NASA Science Mission Directorate Astrophysics Division

In the Science Mission Directorate (SMD), the Astrophysics Division (APD) studies the universe with the goal of seeking to understand the universe and our place in it.

In support of these goals APD seeks to discover how the universe works, explore how it began and is evolving, and search for life on planets around other stars.

https://science.nasa.gov/astrophysics

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Astrophysics Pioneers

The Pioneers Program, managed as Research and Analysis projects, started in 2020 which is intended to do compelling astrophysics science at a lower cost cap than missions in the Explorers Program and greater in cost and scope than what is possible within the APRA program element.

Missions will include SmallSats, major Balloon payloads, (cis)-lunar payloads, and modest payloads attached to the International Space Station with a $20M cost cap (excluding launch), typically 5 years development time.

Current Pioneers Missions

TIGERISS (ISS) – in formulation
ASPERA (SmallSat) – in development
Pandora (SmallSat) – in development
PUEO (Balloon) – in development
StarBurst (SmallSat) – in development
Landolt (SmallSat) – newly selected
POEMM (Balloon) – newly selected

https://science.nasa.gov/astrophysics/programs/astrophysics-pioneers

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Astrophysics CubeSats

Astrophysics CubeSats are solicited annually via ROSES/Astrophysics Research and Analysis Program (APRA) D.3.

CubeSats are reviewed along with other sub-orbital proposals, including balloons, sounding rockets, and ISS attached payloads, generally cost ~7M with a hard cap of $10 million and typically 5 years.

Note: Missions above $10M must be summitted to Pioneers.

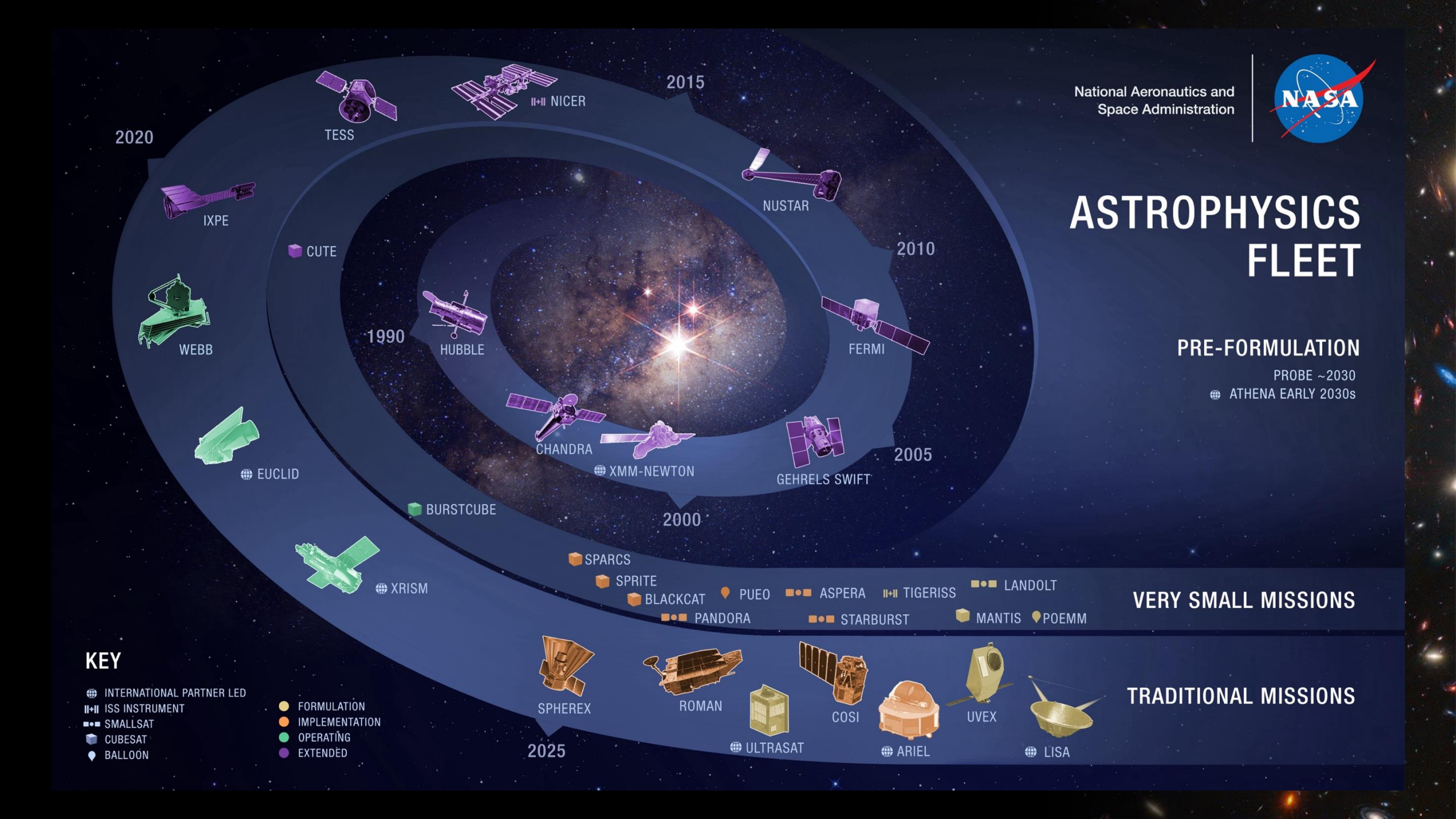
Current CubeSat Missions

BlackCat – in development
CANDLE* – in development
SPRITE – in development
SPARCS – In development
CUTE – in operation
BurstCube – in operation

On March 21, 2024, NASA's BurstCube launched aboard SpaceX's 30th Commercial Resupply Services mission in Cape Canaveral.

MANTIS– newly selected

*Instrument development


National Aeronautics and Space Administration
NASA
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EUCLID
BURSTCUBE
XRISM
PRE-FORMULATION
PROBE ~2030
ATHENA EARLY 2030s
SPARCS
SPRITE
BLACKCAT
PUEO
ASPERA
TIGERISS
LANDOLT
PANDORA
STARBURST
MANTIS
POEMM
VERY SMALL MISSIONS
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ULTRASAT
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CUBESAT
BALLOON
FORMULATION
IMPLEMENTATION
OPERATING
EXTENDED

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Future Plans

- Relevant ROSES 2024 links:

D.13 AstrophysicsPioneers **Proposals due Mar 2025**	D.3 APRA CubeSats **Proposals due Jan 2025** **Mandatory NOI Dec 2024**

- Selection goal is two Pioneers missions per year and one new CubeSat per year

Looking forward to successful missions and valuable science!

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