JASON-1 SYSTEM PERFORMANCES

Data Availability

- Data availability since last SWT (21 October 2002) :   **OK**

  - *Requirement = 95% of all possible over-ocean data*

  - Payload telemetry data losses due to :
    - bus   0.00%
    - altimeter   0.13%   (2 incidents)
    - Doris   0.38 %   (software upload)
    - JMR   0.00%

  $\Rightarrow$ Satellite (total) :   **~ 0.51 %**

    - ground system: **~ 0.05%**   (data loss at earth terminal level)

  $\Rightarrow$ **Total Availability ~ 99.4% since last SWT**, same availability from beginning of mission Cycle 1, 15 Jan 2002

OSDRs Latency

- Operational Science Data Record data latency :
  - *Requirement =* **75%** *of OSDR data* **within 3 hours**

    95% *of OSDR data* **within 5 hours**
  - *OSDR generated only by JSDS*
  - *Performance (measured at user delivery level) :*

    ~ 85-95% of data within 3 hours for a 2 hour telemetry flow : **OK**

    between 90%-100% within 5 hours : ~ **OK**

Data Time-Tagging

- Altimeter Measurements time-tagging

  – altimeter measurements are time-tagged on-board with platform UTC time information

  – during ground processing, use of Doris-TAI/ Platform-UTC correspondence provided by Doris, to time-tag altimeter data with DORIS TAI time

  – *Requirement = **100 m** for OSDR , **10 m** for IGDR*

  – **Performance :**

  ~ 2 m   (bias + drift)   **OK**

Altimeter Antenna Pointing

- Attitude maneuvers performed in order to calibrate the biases between Altimeter antenna and nadir direction Bias values have then been introduced in the guidance commands in order to tilt slightly the satellite pointing direction and compensate for the identified biases.

- Very good pointing performance :

  Typical pointing value below 0.05° *(requirement < 0.2 °)*   **OK**

  - Except for the STR out of the AOCS loop for long periods : a few attitude drifts up to ~ 0.25° in Dec 2002-Jan 2003, corrected by S/W patch.
    Very Low Mission impact :
  - correction of attitude effects applied on the altimeter geophysical parameters in GDRs released to Users
 - corrections are valid for mispointing up to 0.3°

Equatorial Nodal Crossing

- – *requirement = +- 1 km from reference nodes (yellow zone)*
- – performance is **OK**
- – curves are for Ascending and Descending nodes
- – blue squares are maneuvers

Date (dd/mm/yyyy)   Distance from Reference Node (m)   Cycle Number
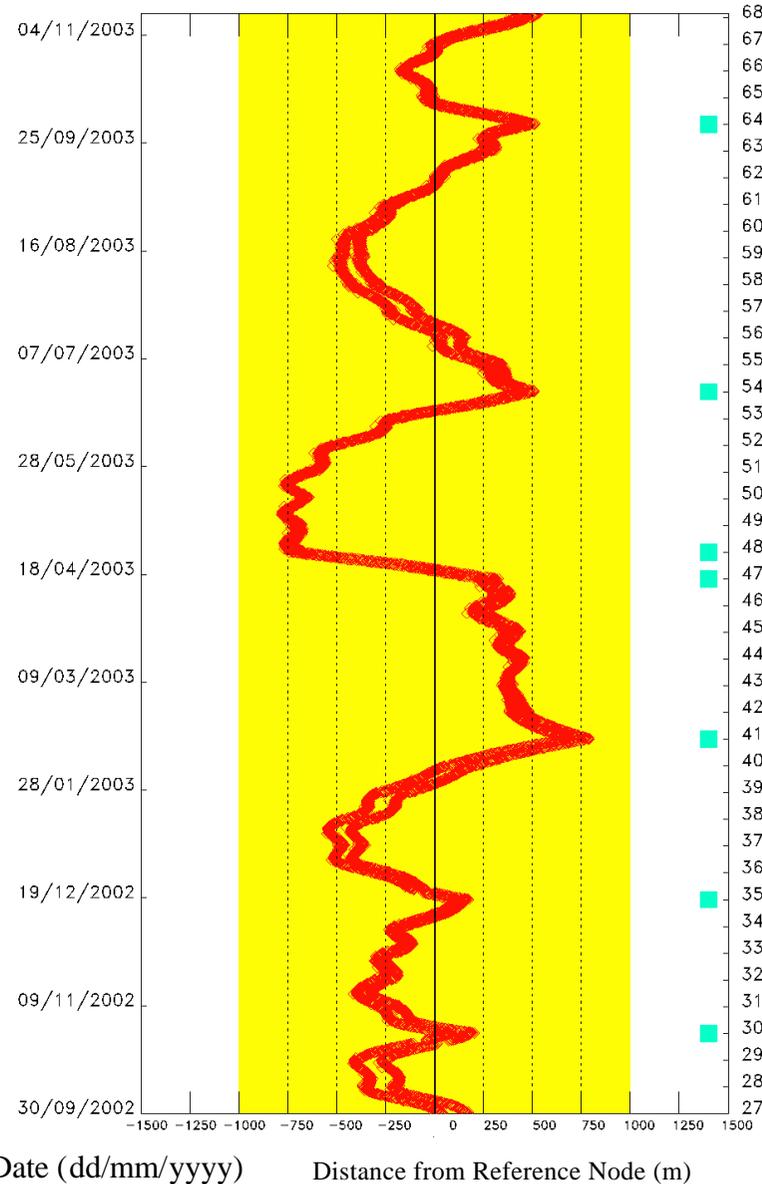
Particular Events

- Particle hit occured at March 16 2002 19h40 '41''
    - Detected on POD (Thanks to Nikita Zelensky)
    - Confirmed on attitude and attitude rates
    - Delta_V estimated, 0.14, 0.137, 0.23 mm/s in SL axes
    - Corrected in final POE Orbit

Rate disturbance
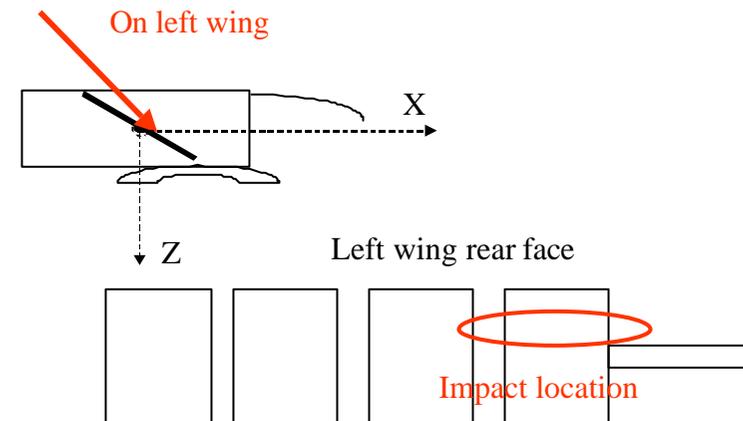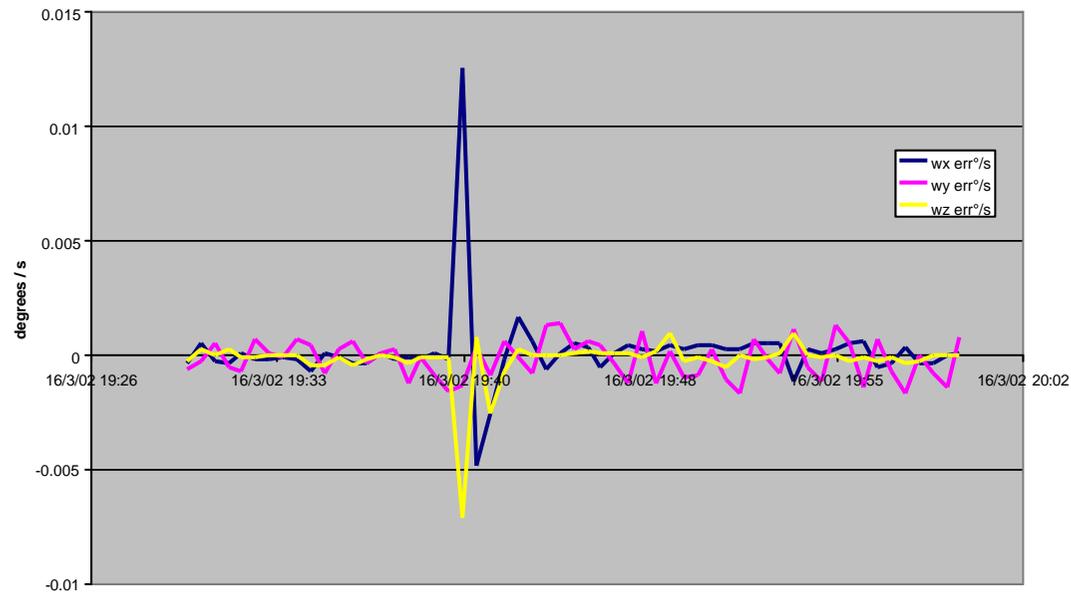
Jason-1 Products Performances

	OSDR		IGDR		GDR	
	Spec	Perfo	*Spec*	Perfo	*Spec*	Perfo
Altimeter noise (cm)	*2.5*	**1.8**	*1.7*	**1.6**	*1.7*	**1.6**
SSB (cm)	*NA*	**NA**	*1.2% H1/3*	**1% H1/3**	*1.2% H1/3*	**1% H1/3**
Dry troposphere (cm)	*NA*	**NA**	*0.7*	**0.7**	*0.7*	**0.7**
Wet troposphère (cm)	*1.2*	**1.2**	*1.2*	**1.2**	*1.2*	**1.2**
Orbit (radial component) (cm)	*30*	**20**	*4*	**2.5**	*2.5*	**1.5 ***
Wave height (m)	*0.5 or 10%*	**0.5 *, ****	*max of 0.5 or 10%*	**0.4 or 10% ***	*max of 0.5 or 10%*	**0.4 or 10% ***
Wind speed (m/s)	*2*	**1.6 *, ****	*1.7*	**1.5 ***	*1.7*	**1.5 ***

Notes :

* : after bias calibration

** : after abnormal data filtering

*** : from DORIS and Laser Data, POE with also TRSR data is being evaluated