Centre National d'Etudes Spatiales

European Organization for the Exploitation of Meteorological Satellites

30 April 2020

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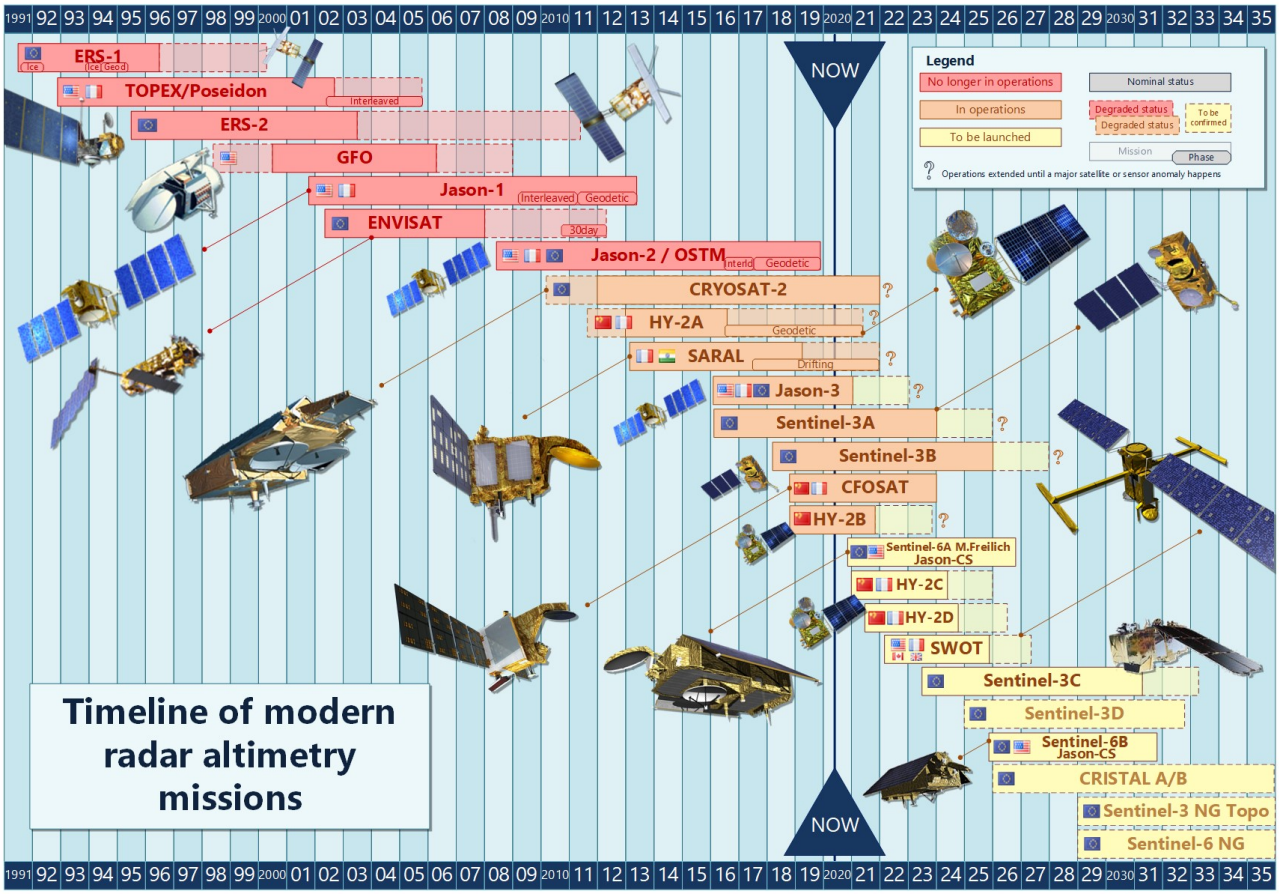
RESEARCH ANNOUNCEMENT

OCEAN SURFACE TOPOGRAPHY SCIENCE TEAM (OSTST)

Notices of Intent due, September 10th 2020
Proposals Due Thursday, October 1st 2020

1. Research announcement

This document is a Joint CNES/EUMETSAT Research Announcement to solicit for research proposals in the framework of the TOPEX/Poseidon and Jason series of altimetry mission and other altimeter missions listed as taking part in the ocean surface topography virtual constellation.



This research announcement of opportunity calls for European proposals for OSTST participation but also proposals originating from non-European entities (excepted US entities, see below) will be considered. Specific conditions apply for French proposals.

A similar and aligned research announcement has been released by NASA and NOAA, soliciting US proposals in the frame of ROSES-2020 omnibus NASA Research Announcement. The specific NASA ROSES-20 call Id is: NNH20ZDA001N-OSTST (see https://nspires.nasaprs.com/external/index.do).

The combined purpose of these research announcements is to re-establish the NOAA/NASA/CNES/EUMETSAT/ESA Ocean Surface Topography Science Team (OSTST) for the period of 1st January 2021 until 31st December 2024. The re-established OSTST will function as an independent scientific advisory entity for any international altimetry mission in flight or in development.

The re-established membership of OSTST will be communicated by the agencies in December 2020.

2. Context

The joint NOAA/NASA/EUMETSAT/CNES/ESA Ocean Surface Topography Science Team (OSTST) has been set up in the framework of the Jason series of altimetry missions to support scientific research and investigations and to provide advice to the corresponding individual missions. The currently established team, was based on a Joint CNES-EUMETSAT Research Announcement (document reference CNES - DIA/TEC-2016.8595) which was issued on May 1st, 2016 and allowed to select and install the team until January 1st, 2021.

This announcement of opportunity calls for European and non-European (excepted American) proposals for OSTST participation.

Furthermore, research projects in response to this joint research announcement will also contribute to EUMETSAT strategic objectives. The primary objective of EUMETSAT is to establish, maintain and exploit European systems of operational meteorological satellites. A further objective of EUMETSAT is to contribute to the operational monitoring of the climate and of the ocean. This should be done internally or via international cooperation. From these perspectives, EUMETSAT subscribes to the research topics included in this research announcement, but will also explicitly solicit for research projects to explore and further evaluate operational applications of satellite altimetry.

Main considerations underlying this research announcement are:

- The term of the current team is ending on 1st of January 2021;
- The Jason-3 satellite is fully operational and is the reference mission since end of 2016;
- SARAL/ALTIKA has recently achieved its 7 years nominal lifetime and the extended mission till End of 2021 has been approved in 2019;
- Copernicus Sentinel-3A and Sentinel-3B providing operational altimetry measurements since 2016 to be extended with the Sentinel-3C and Sentinel-3D satellites in the next few years;
- The Sentinel-6/Jason-CS A, renamed Sentinel-6 Michael Freilich beginning of 2020, is scheduled for launch in November 2020. This mission, part of Jason-series missions, will be the future reference mission.

Complementary to the Jason series of satellites, the concept of a virtual constellation of altimetry missions has been formalized by the Committee on Earth Observation Satellites (CEOS) to serve the needs to map the ocean surface topography. This constellation called OST-VC has proven to be essential: Global coverage of the ocean with timely altimetry measurements requires the combination of multiple altimetry satellite datasets. This combination induces the necessity to intercalibrate the various datasets.

3. OSTST objectives

The OSTST supports basic research and investigations associated with any altimetry missions either in the past, currently in orbit, or in orbit in the near future.

The altimeter missions currently in orbit are: Jason-3, CryoSat-2, SARAL/AltiKa, HY-2A&B, Sentinel-3A&B, and CFOSAT. Past missions include TOPEX/Poseidon, Jason-1, Jason-2, ERS-1, ERS-2, Envisat/RA-2. Upcoming altimeter missions include Sentinel-6 MF&B (the Jason Continuity of Service mission), SWOT and Sentinel-3C&D.

The main goals of the OSTST are:

- To provide the scientific underpinning for production of the best possible satellite-derived ocean surface topography data sets;
- To demonstrate and extend the Earth science and applications arising from analyses of the ocean surface topography data;
- To evaluate and foster operational use of ocean and continental surface topography data.

The OSTST will be involved in the future calibration and validation for Sentinel-6 Michael Freilich and Sentinel-6B (the Jason Continuity of Service mission), a cooperative mission between NASA, NOAA, ESA and EUMETSAT with CNES support, see section 5 for more details).

4. Specific research topics

In alignment with the ROSES-2020 NASA Research Announcement, eight research topics are solicited for the period of this announcement (2021-2024). These topics consist of:

1. Support studies in physical oceanography utilizing Jason-series mission data, as well as the combined ~20-year TOPEX/Poseidon/Jason-1/Jason-2/Jason-3, Sentinel-6 (Jason Continuity Service) and SWOT data, preferably jointly with other satellites and in situ data and/or models, in support of both basic research and operational applications. Analyses of the full altimetric time series (from 1992) are now capable of resolving the large-scale redistribution of heat and mass in the upper ocean, and exchanges with the atmosphere and cryosphere can be explored in combination with other data sets. Such projects may cover a wide range of studies of coastal, open ocean, and polar processes, including intraseasonal-to-interannual variability, global mean and regional sea level variations, ocean circulation, low-frequency tides, gravity waves, wind/wave generation, etc.
2. Support studies of high-resolution merged altimetric data sets, including, but not limited to, the Jason-series, as well as other altimetry missions, such as ESA's Environmental Satellite (Envisat), CryoSat-2, Satellite with ARgos and ALtiKa (SARAL), Haiyang-2 (HY-2), Sentinel-3, CFOSAT and SWOT. Note however that data access for non-Jason missions has to be secured by the investigators directly with the space agencies in charge of those programs. Such projects may examine the roles of mesoscale eddies and western boundary currents in the general circulation of the ocean, and Arctic Ocean circulation, among other topics. It is expected that such studies will help scientific analyses of next-generation, wide-swath altimetric measurements such as the NASA/CNES Surface Water Ocean Topography Mission but also improving SAR measurements processing from Sentinel-3 and Sentinel-6.
3. Complete comparison studies between and among Jason-series missions. This includes details on the Precise Orbit Determination (POD) assessment, role of the water vapour correction as provided by the passive microwave radiometers (including the assessment of cold-sky calibrations), the influence of other corrections (ionosphere, sea-state bias, barotropic effect), and a precise and comprehensive characterization of the errors involved in the Topex and Jason altimeters measurement, including those that affect estimates of global mean sea level. This also includes development and assessment of new geophysical algorithms and/or models likely to improve the quality of the data.
4. Contribute with scientific expertise to the calibration and validation of the baseline measurement of the Sentinel-6 mission, to develop and assess dedicated techniques, in particular taking advantage of the overlap of Jason-3 and Sentinel-6 or by proposing palliative methods if there is a shorter overlap than planned (12 months), including comparisons with other altimeter missions and tide gauges. The error budget for Sentinel-6 must be completed relative to our updated knowledge of Jason-3, based upon

a comprehensive analysis of all of the intercalibration/validation measurements during the coincident orbit phase and after. This error evaluation will also serve in the analysis of the respective data streams of the mission. Both follow-on studies and new proposals that identify needed error analyses are anticipated in this category.

5. Explore operational applications of satellite altimetry for near real-time to interannual weather warnings and forecasts. These include but are not limited to hurricane intensity forecasting, wind/wave monitoring, coastal inundation/storm surge, search and rescue, tracking harmful algal blooms, oil exploration and operations, oil spill mitigation, coastal currents, fisheries, as well as seasonal-to-interannual prediction, including ENSO.
6. Investigate the use of gravity missions' data together with altimeter data for improving the understanding of the mean ocean circulation and barotropic variability.
7. Support complementary studies on ice sheet and sea ice monitoring, lake and inland water studies, large river mouth survey, marine geoid and bathymetric studies. Such studies can use altimetry, but also additional data including the accurate geodesic point positioning provided by the highly performing POD systems (DORIS, GNSS, laser).
8. Contribute with scientific analysis and expertise to the preparation of future altimetry missions.

5. The OSTST functioning

This joint research announcement provides the selection of OSTST members. The members will conduct basic research and analyses within the research themes as described above. The OSTST will continue to function much as its predecessors with annual meetings alternately in Europe and the U.S. where the status of the mission is reviewed and poster and oral contributions are presented by investigators on many of the research and operational applications. Attendance at these annual meetings is required for the OSTST Principal Investigators. The Project Scientists from NASA/JPL, NOAA, EUMETSAT, ESA and CNES will function as the primary liaison between the project and the OSTST members. Jason-3 and Sentinel-6 will be run as fully operational altimetry missions. As such, the role of the OSTST will be to advise the different Agencies (NASA, CNES, NOAA, EUMETSAT and ESA) on the different scientific and operational applications of the present and future altimetric missions, and to make scientific recommendations back to the Agencies, helping them in their decision making.

The Sentinel-6 mission is implemented by ESA, EUMETSAT, NASA and NOAA, with the system support of CNES. The agencies seek the involvement of the international community with experience in conducting scientific verification and validation of Sentinel-6 type data, and in using independent Fiducial Reference Measurements (FRM), field experiments and campaigns to validate these data. In order to achieve this purpose, ESA, EUMETSAT, NASA, NOAA and CNES have convened a Sentinel-6 Validation Team (S6VT) selected through:

- a permanent open call issued jointly by EUMETSAT and ESA for worldwide PIs selection s6vt.org;
- a specific ROSES call issued by NASA and NOAA for selection of US members via the Ocean Surface Topography Science Team.
- a specific TOSCA call (this one) issued by CNES for selection of members via the Ocean Surface Topography Science Team.

For non-US and non-French members, ESA has a separate funding mechanism to support scientific studies relating to multi-mission altimetry via specific Open Invitation To Tender (ITT) via the ESA EMITS system (http://emits.sso.esa.int/).

6. Proposal guidance

European and non US proposers are invited to submit their proposal in response to this CNES/EUMETSAT Joint Research Announcement. US proposers are invited to submit their proposal to the NASA ROSES-20 Research Announcement. OSTST proposals may be submitted by a Principal Investigator (PI) with one or more Co-Investigators (CoIs).

The proposal must not exceed 20 pages (single space) including figures, tables, references in accordance with the guidance provided in Appendix. Additional information such as curriculum vitae and other relevant information shall be attached as an appendix.

Proposals are invited to include the objective to carry out peer reviewed, publishable scientific research using altimetry data from the altimeter missions in the ocean surface topography virtual constellation. This will contribute to a successful utilization and validation of the combined data as judged by the quality of the results and the scientific impact of the publications.

Appendix A-1 contains further detail to prepare and submit proposals in response to this announcement.

7. Review and selection

All proposals will be submitted to an objective review with peer reviewers in accordance with the guidelines and programmatic conditions provided in this solicitation. CNES and EUMETSAT will set up a formal review process accordingly, with the participation of ESA in the review board. The outcome of this review process is a proposed selection to be endorsed by the CNES and EUMETSAT selecting officials, see section 9.

The key selection criteria are

1. The quality of the proposal received in terms of scientific content and completeness.
2. The relevance of the proposal to the different research themes and objectives as explained in section 4.
3. The experience and qualifications of the Principal Investigator and the Co-Investigators.

Further evaluation criteria which will be applied in the review process are given in appendix A-1, section V.

French proposals, when selected, may be directly funded by CNES, see section 8. Hence, for French proposals the joint review will be combined with a programmatic review in which CNES program officers will assess programmatic balance across the highly rated proposals and evaluate any logistical, implementation, cost, or management concerns related to these proposals.

8. Funding

French proposals when selected may be directly funded by CNES under this solicitation. The funding available for French investigators will come from CNES national program budget appropriations, in accordance with TOSCA rules and procedures, for scientific and Cal/Val investigations. Data and products resulting from those French researches will be available and promoted via ODATIS portal.

Non-French proposals do not receive funding under this solicitation. The proposers will have to seek and secure appropriate sources themselves, e.g. from relevant national, European or international authorities. When needed, NASA, CNES, NOAA, EUMETSAT and E S A may provide letters of support to help selected investigators in their respective funding request.

9. Submission and schedule

All proposals to this announcement shall be **sent to CNES**. Proposals shall be submitted:

- French proposals or French contribution to Non-French proposal:
  - Proposals shall be submitted online through https://apr.cnes.fr website
  - The name of the proposal shall be composed of:
    - OSTST as "type de mission spatiale concernée »
    - Project acronym as « acronyme de l'expérience »
    - Laboratory name, a predefined list is available, please contact website administrator to create a new laboratory, indicating Lab Name and Lab Director email address
    - Proposing scientist name

    Example: OSTST_ALTIV_LAb_Dupont
  - The scientific and technical description of the project shall be uploaded on the web site (using a filename consistent with the proposal naming convention defined here above), its size shall be less than 8 Mo.
- Non-French proposals shall be submitted either:
  - Through the website as defined for French proposals, without taking care of the funding fields (website pages are written in French)
  - Through mail sent at: oceano@cnes.fr address.

All proposers to this announcement are invited to submit their proposals

by 17:30 CET, on October 1st, 2020.

Late proposals will not be considered for review and funding.

The complete proposal schedule is:

- Release of joint research announcement, April 30th, 2020,
- Reception of notices of Intent, by mail at oceano@cnes.fr address (not mandatory but will allow to optimize the peer review process, 4 different reviewers name may be proposed) **September 10th, 2020,**
- Proposals reception at CNES, **October 1st, 2020**,
- Joint communication of the final selections will be made **before December 17th, 2020.**

Appendix A-1 contains the detailed guidance needed to prepare proposals in response to this announcement. Appendix A-2 provides additional guidance for proposers outside Europe.

Selecting EUMETSAT Official: Operations Department

Selecting CNES Official: Direction des Programmes,Observation de la Terre

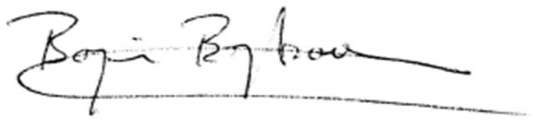
Obtain additional general information:

Estelle Obligis
Marine Applications Manager
EUMETSAT
Eumetsat Allee 1
D-64295 Darmstadt
Germany
ph. (49) 6151 807 6742
Estelle.Obligis@eumetsat.int

Annick Sylvestre-Baron
Ocean Program Manager
CNES
DIA/SE, 18 avenue Edouard Belin
F-31401 Toulouse
France
ph. (33) (0) 5 61 28 19 92
Annick.Sylvestre-Baron@cnes.fr

Your interest and cooperation in participating in this opportunity are appreciated.

For EUMETSAT,



Dr Bojan Bojkov

Head of Remote Sensing and Products Division

For CNES,

Dr Selma Cherchali

Head of Earth Science Program

APPENDIX A-1

INSTRUCTIONS FOR RESPONDING TO CNES/EUMETSAT

RESEARCH ANNOUNCEMENT

A. GUIDELINES FOR PROPOSAL PREPARATION

The proposals may be written in French or English, but **a full copy in English shall be made available at the time of submission.**
The proposal format outlined below is merely a guide for the prospective proponent. Strict adherence to most of these guidelines is not absolutely necessary. However, page limits will be strictly enforced and proposals should provide information related to all items described below and as otherwise specified in this Announcement.

I. COVER LETTER

A letter or cover page should be forwarded with the proposal (see Appendix B). It should be signed by the proponent and an official of the proponent's organization who is authorized to commit the organization to the contents and implementation of the proposal.

II. TABLE OF CONTENTS

The proposal should contain a table of contents.

III. IDENTIFYING INFORMATION

The proposal should contain a short descriptive title for the investigation, the full name of the proposed principal investigator, the names of all investigators, the name of the organizations or institutions, their addresses with postal code, their telephone and fax numbers and E-mail addresses.

IV. INVESTIGATION AND TECHNICAL PLAN

The investigation and experimental plan should not exceed 15 to 20 single-spaced pages or printed text, including illustrations, tables, references, bibliographies and biographical information. Information concerning the education, training and relevant experience of the investigators involved in the proposed study should be provided on separate sheets attached to the technical plan. Biographical information of this nature should be limited to two pages or less for each investigator who will play a substantial role in the investigation. Proponents who wish to provide evidence of their experience and competence in particular disciplinary fields are encouraged to quote relevant publications in general scientific literature of which they are the author. References to earlier publications should be limited to major publications that are directly relevant to the proposed investigation. These citations should be included within the two pages allotted to each investigator for biographical information. Proponents should not include lengthy publication bibliographies or copies of specific publications in their proposal.

Information concerning specialized equipment or facilities that will be used during the course of the investigation should not be presented in the technical plan. Information of this nature should be included in the management and cost plans described in next sections.

It is anticipated that a large number of proposals will be received in response to this Announcement. To expedite the proposal evaluation process and assure fairness to all proponents, the length restrictions described above will be strictly enforced. If a prospective investigator fails to observe the restrictions on proposal length cited above, the agencies reserve the right to return the proposal to the proponent upon receipt without further review or evaluation.

The investigation and technical plan will generally contain the following:

IV.1. Summary:

A simple, concise statement about the investigation, its conduct and the anticipated results. This summary should not exceed one single-spaced, typewritten pages.

IV.2. Experimental Objectives:

Proposals are primarily solicited in the fields indicated in section 4 of the core document of this Announcement. The Proposal should identify and detail its contribution to each of its fields of relevance. For each contribution, a brief description of the technical objectives and their relationship to past research efforts and the current state of-the-art should be given. The scientific rationale for the proposed investigation should be clearly established through reference to existing scientific literature and other publications. Proponents are encouraged to define explicit hypotheses that will be tested and/or evaluated by the proposed project.

IV.3. Approach:

The concept of the investigation should be clearly stated and the methods to be employed in data analysis and interpretation should be presented.

IV.4. Experimental and Work Plan:

The overall methodology and the sequence of key milestones of the investigation should be presented in some detail.

The proposal should specifically identify the data required by the investigation. Ancillary types of data or models to be employed in the analysis and interpretation of data should be clearly identified. Sources of ancillary data should be described along with the procedures that will be used to obtain and reduce ancillary data sets. There should be a clear and logical connection between the data that will be employed by the investigation, the information that will be extracted or inferred from these data and the manner in which such information will be used in addressing the objectives of the investigation. In cases where detailed studies of particular regional areas will be conducted, the proposal should explicitly define the factors that were considered in regional selection.

IV.5. Anticipated Results:

As far as feasible, the expected outcome of the proposed project should be presented. The significance of these results should be discussed, if possible, in terms of their scientific or real-time application interest and implications for future research and development.

IV.6. Significance of the Investigation:

The significance of the proposed study should be defined in terms of its relationship to earlier studies of a similar nature and/or to implications of the anticipated results. The proposal should attempt to characterize the relative degree of innovation associated with the objectives or approach of the proposed study. In addition, the proposal should attempt to characterize the importance of the anticipated results in relation to the current state of knowledge within particular disciplinary fields. The extent to which the anticipated results will influence the definition and conduct of future research and/or operational projects on similar or related topics should be discussed in the proposal.

V. MANAGEMENT PLAN AND COST PLAN (required for French Proposals only)

Management plans are encouraged for all proposals.

Management plans are required from all proponents submitting proposals to CNES as French proposal.

Cost plans are required by CNES from French proponents and French participants in non-French proposals.

The investigation and technical plans and the management and cost plans will be reviewed independently during the various stages of the proposal evaluation process described in the last section of this appendix.

V.1. Management Plan

The management plan should summarize the management approach and the facilities and equipment required.

Management

The management plan sets forth the investigator's approach for efficiently managing the work, the recognition of essential management functions and the effective overall integration of these functions. It also mentions the link (if any) with other national or international programs. Likewise, the management plan usually reflects various schedules necessary for the logical and timely pursuit of the work, accompanied by a description of the Principal Investigator's work plan, the amount and responsibilities of the scientific collaborators (if any) and the amount and responsibilities of the technical collaborators (if any).

Facilities and Equipment

All major facilities and equipment essential to the proposed investigation should be indicated, including those of the investigator's proposed subcontractors and those of CNES and other French Government agencies (or foreign agencies in the case of non-French proposals or joint proposals). Existing equipment should be explicitly differentiated from facilities that will be developed to implement the investigation. Procurement schedules and lead times for the acquisition and installation of new equipment and facilities should also be indicated. Since these investigations will focus on data analysis, the development of new equipment and facilities will be limited only to the support required for these

analyses.

V.2. Cost Plan (French Investigators Only)

The cost plan should summarize the total investigation cost by major categories of cost as well as by function.

Cost categories

- Materials: This should give the total cost of the bill of materials including estimated cost of each major item. Included lead time of critical items.

- Travel: This should give the estimated number of trips, destinations, duration, purpose, number of travellers and anticipated dates.

As a rule, direct labour and overhead costs will not be considered.

The cost borne by the PI organization or the organization endorsing the proposal (and signing the cover letter) should be clearly identified as well as those for which support will be requested to other organizations.

Detailed cost schedule

Separate schedules for each year should be attached to show total cost allocable to the following:

- Principal Investigator and scientific collaborators costs.
- Data reduction and analysis including the amount and cost of computer time.
- Cost of auxiliary data (if any) to be acquired by the investigator.
- Cost of field studies.

B. PROPOSAL EVALUATION, SELECTION and IMPLEMENTATION

I. TENTATIVE SELECTION, PHASED DEVELOPMENT, PARTIAL SELECTION

By submitting a proposal, the investigator and his institution agree that CNES/EUMETSAT have the option to make a tentative selection pending a successful feasibility or definition study of the proposed investigation and, in addition, upon confirmation of the availability of adequate financial support by the proponent's funding agency. Furthermore, for French proposals, CNES plans to contract in phases for implementation of a proposed investigation and to discontinue the development of an investigative effort at the completion of any phase.

The investigator should also understand that CNES/EUMETSAT may desire to select only a portion of the proposed investigation in which case the investigator will be given the opportunity to accept or decline such partial acceptance. In cases in which two or more proposals address similar topical problems and/or adopt similar approaches to data analysis, CNES/EUMETSAT may desire joint participation on the part of two or more proponents in a single data analysis project. Where joint participation with other investigators is agreed to, a single individual will be designated as the PI for the investigator group.

II. SELECTION WITHOUT DISCUSSION OR AFTER LIMITED DISCUSSION

CNES and EUMETSAT reserve the right to reject any or all proposals received in response to this Announcement when such action shall be considered in their best interest.

Notice is also given of the possibility that any selection may be made without discussion or after limited discussion.

III. NON-FRENCH PROPOSALS

All non-French proposals will compete on an equal basis with proposals originating within France and will go through the same review evaluation, selection and confirmation process.

Guidelines for foreign participation are given in Appendix A-2.

Non-French individuals who plan to participate as Cols in a proposal submitted by a French PI must have such participation reviewed and endorsed by their appropriate governmental agency before proposals involving such participation can be selected in the selection process. Evidence of such review and endorsement should be provided at the time that the proposal is submitted or as soon as possible thereafter.

IV. EVALUATION AND SELECTION PROCEDURES

All proposals received by CNES in response to this Announcement will be initially screened to determine their general relevance to the objectives stated in section 4 of this Announcement. Proposals considered

to be unresponsive to the stated objectives of this Announcement will be returned to their authors immediately with a written explanation of this determination. Such proposals will not be considered further by CNES/EUMETSAT.

Those proposals considered to be responsive to the Announcement objectives will subsequently be peer-reviewed by a technical and scientific panel composed o f CNES and EUMETSAT representatives and of individuals with widely recognized expertise in the scientific fields covered by the announcement. Experts pertaining to the International Scientific Community are expected to participate in this panel. The purpose of this review will be to evaluate the scientific and technical merit of each proposed investigation in terms of its strengths and weaknesses. Those proposals considered to be responsive to the Announcement and having scientific merit will be further jointly reviewed to determine their feasibility and compatibility with the overall allocated budget for the proposals funded through this call.

Proposals which do not request funds will be subjected to the same review and evaluation procedures as those proposals requiring financial support.

Final decisions concerning the acceptance of individual proposals will take into consideration the overall balance between different scientific disciplines, the availability of funds and other mission related resources.

After this selection, the investigations will enter the Ocean Surface Topography Science Investigation Plan and Principal investigators and Co-investigators will be active members of the Ocean Surface Topography Science Team.

V. EVALUATION CRITERIA

The fundamental goal of the investigation process is to identify unique ideas and capabilities which best suit the overall scientific, technological and pre-operational objectives of this Announcement, as described in section 4 of the core text. All the following criteria, listed in descending order of importance, will be used by CNES/EUMETSAT in evaluating individual proposals:

1. the relevance of the proposed investigation to the Announcement specific opportunity and to the established experiment objectives quoted in section 4 of the core text of this Announcement.

2. the scientific and technological merit of the investigation, including the topical importance of the proposed study within a specific disciplinary field and the probability of achieving positive results,

3. the need for and planned contribution of the Principal Investigator and any collaborators to prelaunch and post-launch mission planning activities,

4. the competence and relevant experience of the Principal Investigator and any collaborators as an indication of their ability to carry the investigation to a successful conclusion,

5. the reputation and interest of the investigator's institution, as measured by the willingness of the institution to provide the necessary support to ensure that the investigation can be completed satisfactorily.

In the event that ancillary data is crucial to the success of the proposed investigation, the proposal must

clearly indicate the adequacy and practicality of any plan to acquire these data. In addition to the criteria listed above, cost (when relevant) and management factors will be considered separately in all selections. Management aspects include the time and attention that the Principal Investigator plans to devote personally to the investigation.

VI. IMPLEMENTATION

It is currently expected that official notifications of acceptance or rejection will be issued by CNES/EUMETSAT by the end of 2020.

VII. TREATMENT OF PROPOSAL DATA

It is CNES and EUMETSAT policy to use the data contained in any proposal submitted in response to this Announcement for evaluation purposes only. Where any such technical data constitutes a trade secret under the law and the proponent or his potential subcontractor desires to maintain trade secret rights in such technical data, the following "Notice" must be affixed to the cover sheet of the proposal specifying the pages of the proposal which contain trade secrets to be restricted in accordance with the conditions of the "Notice". It is CNES & EUMETSAT policy to protect technical data labeled in this fashion as a trade secret. CNES & EUMETSAT assume no liability for use or disclosure of any proposal technical data to which the "Notice" has not been applied.

"NOTICE"

"Data on page(s)... of this proposal constitute a trade secret. They are furnished to EUMETSAT & CNES in confidence with the understanding that they will not, without permission of the proponent, be used or disclosed other than for evaluation purposes. In the event a contract is awarded on this proposal CNES and EUMETSAT may obtain, in the contract, additional rights to use and disclose these data".

VIII. INVENTION AND DATA RIGHTS

Within the implementation of an investigation selected under this Announcement of Opportunity, the Principal Investigator will be required to inform CNES & EUMETSAT within eight days of any patent or model request deposited for the protection of inventions which may result from the work performed.

Whenever the Investigator may decide not to deposit such a patent or model request, CNES & EUMETSAT reserve the right to do so and if so, in compliance with the terms of the MoU for T/P, "Jason" and Sentinel-6 (Jason Continuity of Service) missions.

The Investigator is required to grant CNES and EUMETSAT a royalty-free license to use patent and models deposited as a result from the work performed under this Announcement.

The Investigator may use the T/P, Jason-1, Jason-2/OSTM, Jason-3 data by subscribing a free AVISO licence.

APPENDIX A-2

GUIDELINES FOR FOREIGN PARTICIPATION

Proposals from entities located outside the U.S. and France, (hereafter termed foreign entities) in response to this Announcement, are encouraged. All proposals should be sent to CNES.

Proposals from foreign entities should not include a cost plan. Foreign proposals or proposals that include foreign participation must be endorsed by the respective government agency or funding/sponsoring institution in the country from which the foreign participant is proposing. Such endorsement should indicate the following points: (1) The proposal merits careful consideration by NASA/CNES; and (2) If the proposal is selected, sufficient funds will be made available by the sponsoring foreign agency to undertake the activity as proposed.

Proposals, along with the requested number of copies and Letter of Endorsement must be forwarded to NASA or CNES in time to arrive before the deadline established for this Announcement.

All proposals must be typewritten in English. All foreign proposals will undergo the same evaluation and selection process as those originating in U.S. or France. Foreign proposals or proposals that include foreign participation, must follow all other guidelines and requirements described in this Announcement. Sponsoring non-U.S. non-French agencies may, in exceptional situations, forward a proposal without endorsement to the above addresses, if review and endorsement are not possible before the announced closing date. In such cases, however, NASA or CNES should be advised when a decision on the endorsement is to be expected.

Successful and unsuccessful proposers will be contacted directly by NASA and/or CNES program offices.

APPENDIX B

PROPOSAL COVER SHEET

CNES/EUMETSAT Research Announcement

Proposal No._____(Leave Blank for CNES/EUMETSAT Use)

Title: _____

Principal Investigator:

Name: _____

Department:_____

Institution: _____

Street/PO Box: _____

City:_____State:_____Zip: _____

Country:_____E-mail: _____

Telephone:_____Fax: _____

Co-Investigators:
Name Institution Telephone

Budget (for French Investigators only):

1st Year:_____2nd Year:_____3rd Year: _____

Total: _____

Authorizing Official: _____
(Name) (Institution)

APPENDIX C

NOTICE OF INTENT TO PROPOSE

In order to plan for a timely and efficient peer review process, *Notices of Intent* (NOI's) to propose are strongly encouraged by the date given in this RA. The submission of a NOI is not a commitment to submit a proposal, nor is information contained therein considered binding on the submitter. NOI's are to be submitted electronically by sending the requested information at:

oceano@cnes.fr

At a minimum, the following information will be requested:

- RA acronym, alpha-numeric identifier,
- the Principal Investigator's name, mailing address, phone number, and E-mail address,
- the name(s) of any Co-Investigator(s) and institution(s) known by the NOI due date,
- a descriptive title of the intended investigation; and,
- a brief description of the investigation to be proposed.

A separate NOI must be submitted for each intended proposal.

In addition, a list of up to four names may be suggested as peer reviewers by the Investigator.