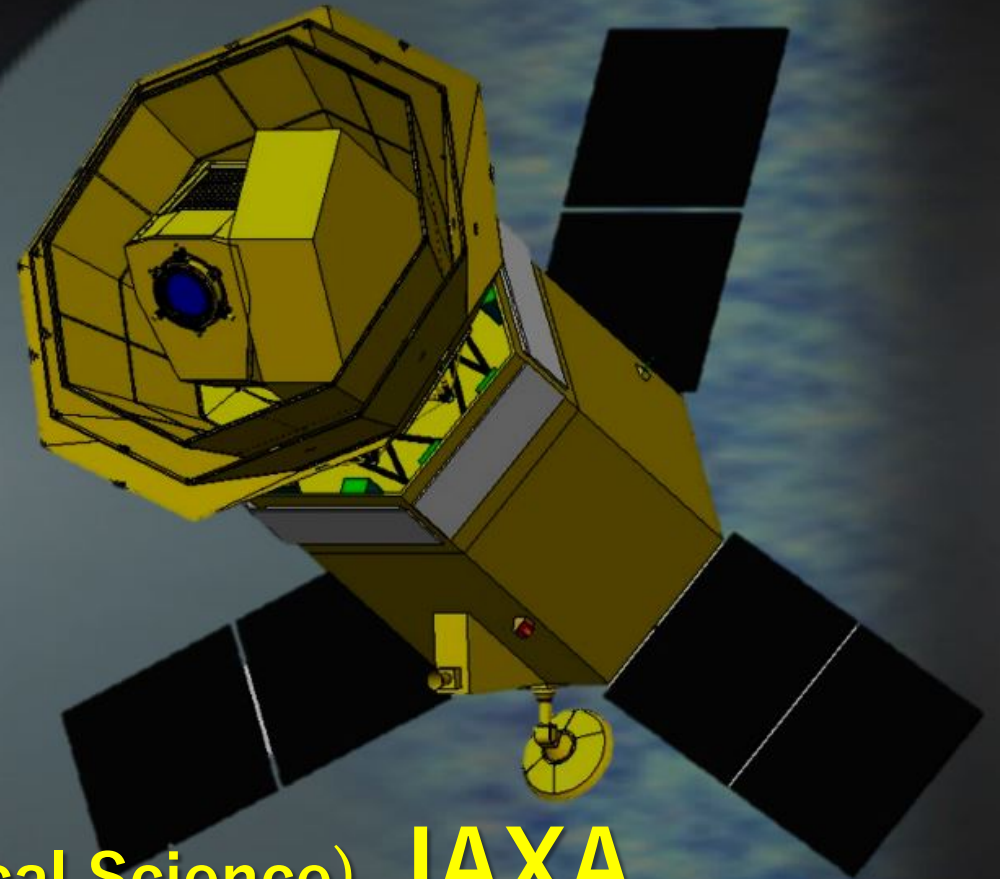


# JAXA science missions and status of LiteBIRD



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@ LiteBIRD Kick-off Symposium

# JAXA Science Mission Programs in the **Space Science and Exploration Roadmap**



## □ **Strategic Large Class**

< **¥30B** (incl. launch, ~\$300M if 1\$=100¥), HIIA (H3 after 2021) launch  
~3 missions in a decade

**Bepi-Colombo, XRISM(Project), 2020's L-1: MMX(Pre-Project),  
L-2: LiteBIRD/OKEANOS, L-3: SPICA (ESA Cosmic Vision M-5)**

## □ **Competitive Middle Class**

< **¥15B** (\$150M), Epsilon Rocket , ~5 missions in a decade

**Hisaki, Arase, 2020's M-1: SLIM(Project)  
M-2: DESTINY+ (Pre-Project, Phase A),  
M-3: JASMINE, Solar-C EUVST, HiZ-GUNDAM (Pre-Phase A, sel. in 2019)**

## □ **Small Missions of Opportunity Projects**

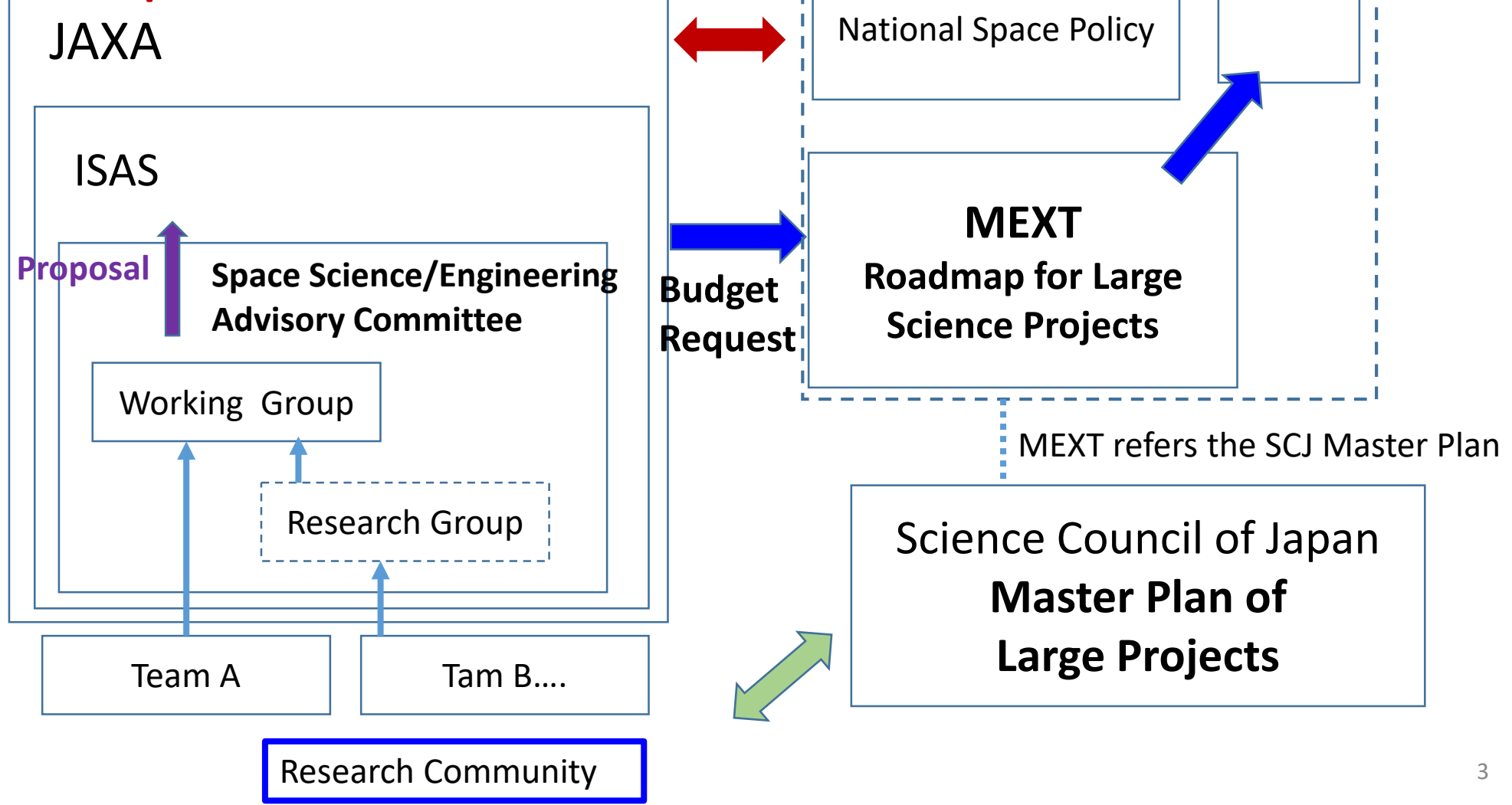
**Strategic International Collaboration Projects**

**JUICE, CAESAR, WFIRST, Athena, LISA**

Missions of Opportunity Small Projects (< ~\$2M)

# Governance of Space Science Mission

**Space Science and Exploration Roadmap**  
**The basic plan of space policy,**  
**and Implementation Plan (工程表)”**



# LiteBIRD selected for L-2



- ❑ JAXA selected LiteBIRD as a unique candidate of Strategic L-Class Mission #2
- ❑ JAXA moves forward for budget request for LiteBIRD  
FY2020: LiteBIRD Front Loading budget
- ❑ LiteBIRD foresees mission adoption, after the completion of the JAXA Pre-Project phase (Phase A).

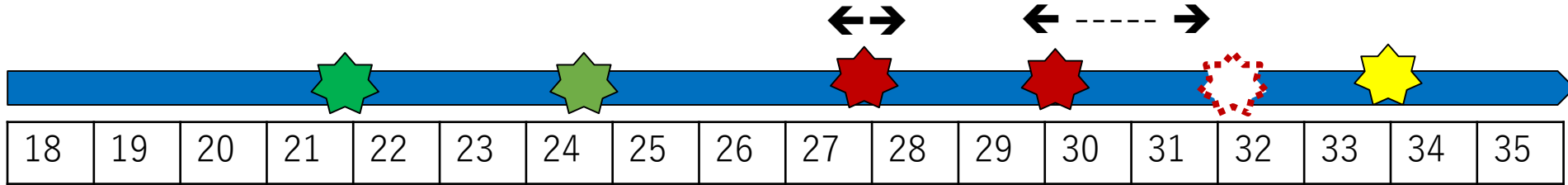
# ISAS Future Missions/Mission Candidates

	Mission/Mission Concept	JAXA Status ( <b>2019June</b> )	Target launch
<b>Strategic Large Class (L-Class)</b>			
X-ray Recovery	<b>XRISM</b> [X-ray Astrophysics]	Project Phase B	FY2021
L-1	Martian Moon eXploror ( <b>MMX</b> ) [Phobos sample return]	Pre-Project Phase A2	2024
L-2	<b>LiteBIRD</b> [CMB B-mode]	Pre-Phase A2 completed	2027-28? TBA
L-3 candidate ESA Cosmic Vision-M5	<b>SPICA</b> [Infrared Astrophysics]	Pre-Phase A2 ESA Phase A (1/3 candidates) Final selection 2021	2030? TBA
	<b>OKEANOS</b> [Solar Power Sail Trojan]	Pre-Phase A2	
<b>Competitive Middle Class (M-Class)</b>			
M-1	<b>SLIM</b> [Moon Pin-Point Landing]	Project Phase B	FY2021 XRISM dual
M-2	<b>Destiny+</b> [Phaethon Flyby]	Pre-Phase A2 completed	FY2022-23? TBA
M-3	<b>Small JASMINE</b> [NIR Astrometry]	Pre-Phase A2 completed	2025-26? TBA
M-4 candidate	<b>Solar-C_EUVST</b> [Chromosphere Solar Physics]	Pre-Phase A2	
M-4 candidate	<b>HiZ-GUNDAM</b> [GRB Astrophysics]	Pre-Phase A1b	

# Strategic L-Class Mission Candidates

To be planned

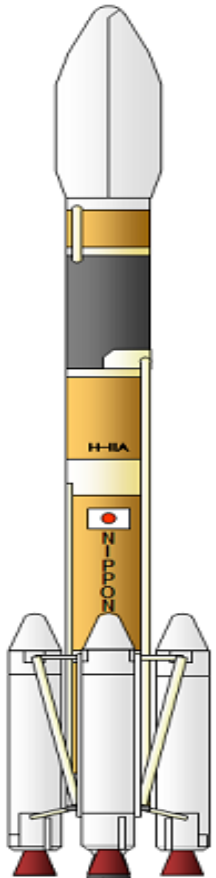
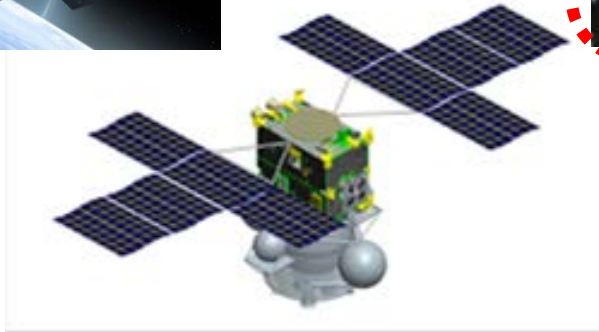
YEAR



XRISM Project



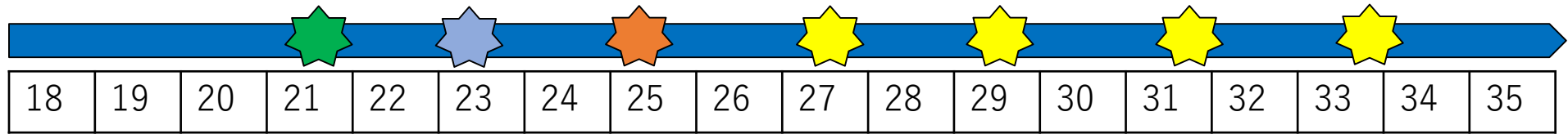
MMX  
Pre-Project



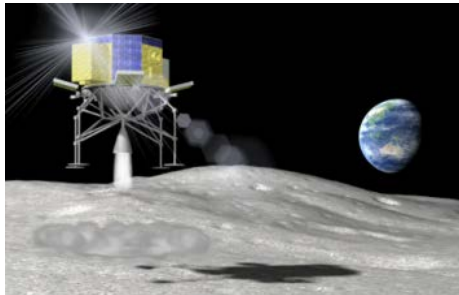
Strategic Large Missions  
(¥30B class) flagship  
science mission with  
HIIA/H3 vehicle

# Competitive M Class

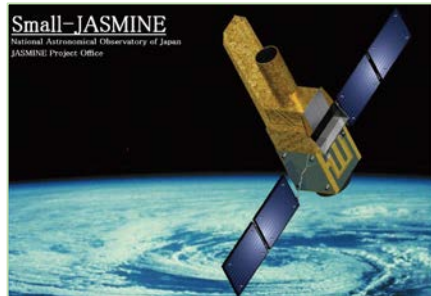
To be planned



M-1 SLIM



M-3  
Small-JASMINE



M-4 candidates  
SOLAR-C-EUVST  
HiZ-GUNDAM

M-2 DESTINY+  
Phase A



Competitively-chosen medium-sized focused missions (<¥15B class) with Epsilon rocket (every 2 years)

# LiteBIRD Way Forward



- LiteBIRD completed the exit review for the 24-months Pre-PhaseA2 Study and foresees the  $\Delta$  [Mission Definition Review] to complete the mission definition phase
- LiteBIRD “Front Loading” budget request for FY2020
- cf. FY2019 “MMX Front Loading” budget was approved
- In FY2019, ISAS proceeds risk-mitigation activities and concept study of LiteBIRD
- International Partners participation
- LiteBIRD foresees the JAXA Project Readiness Review to start Phase-A activity as a JAXA Pre Project



# LiteBIRD Way Forward

