



# RPWI

## Radio & Plasma Wave Investigation



RPWI will convey the first detection capabilities of followings into Jupiter and its icy satellites:

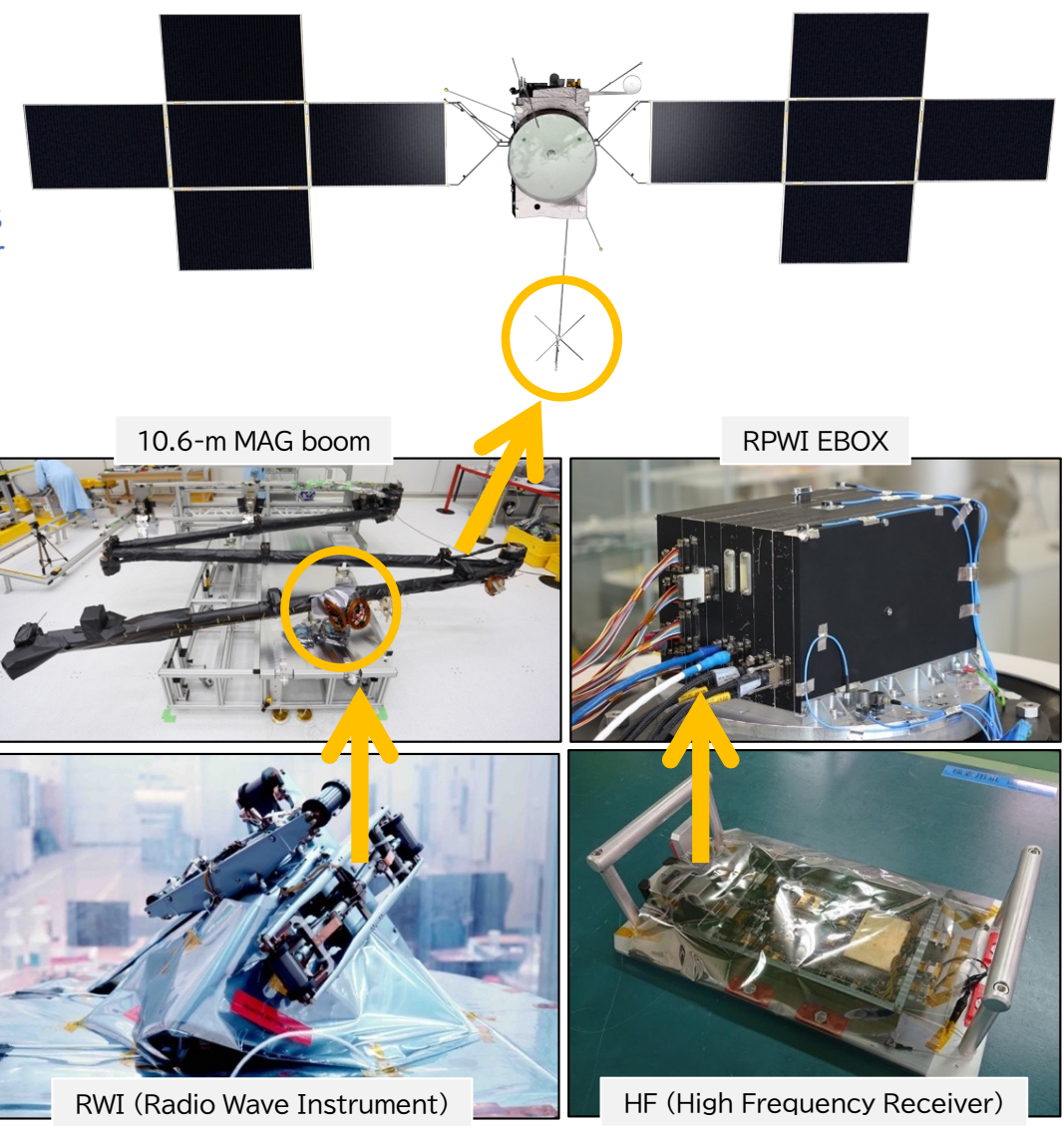
- \* Low-temperature electron/ion and electric fields
- \* Low-frequency electromagnetic waves with full components
- \* Radio wave with its direction, polarization, and passive radar
- \* Wave-particle interaction detection capability

For the understanding of the structure and motion of Jupiter's magnetosphere, its effects on ice satellites, and the ice satellites' atmosphere, ionosphere, ice crust, and subsurface ocean.

Low temperature particles	Electrons: $10^{-4} - 10^5 \text{ cm}^{-3}$ , 0.01 - 100 eV ions: $1 - 10^5 \text{ cm}^{-3}$ , 0.02 - 20 eV
Low frequency electromagnetic waves	Electric field: DC + 0.1 Hz – 20 kHz x 3 Magnetic field: 0.1 Hz – 20 kHz x 3
Radio waves with passive radar	Radio wave (E): 80 kHz – 45 MHz x 3 angular resolution $\sim 1^\circ$ @ 10MHz

Japan (Delegate: Tohoku University) provided followings under the collaboration with Sweden, France, Poland, Austria, and Czech.

- \* Radio receiver: HF + RWI
- \* Data processing for radio and passive radar [software]
- \* Wave-particle correlation detection [software]



by the heritages of the instruments aboard Kaguya (Lunar orbiter), Arase (radiation belt), and BepiColombo (Mercury orbiter)