

SARAL ILRS SLR MISSION SUPPORT REQUEST FORM (January 2010)

SECTION I: MISSION INFORMATION:

General Information:

Satellite Name: SARAL

Satellite Host Organization: CNES and ISRO

Web Address:

Contact Information:

Primary Technical Contact Information:

Name: Cedric TOURAIN

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E-mail Address: cedric.tourain@cnes.fr

Alternate Technical Contact Information:

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E-mail Address: luca.cerri@cnes.fr

Primary Science Contact Information:

Name: Pierre EXERTIER

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Mission Specifics:

Scientific or Engineering Objectives of Mission:

The SARAL mission results from the common interest of both CNES and ISRO in studying ocean from space using altimetry system and in promoting maximum use of the ARGOS Data Collecting System.

SARAL/AltiKa mission belongs to the global altimetry system and then participates to the precise and accurate observations of ocean circulation and sea surface elevation for its life time.

The aim of AltiKa part of the SARAL mission is to provide altimetric measurements designed to study ocean circulation and sea surface elevation in continuity of the ENVISAT mission and with the same accuracy, and complementary to Jason-2 mission.

SARAL/AltiKa main scientific objective is to provide data products to oceanographic research user community in studies leading to improve our knowledge of the ocean meso-scale variability, thanks to the improvement in spatial and vertical resolution brought by SARAL/AltiKa.

As a DORIS instrument is embarked on-board the SARAL satellite for the POD the SARAL mission contributes to the system reference frame determination by providing DORIS measurements to the IDS/ITRF community.

Satellite Laser Ranging (SLR) Role of Mission:

Precision orbit determination is a fundamental requirement for achieving the goals of the SARAL/AltiKa mission. The SLR data play an important role in two ways (1) providing strong tracking information to complement DORIS, and (2) providing a unique and unambiguous verification of the absolute radial orbit accuracy.

Anticipated Launch Date: end 2010

Expected Mission Duration: 5 years

Orbital Accuracy Required: 3cm RMS on the radial component

Anticipated Orbital Parameters:

Altitude: 814Kms

Inclination: 98.55°

Eccentricity: 1.165 10⁻³

Orbital Period: 100.59 mn

Frequency of Orbital Maneuvers 19 to 24 days:

Mission Timeline: 5 years

Tracking Requirements:

Tracking Schedule: 24 hours, 7 days a week

Spatial Coverage: global

Temporal Coverage: as dense as possible

Operations Requirements:

Prediction Center: CNES

Prediction Technical Contact Information:

Name: Cédric TOURAIN

Address: CNES, BPi 2002, 18 av. Edouard Belin
31401 Toulouse Cedex 9, FRANCE

Phone No.: 33 – (0)5 61 27 34 54

Fax No.: 33 – (0)5 61 28 25 95

E-mail Address: cedric.tourain@cnes.fr

Priority of SLR for POD: high priority (essential for best POD; critical for orbit accuracy verification)

Other Sources of POD (GPS, Doppler, etc.): DORIS

Normal Point Time Span (sec): 15 seconds

Tracking Network Required (Full/NASA/EUROLAS/WPLTN/Mission Specific): Full

SECTION II: TRACKING RESTRICTIONS:

Can detector(s) or other equipment on the spacecraft be damaged or confused by excessive irradiation, particularly in any one of these wavelengths (532nm, 1064nm, 846nm, or 423nm)?

No.

Are there times when the LRAs will not be accessible from the ground?

No (in nominal activity)

Is there a need for an altitude tracking restriction?

No. What altitude (degrees)? N/A

Is there a need for a go/no-go tracking restriction?

No. For what reason(s)? N/A

Is there a need for a pass segmentation restriction?

No. For what reason(s)? N/A

Is there a need for a laser power restriction? No

Under what circumstances? N/A

What power level (mW/cm²)? N/A

Is manual control of transmit power acceptable? Yes

For ILRS stations to range to satellites with restrictions, the mission sponsor must agree to the following statement:

“The mission sponsor agrees not to make any claims against the station or station contractors or subcontractors, or their respective employees for any damage arising from these ranging activities, whether such damage is caused by negligence or otherwise, except in the case of willful misconduct.”

Please initial here to express agreement: C.T.



Other comments on tracking restrictions: N/A

SECTION III: RETROREFLECTOR ARRAY INFORMATION:

A prerequisite for accurate reduction of laser range observations is a complete set of pre-launch parameters that define the characteristics and location of the LRA on the satellite. The set of parameters should include a general description of the array, including references to any ground-tests that may have been carried out, array manufacturer and whether the array type has been used in previous satellite missions. So the following information is requested:

Retroreflector Primary Contact Information:

Name: Vincent COSTES

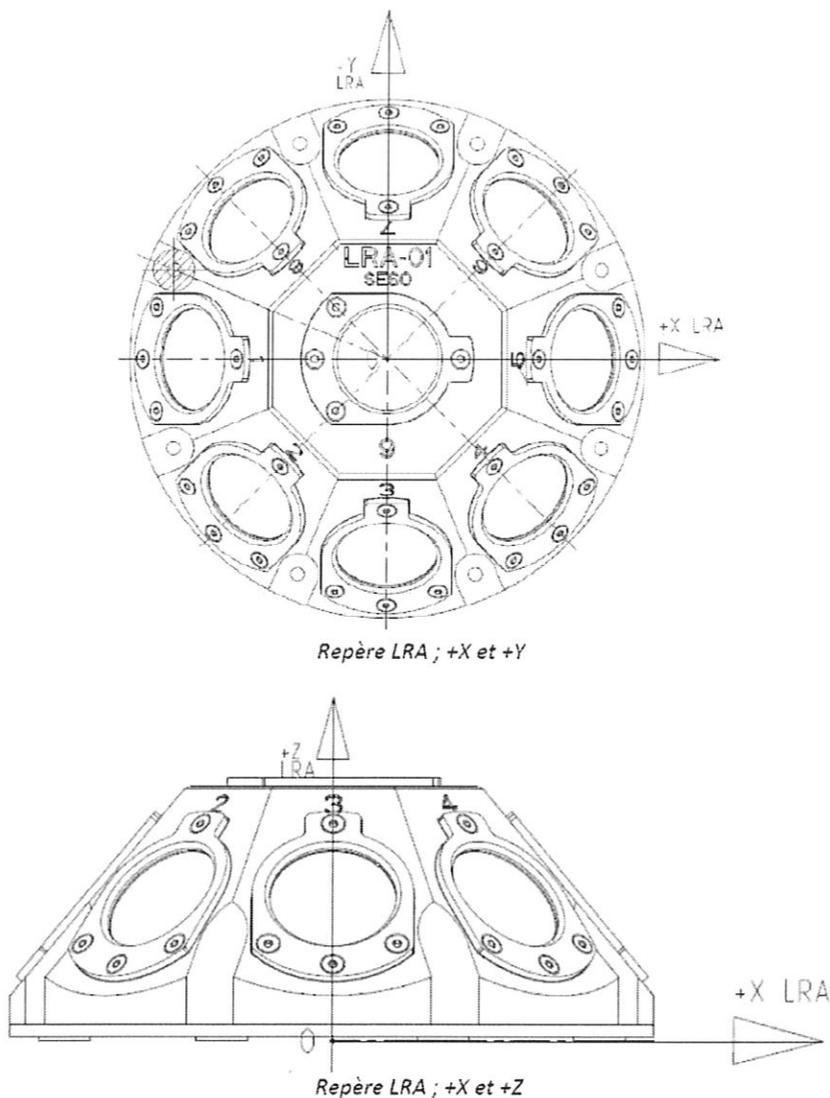
Address: CNES, BPi 2002, 18 av. Edouard Belin
31401 Toulouse Cedex 9, FRANCE

Phone No.: 33 – (0)5 61 28 23 72

Fax No.: 33 – (0)5 61 28 26 92

E-mail Address: vincent.costes@cnes.fr

Array type (spherical, hexagonal, planar, etc.), to include a diagram or photograph:



Array manufacturer:

SESO

Pole d'activités d'AIX-LES-MILLES

305, rue Louis Armand

BP 55000

13792 – AIX-EN-PROVENCE CEDEX3

FRANCE

The LRA design and/or type of cubes was previously used on the following missions: None

The 3-D location (possibly time-dependent) of the satellite's mass center relative to a satellite-based origin:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The 3-D location of the phase center of the LRA relative to a satellite-based origin:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The position and orientation of the LRA reference point (LRA mass-center or marker on LRA assembly) relative to a satellite-based origin:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The position (XYZ) of either the vertex or the center of the front face of each corner cube within the LRA assembly, with respect to the LRA reference point and including information of amount of recession of front faces of cubes:

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The orientation of each cube within the LRA assembly (three angles for each cube):

This information is not available with the appropriate accuracy yet. It will be provided at the satellite launch.

The shape and size of each corner cube, especially the height:

A LRA correction map will be provided at the satellite launch.

RETROREFLECTOR ARRAY REFERENCES

SECTION IV: MISSION CONCURRENCE

As an authorized representative of the SARAL mission, I hereby request and authorize the ILRS to track the satellite described in this document.

Name (print): Jocelyne NOUBEL _____ Date 2010/01/15 _____

Signature:



Position: CNES SARAL System Manager _____

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