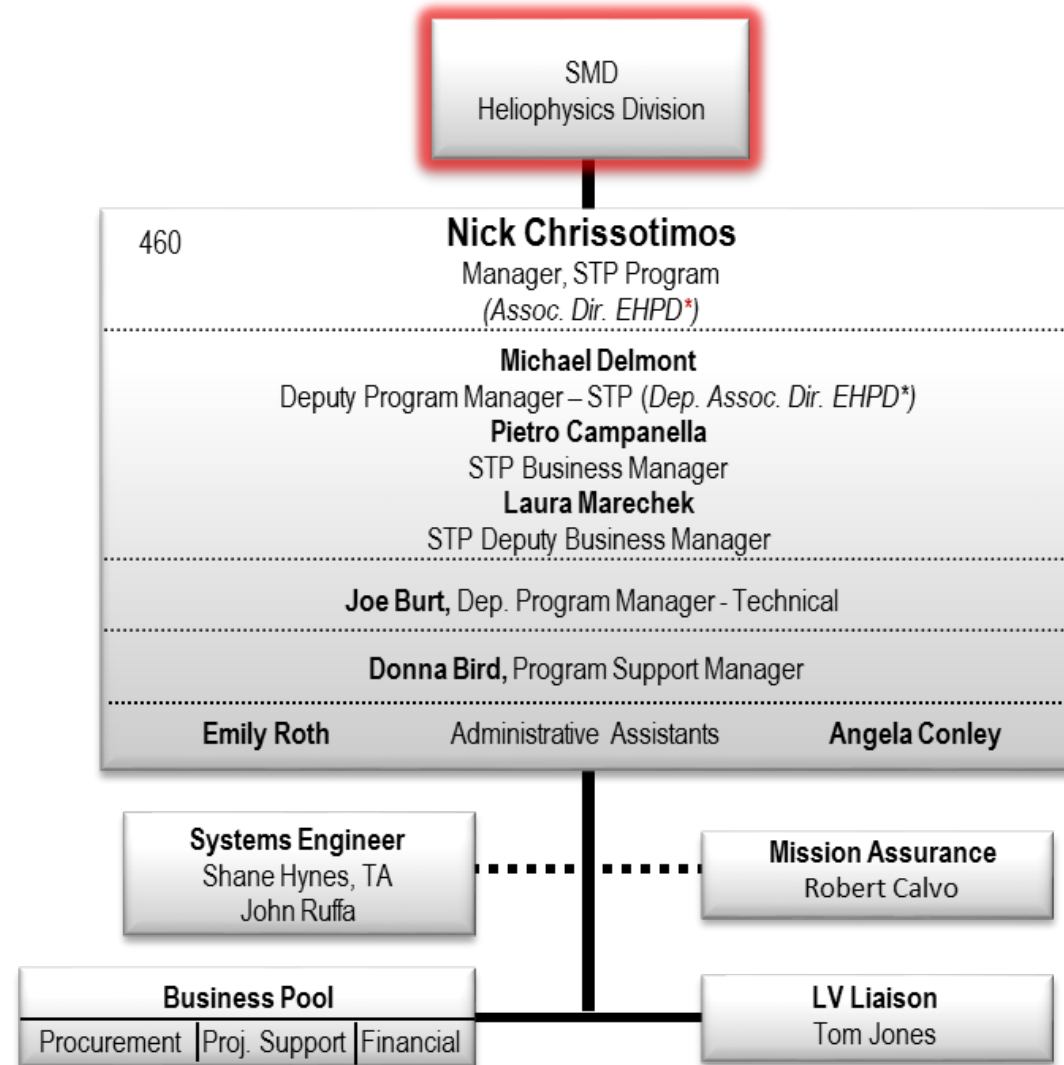
**Energetic Particle Acceleration & Radiation Hazard Modeling**

# Heliophysics Program 2012-2020

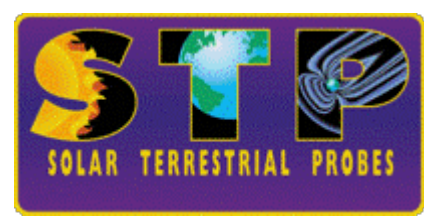




# STP Program Organization Chart



*\*Explorers & Heliophysics Projects Division (EHPD)*



# Mission Development Responsibilities

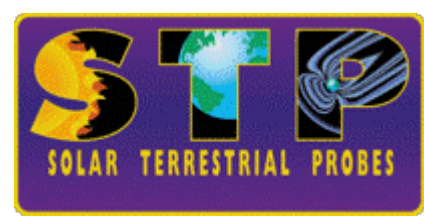


- **NASA responsibility**

- Program administration
- Insight/oversight
- Project review process
- Technical Authority
- Launch vehicle procurement

- **PI responsibility**

- Level-1 science requirements/design concept
- Mission implementation
- Technical, cost, and schedule performance
- Peer reviews
- Safety and mission assurance
  - › Develop and execute a Mission Assurance Implementation Plan based on EHPD Mission Assurance Requirements.



# Additional Information

## **STP Website:**

<http://stp.gsfc.nasa.gov>

## **Contacts:**

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