

The JASON-1 Satellite, first application of the PROTEUS family of small, low-cost space platforms.

by:

C. TARRIEU, T. LAFON, B. LAZARD

Centre National d'Etudes Spatiales (CNES)-Toulouse-FRANCE

P. BERTHEUX, F. DOUILLET

-Aerospatiale Cannes-

Abstract. This paper presents the design status of the JASON-1 satellite, successor of the TOPEX-Poseidon Ocean Altimetry satellite, due for launch in late 1999. This program is performed under CNES-NASA cooperation. The JASON satellite will ensure a continuous observation of the oceans to improve our knowledge of global ocean circulation. The JASON-1 satellite will be the first to use the new family of small, low-cost space platforms called PROTEUS.

The PROTEUS program has been given an high priority by the French Space Agency. It is the first program to be led in close partnership between the Industry (Aerospatiale) and CNES. It aims at providing access to space at a very attractive cost, and can support a wide variety of applications. There are already serious missions candidates like COROT (star observation), SPOT follow-on.

The JASON satellite is a combination of flight proven and innovative technologies. It will provide at least the same performances as TOPEX, but at 1/5th of the mass and power! This is the result of the extensive use of miniaturization and electronics integration and packaging. In order to develop the satellite at an affordable cost, efforts on organization, engineering, procurement are deemed necessary. Reduction in launch cost is achieved by using the Delta 2 launcher in a dual launch configuration.

JASON-1 main characteristics:

- Satellite mass: 500 kgs
- Satellite power: 700 W
- Data rate: 700 kbits/s
- GPS/Gyro-stellar based attitude control ($<0.05^\circ$)
- 5 years lifetime

The paper will present the detailed characteristics of the satellite, the driving methodologies to achieve overall cost reductions and a summary of the performances of the JASON satellite with respect to TOPEX.