



# ISAS/JAXA program in Space Astronomy & Astrophysics

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# Space Science Program in Japan

Basic Plan on Space Policy (宇宙基本計画) updated 2023 June

<https://www8.cao.go.jp/space/plan/keikaku.html>

Implementation Plan (工程表) updated 2023 Dec

(3) 宇宙科学・探査における新たな知と産業の創造

年度	令和 5年度 (2023年度)	令和 6年度 (2024年度)	令和 7年度 (2025年度)	令和 8年度 (2026年度)	令和 9年度 (2027年度)	令和 10年度 (2028年度)	令和 11年度 (2029年度)	令和 12年度 (2030年度)	令和 13年度 (2031年度)	令和 14年度 (2032年度)	令和 15年度以 降
	JAXAの宇宙科学・探査ロードマップについて必要な見直しを行う[文部科学省]										
	<b>【宇宙物理学】</b> 大型の海外計画への、存在感を持った形での参画を目指す。JAXAや宇宙物理学分野の研究者のコミュニティが一体となった協力体制の構築、国際動向の情報収集、長期戦略の立案による、技術開発を推進。国際的な大型計画とも相補的かつ独創的・先鋭的な技術を活用し、科学的にユニークな中・小型のミッションの創出を目指す[文部科学省]										
	文部科学省 宇宙科学 探査部 (ISAS)の 開発										
	運用										
8	戦略的に実施する中型計画に基づく衛星・探査機等(10年で3回)										
	LiteBIRDの開発										
	運用										
	打上げ										
	主として公募により実施する小型計画に基づく衛星・探査機(2年に1回)										
	JASMINE										
	運用										
	打上げ										
	戦略的海外共同計画										
	Roman宇宙望遠鏡への参画										
	運用										
	打上げ										

Space Science & Exploration roadmap (宇宙科学・探査ロードマップ) 2023/Aug

[https://www.isas.jaxa.jp/home/rikou/roadmap/roadmap\\_20230809.pdf](https://www.isas.jaxa.jp/home/rikou/roadmap/roadmap_20230809.pdf)

These are updated by Subcommittee on Space Science and Exploration (宇宙科学・探査小委員会) based on ISAS's proposal.



# Scientific Perspective



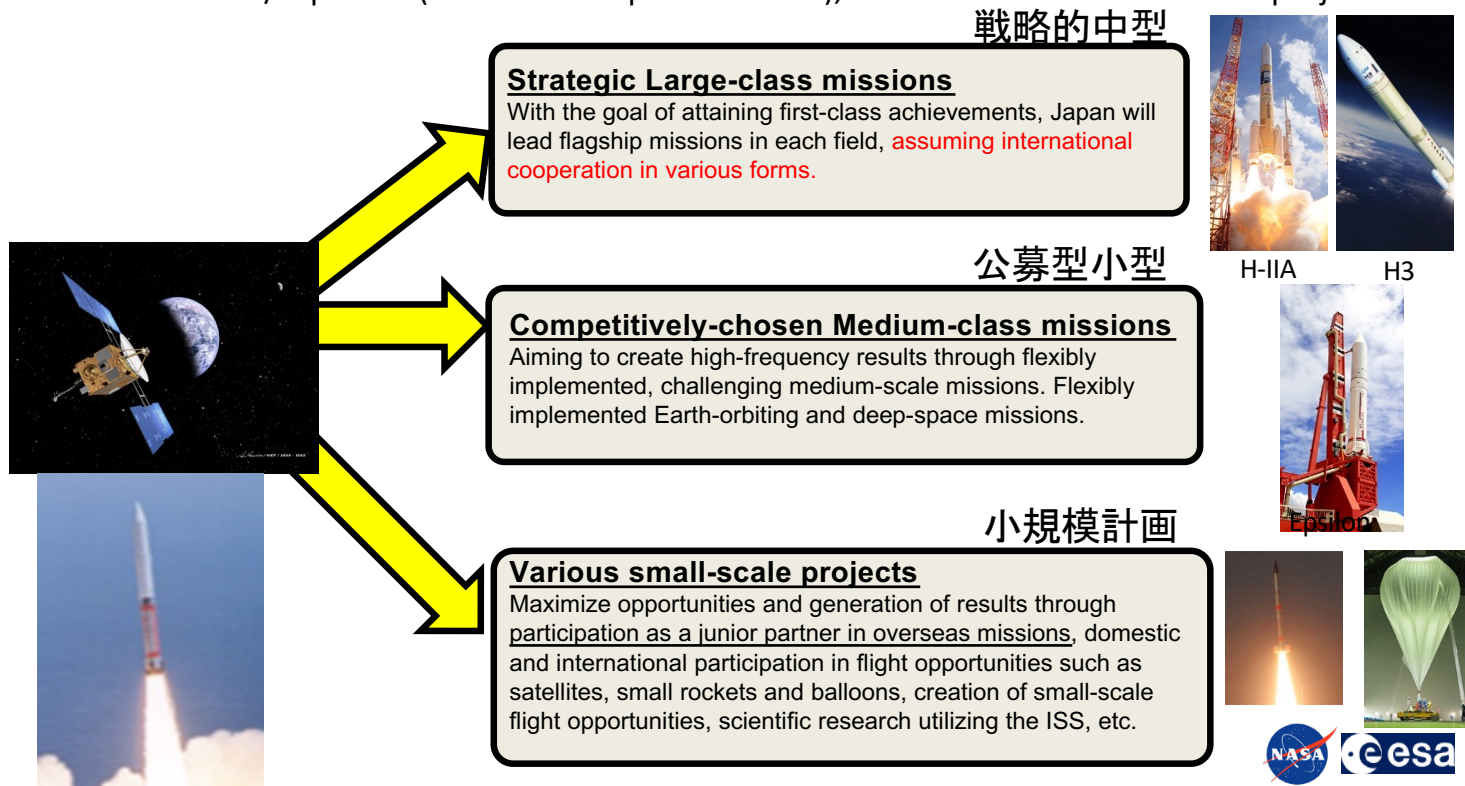
- "Space science" is the science activity that can only be done in space or has clear merit to be done in space.
- Purpose of astronomy and astrophysics
  - Understanding the origin of space and matters in the Universe
  - Search for the possibilities of life in the Universe
- Purpose of Solar system science
  - Understanding how the Solar system and Life were produced and evolved.



# Strategies for Space Science and Exploration Missions






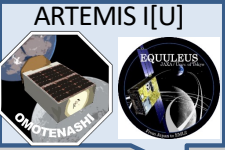




Based on strategies for execution of future projects in the space science and engineering fields amid harsh resource limitations, rather than the large-scale projects that have been strived for in the past, we will mainstream smaller projects in three categories: Large-scale satellites/explorers (launched on H-IIA/H3-class), medium-scale satellites/explorers (launched on Epsilon rockets), and various other small-scale projects.





# Mission Roadmap for ISAS Space Science and Exploration Projects

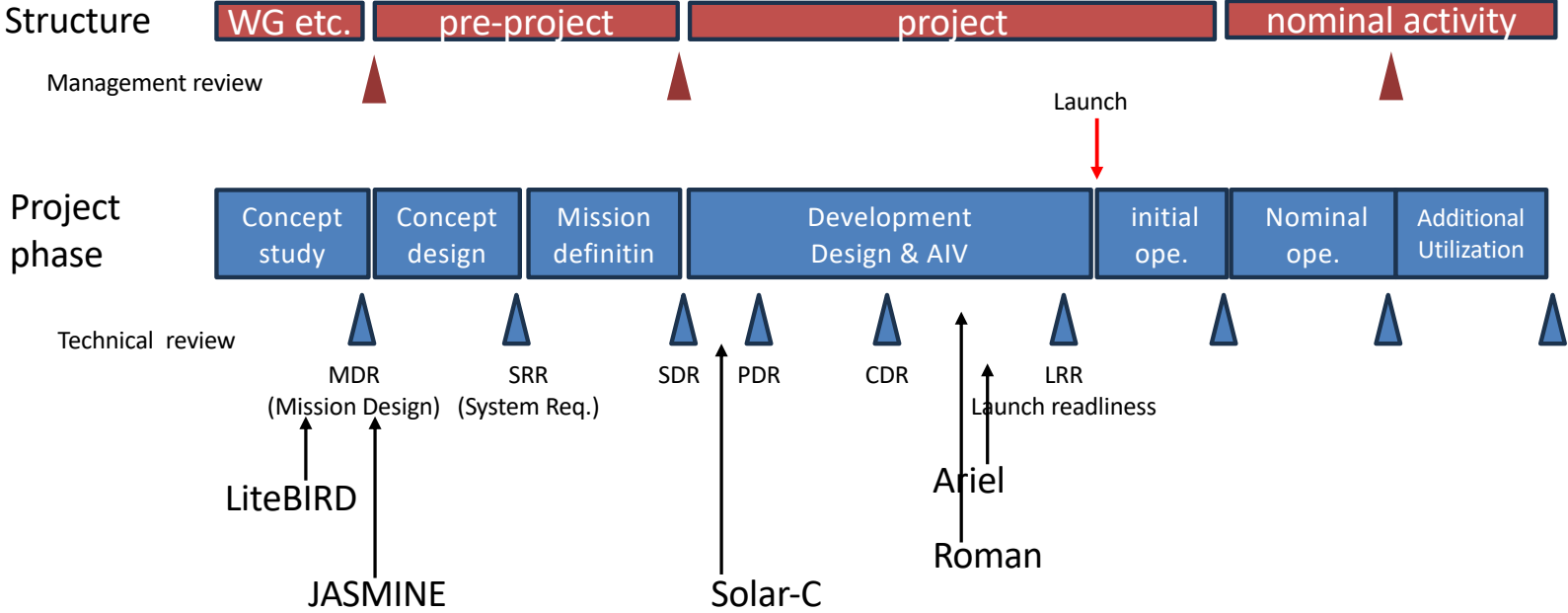
Updated on 2024/Oct

Category	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033~
Strategic Large Class	 XRISM				 MMX						 LiteBIRD (target)	
Competitive Medium Class		 SLIM					 Solar-C					
Participating in overseas missions							 DESTINY+			 JASMINE		
	 ARTEMIS I[U] OMOTENASHI [U]			 JUICE[E]	 HERA[E]	 Roman[U]	 Dragonfly[U]	 Comet Interceptor /Ariel [E]				
												HiZGundam or SILVIA or LOPYUTA or new proposed

[U]U.S., [E]Europe



# Development Phase





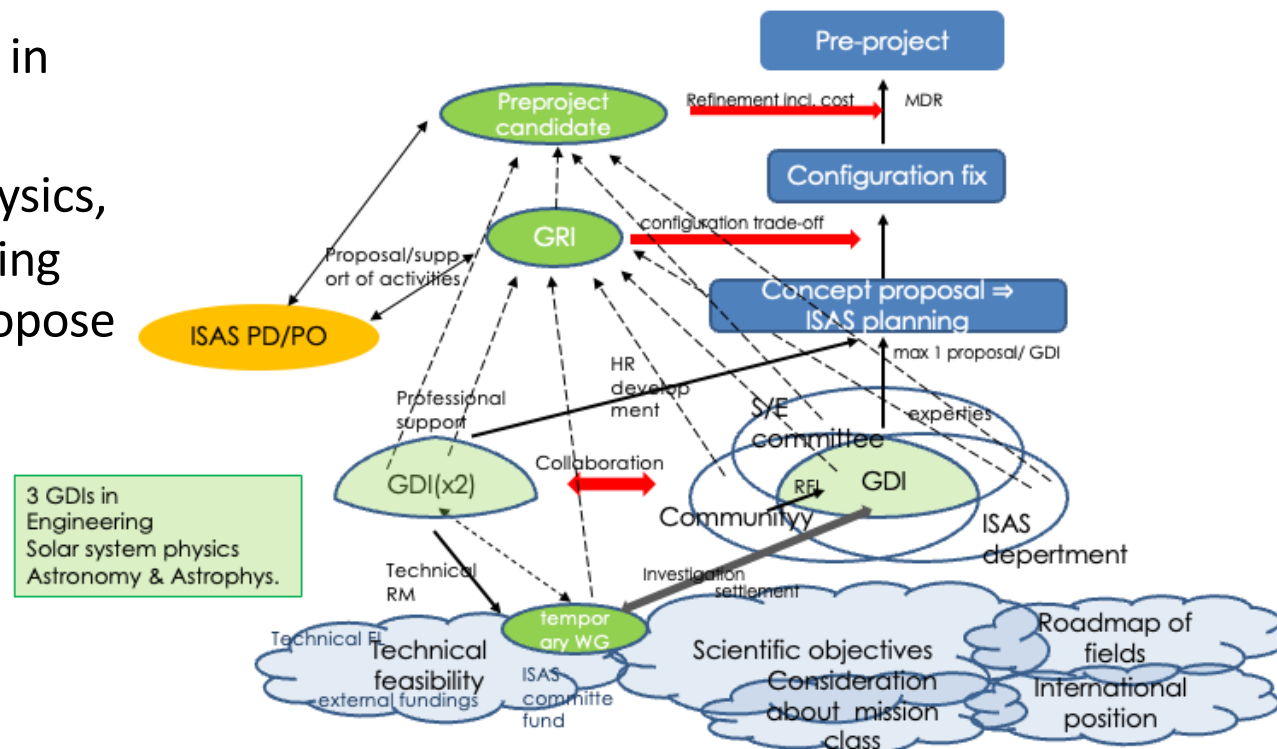
## How to propose ?

- Small scale projects: proposal base, basically annual call from ISAS
- Competitively-chosen Medium-class missions  
Call from ISAS once in 2-3 yrs, and selected by advisory committees.  
Eco-proposal in 2024 as a trial.  
Next downselection between HiZ/Lapyuta/Silvia will be in FTY 2026 (TBC).
- Strategic Large-class missions  
GDI –base cultivation, next proposal will be in FY2026.
- Strategic international collaboration  
Case by case, depends on the size, cost, trigger etc.



# What is GDI (Group de Discussion Intensive)?

- GDI is a joint committee from ISAS, Science/Engineering advisory committees, communities to cultivate future L-class mission in the concept study phase.
- 3 GDIs in astronomy & astrophysics, Solar system science, engineering are settled and expected to propose max. 1 mission concept.







## Issues to be identified and uncertainties



- Rapid cost increase of space projects
  - L-class : 30 BYen → 40 BYen (2021) → x 1.5-2 ??
  - M-class: 15BYen → 18 BYen (2021) → x 1.5-2 ??  
⇒It will reduce the frequency of missions, and delay of calls.
- Prime contractor candidates in Japan
  - Huge demand from security and defense blocks space science missions
- ISAS's counter measure

Activate low cost missions : ex. Eco & Fast call on M-class

Discussion within TF formed in 2024, and trying to make proposal by the end of FY 2024. 3 subcommittees, "satellite architecture", "ECO AO", and "Large international collaboration", are established.