

REQUEST FOR TENDERS

FOR

“Provision of external services by an atmospheric physics expert with the aim to conduct validation and case studies of water vapor over the Cyprus region”

TENDER No. FRC-BeRTISS 01/2017

The Project BeRTISS is co-funded by the European Union and national funds of the participating countries

Nicosia, 03 November 2017

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INSTRUCTIONS TO TENDERERS

1. INTRODUCTION

Frederick Research Center, a private non-profit research organization (hereinafter called **FRC**) conducts an open-tender competition with award criterion the most economically advantageous tender based on the optimal price-quality relationship, for procurement of services for **“Provision of external services by an atmospheric physics expert with the aim to conduct validation and case studies of water vapor over the Cyprus region”**, in accordance with the following Specifications.

2. TENDER IDENTIFICATION

Par.	ITEMS	
2.1	Tender Number	FRC-BeRTISS 01/2017
2.2	Estimated Value	Sixty Thousand Euro (€60,000) including VAT
2.3	Funding	The project BeRTISS and the value of the tendered work is co-funded by the European Regional Development Fund, through the programme INTERREG V-B BALKAN MEDITERRANEAN 2014-2020
2.4	Tendering Procedure	<i>Open Tender</i>
2.5	Award Criterion	<i>Most economically advantageous tender based on the optimal price-quality relationship</i>
2.6	Responsible Officer	Dr Haris Haralambous , BeRTISS Project Coordinator Tel. +35722394394, ext 46107 Email: eng.hh@frederick.ac.cy
2.7	Tender Validity Period	2 (two) months from the date of submission
2.8	Tender Language	<i>English</i>
2.9	Tender Currency	<i>Euro</i>
2.10	Tender Submission Method	<i>In a Sealed Envelope at the address: New Wing Building Office 202, 7 G. Freiderickou Str. Pallouriotissa, 1036 Nicosia, Cyprus</i>
2.11	Tender Submission Deadline	Up to 17 November 2017 and time 14:00
2.12	Contracted work implementation period	21 months from the date of contract signature with the option for extension for another 3 months

3. DESCRIPTION OF SERVICE SCOPE

3.1 General

Frederick Research Center (FRC) in the frame of the project **BalkanMed real time severe weather service (BeRTISS) (INTERREG V-B BALKAN MEDITERRANEAN 2014-2020)** requests an offer for the provision of external services of **one (1) atmospheric physics expert** for a period of **21 months from the date of contract signature with the option for extension for another 3 months** with the aim to conduct validation and case studies of water vapor products over the Balkan-Mediterranean region.

A brief description and the expected results of the research project BeRTISS, which is implemented in the Balkan Mediterranean region (Bulgaria, Greece, Cyprus), are included in the Appendix.

The total provisional budget for these services is **Sixty Thousand Euro (€60,000) including any VAT**. This budget will cover the whole period of work indicated in paragraph 2.12, including the optional extension, therefore pro-rata calculations will be made to estimate the split between the initial period and the extension period.

3.2 Specific Objectives

The activities entailed in the framework of these services are described in detail below:

A. Prior to the releasing of GNSS (Global Navigation Satellite System) tropospheric and meteorological products of BeRTISS project for research purposes or any possible operational use by meteorological services, the expert (Contractor) is expected to perform a comprehensive validation of the quality of GNSS severe weather products by applying independent data sources. In particular, the expert will conduct evaluation of the produced GNSS products [Zenith Tropospheric Delay (ZTD), Precipitable Water Vapor, (PWV)] by comparing with four different data sources. These will include:

- Meteorological observations deriving from available synoptic stations, regional, radiosonde networks and the radar network of Cyprus Department of Meteorology (DoM),
- Numerical weather models (such as MM5 or COSMO),
- ERA-Interim re-analysis datasets from ECMWF (European Centre for Medium-Range Weather Forecasts) and,
- COSMIC satellite occultation data (Constellation Observing System for Meteorology, Ionosphere, and Climate) taking under consideration that after the successful COSMIC-1 mission, a follow-on RO mission (called FORMOSAT-7/COSMIC-2) is expected to launch six satellites in 2018 and another six satellites into high-inclination orbits in 2019.

B. The aforementioned datasets will be compared with the produced GNSS tropospheric and meteorological products deriving from the new GNSS Analysis Center in Cyprus and will be visually analyzed using animated maps. Differences of ZTDs /PWVs among all different datasets will be also analyzed in terms mean bias, standard deviations (SDs), and Root Mean Square Error (RMSE). The verification of the produced GNSS data over the Balkan-Mediterranean region will give an insight to the achievable accuracy and thus quality of these products as well as an estimate of their possible utilization for operational forecasting by the Cyprus DoM.

C. The capability of GNSS products to offer more detailed structures in the atmosphere that the advanced numerical weather models are able to capture will also be investigated.

D. Perform case studies concerning the validation of the GNSS products for certain time periods where severe weather events occurred over the Balkan-Mediterranean region and in particular in areas highly sensitive to extreme weather conditions and climate change, such as North and South Bulgaria, Crete and Thrace in Greece and Cyprus.

3.3 Obligations Deriving From The Service

In the frame of the contract the successful tenderer is expected to prepare the following:

- A. **Report:** Elaboration of a report on GNSS tropospheric & meteorological BeRTISS products validation using meteorological observations, numerical weather models outputs, re-analysis meteorological datasets and satellite measurements.
- B. **Case studies:** Perform case studies concerning the validation of the GNSS products for certain time periods where severe weather events occurred over the Balkan-Mediterranean region and in particular in areas highly sensitive to extreme weather conditions and climate change, such as North and South Bulgaria, Crete and Thrace in Greece and Cyprus.
- C. **Publications:** At least one publication in a scientific journal presenting the results of the validation and case studies of water vapor products deriving from the project.
- D. **Abstracts:** Preparation of abstracts for publication of the validation results to scientific conferences.
- E. **Travel:** Attendance at two to four project meetings with project partners in Greece (Athens/Thessalonica) and/or Bulgaria (Sofia).

3.4 Place And Hours Of Work

1. The successful tenderer will carry out the work at the facilities of the Contracting Organisation, **Frederick Research Center in Nicosia, Cyprus.**
2. The successful tenderer shall execute the work for the whole period of the contract at the facilities of the Contracting Organisation.
3. The Contracting Organization will provide suitable office facilities and equipment for the execution of the contracted work.

4. DESCRIPTION & QUALIFICATIONS OF TENDERER

The tenderer that will be selected is expected to fulfil the following general and specific criteria:

1. PhD diploma on Atmospheric physics or Meteorology or Climatology or Geodesy or Electrical Engineering.
2. Previous proven experience in GNSS (Global Navigation Satellites System) Meteorology.
3. Experience with participation in research projects and attendance in scientific conferences related to GNSS Meteorology will be considered as an additional advantage.
4. Scientific publications related to GNSS Meteorology will be considered as an additional advantage.

5. TENDER VALIDITY PERIOD

The Tenders are valid and are binding to the tenderers, as defined at paragraph 2.7. Any Tender that defines a validity period smaller than the one specified at paragraph 2.7, will be considered unacceptable.

In case of extension to the Tender validity period, FRC shall inform the tenderers in writing, before the end of the validity period, requesting their acceptance for the extension. In case the tenderers do not accept, their Tender will be considered unacceptable.

6. PAYMENT TERMS

Payments shall be effected in monthly instalments, in cash upon the receipt of the relevant invoice and acceptance by FRC of the specified work.

7. FORMAT AND SUBMISSION OF TENDERS

7.1 Time And Place Of Submission

1. The Tenders must be submitted at the latest by the submission deadline defined at paragraph 2.11.
2. The Tenders must be submitted at the location defined at paragraph 2.10; in case of a registered letter, the Tender must be received by FRC by the tender submission deadline where the tenderer bears the responsibility for the on-time submission.

7.2 Format Of Tenders

1. The Tender must be drafted in the language defined in paragraph 2.8.
2. The Tender and all accompanying documents shall be enclosed in a sealed envelope/cover which will be endorsed with the following:
 - The word “**TENDER**” (*in capital letters*)
 - The name of the organisation issuing the tender “**FREDERICK RESEARCH CENTER**”
 - The tender number
 - The tender title
 - The deadline for the submission of the tenders
 - Details of the tenderer
3. The Tender and all accompanying documents shall be enclosed in a unique, sealed envelope/cover which shall include the following, in one (1) original:
 - **Technical Offer** drafted according to the template (Form 1)
 - **Technical Description**, which will clearly present and describe the planned activities and the methodology that will be adopted by the tenderer, including the deliverables foreseen and indicative timetable.
 - **Curriculum Vitae** of the tenderer/ expert, in which the required characteristics, defined in Article 4, are analytically outlined.
 - **Financial Offer**, which shall include the **total value** for the service to be provided, according to the template (Form 2). It is noted that the financial offer must include all expenses, including for

needed travel, duties and taxes, along with any contributions imposed by the regulations of the European Community and the Cyprus law. The value for the financial offer will be considered as final/fix and shall not be changed by any changes in the abovementioned duties/ taxes/ contributions.

4. Tendered prices for Services shall be quoted in European Union Currency units (Euro). Tenders submitted in any other currency shall not be taken into consideration

5. Any other way of submitting the tender will not be accepted.

6. The Tender shall be typed or written in indelible ink and shall be signed by the Tenderer. The Tender shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Tenderer, in which case such corrections shall be initialled by the person signing the Tender.

8. TENDER PREPARATION COSTS

FRC shall not be responsible, nor pay for any expenses or loss which may be incurred by any Tenderer in the preparation and submission of the Tender.

9. CONDUCT OF THE TENDER PROCEDURE

9.1 Opening Of Tenders

The opening of the Tenders submitted, or sent and received, within the specified time limit, shall be carried out by authorised persons (Evaluation Committee), as soon as possible after expiry of the deadline for the submission of Tenders specified in paragraph 2.11, in the manner provided for in the internal rules and procedures.

9.2 Verification Of Eligibility And Requirements For Participation

1. After the opening of the Tenders, the Evaluation Committee shall first verify the correctness and completeness of the submitted supporting documents, as well as the fulfilment of the requirements for participation, as per the specific provisions of Article 4, and shall record the results of this verification.

2. If the verification procedure establishes that there are Tenders which do not meet the requirements for participation as required by the Tender Documents, then the Contracting Organisation, through its Evaluation Committee, shall reject these Tenders.

3. The Tenders which, as a result of the verification of the eligibility and requirements for participation, have not been found to be admissible, will not be evaluated in terms of their Technical and Financial Offer.

9.3 Evaluation Of Technical Offers

1. For Bids that were accepted by the control stage of participation documents, the Evaluation Committee progresses in evaluation of their technical offers in order to determine their completeness, as specified in Article 4, and if it meets the requirements and specifications of the

Service, as described in Article 3, and record any offers rejected, detailing for each one the exact reasons.

2. After the completion of that phase, the Evaluation Committee will proceed to the rating of acceptable Bids, according to the criteria outlined in the table below and method described in paragraph 9.6.

Evaluation criteria for Technical Offer	Importance coefficient (%)
Technical Description: Approach and methodology	70%
<i>Understanding the needs of the Service</i>	20%
<i>Methodology for implementing the Service and analysis into tasks and deliverables</i>	40%
<i>Effective Scheduling for implementing the Service</i>	10%
Tenderer Qualifications	30%
<i>Relevance of Tenderer's Qualifications to the needs of the Service</i>	30%
TOTAL SCORE	100%

3. The rating of each individual criterion:

- set to 100 points maximum, for the cases covered in the best possible way all the requirements of the Service Scope, and
- may be reduced to 60 degrees in cases not fully meet the requirements of Annex II of the Tender Documents, provided that the Offer has been judged as acceptable and the deviations are considered as minor. Provided that the mandatory terms differential coverage and full coverage of these will be reviewed every criterion and documented in detail by the Evaluation Committee.
- Each member of the Evaluation Committee shall mark every criterion by giving a mark to it.

4. The mark of each individual criterion shall result from the average of the marks given by the members of the Evaluation Committee, which shall be weighted using the weighting factor for that particular criterion and rounded to 2 decimal digits.

5. By adding the weighted mark of every individual criterion within each group of criteria, the total mark of that group is obtained.

6. The final technical evaluation mark (T) is the sum of the weighted average marks of each criterion.

7. The final Technical Offer marks will be entered in a special form by the Evaluation Committee, with adequate justification of the mark.

9.4 Evaluation Of Financial Offers

1. For the purposes of the financial evaluation, the Evaluation Committee shall verify the contents of the Financial Offers, to determine the degree to which they meet the requirements of the Tender Documents and more particularly the terms of paragraph 7.2.

2. If the verification procedure establishes that there are Tenders which do not satisfy the relevant terms and conditions as required by the Tender Documents, then the Contracting Organisation, through its Evaluation Committee, shall reject these Tenders.

3. Where the Competent Body considers a Financial Offer to be abnormally low before rejecting, must request in writing by the Tenderer to provide in writing, within five (5) days from the date of request any clarification on the composition of the Financial Offer. The Evaluation Committee shall examine the details and decide on the acceptance of the explanations or reject the Offer.

4. The rating of Financial Offers that will be judged acceptable, is calculated based on the relative cost (C) of each Tender as follows:

$$C = \frac{\text{Financial Offer of Lowest Bidder}}{\text{Rated Financial Offer}} \times 100$$

where the Financial Offer under Evaluation is defined as the total amount for which the Tenderer intends to implement the Contract, and the Financial Offer of Lowest Bidder is defined as the price of the Tender with the lowest Financial Offer.

9.5 Clarifications On The Tenders

1. After submission and opening of the Tenders and until Awarding of the Contract, no clarification, modification or rejection of a term of the Tender Documents or of the Tender shall be admitted.

2. However, the Contracting Organisation may, if the Evaluation Committee finds it necessary, request a Tenderer to provide clarifications regarding the contents of its Tender, throughout the evaluation procedure described in the present article. In such a case, the provision of clarifications is mandatory for the Tenderer and is not considered to be a counter-offer.

3. Where the information or documents to be submitted by economic operators are or appear incomplete or incorrect or when certain documents are missing, the Contracting Organisation may require economic operators to submit, to complement, clarify or complete information or documentation provided that such requests are submitted in compliance with the principles of equal treatment and transparency. Bidders in this case are obliged, under penalty of exclusion if they do not, to submit such information or documents to the Contracting Organisation, within a reasonable period that will define where appropriate, which will not be less than five (5) working days.

4. From the clarifications supplied by Tenderers in accordance with the above, only those concerning the issues for which they were requested shall be taken into account.

9.6 Conclusion Of The Evaluation

1. After the conclusion of the financial evaluation, the Competent Body shall proceed to establish the final ranking of Tenders in decreasing order of their final mark (L):

$$L = T * 80\% + C * 20\%$$

where:

T = the Technical Offer evaluation mark, and

C = the relative cost of the Financial Offer.

2. The Tender with the highest mark shall be considered to be the most advantageous Tender.

3. In cases where the marks of two or more Tenders are the same, these Tenders are ranked in decreasing order of their Technical Offer mark.

10. CONCLUSION OF THE TENDER PROCEDURE

10.1 Award Of Contract

The Contract is awarded to the Tenderer whose Tender is found, after the conclusion of the evaluation procedure, to be the most economically advantageous tender.

10.2 Notification Of The Results Of The Tender Procedure

1. The Contracting Organisation shall inform the candidate Contractor of the Award Decision.
2. The Contracting Organisation shall inform by letter all Tenderers, in the event that the tender procedure is cancelled. In all other cases the Contracting Organisation shall notify the unsuccessful Tenderers of the decision taken and of the reasons for it.
3. The Contracting Organisation shall notify every disqualified Tenderer who submits a relevant application, within a deadline of eight (8) days of receipt of such application, the reasons for which its Tender was rejected and, where the Tenderer has submitted an admissible Tender, the name of the successful contractor, with due observance of the provisions of the law on personal data protection.

10.3 Cancellation Of The Tender Procedure

1. The tender procedure may be cancelled before the specified deadline for the submission of Tenders for specific and justified reasons, by decision of the Contracting Organisation.
2. Cancellation of the tender procedure after expiry of the deadline for the submission of Tenders may be decided where one or more of the following conditions apply:
 - When no Tender has been submitted within the specified deadline,
 - When the terms of the Tender Documents contain terms or technical specifications and it is established that these cannot be met by any of the Tenderers,
 - When the prices of all Tenders meeting the terms and the technical requirements of the Tender Documents are unrealistic or appear to be the product of collusion between the Tenderers, resulting in the circumvention of healthy competition,
 - When the circumstances under which the tender procedure was announced have changed to such an extent that the scope of the tender procedure is no longer necessary, or
 - When it has not been secured approval for additional funds required if the amount of the final award is expected to be greater than the amount originally approved before the contract notice, or
 - In the event of any other serious unforeseeable cause, which the Evaluation Committee deems to be justified.
3. The interested economic operators / Tenderers do not maintain and shall waive any claim against the Contracting Organisation on account of such cancellation.

10.4 Drawing Up And Signature Of The Agreement

The Tenderer that will be awarded the Contract will be obliged, within a period of **ten (10) days** of receipt of the relevant invitation of the Contracting Organisation, to sign the relevant Agreement in person at the Contracting Organization offices. If the aforementioned deadline expires and the Tenderer has not presented him/herself to sign the Agreement, the Contracting Organisation has the right to refer the matter back to the Evaluation Committee, with a view to awarding the Contract to the Tenderer who has submitted the next, as per the ranking of paragraph 9.6, Tender which meets the terms and specifications of the tender procedure. This right may be exercised provided that the renewal of the validity of the Tender of the Tenderer who has submitted the next Tender meeting the terms and specifications of the tender procedure is ensured, for a specific period of time, under the same terms as previously applicable.

APPENDIX

Part A. Brief description of project BeRTISS

The project BeRTISS is implemented in the Balkan Mediterranean region (Bulgaria, Greece, Cyprus), with the project duration being from the 19th September 2017 to the 19th September 2019.

Abrupt and heavy precipitation events occur more frequently and are more intensified than they used to be due to climate change which is a scientifically accepted fact. Therefore the application of technological systems to monitor and provide forecasting and early warning of such events is crucial to a wide spectrum of societal sectors. The main objective of BeRTISS is to develop and establish a pilot transnational severe weather service by exploiting Global Navigation Satellite Systems (GNSS) tropospheric products to enhance the safety, the quality of life and environmental protection in the Balkan-Mediterranean region. The project aims to provide timely information and warning regarding severe weather events as well as long-term monitoring of weather and climate change in the region, through the mapping and visualization of water vapor (the most abundant greenhouse gas that accounts for ~70% of global warming and most critical meteorological parameter for accurate weather prediction by forecasting models) for the first time in real time in this region. To achieve this, a new GNSS Analysis Center (AC) will be installed in Cyprus for the processing of GNSS tropospheric products and the computation, with the aid of numerical prediction models, of meteorological severe weather parameter, and all derived products and will be displayed in real time on a dedicated web-platform to provide the general public with prompt uninterruptable information and early warnings of forthcoming severe weather events. The project will bring together scientists in the fields of GNSS technology, Meteorology and Climatology from Greece, Cyprus and Bulgaria.

Part B. Expected results of BeRTISS project

The effects resulting from the project in the transnational Balkan-Mediterranean region are:

- 1) Improvement of the quality and augmentation of cross-border GNSS tropospheric data related to severe weather and climate variations,
- 2) Expansion of the existing European GNSS network of tropospheric products to the southeastern part of Europe and extension of Meteo-sensors network to the Balkan-Mediterranean region,
- 4) Improved accuracy and predictability of severe weather events by the forecasters
- 5) Improved early and precise issuance of warnings regarding rapidly developing severe weather events
- 6) Enhancement of the knowledge/expertise transfer in the fields of GNSS data processing, numerical model application, meteorology and climate monitoring,
- 7) Enhancement of cross-border research cooperation,
- 9) Increase of the amount and quality of information concerning peoples insurance from extreme weather conditions and future climate change impacts, through the devoted web-platform and the close cooperation with national meteorological organizations,
- 10) Improved hazard management and thereby lowering of loss of life and national infrastructures destruction caused by extreme weather events,
- 11) Improvement and construction of innovative environmental/civil protection and climate change resilience policies.

FORM 1: TEMPLATE FOR THE TECHNICAL OFFER SUBMISSION FORM

To: Frederick Research Center

Subject: Provision of external services by an atmospheric physics expert with the aim to conduct validation and case studies of water vapor over the Cyprus region

Tender procedure no.: FRC-BeRTISS 01/2017

Closing date for the submission of tenders: 17/11/2017

1. After examining the Tender Documents and after developing a full understanding of the Service Scope, we the undersigned undertake to commence, execute and complete the Service Scope in accordance with the Tender Documents and our attached Technical Description, and for the price that we state in our Financial Offer.

2. We agree that our present Offer shall be valid for a period of time equal to that stated in paragraph 2.7 of Part I of the Tender Documents, that it shall bind us and that it may be accepted at any time prior to the expiry of the said period.

Signature of Tenderer:	
Name of signatory	
Identity Card / Passport No. of signatory	
Capacity of signatory	

Details of Tenderer

Name of Tenderer:

Country of establishment:

Address:, P.O. Box

Address for communication (if different):, P.O. Box

Contact tel. no., Contact fax no.

VAT Register No.:

Country of enrolment on the VAT Register:

Date:

Witness (Name, Signature and Address)

.....

Note: All blank fields must be completed by the Tenderer.

FORM 2: FINANCIAL OFFER TEMPLATE

To: Frederick Research Center

Subject: Provision of external services by an atmospheric physics expert with the aim to conduct validation and case studies of water vapor over the Cyprus region

Tender procedure no.: FRC-BeRTISS 01/2017

Closing date for the submission of tenders: 17/11/2017

1. After examining the terms of the Tender Documents and after developing a full understanding of the contract scope, we the undersigned undertake to commence, execute and complete the scope of the contract, in accordance with the Tender Documents and our Technical Offer, as following:

2. Total amount: € **(including VAT)** In text:

This amount is split pro-rata in the amount of €..... for the initial period (21 months) and the amount of €..... for the optional extension period (3 months).

3. We agree that our present Offer shall be valid for a period of time equal to that stated in paragraph 2.7 of Part I of the Tender Documents, that it shall bind us and that it may be accepted at any time prior to the expiry of the said period.

4. Until an official Agreement is prepared and signed, our present Offer, together with your written acceptance, shall constitute a binding Contract between us.

Signature of Tenderer:	
Name of signatory	
Identity Card / Passport No. of signatory	
Capacity of signatory	

Details of Tenderer

Name of Tenderer:

Country of establishment:

Address:, P.O. Box

Address for communication (if different):, P.O. Box

Contact tel. no., Contact fax no.

VAT Register No.:

Country of enrolment on the VAT Register:

Date:

Witness (Name, Signature and Address)

.....

Note: All blank fields must be completed by the Tenderer.