

LiteBIRD System Overview

Tadayasu Dotani (ISAS/JAXA) and the LiteBIRD team

1. Payload module

Low-frequency telescope

Medium/High-frequency telescopes

Radiation cooling : V-groove

Mechanical Coolers

International task share

Data Processing

Focal plane detectors

Si lens let

Sinusoidal antenna

IPMU

NASA

CSA

Europe

2. Service module

Attitude Orbit Control System

Zero-momentum, 3-axis stabilized attitude

RW (Reaction wheel)

- Cancel the spin angular momentum
- Produce torque for precession

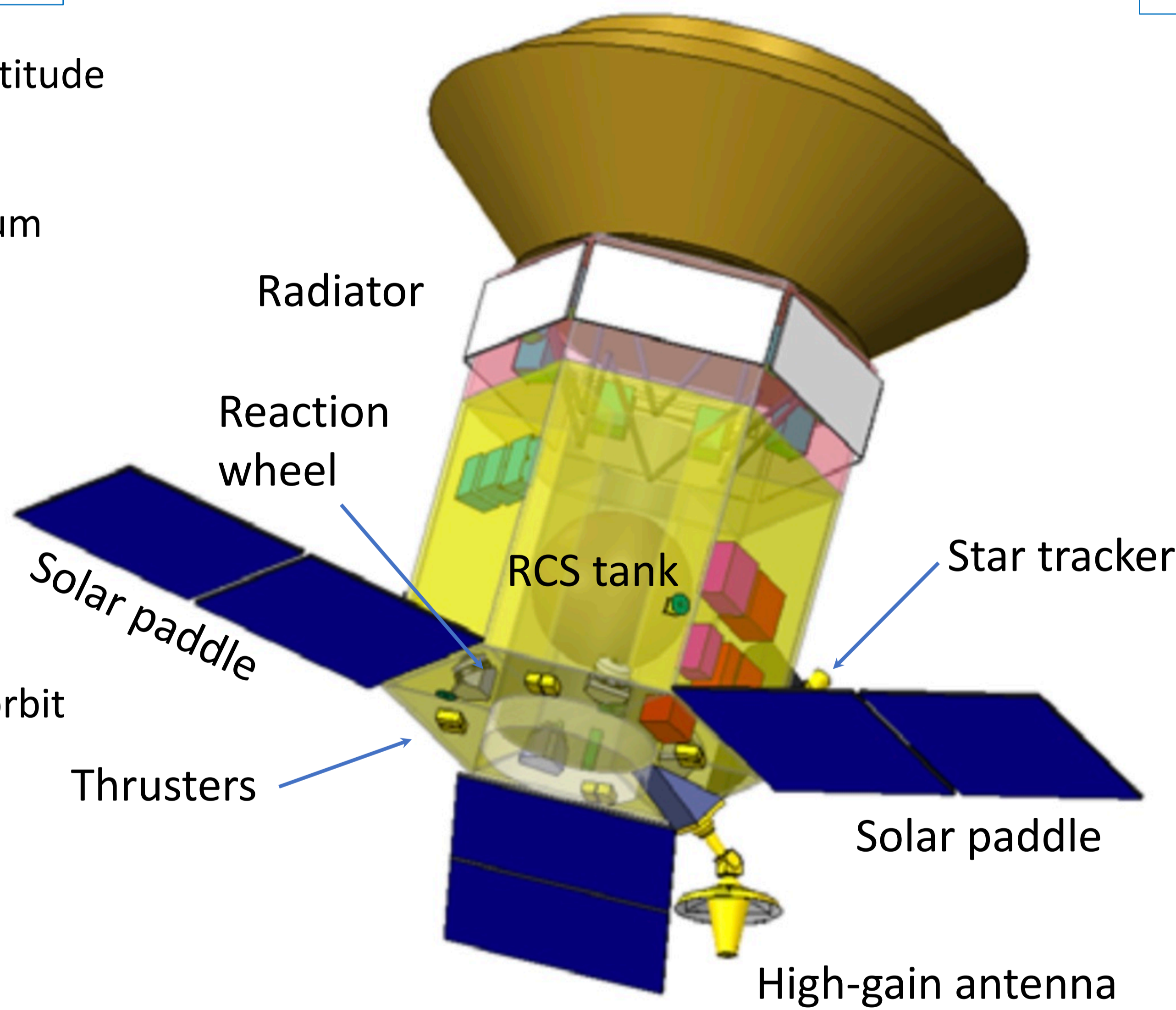
STT (Star tracker)

- High accuracy & high agility

RCS (Reaction Control System)

Mono-propellant (hydrazine)

- Insertion to L2
- Maneuver to keep the Lissajous orbit
- Unloading the RW



Communication System

X-band

- command & telemetry
- Down-link of mission data

Down-link rate

- High-gain antenna
- > 10 Mbps for the mission data

Data handling system

Network : SpaceWire

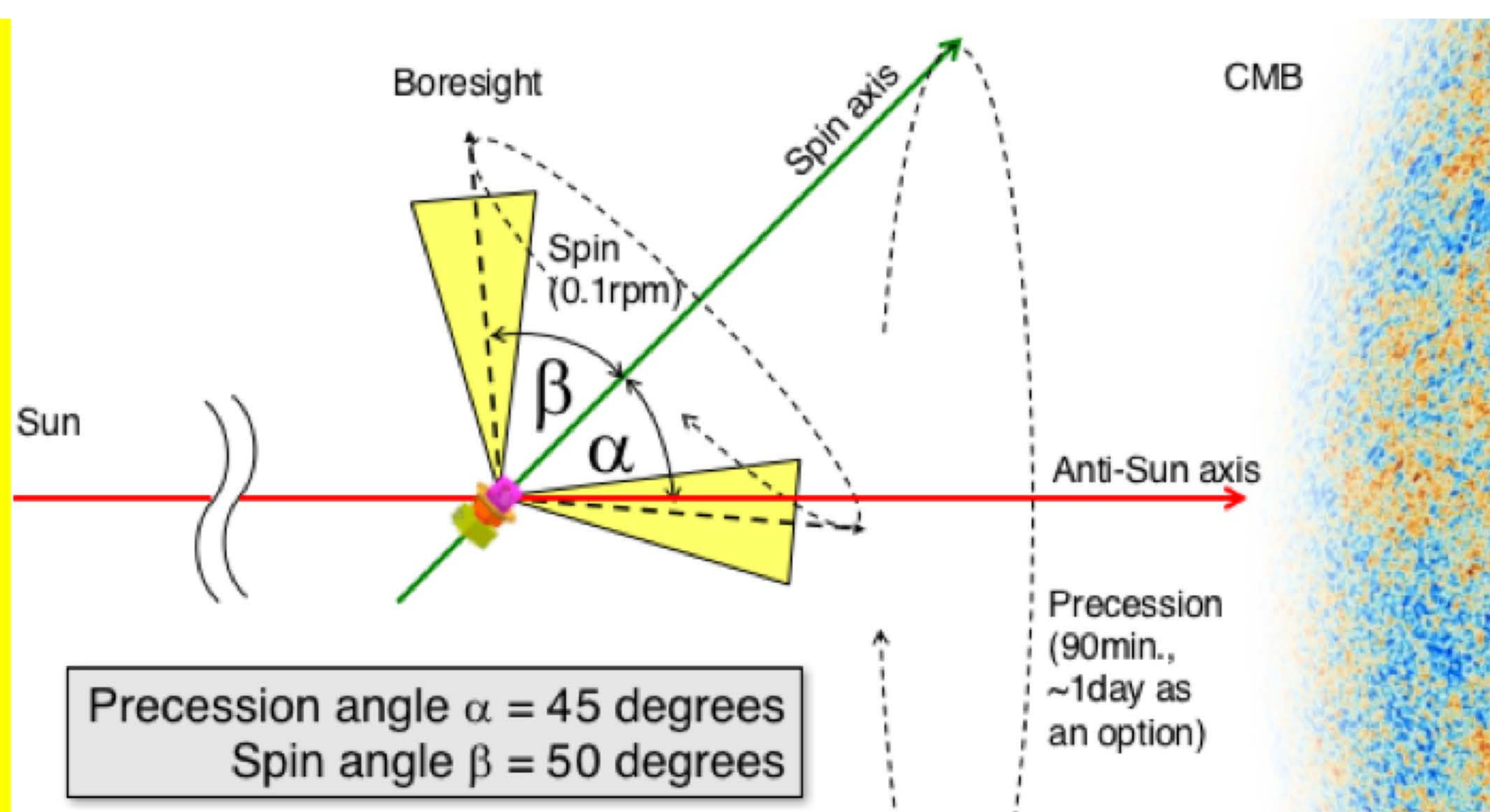
Power system

- 50V unstabilized power
- Fixed solar paddles + Li-ion battery

3. Orbit & Attitude

Orbit: Lissajous orbit at the Sun-Earth L2.

Attitude: 0.1 rpm spin combined with precession



4. Ground stations

Uchinoura and GREAT antennas will be used for telemetry/command and down-link of the mission data.



Uchinoura 34m antenna

GREAT 54m antenna (under construction)

