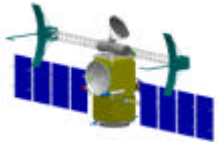
JASON2 / OSTM Project Overview :

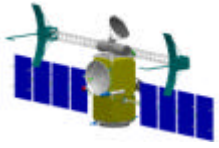
CNES STATUS

J. Perbos



Main evolutions from Jason-1 to Jason-2/OSTM (1)

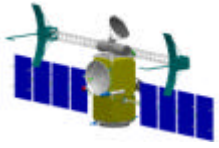
- **At programmatic level**
  - 4 agencies cooperation program : NASA/CNES/NOAA/EUMETSAT
- **At system level**
  - Revised sharing of responsibility
    - Routine satellite operations under NOAA responsibility
    - EUMETSAT/NOAA responsibility in routine OSDR processing and distribution
- **At satellite bus level**
  - PROTEUS platform evolutions
    - PROTEUS flight domain increased after Jason1 to support future missions (CALIPSO, COROT, SMOS)
      - larger masses and inertia
      - antennas deployment in Safe-Hold mode
      - equipment change or improvements (Star Tracker, MTB,…)
    - WSOA experiment will benefit from these improvements



Main evolutions from Jason-1 to Jason-2/OSTM (2)

CNES Payload :

- **Altimeter**
  - Evolutions :
    - Components obsolescence : Change of µprocessor (DSP 21020)
    - Heritage from SIRAL (CRYOSAT instrument)
  - New functional mode using DORIS on board navigation :
    - measurement location and height above the reference geoid provided in real time to the altimeter by Doris ; directly used by the altimeter to position the signal reception window and get the radar echo
      - ➪ signal acquisition phase and on-board tracking loop suppressed
    - measurements over any desired target (ocean, coastal zones, inland waters, ice,…)
    - no more data loss due to acquisition phase
    - optional mode : experimental on-board Jason-2



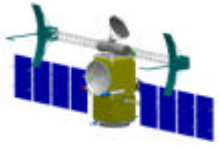
Main evolutions from Jason-1 to Jason-2/OSTM (3)

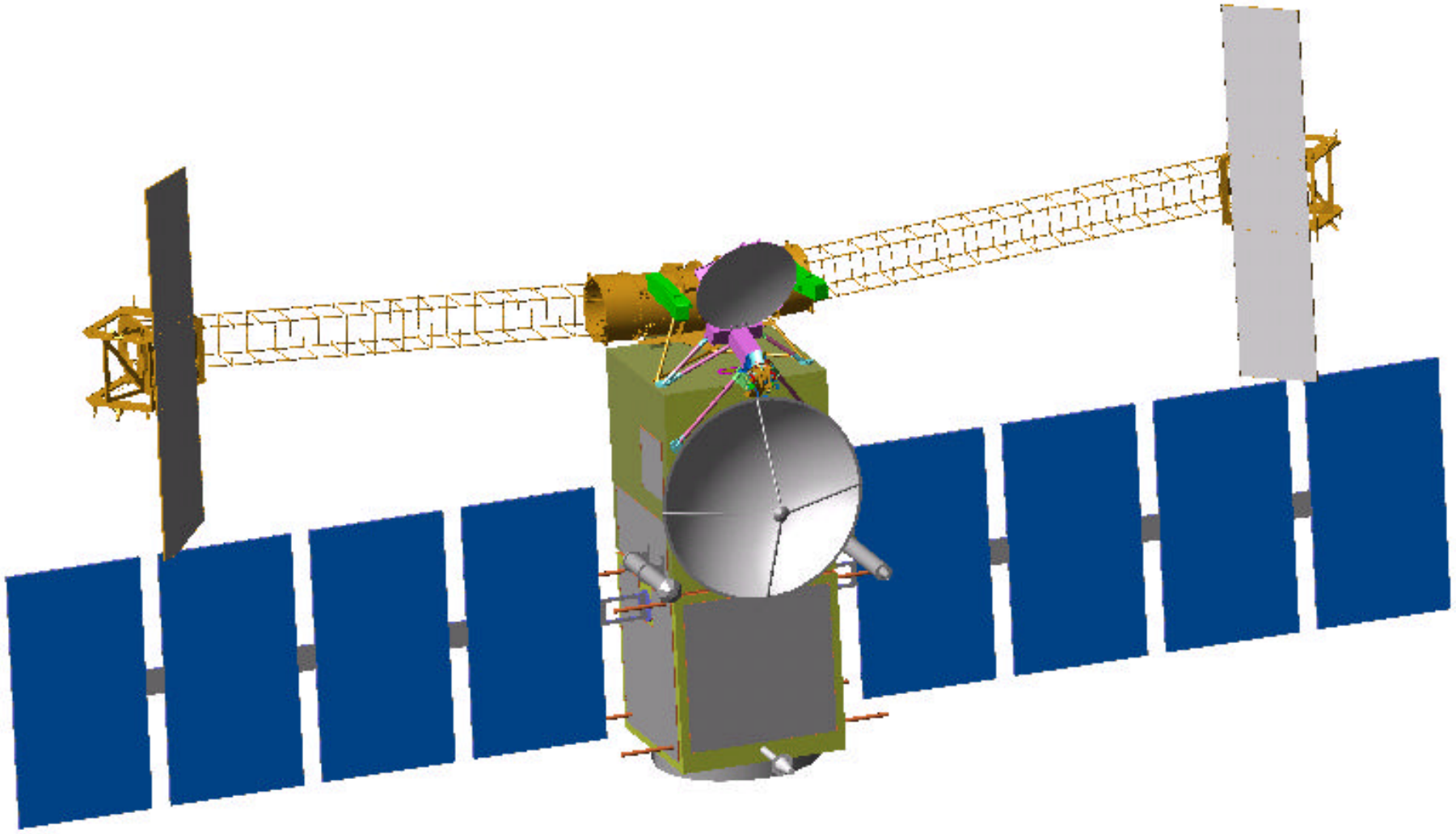
CNES Payload :

- **Doris**
  - Derived from Doris/CRYOSAT
    - Change of µprocessor (SPARC ERC 23 single chip)
  - Several improvements :
    - one fully redunded electronic box
    - 8 bi-frequency channels receiver
    - software can be fully reloaded without any mission interruption
    - platform attitude provided in real time to Doris and used by Diode (on-board Doris navigator) ; also downloaded by Doris in the science telemetry flow
    - plan to include a dosimeter in the electronic box, to measure the total radiation dose received by Doris

NASA Payload : see Said Kaki presentation

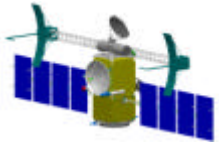
- **AMR, GPSP, LRA, WSOA**





Jason2 / OSTM Status (1)

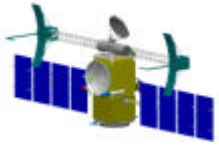
- Platform under procurement, funded through Proteus multi satellite contract with Alcatel Space
- Doris Phase B development started beginning of November 2003
- Satellite and Altimeter development contract under negotiation with Alcatel Space
- CNES Jason2 Program Proposal in preparation
  - will be presented at CNES Board of Governors after completion of the satellite and altimeter contract negotiation (objective : beginning of 2004)
- Tentative launch date : first semester of 2008



Jason2 / OSTM Status (2)

Satellite

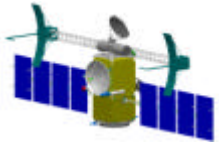
- WSOA accommodation on the satellite:
  - First accommodation study performed in 2002 with mass/inertia characteristics leading to satellite budgets out of the Proteus capability.
  - Since beginning of 2003 : iterations on the WSOA configuration, antennas locations, etc… in order to improve the mass/inertia/center of gravity criteria
  - Mechanical study ongoing to assess the WSOA/satellite compatibility
    - Mass, inertia : OK
    - CoG still out of Proteus specification, but not critical
    - Quasi-static loads analysis : first results OK, to be analyzed in detail
  - Detailed impact of the solar panels shadowing by the WSOA antennas and mast under evaluation
    - No critical impact on power budget resources identified



Jason2 / OSTM Status (3)

Products

- Jason1 products
  - OSDR : content = 2 hour data span, delay = 3 hours
  - IGDR : content = 1 day data span, delay = 3 working days, SSH accuracy = 4 cm rss (requirement = 5.2 cm, including 4 cm for the orbit)
  - GDR : content = 10 day data span, delay ~ 1 month, SSH accuracy = 3.3 cm rss (requirement = 4.2 cm, including 2.5 cm for the orbit)
- Jason2/OSTM Products baseline
  - at least same performance as for Jason1 for all the elements of the error budget (to be confirmed for the orbit performance)
- New objectives:
  - on going survey for near real time products needs (users = JPL, NAVY, Met Office, SWT..)
    - content, orbit performance, delay
  - continental waters : product to be defined (IGDR + waveforms)
  - experimental products :
    - WSOA products
    - coastal zones products
    - DUACS : multi mission products including Jason2 (will be used for WSOA validation)



Jason1 status

- Jason1 entered in safehold mode on Wednesday morning, Nov 19
- Caused by abnormal behaviour of a reaction wheel which stopped
- Satellite expert analysis showed no other abnormal telemetry
- A test was run yesterday to check this reaction wheel : Result OK
- First part of recovery procedure has been performed
- Return to nominal operation planned beginning of next week
- No satellite lifetime impact expected