National Aeronautics and Space Administration

M I O

Overview

NASA's Multisource Integrated Observatory

John Sullivan
MIO Deputy Program Manager

John Haynes
MIO Program Manager

Project Leadership

John Haynes
Program Manager

John Sullivan
Deputy Program Manager

HEADQUARTERS

Leadership and oversight of all MIO activities, including DARTs and Project Office. Programmatic alignment across ESD.

Cecile Rousseaux
Project Scientist

Joel McCorkel
Project Manager

PROJECT OFFICE (GSFC)

Facilitation of Multisource DARTs, integration support for Mission DARTs, and delivery of enabling infrastructure and capabilities.

iESO Transition to MIO

- iESO supported the Earth System Observatory (ESO).
- As the ESO is evolving, there is growing opportunity in integrated Earth-observing and encouraging synergies across ESD programs.
- ESD is thus transitioning iESO into a new Multisource Integrated Observatory (MIO) project.
- This transition involves substantial changes to our approach to current mission science teams.

Multisource Integrated Observatory Goal and Objectives

ESD sees growing opportunities in integrated Earth-observing to answer complex Earth system science questions

Goal: Maximize science and applications from individual missions and observations combined across NASA, partner, and commercial fleets

Objectives

- Integrate the broad spectrum of activities required to accelerate the pace of scientific discovery and innovation
- Deliver high-impact, actionable applications based on multisource data, technology, and science
- Advance science-to-application pipelines across public and private sectors

Why MIO?

Combining multisource data to advance Earth science and inform critical decisions on national security, resource management, and disaster response

Multisource

Extracting maximum value and impact by combining observations from multiple sources

Including ground-based, airborne, partner, and commercial observations, plus stakeholder insights

Integrated

Breaking through collaboration barriers to enable cross-cutting teams

Coordinating observations, cross-validation, and measurements across platforms

Observatory

Unifying the program of record into an enterprise for Earth system science questions

Addressing the most important societal challenges

COMPONENTS

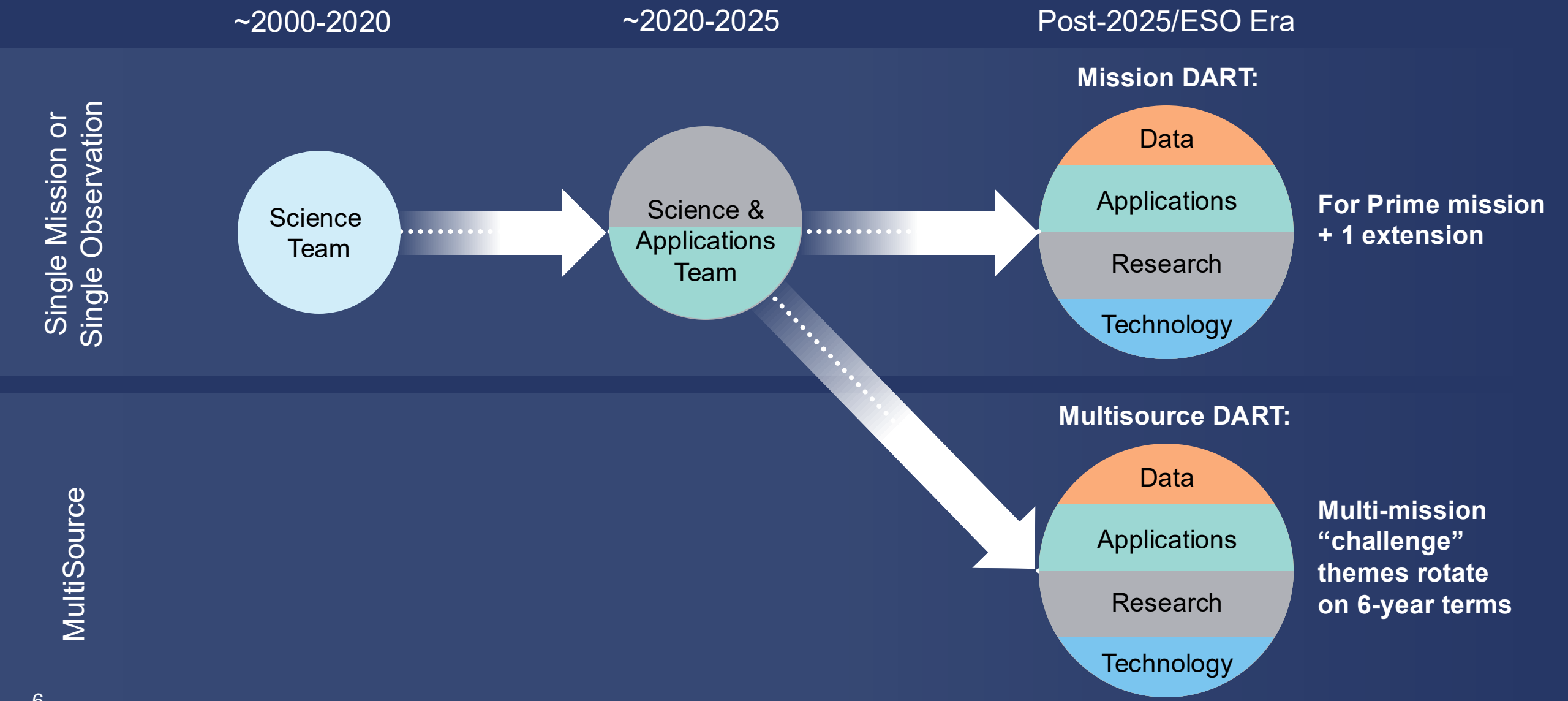
Multisource DARTs

Mission DARTs

Project Office

Evolution of NASA Mission Science Teams

18 Mission Teams to 10 DART Teams, including 3 interdisciplinary multisource DART teams



Multisource Integrated Observatory (MIO)

Maximizing the value and impact of NASA Earth Science by combining observations from multiple NASA missions, domestic and international partners, and commercial industry

3 multisource thematic teams solicited through ROSES 2026

WATER

Multi-source proposals that advance our understanding and decision-making ability to characterize the complete water cycle

LIFE

Multi-source proposals that advance our understanding and decision-making ability to protect life on Planet Earth

CHALLENGES (RFI)

Identifying large scale interconnected challenges that can be addressed with multisource data

Multisource Integrated Observatory (MIO)

WATER

Multi-source proposals that advance our understanding and decision-making ability to characterize the complete water cycle

Novel characterization of the movement, distribution, and availability of water to accelerate decision-making and solutions

- Droughts and flooding impacts
- Precipitation, snow melt, evapotranspiration rates, sea level rise
- Groundwater storage and land subsidence
- Energy cycles (latent heat, convection, and cloud formation)
- Multiple intersections with applications including water management, agriculture, health, disaster preparedness, etc.

Multisource Integrated Observatory (MIO)

LIFE

Multi-source proposals that advance our understanding and decision-making ability to protect life on Planet Earth

Novel integration of measurements to understand the interactions between the Earth system and life to accelerate decision-making and solutions

- Hazards (wildfires, earthquakes, volcanoes)
- Air quality and pollution
- Land and ocean management practices
- Ecosystem characterization
- Environmental determinants of disease

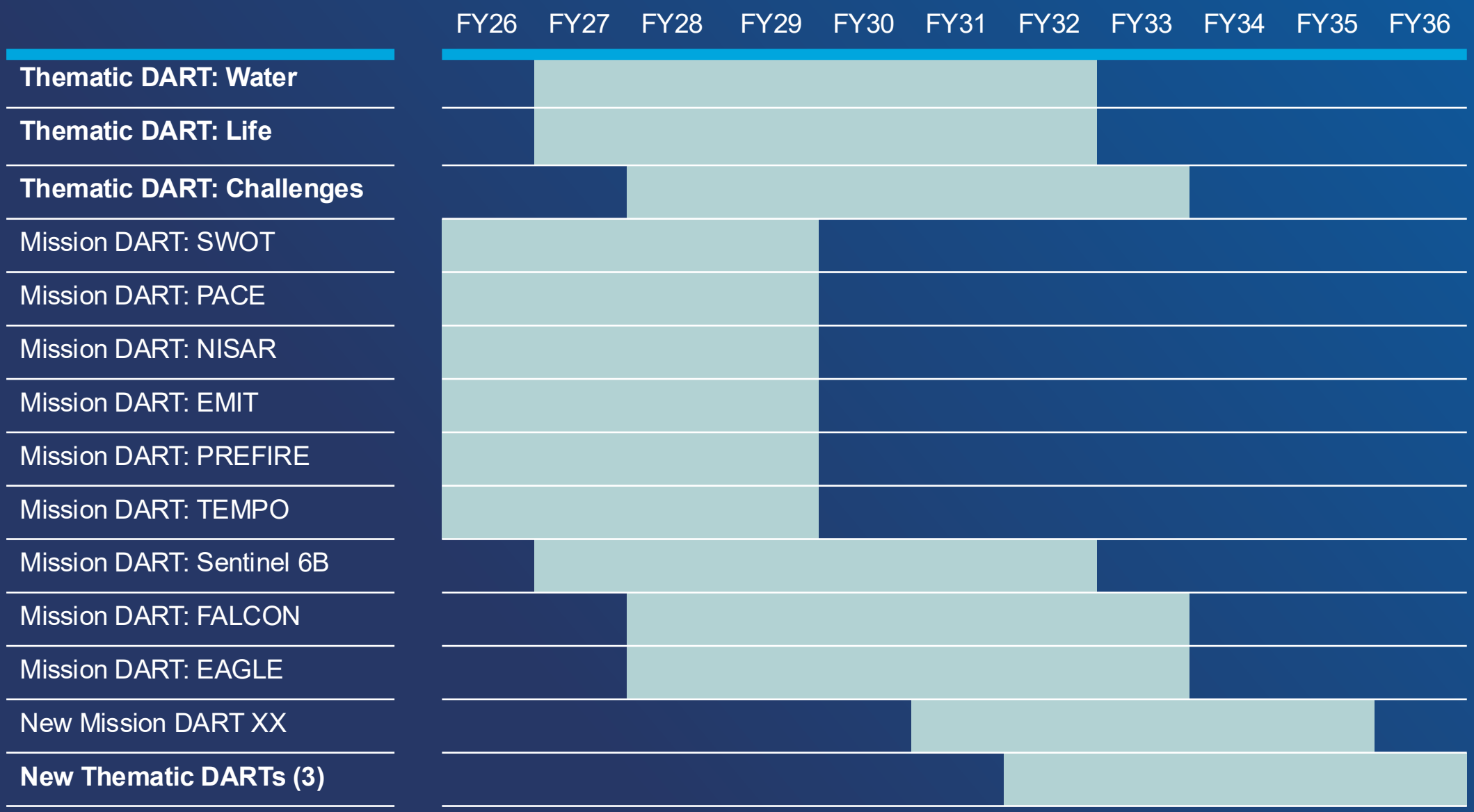
Multisource Integrated Observatory (MIO)

CHALLENGES (RFI)

Identifying large scale interconnected challenges that can be addressed with multisource data and planning targeted approaches for the most important emerging questions in Earth science and applications on varying temporal and spatial scales.

RFI in ROSES-26 to incubate Challenges
Solicitation for ROSES-27

DART Rotations Schedule*



*Notional

DART Rotations Schedule*

Mission	Current DART Team	Future
SWOT	A.11 Surface Water and Ocean Topography (SWOT) Science Team (**ROSES-23**)	**ROSES-27**
PACE	A.36 The Science of PACE (**ROSES-24**)	**ROSES-27**
EMIT	A.32 Earth Surface Mineral Dust Source Investigation (EMIT) Science and Applications Team (**ROSES-23**)	**ROSES-27**
TEMPO	A.21 TEMPO/ACX Science and Applications Team (**ROSES-24**)	**ROSES-27**
FALCON	Directed pre-launch integrated science and algorithm development beginning in **FY26**	**ROSES-27**
EAGLE	Directed pre-launch integrated science and algorithm development in **FY27**	**ROSES-27**
NISAR	A.3 NASA ISRO Synthetic Aperture Radar Mission Data, Applications, Research, and Technology Team (**ROSES-25**)	**ROSES-28**
PREFIRE	A.2 Earth Venture: TROPICS and PREFIRE Science and Applications Teams (**ROSES-25**)	**ROSES-28**
Sentinel 6B	A.XX Sentinel 6B Data, Applications, Research, and Technology Team (**ROSES-27**)	**ROSES-30**
Thematic Water	A.XX Multisource Integrated Observatory Data, Applications, Research, and Technology Team : Water (**ROSES-26**)	**ROSES-31**
Thematic Life	A.XX Multisource Integrated Observatory Data, Applications, Research, and Technology Team : Life (**ROSES-26**)	**ROSES-31**
Thematic Challenges	RFI Call for Community Responses for Interconnected Grand Challenges (**ROSES-26**)	**ROSES-27**

*Notional

Main Takeaways:

- **Tackling the hardest questions:** Focus on the unique science and unseen connections that NASA is uniquely positioned to answer and catalyze.
- **Infusing technology and data science:** Ensure that advanced data science and technologies are fully integrated across our efforts, including within active DARTs.
- **Expanding investigator opportunities:** Create proactive pathways for mid-career scientists to join novel DART endeavors without having to wait for the launch of a new mission.
- **Driving continuous innovation:** Empower our DARTs to constantly innovate and push boundaries over time.
- **Navigating the transition together:** We recognize that this is a significant change, and we are committed to working together with the community to succeed.

Explore

Search...

Resources | Earth | For Researchers | About Us

Multisource Integrated Observatory

Integration for Innovation: Accelerating Earth Understanding, Maximizing Impact

Scan the QR code or go to go.nasa.gov/MIO