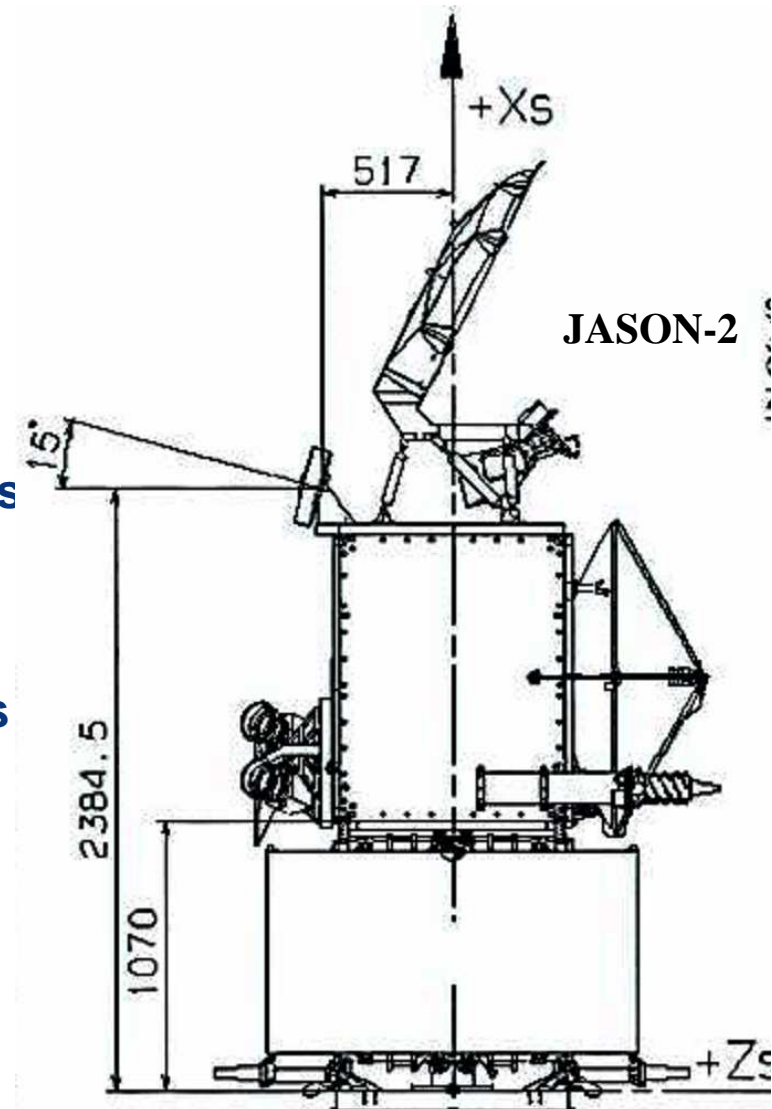# PRELIMINARY STRATEGY FOR JASON-2 POD

MANEUVER PLAN AND EARLY OPERATIONS CALENDAR

- **For a launch on June 15**
  - ◆ **Jason-2 is injected in the Jason-1 orbit plane, 10 km below**
  - ◆ **First test maneuver around June 20**
  - ◆ **Rendezvous Maneuvers on July 4 and July 7**
- **For a launch on a later day the date of the rendezvous maneuvers can be either earlier or later**

- **Doris is turned-on on launch day**
- **Earth Acquisition on L+1**
- **GPS turned-on L+2**
- **Predicts to ILRS starting on L+2**
- **Cycle 0 from 7/7 to 12/7**
- **Cycle 1 starts on July 12 (same as Jason-1 cycle 240)**
- **Is anyone interested in Doris data before cycle 0 ?**

SATELLITE MODEL

■ **Use the GDR-C standards, as for Jason-1 reprocessing**

■ **Main differences with respect to Jason-1, for POD purposes**

- ◆ **Change in inclination of GPS antennas axis**

- ◆ **Redistribution of the thermal fluxes which led to a different size of the radiators. This has two consequences**

  - A different portion of the main body surface will be affected by specular reflection of sunlight and Earth albedo
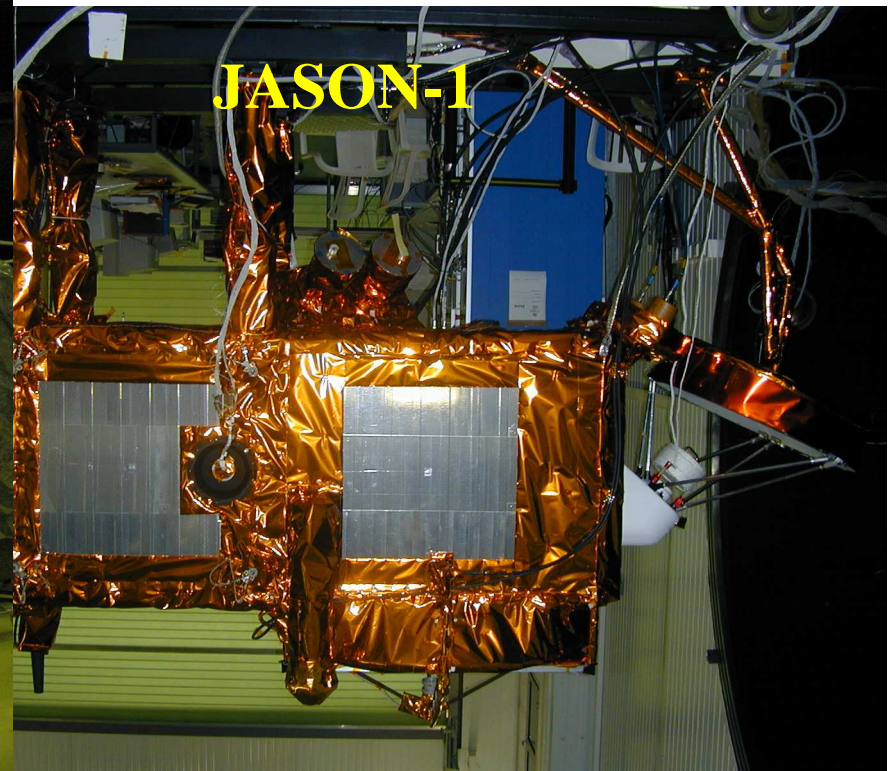 - Different values of the body-fixed forces, used to model the satellite thermal emissivity
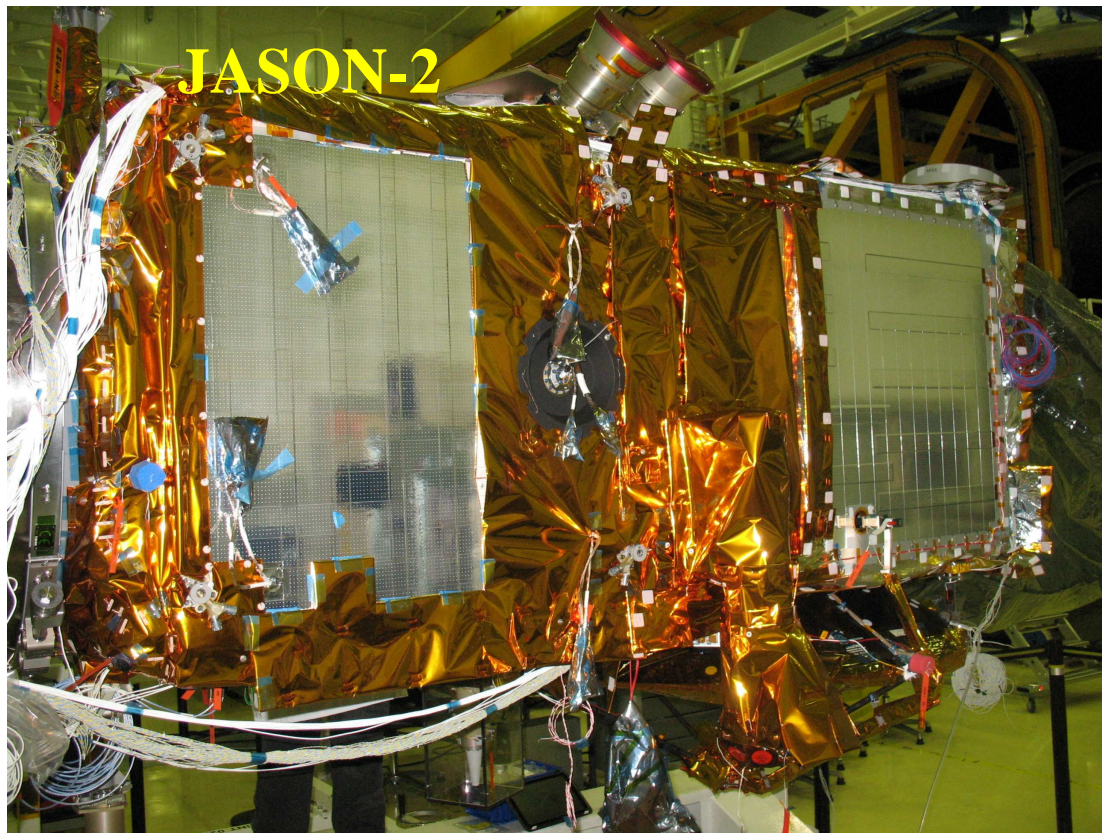

JASON-2

+Xs

517

15°

2384.5

1070

+Zs

JASON-1 AND JASON-2 EXTERNAL SURFACES

■ **Example: radiators on -Y face**
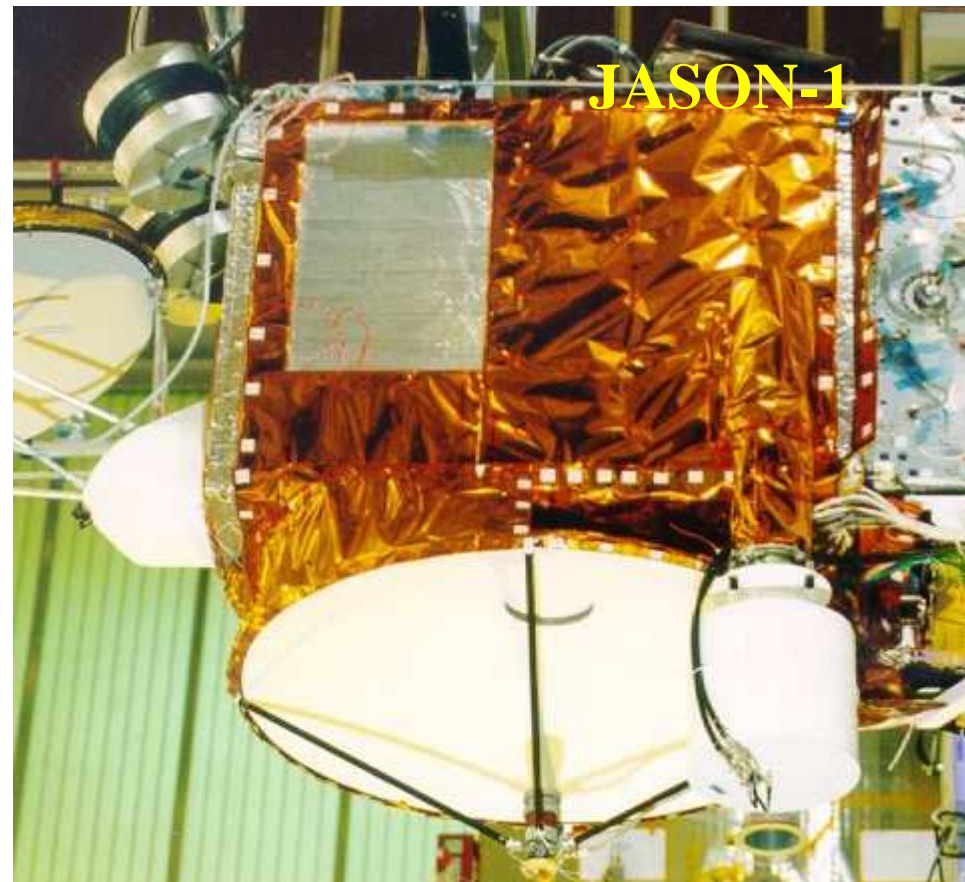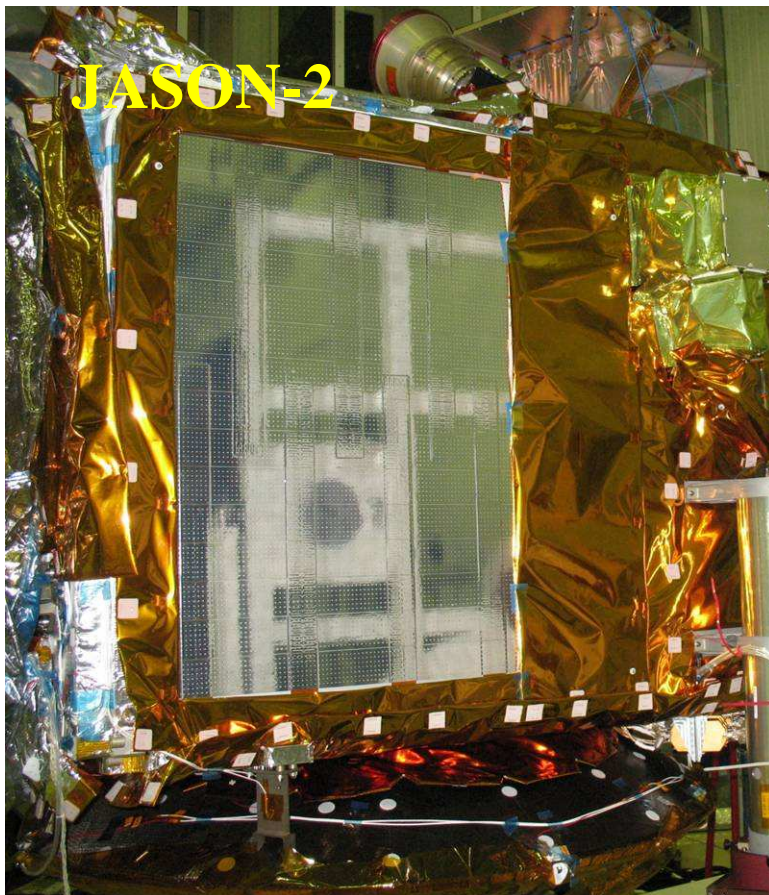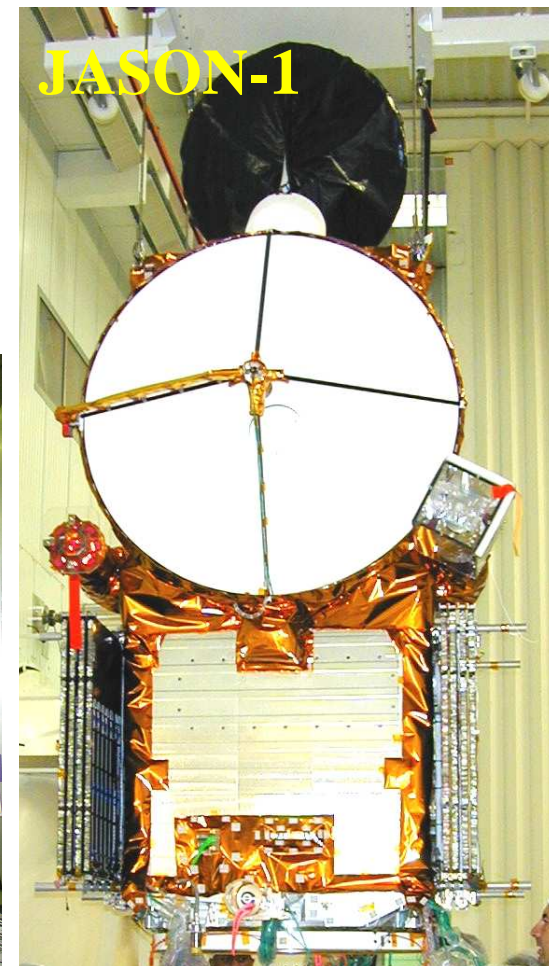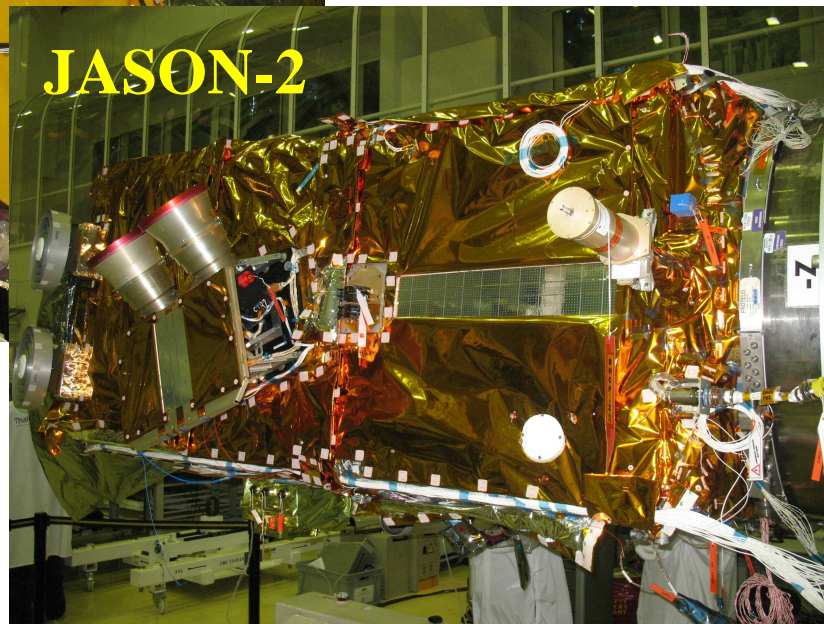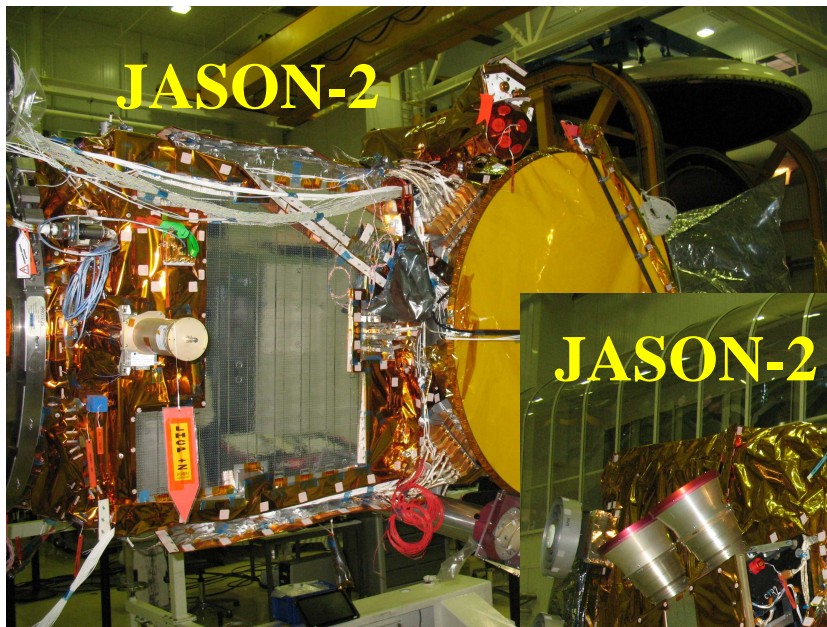

JASON-2

JASON-1

JASON-1 AND JASON-2 EXTERNAL SURFACES

■ **Example: radiators on +Y face**

JASON-1 AND JASON-2 EXTERNAL SURFACES

■ **Example: radiators on +/-Z faces**

JASON-1 AND JASON-2 EXTERNAL SURFACES

■ **Total radiator surface on each side**

	JASON-1 (m2)	JASON-2 (m2)
-Y	**0,31**	**0,66**
+Y	**0,66**	**0,90**
-Z & STA	**0,37**	**0,09**
+Z	**0,28**	**0,43**
+X	**0,15**	**-**

Area required by thermal control (close to the actual surface)

■ **Increased diameter of microwave radiometer**
  ◆ **Jason-2: 1.00 m**
  ◆ **Jason-1: 0.87 m**
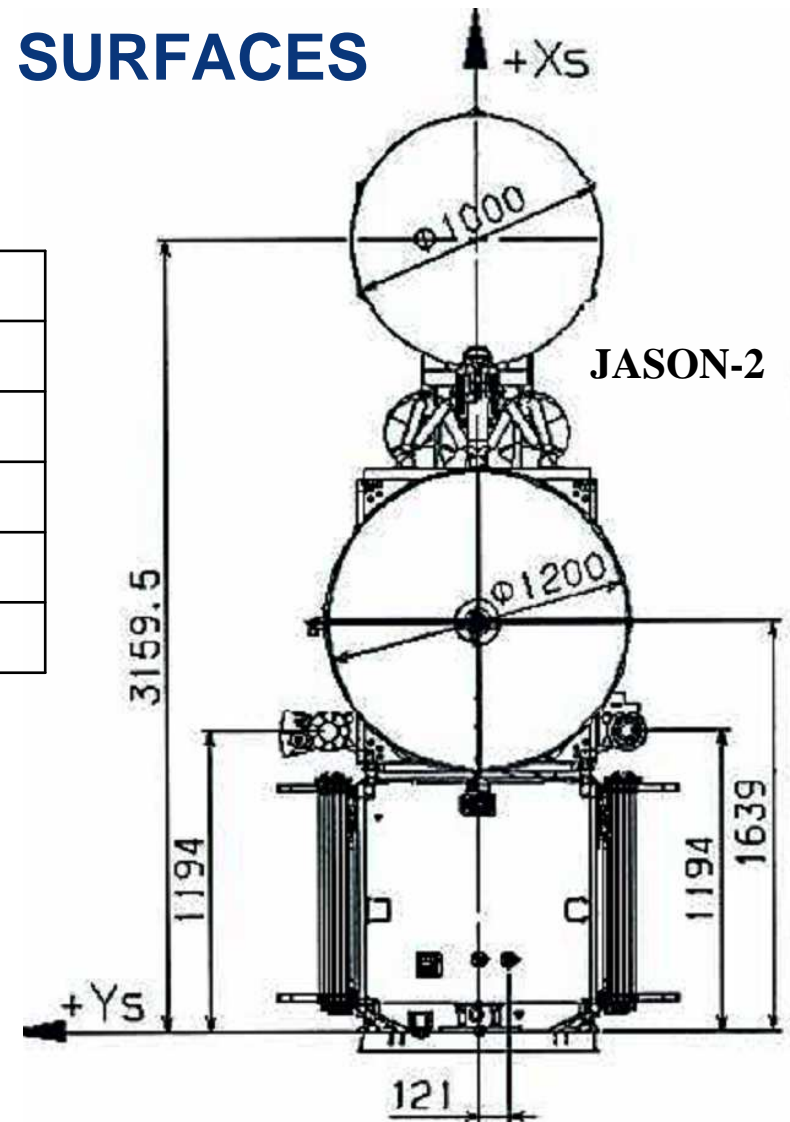
JASON-2

FLUXES

■ **Dissipated thermal fluxes are not distributed in the same way…**

	Jason-1	Jason-2
X	40 W	0 W
Y	80 W	60 W
Z	0-8 W	100 W

■ **10 W ~ 2.2×10^{-8} N**

■ **Z-force would lead to a radial bias of ~0.4 mm on Jason-2**

SATELLITE MODEL

■ **Solar panels are identical, and are the main contributors to SRP force**

■ **Initially, use the Jason-1 macromodel for Jason-2**

  ◆ **Corrected version (as used in GDR-C)**

	Jason visible							
surfaces	X+	X-	Y+	Y-	Z+	Z-	SA+	SA-
area	1.65	1.65	3.0	3.0	3.1	3.1	9.8	9.8
specular ref.	0.436 0.0938	0.434	0.357 1.188	0.321 1.2002	0.240	0.318	0.344	0.004
diffuse ref.	0.209 0.2811	0.215	0.375 -0.0113	0.400 -0.0044	0.402	0.370	0.006	0.298
absorbed ref.	-0.001 0.2078	0.005	0.271 -0.0113	0.308 -0.0044	0.330	0.267	0.647	0.697

Scale	1.00 0.97

■ **Analyze estimated empirical forces**

  ◆ **particular attention will be paid to the fixed yaw attitude regime, when -Y side is illuminated and errors in the body fixed X force are observable thanks to the yaw flip**