REQUEST FOR PROPOSAL

C.M

To:	ALL BIDDERS	***CTBTO Ref. No.:***	**2024-0170/MOGAPI**
		(PLEASE QUOTE ON ALL COMMUNICATIONS)	

	Tel. No.:	+43 (1) 26030-6350
	E-mail:	procurement@ctbto.org

Attn:

Phone:	***Date:***	16 Oct 24
Fax:		
Email:		

Subject: Maintenance of the Atmospheric Transport Modelling Pipeline with its Data Acquisition, Processing and Dissemination ON A CALL-OFF BASIS

Deadline for Submission: 30 Oct 24   ***Vienna Local Time:*** 17:00

    The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter referred to as the 'Commission') hereby invites you to submit a proposal that meets the requirements of the attached documents.

    You are kindly requested to complete and return the acknowledgement form by email as soon as possible.

    If you have any questions you should contact the email address indicated above.

Yours Sincerely,

SAS

Sally Alvarez de Schreiner
Chief, Procurement Services Section

CTBTO
PREPARATORY COMMISSION

preparatory commission for the
comprehensive nuclear-test-ban
treaty organization

ACKNOWLEDGEMENT FORM

Solicitation No: 2024-0170	*Closing Date:* 30 Oct 24
Title: Maintenance of the Atmospheric Transport Modelling Pipeline with its Data Acquisition, Processing and Dissemination ON A CALL-OFF BASIS	*Vienna Local Time:* 17:00

Procurement Staff: Gookeditswe Mogapi   *CTBTO Req. No.:* 0010025156

Please complete 'A' or 'B' or 'C'
and Return

WITHIN FIVE (5) DAYS

THE PREPARATORY COMMISSION FOR THE
COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION (CTBTO)

by email to
procurement@ctbto.org

A: We shall submit our proposal

By: _____
(date)

Company Name: _____

Contact Name: _____

Email/Tel: _____

B: We may submit and will advise

By: _____
(date)

Company Name: _____

Contact Name: _____

Email/Tel: _____

C: We will not submit a proposal for the following reason(s)

___ our current workload does not permit us to take on additional work at this time;
___ we do not have the required expertise for this specific project;
___ insufficient time to prepare a proper submission;
___ other (please specify) _____

Company Name: _____

Contact Name: _____

Email/Tel: _____

CTBTO
PREPARATORY COMMISSION

preparatory commission for the
comprehensive nuclear-test-ban
treaty organization

INSTRUCTIONS FOR PREPARATION AND SUBMISSION OF PROPOSALS

1. General

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (the Commission) with its headquarters in Vienna is the International Organization mandated to establish the global verification system foreseen under the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which is the Treaty banning any nuclear weapon test explosion or any other nuclear explosions. The Treaty provides for a global verification regime, including a network of 321 stations worldwide, a communication system, an International Data Centre and on-site inspections to monitor compliance with the Treaty.

This Request for Proposal (RFP) is for the ***SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS*** (hereinafter referred to as the "Services") as described in the Terms of Reference.

The Proposal shall meet all requirements stated in the Terms of Reference and be submitted in accordance with these Instructions for Preparation and Submission of Proposals. For this project, the Commission is seeking capabilities, which will ensure that the services are delivered and the tasks are accomplished expeditiously and at a reasonable cost.

2. Documents included in this RFP

This RFP consists of the following documents:

(a) Letter of Invitation
(b) These Instructions for Preparation and Submission of Proposals and Bidder's Statement and the following Attachments:
   - Attachment 1: Technical Compliance Matrix
   - Attachment 2: Evaluation Criteria and Method
   - Attachment 3: Format of Financial Proposal
   - Attachment 4: Procedure for submission of electronic offers in 2 sealed files
(c) Statement of Confirmation
(d) Vendor Profile Form
(e) The Commission's Model Contract and its Annexes A – C;
   o The Commission's General Conditions of Contract (Annex A) – incorporated herein by reference, found at www.ctbto.org under CTBTO General Conditions of Contract
   o The Commission's Terms of Reference (Annex B)

Note: In the event of award, the Proposal will be incorporated as Annex C to the Contract.

3. Amendment of RFP Documents

At any time prior to the closing date for submission of Proposal, the Commission may, for any reason, modify the RFP documents by amendment. The Commission may consider extending the deadline in order to allow adequate time for considering the modifications in the preparation of the Proposal.

4.   Language of the Proposal

The Proposal and all correspondence and documents relating to it shall be in English.
Format and Submission of the Proposal

The Proposal shall be typed, dated and signed by an official legally authorized to enter into contracts on behalf of your organization. The Proposal shall not contain any interlineation, erasures or overwriting except as necessary to correct errors, in which case such corrections shall be initialled by the authorized person(s) signing the Proposal.

The Proposal shall be submitted electronically according to the attached "PROCEDURE FOR SUBMISSION OF ELECTRONIC OFFERS IN TWO (2) SEALED FILES".

The Proposal shall be received not later than the closing date indicated in the Letter of Invitation.

5.   Request for Clarifications and Contacting the Commission

The Commission will issue clarifications, if required. Bidders are requested to e-mail any questions pertaining to this RFP as soon as possible after receipt of the solicitation documents, but in any case, no later than **10 business days prior to the Closing Date**. No requests for clarifications will be entertained after this time. Questions will only be accepted via e-mail sent to:

>   E-mail: procurement@ctbto.org
>   Subject: Request for Clarifications re RFP No. 2024-0170/MOGAPI

The Commission will make all reasonable efforts to issue the clarifications not later than 7 business days prior to the Closing Date.

Except in the case of responding to an RFP clarification, no bidder shall contact the Commission on any matter relating to the Proposal after its submission and until the award of the Contract. Any attempt to influence the Commission in its evaluation of the Proposal or the contract award decision may result in the rejection of the Proposal.

6.   Eligible Goods and Services

The services and goods (if any) to be rendered under the Contract shall have their origin in the States Signatories of the Comprehensive Nuclear-Test-Ban Treaty (CTBT), a list of which is available in the CTBTO website at www.ctbto.org under Status of Signatures and Ratifications | CTBTO. For purposes of this paragraph, "the origin" means the place from where the materials, goods and/or from which the services are supplied.

7.   Type of Contract and Payment

The Commission intends to conclude firm fixed unit prices Call-off Contract based on the attached Model Contract. The terms and conditions of payment for services are described in Clause 13 of the attached Model Contract.

8. **Preparation of the Proposal**

The Proposal shall contain, but not necessarily be limited to, the information described below.

The Proposal shall be composed of the following separate parts:
I. **Technical Proposal**; and
II. **Financial Proposal**;

providing, but not limited to, the following information:

PART I: TECHNICAL PROPOSAL

Please state the reference number and the date of this RFP in the Proposal and any correspondence relating to it.

The Technical Proposal shall be submitted in accordance with Attachment 1 (Technical Compliance Matrix) and including the following:

Point of Contact
The Proposal shall state the contact details and address (name, telephone and fax numbers, and e-mail address) of the person/point of contact in your company dealing with this RFP.

Bidder's Statement, Statement of Confirmation and Vendor Profile Form
The attached Bidder's Statement, Statement of Confirmation and Vendor Profile Form shall be duly filled-in, signed and submitted as part of the Technical Proposal.

Description of Services
An explanation of the bidder's understanding of the services to be provided and an overall preliminary operational plan for the execution of the services by providing section-by-section response to the Terms of Reference indicating how the Bidder meets or will meet each of the technical requirements.

The Proposal shall also provide any other relevant issue which the bidder would like to bring to the attention of the Commission whether or not having cost implications.

Specifications
The Proposal shall include a detailed description of the items proposed and include relevant technical literature.

Commission's Inputs
A description of the expected inputs/resources to be made available by the Commission and at what stage of the services.

Qualifications
Documentary evidence of the bidder's qualifications to provide the Services, which shall establish to the Commission's satisfaction that the bidder has technical capability necessary to perform the Contract and other necessary ongoing services as required.

Personnel

The Technical Proposal shall include:
(a)   A statement that the capacity of the Contractor, in terms of qualified manpower resources, is adequate to conduct the Work.
(b)   A statement of availability of the personnel, and the minimum period required before starting the work under the Contract;

(c)   A list of capable and experienced personnel, including their function and duration of assignment as key staff to work under this Contract (such as Project Manager or Team Leader, etc);

(d)   Curriculum vitae of the key staff proposed for this contract, including experience with standards and technical experience to perform the Work.

(e)   Details of key personnel identified at (c) and (d) above, which shall include at a minimum the following information:

a. Name.
b. Nationality.
c. Role.
d. Employed since. (Please specify whether the key personnel are a permanent member or rather, if they are contracted for the duration of the Contract on an ad-hoc basis.)
e. Type(s) of Service(s) set specified in the Terms of Reference, which the key personnel will perform.

Please note that it is the bidder's responsibility alone to obtain **work permits or visa or similar** for the personnel proposed to implement this project. The Commission will make no effort nor accept any responsibility for obtaining work permits or visa or similar for the Contractor's personnel.

Use of former Preparatory Commission for the CTBTO ("Commission") employees in the preparation of a Proposal:

A bidder must not, in the absence of prior written approval from the Commission, permit a person to contribute to, or participate in, any process relating to the preparation of a Proposal or the procurement process if the person:

a. At any time during the 12 months immediately preceding the date of issue of the Solicitation was an official, agent, servant or employee of, or otherwise engaged by the Commission;
b. At any time during the 24 months immediately preceding the date of issue of the Solicitation was an employee of the Commission personally engaged, directly or indirectly, in the definition of the requirements, project or activity to which the Solicitation relates.

Sub-Contractors

Names, legal status, address and qualifications of subcontractor(s), if any, and the scope of the subcontracted services. The Proposal shall provide a statement that your organization shall be fully responsible for the performance of sub-contractors. All sub-contractors shall be legally established in one of the CTBTO States Signatories the list of which is available at www.ctbto.org under Status of Signatures and Ratifications | CTBTO.

PART II: FINANCIAL PROPOSAL

In the Financial Proposal, Bidders are required to define the following:

(a)   The Financial Proposal shall be submitted in the format set out in Attachment 3 "Format of Financial Proposal" attached herewith. Bidders shall provide all the information requested in this matrix but may provide additional related content as attachments. This will be evaluated as part of the responsiveness of the Financial Proposal. A Proposal

that fails to meet this requirement may be disqualified and not be considered for further evaluation.

(b)   The bidder shall quote firm fixed person-day fees/rates in EURO or US Dollars for the duration of the contract. The quoted fees/rates should include all overheads and ancillary expenses, unless included as firm-fixed "Other Costs", or otherwise stated in Attachment 3 "Format of Financial Proposal".

(c)   Note that clear and detailed explanations would enable us to evaluate the Proposal promptly and proceed with fewer requests for clarifications/justifications in a later stage. This is also a factor influencing the decision for Contract award.

Indirect Taxes

In principle the Commission is exempt from taxes. Since the arrangement under which such exemption is respected varies from country-to-country, the selected bidder will be informed by the Commission whether tax exemption will occur at source or whether taxes paid by the selected bidder will be reimbursed by the Commission upon submission of the original supporting documentation. **"Taxes"** means all direct and indirect taxes (including value added tax, general sales tax or goods and services tax), assessments, fees, customs duties, liens and charges in as much as they are levied in conclusion or implementation of the Contract, including customs restrictions and charges of similar nature in respect of articles imported or exported for the Commission's official use.

For Austrian companies

The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or be separately identified on the Proposal together with information on the nature of the tax and its method of calculation.

For European Union (EU) Companies

The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or separately identified on the Proposal together with information on the nature of the Tax and its method of calculation. Due to the VAT exemption applicable to the Commission, no VAT will be charged to the Commission by the EEC Suppliers under the Contract (Ref. EU VAT Council Directive 2006/112/EC, Article 151).

For Non-EU Companies

The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or be separately identified on the Proposal together with information on the nature of the tax and its method of calculation. For deliveries to Vienna, Austria, and due to the tax exemption at source applicable to the Commission, no Taxes shall be charged to the Commission under the Contract.

9.   **Completeness and Correctness of the Proposal**
The Commission reserves the right to verify all information furnished by you in the Proposal through a source of its choice. Any inaccurate information so given may lead to the rejection of the Proposal.

10.   Validity of the Proposal

The Proposal shall be valid for 90 (ninety) days after the deadline for its submission to the Commission, unless an extension of validity has been requested by the Commission.

11.   Correction of Errors

The Commission will check the Proposal for any arithmetic errors. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.

12.   Evaluation of the Proposal

The Commission, based on the evaluation criteria and method given in Attachment 2, will determine the Proposal that 'most effectively satisfies the technical and operational requirements set out in the solicitation documents' in accordance with the criteria specified in Attachment 2. The Commission reserves the right, as it deems appropriate, to award to a single bidder, to award to multiple bidders in any combination or not to award to any of the bidders as a result of this RFP.

13.   Negotiations of the Proposal

The Commission reserves the right to request clarifications on the Proposal and to enter into negotiations regarding technical or commercial aspects of the Proposal before awarding the contract under this RFP.

14.   Modification and Withdrawal of Proposal

Bidders may modify or withdraw their Proposals after their submission, provided that written notice of the modification or withdrawal is received by the Commission by the closing date for the submission of the Proposal. The Proposal may not be modified subsequent to the closing date.

15.   The Commission's Right to Reject the Proposal

The Commission reserves the right to accept or reject the Proposal or to annul this procurement process at any time prior to the award of contract without having to inform the bidders of the grounds therefore, without thereby incurring any liability to the bidders.

16.   Costs of preparation and submission of the Proposal

Bidders shall bear all the costs associated with the preparation and submission of their Proposal and the Commission will not be responsible or liable for those costs, regardless of the outcome of this RFP.

17.   Proprietary Information

All documentation and information contained in this RFP are proprietary to the Commission and shall not be duplicated, used or disclosed -in whole or in part- for any purpose other than to evaluate them and respond to the Commission's request for Proposal or otherwise without prior written agreement of the Commission.

BIDDER'S STATEMENT
PLEASE STATE BELOW & SUBMIT WITH PROPOSAL

Delivery Time:

Shipping weight (kg) and Volume (m^3) – if applicable:

List of recommended consumables and spares including prices and details on local availability, if applicable (please tick):

☐ For one year period ☐ For a period of ………………………….

Warranty period applicable (it shall be for a **minimum of 24 months**, starting from the acceptance of the goods/services by the Commission) – please tick below as applicable:

☐ For a two year period ☐ For a period of ………………………….

Availability of local service in Vienna, Austria (if any):

State country of origin or assembly of all items quoted:

Quantity discount and early payment discount (if any):

Include documentary evidence of qualifications to perform the order, which shall establish to the Commission's satisfaction that the bidder has the financial, technical and production capability necessary to perform the order in its entirety and to provide spare parts and other necessary on-going services as required.

Included in the Proposal: **Yes** ☐ **No** ☐

Confirmation that the bidder has reviewed the Commission's General Conditions of Contract, Draft Model Contract, and agreed to all terms and conditions.
Yes ☐ **No** ☐
Remarks:

With regards to the software provided with the equipment, state and confirm whether the software licenses are transferable to third parties, i.e. the Commission or the Commission's State Signatories list available at www.ctbto.og under Status of Signatures and Ratifications | CTBTO.

Yes ☐ No ☐ Not applicable ☐
Remarks:

Name:

Name & Title of Contact Person:

Signature & date:

MINIMUM CONTENT OF TECHNICAL PROPOSAL AND TECHNICAL COMPLIANCE MATRIX

RFP No. 2024-0170/MOGAPI

PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS

*Below sets out the **Minimum content of the Proposal and the <u>Mandatory Requirements</u> of the Technical Proposal**. Bidders are requested to demonstrate compliance with the requirements and add any further information in support of their Proposal. Please refer to the relevant section of the Terms of Reference for further explanation of the requirements. The information provided will form an integral part of the technical evaluation process.*

Part II of this document must be completed and returned as part of the Proposal.

Part I

Item		Minimum content
1.	**Executive Summary**	Provide an overview of the proposal
2.	**Experience, Resources and Project Management**	

2.1	Corporate Profile and Values	• Brief background of the company, mission/vision, ownership, size, location, number of personnel by type profile, etc.
		 • Company business structure and its authority to execute all Work under the Contract.
		 • If a consortium, provide a clear explanation of the business relationship between the members and governance for the execution of this project.
		 • In case the Bidder requires the services of subcontractors, the Proposal shall include:
		   a) Relationship of the Bidder's business to any subcontractor(s) that will be used.
		   b) Names, addresses, legal status, and qualifications of major sub-contractor(s) proposed by your organization.
		   c) The scope of work and nature of subcontracting.

2.2	Corporate Experience	The proposal should detail the Bidder's experience in executing work of similar scope and complexity.

2.3	Requirements for the Contractor	The Proposal should address and describe all requirements spelled out under Section 4 (Scope of Work) the Terms of Reference (ToR).

3.	**Meeting the Requirements**	
3.1	Understanding of the ToR	- Please describe your understanding of the services that are to be provided under this ToR, detailing key assumptions that impact the Technical Proposal. - Please describe how you propose to address the tasks listed in Section 4 (Scope of Work) and Section 4.2.2 (Selection of Tasks) of the ToR.

4.	**Contractor's key staff**	
4.1. Visa & Work Permits		Provide written confirmation that the Bidder understands and agrees to take responsibility for obtaining any Visa and/or work permits, which may be required to perform the Work under the Contract. The CTBTO does not sponsor work permits for contractors.
4.2. Documentation and Reporting		- Provide written assurance that all reports, documentation, and communication (written and oral) supplied to the Commission shall be in English and submitted in electronic form. - Provide written assurance that all documentation will adhere to the IDC Documentation Standards, samples of which will be provided to the successful Contractor.

5.	**Model Contract**	
		A statement that the bidder has carefully reviewed the Model Contract and its Annexes and is in agreement with all its terms and conditions.

Part II – Compliance Matrix

Ref No. of ToR	Requirements *A section-by-section response to each section of the Terms of Reference is included in the Proposal*	Bidder's Response *Please tick whichever is applicable*		Indicate the section in your Proposal and ensure that it is sufficiently described in the Proposal
		"Yes"	"No"	
Meeting Requirements				
4 and 6	Understanding of the ToR: Understanding of the scope, and of the duties and responsibilities of the Contractor			
Requirements for the Contractor				
6.2 a)	Extensive experience, with a minimum of five (5) software projects, in managing software of similar scope and complexity as required in this ToR. The software projects shall be provided as described in Section 6.1.3.			
6.2 b)	Relevant experience, with a minimum of four (4) software projects, in scientific computing/scientific software development. The software projects shall be provided as described in Section 6.1.3.			
6.2 c)	Confirmation that the staff turnover has been below 20% per year over the past three (3) years.			
6.2 d)	Hands-on experience with all elements of the software development lifecycle: eliciting and documenting business process flows, use cases, requirements, quality management plans, user acceptance testing, and end-user training. This shall be demonstrated through concise description of their methodology and past practical approaches in software projects.			
6.2 e)	A warranty period of two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes shall be available and clearly specified.			
6.2 f)	Be able to adjust the working hours of the assigned Team for a Sprint Meeting			

	that overlaps at least two hours with the Commission's working hours (9 a.m. to 5 p.m. CET/CEST).			
6.2 g)	Be able to provide support on a 24/7 basis during critical situations (e.g. the operational pipeline fails).			
6.2 h)	At least three (3) key-personnel are assigned at all times to the Team Roster to work under this Contract.			
6.2 i)	Has a Risk Management methodology for the execution of the outlined software development activities in these Terms of Reference as per Section 7.			
Requirement for the Contractor's Personnel / Skills and experience amongst the members of the Team Roster				
6.3 g)	Relevant professional experience, with a minimum of three (3) projects, in providing software maintenance and support services for complex and custom software systems in operational use (this includes troubleshooting and issue fixing).			
6.3 h)	Relevant professional experience, with a minimum of three (3) projects, in developing software to automatically process data in near-real-time.			
6.3 i)	Extensive experience, with a minimum of four (4) projects, with the programming language Perl is mandatory.			
6.3 j)	Extensive experience, with a minimum of four (4) projects, with the programming language Fortran is mandatory.			
6.3 k)	Extensive experience, with a minimum of four (4) projects, with the programming language Python is mandatory.			
6.3 l)	Extensive experience, with a minimum of four (4) projects, in professional software testing methodologies is mandatory.			
6.3 m)	Extensive experience, with a minimum of four (4) projects, in using and building a CI/CD pipeline is mandatory.			
6.3 n)	Extensive experience, with a minimum of two (2) projects, in code optimization and parallelization (MPI/OpenMP), particularly in scientific computing on distributed memory architectures.			
6.3 o)	Sufficient knowledge and experience, with a minimum of one (1) project each,			

	in working (reading & writing) with the GRIB, NetCDF, JSON, and XML data formats is an advantage.			
6.3 p)	Sufficient experience, with a minimum of one (1) project, with PyQt is an advantage.			
6.3 q)	Sufficient experience, with a minimum of one (1) project each, with the programming languages SQL and C/C++ is an advantage.			
6.3 r)	Sufficient experience, with a minimum of one (1) project, in developing and working on supercomputer clusters (High-Performance Computers), including the use of queuing systems (e.g. slurm), and a package manager (e.g. SPACK, environment modules) is an advantage.			
6.3 s)	Sufficient experience, with a minimum of one (1) project, with machine learning or deep learning is an advantage.			
6.3 t)	Comprehensive experience, with a minimum of one (1) project, in Atmospheric Transport Modelling (ATM), preferably with the ATM model FLEXPART (used at the CTBTO), is an advantage.			
RISK MANAGEMENT				
7	Confirmation that the Contractor shall develop and maintain a Risk Management plan in accordance section 7 of the ToR.			

Attachment 2
Technical Evaluation Criteria and Method
SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE
WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS

No.	Ref No. in TOR	1.QUALIFICATION REQUIREMENTS (PASS/FAIL)	PASS/FAIL
		Requirements for the Contractor (PASS /FAIL)	**PASS/FAIL**
1	6.2 a)	Extensive experience, with a minimum of five (5) software projects, in managing software of similar scope and complexity as required in this ToR. The software projects shall be provided as described in Section 6.1.3.	PASS/FAIL
2	6.2 b)	Relevant experience, with a minimum of four (4) software projects, in scientific computing/scientific software development. The software projects shall be provided as described in Section 6.1.3.	PASS/FAIL
3	6.2 c)	Confirmation that the staff turnover has been below 20% per year over the past three (3) years.	PASS/FAIL
4	6.2 d)	Hands-on experience with all elements of the software development lifecycle: eliciting and documenting business process flows, use cases, requirements, quality management plans, user acceptance testing, and end-user training. This shall be demonstrated through concise description of their methodology and past practical approaches in software projects.	PASS/FAIL
5	6.2 e)	A warranty period of two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes shall be available and clearly specified.	PASS/FAIL
6	6.2 f)	Be able to adjust the working hours of the assigned Team for a Sprint Meeting that overlaps at least two hours with the Commission's working hours (9 a.m. to 5 p.m. CET/CEST).	PASS/FAIL
7	6.2 g)	Be able to provide support on a 24/7 basis during critical situations (e.g. the operational pipeline fails).	PASS/FAIL
8	6.2 h)	At least three (3) key-personnel are assigned at all times to the Team Roster to work under this Contract.	PASS/FAIL
9	6.2 i)	Has a Risk Management methodology for the execution of the outlined software development activities in these Terms of Reference as per Section 7.	PASS/FAIL
		Requirement for the Contractor's Personnel on the team level (PASS /FAIL)	**PASS/FAIL**
10	6.3 a)	Advanced university degree in Computer Science or Mathematics, Physics, or a related scientific/technical subject.	PASS/FAIL
11	6.3 b)	Excellent communication skills in English are essential.	PASS/FAIL
12	6.3 c)	Extensive experience, with a minimum of three (3) projects, in providing maintenance services for a Unix/Linux client/server system is mandatory (e.g. upgrading Linux systems and migrating existing software).	PASS/FAIL
13	6.3 d)	Extensive experience, with a minimum of six (6) projects, in providing software development services on a Unix/Linux client/server system is mandatory.	PASS/FAIL
14	6.3 e)	Extensive practical experience, with a minimum of two (2) projects, with one or more Agile frameworks, preferably Scrum, is mandatory.	PASS/FAIL
15	6.3 f)	Extensive practical experience, with a minimum of two (2) projects, with Git and GitLab is mandatory.	PASS/FAIL

Only bidders who pass all above criteria will be considered for the point system evaluation (2nd stage)

No.	Ref No. in TOR	2.TECHNICAL REQUIREMENTS - EVALUATION CRITERIA AND METHOD	Points		
		Quality of the Proposal	Max Points	Factor	Weighted score
1	1 - 7	The extent to which all aspects of the ToR have been addressed in sufficient detail and clarity.	5	4	20
2	4	Understanding of the scope of work and the responsibilities of the Contractor	5	10	50
3	7	The extent to which the Risk Management Plan has been prepared in sufficient detail and clarity.	5	2	10
		Subtotal	15		80
	Ref No. in TOR	**Requirements for the Contractor's Personnel on the team level**	Max Points	Factor	Weighted score
4	6.3 g)	Relevant professional experience, with a minimum of three (3) projects, in providing software maintenance and support services for complex and custom software systems in operational use (this includes troubleshooting and issue fixing).	5	5	25
5	6.3 h)	Relevant professional experience, with a minimum of three (3) projects, in developing software to automatically process data in near-real-time.	5	2.5	12.5
6	6.3 i)	Extensive experience, with a minimum of four (4) projects, with the programming language Perl is mandatory.	5	5	25
7	6.3 j)	Extensive experience, with a minimum of four (4) projects, with the programming language Fortran is mandatory.	5	4	20
8	6.3 k)	Extensive experience, with a minimum of four (4) projects, with the programming language Python is mandatory.	5	3	15
9	6.3 l)	Extensive experience, with a minimum of four (4) projects, in professional software testing methodologies is mandatory.	5	3	15
10	6.3 m)	Extensive experience, with a minimum of four (4) projects, in using and building a CI/CD pipeline is mandatory.	5	3	15
11	6.3 n)	Extensive experience, with a minimum of two (2) projects, in code optimization and parallelization (MPI/OpenMP), particularly in scientific computing on distributed memory architectures.	5	2.5	12.5
12	6.3 o)	Sufficient knowledge and experience, with a minimum of one (1) project each, in working (reading & writing) with the GRIB, NetCDF, JSON, and XML data formats is an advantage.	5	2.5	12.5
13	6.3 p)	Sufficient experience, with a minimum of one (1) project, with PyQt is an advantage.	5	2.5	12.5
14	6.3 q)	Sufficient experience, with a minimum of one (1) project each, with the programming languages SQL and C/C++ is an advantage.	5	1	5
15	6.3 r)	Sufficient experience, with a minimum of one (1) project, in developing and working on supercomputer clusters (High-Performance Computers), including the use of queuing systems (e.g. slurm), and a package manager (e.g. SPACK, environment modules) is an advantage.	5	2	10
16	6.3 s)	Sufficient experience, with a minimum of one (1) project, with machine learning or deep learning is an advantage.	5	1	5
17	6.3 t)	Comprehensive experience, with a minimum of one (1) project, in Atmospheric Transport Modelling (ATM), preferably with the ATM model FLEXPART (used at the CTBTO), is an advantage.	5	1	5
		Subtotal	70		190
		TOTAL - Technical Evaluation	85		270

1. Technical Evaluation:

The technical evaluation process will be done in two stages:

1) Stage 1: Technical proposals will first be evaluated against the mandatory requirements outlined in section 1 above, Compliance with all mandatory requirements is required in order to pass stage 1 of the technical evaluation and to be

2) Stage 2: The technical proposals that have passed stage 1 of the technical evaluation process, will be evaluated again

In order to pass this stage, bidders must obtain a minimum of 51 points - **a minimum score of 162** and in accordance w

TABLE 2

Points	Scoring
# # #	Unsatisfactory - Response incomplete, inadequate and/or non-responsive to the criterion. Bidder does not clearly understand the criterion.
1 - 2	Weak - Does not meet the minimum technical, functional, or performance related criterion.
#	Good - Meets the minimum requirements of the criterion.
#	Very good - Exceeds the minimum requirements of the criterion in some areas.
#	Excellent - Exceeds the minimum requirements of the criterion in all areas.

2. Financial and commercial evaluation

Once the technical evaluation is finalized, the financial offers of the technically compliant bidders will be evaluated in a

X= Max Available Points * Y/Z

Legend:
X= points to be assigned to the offer being evaluated
Y= price of the lowest priced, technically compliant offer
Z= price of the offer being evaluated

The weight of the technical and financial components is **60%** and **40%** respectively, subject to contractual acceptability
The Contract will be awarded to the bidder who receives the highest combined score
resulting from the technical and financial evaluations, subject to contractual
acceptability.

ATTACHMENT 3

Summary of Financial Proposal

RFP No. 2024-0170/MOGAPI: PROVISION OF **Provision of Software Engineering Services for the Maintenance of the Atmospheric Transport Modelling Pipeline with its Data Acquisition, Processing and Dissemination** **ON A CALL-OFF BASIS - WOs**

MAX QUANTITY UNDER EACH PERIOD	CALL-OFF PERIOD 1 - 3 years OR for <u>max of 750 person-days</u> in EUR or USD	CALL-OFF PERIOD 2 (OPTIONAL) - 1 year OR for <u>max of 250 person-days</u> in EUR or USD	CALL-OFF PERIOD 3 (OPTIONAL) - 1 year OR for <u>max of 250 person-days</u> in EUR or USD
Fees			
Staff fee - Off-site			
Staff fee - On-site			
Travel costs	Estimated maximum of 6 return trips	Estimated maximum of 6 return trips	Estimated maximum of 6 return trips
Return transport cost for 1 return trip for 2 staff of the Contractor (if applicable) - (on a separate sheet please specify the point of departure/destination and break down of lump sum proposed)			
Other costs (if applicable)			
Overall total			

NOTES:

1) Please specify currency (USD or Euro only). The rates shall be firm and fixed throughout the term of the Contract.

2) This is a unit-based Contract. The exact number of working days will be determined/called-off in the form of Work Order (WO) at the rates quoted in this Attachment.

3) The person-days noted are an upper limit, and the Commission reserves the right, at its sole discretion, to call-off fewer person-days or no person-days at all.

4) Estimated costs for travel based on the most economic and direct route shall be specified in the Financial Proposal. Bidders shall indicate whether the travel costs (without DSA) are firm and fixed for the duration of the Contract, or they are estimated. In the case the travel costs are estimated, payment shall be based on actual costs against relevant supporting documentation e.g. invoices for travel, and shall not exceed 10% of the estimate.

5) If applicable, Daily Subsistance Allowance (DSA) shall be calculated based on the values provided by the International Civil Service Commission (ICSC) https://icsc.un.org/. Daily subsistance/per diem will be reimbursed at the applicable Daily Subsistance Allowance (DSA) rate of the United Nations (and UN EUR/USD exchange rate, if applicable).

Attachment 3

"Procedure for Submission of Electronic Offers in 2 Sealed Files"

The Commission invites you to submit your sealed offer (Bid, or Proposal) in response to the solicitation forming part of this request.

Please be sure to follow the instructions below very carefully, so that the documents you submit are encrypted, and cannot be opened without an encryption key (password). If the documents are not encrypted, they will not be accepted as part of this tender process.

CRITICAL INFORMATION:

Create separate zip files for the technical offer and the financial offer (labeling them clearly in the title) with different encryption keys. Instructions for how to do this are provided below.

Step 1: You provide the encryption key (password) for the *Technical Offer only* (in accordance with the below instructions)!

Step 2: After the Commission has performed the evaluation of the Technical Offer, if your Technical Offer is considered to be acceptable, the Commission will request the encryption key (password) for the Financial Offer you have already submitted by the tender Deadline.

Should you have any questions, please send an email to procurement@ctbto.org.

We recommend that you leave yourself plenty of time to complete the below process (including getting any necessary assistance from the Commission), as late offer will not be accepted.

INSTRUCTIONS:

1. In a **WINDOWS** environment, one way of meeting the requirements is as follows.

    We recommend using the open-source, free software **7-zip**, but if you are comfortable with other tools, the result should be the same, as long as you can apply encryption to the archive.
    In the below, we'll use 7-zip as an example.
    (You can download the 7-zip code for Windows at: 7-zip.org)

2. In **LINUX** environment, you can use, for instance, "sha1sum" on the command line.

Procedure for Submission of Electronic Offers in 2 Sealed Files

Creating the archives for submission

Regardless of whether the offer is a single file, or a collection of files, the files are easier to manage if delivered as a single, compressed file. Compressing the archive is a common way to meet size limitations in email systems.

As an example of how to submit your offer in the required format: assuming you are supplier "SOFTCOMP" and have the following files related to the offer for "RFP 2020-0010/EDWALD". *(You will need to replace these elements with the real information for your actual offer in line with the relevant Instructions for Preparation and Submission of Proposals/Bids.)* Assuming further that you have installed the 7-zip software on the Windows system you are using.

We will only go through the creation of the Technical Offer (Proposal/Bid) component; the Financial Offer (Proposal/Bid) component is similar.
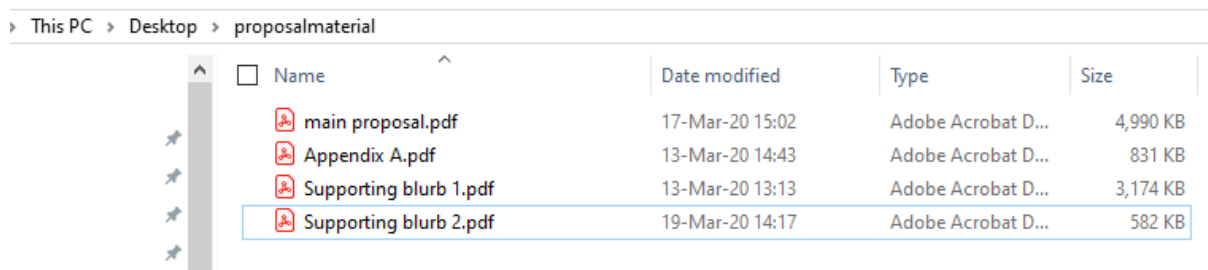
Figure 1 An example set of files to be submitted

Select the four files and right-click; a Dialog box pops up, with one of the options being "**7-ZIP   >**". Hover your cursor over the " **>**" part and a few more options appear, select the "**Add to archive**" option.

Another dialog box pops up (see 'Figure 2, *Creating an Archive*', next page):

Using the standard Windows methods, select a suitable location for the archive (if you don't change it, the archive gets created right where the selected files are), and give it a name in the form of: "SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID", of course replacing all the elements with the true values for the offer in question: the actual company indicator, and the actual RFP/ITB identification string. Note that it is not possible to put a slash "/" in the filname, and therefore put a dash "-" instead. Leave the file extension ".zip' as is.

Leave all the other settings as is, except: **add a password to the encryption** (see figure 2 below). This is done by typing the same password (of your choosing) twice in the two text fields in the lower right hand corner.

Make a note of this password. You must choose different passwords for the two zip archives, that is, the Technical and the Financial Proposal/Bid.
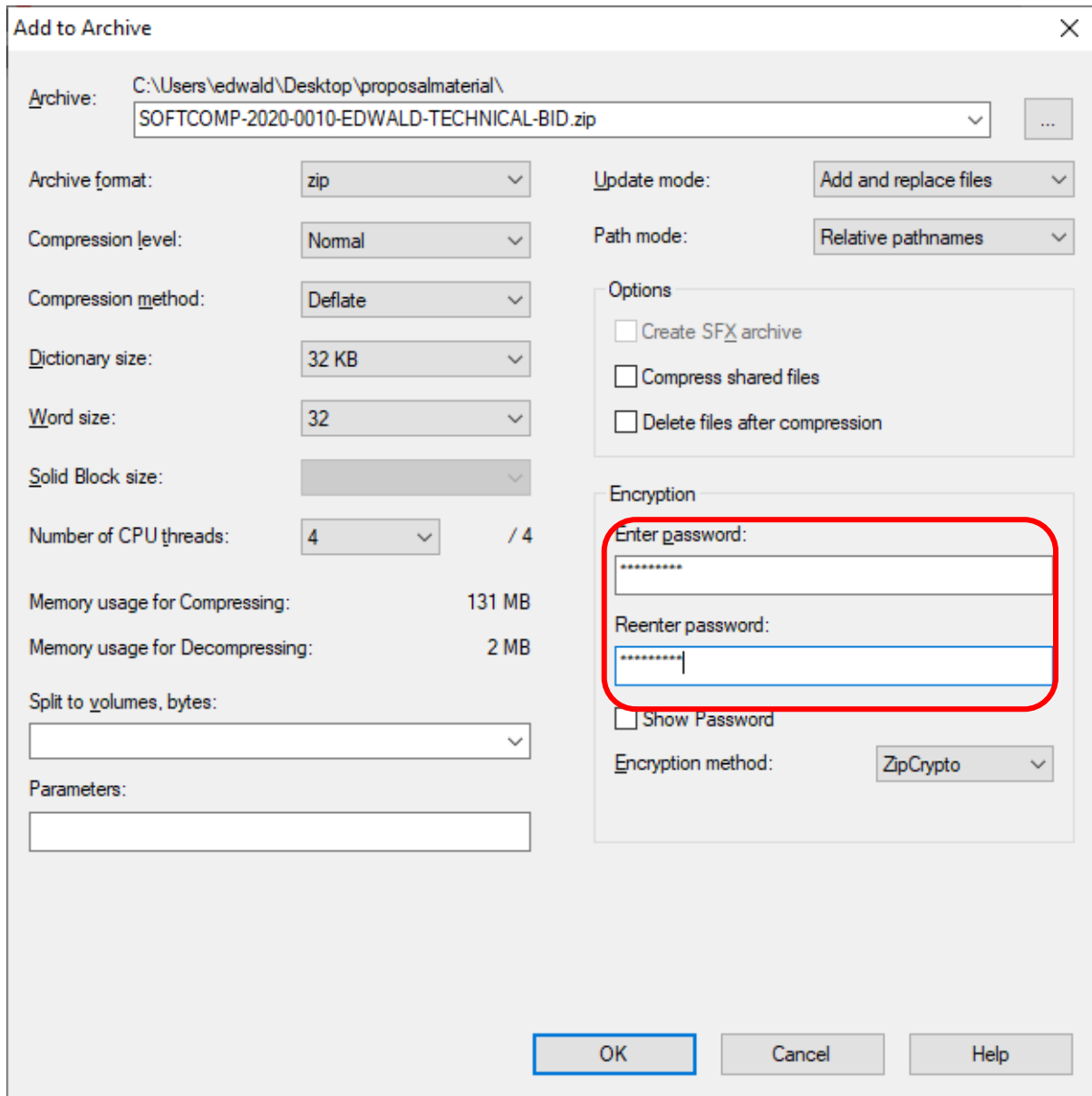
Figure 2 Creating an Archive

Now, we seek the "SHA1 Hash", and electronic fingerprint of the archive you have just created. The hash is a string calculated from your file(s) and can be used to guarantee that the file has not been modified since you created it. Any change to the file will result in a different hash value.

There are many ways of calculating this; two common options are decribed below.

If the appropriate functionality is available in your Windows environment: Select the compressed archive in the Windows file manager, (eg. SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID.zip) and right click. One of the options to select is "**CRC SHA >**". Hovering over the " **>**" brings a few more options to light, select the **SHA-1** option. A smaller dialog pops up: (see Figure 3, *SHA1* below).

Clicking Ctrl-C grabs the contents of this box. You can close the box after copying the contents. (You can paste the contents into a mail message, for instance.)
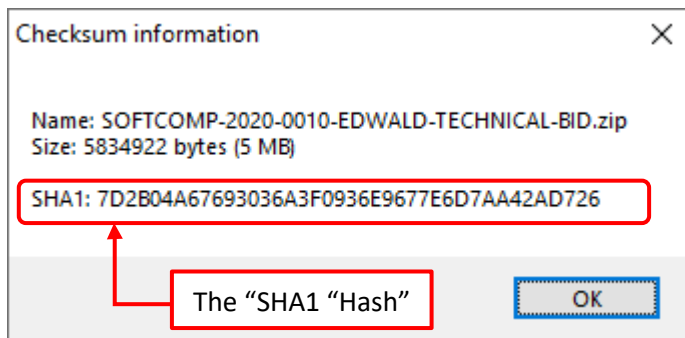
Figure 3 SHA1

If this CRC SHA function is not available by 'right-click' on your Windows version, you can also do this from 'the command line', a slightly more complicated way. Open a CMD window (see sidebar below), move to the folder where your archive is, and execute the command:
"`certutil –hashfile SOFTCOMP–2020–0010–EDWALD–TECHNICAL–BID.zip sha1`"
where you obviously replace the name of the file with your real file name. The output of this command is the SHA1 "hash". You can copy-and-paste the string for use in the email (below).

Sidebar: How to open a CMD window in Windows:

The way to open a Command window (or 'terminal') depends on the version of Windows you have. The different methods are very clearly described in the following article, but a quick internet search will find multiple descriptions.

https://www.lifewire.com/how-to-open-command-prompt-2618089

Finally,

1. Create a new email, Subject: example- "SOFTCOMP-2020-0010-EDWALD". Add the two compressed archives, that is, the Technical Offer and the Financial Offer archives as attachments. The text of the email should contain the SHA1 information for both archives. **SEND THIS TO:** sealed_bids@ctbto.org (note that there is an underscore "_" between "sealed" and "bids"). (Should the email become larger than your mail system allows, you can try sending the two archives in separate emails. Take care to include the right SHA1 information with each file.)

2. Create a new email, Subject: example- "SOFTCOMP-2020-2010-EDWALD-Technical Offer" the contents of which must contain the Encryption Key for the Technical Offer (the password

you used when creating the Technical Offer). (Again, note the underscore between 'bid' and 'keys'.)
SEND THIS TO: bid_keys@ctbto.org

IMPORTANT NOTE: As stated above, only send the Encryption Key for the Technical Offer to the bid_keys@ctbto.org mailbox when sending your Technical and Financial Offer to the sealed_bids@ctbto.org mailbox. You shall only send the Encryption Key for the Financial Offer to the Commission if and when informed by the Commission that your Technical Offer had been evaluated as "technically acceptable".

The Financial Offer Encryption Key will need to be provided by you to the same e-mail (bid_keys@ctbto.org) within 48 hours of the Commission's request, clearly marked in Subject: Encryption Key for (example):"SOFTCOMP 2020-2010 EDWALD-Financial Offer". If your Offer is not considered "technically acceptable", the Commission will not request an Encryption Key for your Financial Offer, and it will remain unopened.

As mentioned above, should you have questions or difficulties, please send an e-mail to procurement@ctbto.org.

We recommend that you leave yourself plenty of time to complete the above process (including getting any necessary assistance from the Commission), as late offers will not be accepted.

Procedure for Submission of Electronic Offers in 2 Sealed Files

MODEL CONTRACT

(Shopping Cart No.   )
(SAP No.   )

between

THE PREPARATORY COMMISSION

FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY

ORGANIZATION

and

THE NAME OF THE CONTRACTOR

for

THE PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS

==This Contract comprises this cover page, a table of contents, 9 (nine) pages of text, a signatories page, a List of Annexes and 3 (three) Annexes (A to C)==

October 2024

TABLE OF CONTENTS

MODEL CONTRACT

This CONTRACT is entered into between the PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION (hereinafter referred to as the "Commission"), having its office located at Wagramer Strasse 5, 1400 Vienna, Austria, and [NAME OF THE CONTRACTOR] (hereinafter referred to as the "Contractor"), having its registered office located at _____ [address] (both hereinafter individually referred to as the "Party" and collectively as the "Parties").

The Parties hereto mutually agree as follows:

1   DEFINITIONS

In this Contract, words and expressions shall have the same meanings as respectively assigned to them in the General Conditions of Contract and the Terms of Reference. In addition, the following words and expressions shall have the meanings hereby assigned to them:

"Annex A" means the Commission's General Conditions of Contract.

"Annex B" means the Commission's Terms of Reference.

"Annex C" means the Contractor's Proposal.

"Contract" means this document, its Annexes and any further modifications or such further documents as may be expressly incorporated in this Contract by the Parties in accordance with Clause 21 (Contract Amendment) below.

"Contractor" means the legal entity named in the preamble of this Contract or its successors. The Contractor shall be the only interface for all matters pertaining to execution of the Work under this Contract.

"Party(ies)" means the Commission and/or the Contractor, as the context requires.

"Rule(s)" means any regulation(s), official directive(s), ordinance(s), guideline(s), customs and practices.

"Services" means the activities or tasks to be performed by the Contractor under the Contract as requested by the Commission under the WO.

"Work" means all the goods and services to be provided by the Contractor, including its affiliates and/or subcontractors, in order to fulfil all its obligations under the Contract, and the remedying of any defects therein.

"Work Orders ('WO')" mean orders issued by the Commission which specify the (parts or portions of) Work to be performed by the Contractor upon request by the Commission in accordance with Annexes B and C.

"Software" means the software and the source code described in Annex B and developed by the Contractor under this Contract.

2 AIM OF THE CONTRACT

The aim of this Contract is to provide Services namely, Provision of Software Engineering Services for the Maintenance of the Atmospheric Transport Modelling Pipeline With its Data Acquisition, Processing and Dissemination on a Call-off Basis (hereinafter referred to as the "Work") to the Commission.

3 ENTRY INTO FORCE AND DURATION OF THE CONTRACT

The Contract shall enter into force upon the date of the last signature by the authorized Representatives of the Parties (hereinafter referred to as the "**Effective Date**") and shall be valid until the Parties fulfill all their obligations hereunder.

4 COMMENCEMENT AND COMPLETION OF THE WORK

(a) The Commission shall have the right, but not obligation, to call-off the Works in the form of WO within a period of three (3) years from the Effective Date or the performance of a maximum of 750 (seven hundred and fifty) person-days by the Contractor, whichever occurs first (hereinafter referred to as the "**Call-off Period**"). The commencement and completion date for the performance of the Works (hereinafter referred to as "**Commencement Date**" and "**Completion Date**", respectively) will be set out in the respective WO.

(b) The Commission shall have the option to extend the Call-off Period two (2) times, each extension of one (1) year or the performance of a maximum of 250 (two hundred and fifty) person-days by the Contractor, whichever occurs first subject to the availability of funds, under the same terms and conditions as those of this Contract. The Commission will inform the Contractor about its intention to extend the Work at least one (1) month prior to the expiry of the relevant Call-off Period. The optional extensions will be implemented through a written notification to the Contractor by the Commission.

5 STANDARD OF WORK

The Contractor shall perform the Work in a workmanlike manner in conformity with standard professional practices, using qualified personnel and in strict accordance with the Contract. The Contractor shall furnish the highest skill and judgement and cooperate with the Commission, including all the Commission's consultants and agents, in best furthering the interests of the Commission and the aim of this Contract. The Contractor shall provide efficient business administration and supervision, and it shall perform the Work in the best way and in the most expeditious and economical manner consistent with the requirements of the Contract.

6 RESPONSIBILITIES OF THE CONTRACTOR

(a) The Contractor shall provide the Work described in Annexes B and C.

(b) The Contractor shall provide qualified English-speaking personnel as necessary to perform the Work under this Contract. The key persons shall be available for possible tasks related to the Work throughout the duration of the Contract period. Any replacement of the key personnel shall be made in accordance with Clause 7 of Annex A.

(c) The Contractor shall provide the Software and Services described in Annexes B and C.

(d) The Contractor acknowledges that after the completion of the Work under this Contract, the Commission shall own the Software and source code described in Annex B and developed under this Contract, and the Contractor shall have no rights in that Software or source code unless granted by the Commission under Clause 24 of this Contract or in writing under a separate agreement".

7 ORGANISATION OF CONTRACT IMPLEMENTATION

(a) During the term of the Contract, the Commission has the right, but not the obligation, to initiate performance of the Work through the issuance of individual WOs in accordance with Annex B based on the firm fixed unit prices set out in Annex C. The Contractor shall not perform any Work if not requested by the Commission through an WO. However, the Contractor may propose a WO for the Commission's evaluation.

(b) The WO issued by the Commission shall be the basis for acceptance, invoicing and payment of any Work performed by the Contractor.

(c) The performance of the Work shall be made in full in accordance with the respective WO. Partial service performance of a WO will not be accepted and reimbursed without prior written agreement by the Commission.

(d) The Work shall be performed at the place and within the approved Work Plan specified in the relevant WO.

(e) The Commission may revise a WO as and when it may deem necessary.

8 WARRANTY

(a) The provisions of Clause 28 of Annex A shall apply to the Work performed by the Contractor.

(b) The Contractor shall ensure that the Commission shall experience no loss of service or support level by sub-contractors or repair agents acting on behalf of the Contractor.

9 PERMITS, NOTICES, LAWS AND ORDINANCES

(a) The Contractor shall obtain and pay for all permits and inspections necessary for the proper execution and completion of the Work that are customarily obtained upon execution of this

Contract and that are legally required at the time the Proposal is received by the Commission. This shall include, but not be limited to, work permits, visa, or similar.

(b)   The Contractor shall give all notices required by the nature of the Work.

(c)   If the Contractor notices that the Work or any part thereof required under this Contract is not in accordance with applicable laws and Rules, or with technical or safety standards, it shall promptly notify the Commission thereof in writing.

10   PROTECTION OF PERSONS AND PROPERTY

(a)   The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programmes in connection with the Work.

(b)   The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury and loss to:

   (i)   all employees on the Commission's premises and all other persons who may be affected thereby;

   (ii)   all the Work, equipment, its spare parts, materials and supplies to be incorporated therein, whether in storage on or off the Commission's premises, which are under the care, custody or control of the Contractor or any of its subcontractors; and

   (iii) other property on the Commission's premises or adjacent thereto.

(c)   The Contractor shall give all notices and comply with all applicable laws and Rules bearing on the safety of persons and property and/or their protection from damage, injury and loss.

(d)   The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for the safety and protection of persons and property, including posting danger signs and other warnings against hazards and promulgating safety regulations.

(e)   When the use or storage of combustible, explosive or other hazardous materials is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.

(f)   The Contractor shall be responsible for the prevention of accidents on the Commission's premises during the execution of the Work.

(g)   In any emergency affecting the safety of persons or property, the Contractor shall promptly act to prevent threatened damage, injury and loss.

(h)   The Contractor shall promptly remedy all damage and loss to any property, referred to in Sub-Clause (b) above, caused in whole or in part by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under Sub-Clause (b) above, except damage and loss attributable to the acts or omissions of the Commission or anyone directly or indirectly employed by it, or of anyone for whose acts the Commission may be

liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to its obligations under Clause 9 of Annex A.

11 RESPONSIBILITIES OF THE COMMISSION

The Commission shall designate members of its staff to act as points of contact for the Contractor to ensure that the Work is carried out in accordance with Annexes B and C and shall promptly notify the Contractor thereof. The Commission shall respond promptly to requests for information by the Contractor regarding the Work.

12 CONTRACT PRICE

(a) The Commission shall pay to the Contractor, in consideration of the full and proper performance of its obligations under the Contract, as follows:

   (i) For each WO issued during the firm Call-off Period specified in Clause 4(a) above, the firm fixed day rate pursuant to Annex C and, if applicable, the variable costs (travel costs and other expenditure) pursuant to Annex C;

   (ii) subject to sub-clause (b) below, for each WO issued during the first optional extension of the Call-off Period specified in Clause 4(b) above, the firm fixed unit prices pursuant to Annex C and, if applicable, the variable costs (travel costs and other expenditure) pursuant to Annex C;

   (iii) subject to sub-clause (b) below, for each WO issued during the second optional extension of the Call-off Period specified in Clause 4(b) above, the firm fixed unit prices pursuant to Annex C and, if applicable, the variable costs (travel costs and other expenditure) pursuant to Annex C;

(hereinafter referred to as the "Contract Price").

(b) In the event that the Commission decides to extend the Call-off Period before the end of the initial 12-month period, as foreseen in Clause 4 of this Contract, the Contactor will be reimbursed for the person-days called off in this period as follows:

   (i) until the expiry of the initial Call-off Period, the daily rate set out in subparagraph (a)(i) above;

   (ii) after the expiry of the initial Call-off Period, the daily rate agreed for the optional extension (subparagraph (a)(ii), or (iii) above).

(c) The firm fixed unit prices set out in Annex C shall be held fixed for the entire duration of the Contract.

(d) The Contract Price shall cover all costs and expenses incurred by the Contractor for the full and proper performance of all relevant obligations under the Contract (including travel, allowances, management and remuneration of the personnel, national income tax, medical insurance, and social security contributions).

(e) **[PLEASE IDENTIFY WHETHER TAXES ARE APPLICABLE UNDER THIS CONTRACT AND SELECT ONE OF THE FOLLOWING OPTIONS AT THE TIME OF AWARD]:**

The Contractor shall be reimbursed by the Commission for such taxes on the basis of actual amounts paid and duly documented by the Contractor as per Clause 13(e) below.

OR

No Taxes are applicable under this Contract.

13 PAYMENT

(a) The Contract Price shall be paid upon satisfactory completion of each deliverable for the Work and satisfactory completion of each WO and submission of the following:

   i) Invoice drawn up in accordance with this Clause 13;

   ii) Any other documentation that might be required under the applicable WO.

(b) The Commission will make the payments to the Contractor on the basis of an invoice submitted by the Contractor as per Sub-Clause (d) below. All payments shall be made within 30 (thirty) days of the receipt and acceptance of the invoice, provided that the Work has been satisfactorily completed and has been accepted by the Commission.

(c) The making of any payment hereunder by the Commission shall not be construed as an unconditional acceptance by the Commission of the Work accomplished by the Contractor up to the time of such payment.

(d) The Contractor shall submit an invoice electronically, from the Contractor's official e-mail address in PDF format, duly signed and stamped by the Contractor and submitted to the Commission's email address specified in Clause 22 below. Each invoice shall contain the Contract number (CTBTO and SAP numbers), detailed banking instructions, including the name and address of the Contractor's bank, account number, account holder's name and SWIFT, IBAN and/or ABA codes for payment by electronic transfer.

[PARAGRAPH (e) BELOW ONLY APPLIES IF THERE ARE TAXES (SEE CLAUSE 12 (d) ABOVE). IF NO TAXES ARE APPLICABLE UNDER THIS CONTRACT, PARAGRAPH (e) SHOULD BE OMITTED.]

(e) Applicable Taxes payable by the Contractor and/or its subcontractor(s) in respect of the Work shall be invoiced separately or be separately identified on the invoice. Actual payment of the Taxes must primarily be supported by original documentation such as invoices, bank account statements, transfer orders, or receipts issued by the local tax or customs authorities. If submission of such original documentation is not possible for justifiable reasons, their copies could be accepted by the Commission provided that they are duly signed and certified by local tax or customs authorities. In case the currency in which the Taxes are levied is not the currency of the Contract, bank statements (or equivalent) showing the exchange rate used for the conversion should be submitted to the Commission, in addition to any other supporting documentation.

14 TEMPORARY SUSPENSION OF WORK

The Commission may, at any time, temporarily suspend the Work, in whole or in part, being performed by the Contractor under this Contract by giving 30 (thirty) days' advance notice in writing to the Contractor. The Work so suspended shall be resumed by the Contractor on the basis of a revised time schedule and on terms and conditions to be mutually agreed upon between the Parties.

15 DELAYS AND EXTENSION OF TIME

(a) If the Contractor is delayed at any time in the progress of the Work by any act or omission of the Commission or by any of its employees, or by any other contractor employed by the Commission, or by changes in the Work ordered by the Commission, or by any causes beyond the Contractor's reasonable control, or by any other cause which the Commission determines may justify the delay, then the time for completion of the Work shall be extended by an amendment to this Contract in accordance with Clause 21 below for such reasonable time as the Commission may determine.

(b) Any request for extension of the time for reasons referred to in Clause 15(a) above shall be submitted to the Commission not later than 20 (twenty) days after the commencement of the delay, otherwise said request shall be deemed to be waived. Such request shall state grounds for the delay and shall provide an estimate of the probable effect of such delay on the progress of the Work.

16 CONTRACTOR'S CLAIMS AND REMEDIES

In no event shall the Contractor make any claim against the Commission for or be entitled to additional costs or compensation resulting from any delays in the progress or completion of the Work or any portion thereof, whether caused by the acts or omissions of the Commission, including, but not limited to, damages related to overheads, loss of productivity, acceleration due to delay and inefficiency. The Contractor's sole remedy in such event shall be an extension of time for completion of the Work, provided the Contractor otherwise meets the requirements and conditions set forth in this Contract.

17 ENTIRE AGREEMENT

This Contract represents the final agreement in respect of the Work and shall supersede all prior agreements and representations between the Parties in this respect. Annexes A to C shall constitute integral parts of this Contract and shall be of full force and effect.

18 DISCREPANCIES

If there are discrepancies or conflicts between any of the documents that are part of this Contract, the document to prevail shall be given precedence in the following order:

(i) This document;

(ii) The Commission's General Conditions of Contract (Annex A);

(iii) The Commission's Terms of Reference (Annex B);

(iv) The Contractor's Proposal (Annex C);

(v) The relevant WO.

19   SEVERABILITY

If any term and/or provision of this Contract is or becomes invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions of this Contract shall not in any way be affected or impaired thereby.

20   NO WAIVER

Failure by a Party to enforce a right shall not be deemed to be a waiver of that right unless otherwise expressly provided in this Contract.

21   CONTRACT AMENDMENT

No modification of, or change in, this Contract, or waiver of any of its provisions, or additional contractual relationship with the Contractor shall be valid unless approved in the form of a written amendment to this Contract, signed by duly authorized Representatives of the Parties.

22   TRANSMISSION OF NOTICES AND OTHER DOCUMENTS

Notices, invoices, reports and other documentation under the Contract shall be delivered or sent to the relevant Party as follows (or to such person/title, address or email address as the Party may substitute by notice after the date of the Contract):

(a)   The Commission:

For Contractual Issues:
Chief, Procurement Section
Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)
Vienna International Centre
Wagramerstrasse 5, P.O. Box 1200
1400 Vienna, Austria
Tel: + (43 1) 26030 6350
E-mail: procurement@ctbto.org

For submission of invoices:
Accounts Payable
CTBTO Financial Services Section
Vienna International Centre
Wagramerstrasse 5, P.O. Box 1200
1400 Vienna, Austria
Tel: + (43 1) 26030 6292
E-Mail: Payable_Invoices@ctbto.org

For invoices related enquiries:
Payments@ctbto.org

(b)   The Contractor:

For Contractual Issues and Invoices and Related Enquiries:

Name: ……………
Title ………………
Address ………………
Tel: ……………………
Email: ………………

23   EFFECTIVENESS

(a)   Except as provided below, any communication in connection with the Contract will be deemed to be given as follows:

    (i)   if delivered in person, at the time of delivery;

    (ii)   if by registered mail or courier, when received;

    (iv)   if by electronic communication, when retrievable by the Commission in document form.

(b)   A communication given under Clause 23(a) above that is received or becomes retrievable on a non-working day or after business hours at the seat of the Commission will only be deemed to be given on the next working day of the Commission.

24   SOFTWARE LICENCE

The Commission hereby grants the Contractor a non-exclusive, non-transferable, irrevocable license to use the Software for the duration of the Contract and for the purpose of doing the Work under the Contract. The use of the source code is only for the duration of the Contract and for the Work required under the Contract. All title, ownership rights and intellectual property rights in and to the Software shall remain with the Commission. The Contractor acquires no title, right or interest in the Software, other than the license(s) specifically granted herein by the Commission.

IN WITNESS hereof, the duly authorized Representatives of the Parties have executed this Contract:

For and on behalf of **the PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION:**

_____

Name and Position

Date: _____   Place: <u>Vienna, Austria</u>

For and on behalf of **[REGISTERED NAME OF THE CONTRACTOR]:**

_____

Name and Position

Date: _____   Place: _____

LIST OF ANNEXES

ANNEX A: THE COMMISSION'S GENERAL CONDITIONS OF CONTRACT

ANNEX B: THE COMMISSION'S TERMS OF REFERENCE

ANNEX C: THE CONTRACTOR'S PROPOSAL

ANNEX B

TERMS OF REFERENCE

Provision of Software Engineering Services for the **Maintenance of the Atmospheric Transport Modelling Pipeline with its Data Acquisition, Processing and Dissemination** ON A CALL-OFF BASIS

1. INTRODUCTION

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (hereafter referred to as "the Commission", "CTBTO" or "PTS"), located in Vienna, Austria, is the international organization establishing the global verification system under the provisions of the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which bans any nuclear weapon test explosion or nuclear explosion below or above the Earth's surface, underwater and on the surface of the water or in the atmosphere. The verification system includes the International Monitoring System (IMS), a global network of monitoring stations that employ waveform technologies (seismic, hydro-acoustic and infrasound) and radionuclide technologies (particulate and noble gases), a global satellite communications infrastructure (hereinafter referred to as the GCI), an International Data Centre (IDC) and the capability to carry out on-site inspections (OSI).

The IDC supports the verification responsibilities of the Commission by providing data products and services for effective global monitoring. The IDC collects and analyses data from the IMS network to detect and locate possible nuclear events. At the IDC, data are automatically processed by computer algorithms and then interactively analyzed and reviewed by human analysts. Near-real-time data and data products/bulletins are distributed to the State Signatories.

More information on CTBTO is available at www.ctbto.org.

2. BACKGROUND

The CTBTO operates software to process time-series data from the three waveform technologies Seismic, Hydro-acoustic, and Infrasound (SHI) sensors worldwide. The data is transmitted to the IDC in Vienna in near-real-time (within 5 min). The radionuclide (RN) technology complements the three waveform technologies. It is the only one that can confirm whether an explosion detected and located by the other technologies indicates a nuclear test.

The Commission has developed an Atmospheric Transport Modelling (ATM) pipeline working with meteorological data and simulations running backward in time to produce Source-Receptor-Sensitivity (SRS) fields to link detections at radionuclide stations from the International Monitoring System (IMS) to the possible source area from which radionuclides may originate. When used forward in time, ATM can estimate which IMS radionuclide stations are likely to be affected, given a radioactive release scenario. ATM is an important element for the IDC to fulfil its mandate and is constantly evolving.

The pipeline currently runs on an operational RHEL 7 machine and automatically produces above mentioned SRS fields. Further post-processing with additional software components produces more products, such as Field-of-Regards (FOR), Possible Source Regions (PSR), and several images. Other products, including those in forward mode, are produced manually on request in the case of an event. SRS fields are generated operationally (24/7). If production is stopped, immediate support will be required. ATM products must be available 99% of the time. The ATM environment, which run (time shifted) the same production software, consists of a development, a testing, and an operational environment, which are all identical. The Contractor shall work on the development system while assisting the CTBTO staff in migrating the software to the testing and operational environment.

The ATM pipeline consists of a chain of processing elements arranged so that each element's output is the next one's input. There are four major elements: acquisition, modelling, post-processing, and visualization. The major elements then contain their own pipelines (names of the application software packages currently in use are given in parentheses) as follows:

Acquisition: Retrieval of suitable meteorological input data (from ECMWF and NCEP) required as input data for ATM modelling. These data need to be transferred to CTBTO and pre-processed. (atmpipeline)

Modelling: Combining multiple input data (e.g. meteorological data, radionuclide samples, IMS station information, etc.) for ATM modelling with the Lagrangian particle dispersion model FLEXPART results in multiple SRS fields which are related to either RN sample data (backward modelling) or a defined source (forward modelling). (atmpipeline, flexpart-ctbto, flexpart2ctbt)

Post-processing: Post-processing is based on the SRS fields and determines the output such as the FOR and PSR. (atmpipeline, srs2for)

Visualization: Visualization of the post-processed output in both batch/automatic (atmpipeline, forplot, srsplot) and interactive mode. The latter mode is covered by the application WEB-GRAPE. Manual products in both backward and forward mode are generated on request.

Acquisition and Modelling are the most computationally demanding elements performed at the IDC. Post-processing and Visualization do not necessarily require 24/7 operations. They can also be done upon request and in a decentralized way.

The ATM pipeline software (atmpipeline) is the complex and comprehensive part of the ATM system which drives the automatic (operational) execution of all single components. This software package is mostly written in object-oriented Perl. The Lagrangian dispersion model FLEXPART is an open-source, community-maintained software, which is optimized for CTBTO's specific needs. FLEXPART, as well as a suite of smaller tools (flexpart2ctbt, srs2for, forplot, srsplot) are written in FORTRAN. Additional tools for non-operational use, new tools under development and a graphical user interface to start manual ATM simulations are written in Python.

3.   ORGANIZATION OF WORK

The Commission may ask for Services as described in Section 4.

3.1   WO Project Call-off

The work will be called off in the form of Work Orders (WOs). Each WO shall include the exact scope of work and the required deliverables to be performed and delivered by the Contractor.

3.1.1   Initiating Work

Since the IDC follows the Scrum software development methodology, WOs generally follow Scrum sprints and cover software development services to be performed within approximately four (4) weeks. Therefore, a WO is issued during a sprint planning meeting, and the work items to be addressed in that WO (sprint) are recorded in the Commission's Jira-based tracking system. Initiation of the sprint constitutes the issuance of the WO. In the case of a WO issued outside of the Scrum framework, the Commission will supply the work to be performed in writing to the Contractor. The Contractor shall respond with an estimate of the number of person-days required to complete the work and the delivery date. After the estimate and delivery date are accepted, the Commission will issue the WO to the Contractor.

The Contractor shall perform the work only after receipt of the WO.

3.1.2   Completion and Acceptance

At the end of a particular WO, the Contractor shall submit to the Commission the deliverables within the period of performance stated in the respective WO. The deliverables may include:

- Updated Software Design Documents.
- Updated Software User Guide.
- Description of how to use the programming interfaces developed under this Contract.
- Updated source code or configuration files.
- WO Report.

Typically, in accordance with the Scrum methodology, the Contractor will present the work performed during the sprint, including demonstrations of the newly developed software, within the Sprint Review meeting.

4. SCOPE OF WORK

This section describes the scope of work under the Contract.

At the time when the work is called off (see Section 3 for the organization of work), the detailed scope of the Services shall be defined.

4.1 Objectives

The Commission seeks to establish a Call-Off Contract under these Terms of Reference (hereinafter referred to as "ToR"). The ToR forms the technical framework for supplying general software engineering services for ATM data acquisition, processing, and dissemination.

The Contractor shall support the Commission in the Services defined under Section 4.2 to maintain and improve the ATM pipeline.

4.2 Requested Services

4.2.1 Familiarization with the ATM pipeline (if applicable)

Should the Contractor not be familiar with the ATM pipeline, it shall interview and work with the staff of the Commission to study and learn about the CTBTO ATM pipeline environment (ATM pipeline) to be able to perform the Services specified in Section 4. This familiarization is expected to take place only once.

The familiarization is expected to take up to 60 person-days during the first call-off period, depending on the Contractor's prior experience with the CTBTO ATM pipeline environment.

4.2.2 Selection of tasks

The Contractor shall be required to:

- Ensure smooth operation of the development ATM pipeline instance;
- Provide second-level support and maintenance for existing (custom) software systems by troubleshooting, implementing software patches and updates, migrating for software releases, etc.
- Migrate the ATM pipeline software from RHEL 7 to 9;
- Audit Software Code in preparation for upgrades/enhancements;
- Provide proactive and/or reactive support services;
- Perform system analysis and translate into software requirements, architecture, and design using Agile software development methodologies;
- Support implementation of new FLEXPART versions (e.g. the newest community version) to the ATM pipeline;
- Support implementation/maintenance of the High-Resolution ATM (HRATM) pipeline;
- Support migrating ATM software to IDC's HPC system and perform optimization analysis to achieve the best possible performance;
- Support the deployment of software under development following IDC change management processes;

- Integrate the ATM pipeline in the existing continuous integration/delivery framework;

- Migrate ATM software to use the actual time retrieved from the database instead of configuration files;

- Write, review, and update software documentation and procedures;

- Provide training or other services associated with operating the software;

- Unit, black-box, acceptance, and performance testing for the systems being developed/maintained;

- Enhance workflow status monitoring, logging, and reporting;

- Scheduling of defined deliverables and estimating the effort to execute the work;

- Perform other duties as assigned.

4.2.3 Operational support

Considering that SRS files are generated operationally (24/7), immediate support will be required if a critical situation arises. A critical situation is arising in a case when the production is stopped or is foreseen to be stopped due to upcoming changes to the pipeline which is outside of the CTBTO's influence. ATM products must be available 99% of the time; for that reason, there is a need to prepare for the unexpected. Upon the Commission's request, the Contractor shall provide this support off-site, within 12 hours, on a 24/7 basis. As described in Section 3.1.1, the deliverables shall be defined when work is called-off.

4.3 Output and Deliverables

The Contractor shall submit a report for each WO, as defined in Section 3.1.2, to the Commission electronically via email and within the first five (5) working days after the WO finished, describing all the activities performed during the preceding WO, including but not limited to:

- Summary of tasks done.

- Summary of problems that have arisen.

- Status of tickets, bug reports, and possible fixes (if applicable).

- Status and updated plan for all active development tasks.

- Time spent on each activity worked on.

All documentation shall adhere to the IDC Software Documentation Standard, which expresses precise requirements for elaborating, reviewing, approving, and using IDC software-related documents. This Standard will be shared with the Contractor at the start of the project. Guidelines and recommendations from this Standard are proposed for the deliverables described in Section 3.1.2.

5. WORK LOCATION AND TIMEFRAME

5.1 Location of Performance

For all tasks, the Contractor's personnel will be expected to work off-site of the premises of the Commission in Vienna, Austria. The Commission will provide the Contractor remote access to the relevant infrastructure in the PTS network. The infrastructure comprises but is not limited to, software, servers, web services, LANs, and databases.

The Contractor may be required to travel to the Headquarters of the Commission in Vienna, Austria, as applicable. There may be up to two trips per year with five (5) on-site days per trip. Alternatively, the Commission shall agree on a single trip with the consumption of ten (10) on-site days per year before issuing the WOs. The Contractor may send up to two persons per trip. In case on-site work is required at the PTS headquarters in Vienna, Austria, the Commission will provide at its premises a suitable work environment (workspace, meeting rooms for presentations and trainings, standard stationery, internet connection) to the Contractor's personnel to perform the services under the Contract, as required.

All travel arrangements shall be the Contractor's responsibility if travel is required. The Commission shall reimburse travel costs (other than daily subsistence allowance (DSA) based on the most direct and economical route upon presentation of supporting documents and in accordance with the Contract provisions. Per-diem amounts shall be based on the applicable United Nations DSA rates published by the International Civil Service Commission (ICSC).

5.2 Timeframe

The Commission seeks to establish a Contract with a 3-year Call-off Period or the performance of a maximum of 750 (seven hundred and fifty) person-days by the Contractor, whichever occurs first.

The Commission shall have the option to extend the Call-off Period two (2) times, each extension in the duration of one (1) year or the performance of a maximum of 250 (two hundred and fifty) person-days by the Contractor, whichever occurs first, subject to the availability of funds.

The commencement and completion date for the performance of the work will be set out in the respective WO.

	Years	Maximum person-days per Call-off Period
Initial Call-Off Period	3	750
1st Extension	1	250
2nd Extension	1	250
Contract Total		**1250**

6. REQUIREMENTS FOR THE CONTRACTOR

6.1 Contractor's responsibilities

For off-site work, the Contractor shall provide its own infrastructure, hardware, and software environment necessary to complete its work under the Contract. The Contractor shall communicate with the Commission via video conferencing (preferably MS Teams), electronic mail, or telephone. All costs incurred by the Contractor because of such communication with the Commission for the performance of work under the Contract shall be borne by the Contractor.

Any new technology, framework, software library or program must be open source, as defined by the Open-Source Initiative (OSI). The Contractor shall maintain the software using the CTBTO's own Git/GitLab version control system. All source code releases shall be delivered via this system.

The Commission has a change management process that covers reporting and tracking software problems and releases software updates in its Development, Testbed, and Operational environments. An Integrated Ticketing System based on the Jira software supports this change management process. The Contractor personnel shall familiarize themselves with this process and follow it when applying changes and releasing software. The time spent on the tickets must be recorded in Jira by the Contractor's personnel. The Commission's Configuration Change Board shall approve all software and configuration changes.

The Contractor shall deliver a source code through incremental releases according to the Agile software development methodology (preferably Scrum). In particular, the Contractor shall follow the "Release Early, Release Often" (RERO) software development philosophy, which emphasizes the importance of early and frequent releases in creating a tight feedback loop between developers, testers, and users. Each new delivery shall include a description of what changes were made relative to the previous release and a list of files modified by each change.

All source code developed under this Contract shall follow the IDC Coding Standards (which include recommended coding style, the required implementation of unit tests, and use of open standards and open-source libraries where possible) and shall compile and run under the Linux operating system family (currently RHEL/CentOS 7.x).

The IDC guidelines for requirements engineering shall form the basis for eliciting and documenting requirements.

The Contractor shall update the respective documentation to reflect changes caused by any upgrade to the software. Software documentation must include a Software User Manual, a Software Design Document and a Software Test Plan. All documentation shall adhere to the IDC Documentation Standards.

Both standards will be made available to the Contractor upon request after the entry into force of the Contract. When using existing available open-source solutions, coding and documentation standards, as defined in those projects, may be used.

6.1.1 Constitution of the Contractor's key personnel roster

The Contractor shall provide and maintain up-to-date details of key personnel roster for the off-site or on-site work for the Commission. At a minimum, the following information shall be provided and maintained for each of these key personnel:

- Name.
- Nationality.
- Role.
- Employed since. (Please specify whether the key personnel are a permanent member or rather, if they are contracted for the duration of the Contract on an ad-hoc basis.)
- Type(s) of Service(s) from Section 4, which the key personnel will perform.
- Curriculum Vitae

The Contractor shall assign personnel with demonstrated:

- Capability and capacity to perform the Services described in Section 4.
- Compliance with the requirements set out in Section 6.3.

6.1.2 Maintenance of the key personnel, Conditions of Amendment

The Contractor shall maintain an up-to-date version of the key personnel (hereinafter called "Team Roster") for the duration of the Contract. The Contractor shall inform the Commission when personnel is to be removed or added to the Team Roster and if personnel details are modified.

Should the Commission deem that a member of the Team Roster lacks the capacity or capability to perform a specific work within the specified timeframe or quality, the Contractor shall provide, within five (5) working days after the Commission makes a request, the details of skilled and experienced personnel to be added to the Team Roster for consideration by the Commission.

The Commission shall be entitled to confirm whether the proposed Team Roster amendment is acceptable.

Before issuing a WO, as described in Section 3.1.1, the Contractor will be requested to propose a list of personnel from the Team Roster to work under the specific WO.

The Contractor shall ensure that each Team member assigned to a WO:

- is dedicated to the project during the WO period (unless otherwise agreed); and
- is not reassigned from the project without the prior written consent of the Commission.

The Contractor shall satisfy the following mandatory requirements for the selection of a personnel from the Team Roster to work in a WO and for the Team Roster:

- An established pre-screening process to identify suitable staff.
- By naming a relevant successful project in the CV, provide reasonable evidence that the proposed Team is appropriately skilled and experienced to carry out the relevant WO.

The Contractor shall satisfy the following mandatory requirements at the start and throughout the Contract:

- Familiarization with IDC's IT infrastructure and services is required and should be conducted right from the start as part of the first WO;

- Provision of training to address a gap in knowledge identified after a Team member has started their assignment, at no cost to the Commission, upon request by the Commission;

- Adding or replacing poor-performing Team members at no cost to the Commission upon request by the Commission.

The Commission shall be entitled to confirm whether the proposed Team is acceptable.

Continuity of personnel for the full implementation of this Contract is an important consideration. Therefore, the Contractor shall take necessary measures to ensure a seamless transition when taking over the Services and keep changes to personnel assigned to the Commission to a minimum throughout the duration of the Contract.

6.1.3   Level of detail for (software) project description

In case a list of (software) projects is required to prove existing experience, the description of each such project shall include the following information:

1) Objectives, deliverables and description of the (software) project.

2) Release date, duration and approximate person-days of the project.

3) Main programming languages/ technologies used.

4) Development methodologies used.

5) If applicable: specific scientific methods used.

6) Selected key-personnel involved in the respective project, including their roles and contributions.

7) Draw a comparison of the project's scope and complexity to the requested Services.

8) Any kind of (publicly) available reference, such as publications, Git repositories, manuals etc.

To avoid duplication, if a single software project covers multiple items of the requirements list, it is possible to refer to the same software project repeatedly.

6.2   Contractor's requirements

The Contractor shall satisfy and demonstrate the following mandatory requirements:

a) Extensive experience, with a minimum of five (5) software projects, in managing software of similar scope and complexity as required in this ToR. The software projects shall be provided as described in Section 6.1.3.

b) Relevant experience, with a minimum of four (4) software projects, in scientific computing/scientific software development. The software projects shall be provided as described in Section 6.1.3.

c) Confirmation that the staff turnover has been below 20% per year over the past three (3) years.

d) Hands-on experience with all elements of the software development lifecycle: eliciting and documenting business process flows, use cases, requirements, quality management plans, user acceptance testing, and end-user training. This shall be demonstrated through concise description of their methodology and past practical approaches in software projects.

e) A warranty period of two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes shall be available and clearly specified.

f) Be able to adjust the working hours of the assigned Team for a Sprint Meeting that overlaps at least two hours with the Commission's working hours (9 a.m. to 5 p.m. CET/CEST).

- A monthly sprint meeting is foreseen, but this might change to any time frame as deemed necessary by the Commission.

g) Be able to provide support on a 24/7 basis during critical situations (e.g. the <u>operational</u> pipeline fails).

h) At least three (3) key-personnel are assigned at all times to the Team Roster to work under this Contract.

i) Has a Risk Management methodology for the execution of the outlined software development activities in these Terms of Reference as per Section 7.

6.3 <u>Contractor's key personnel requirements</u>

When selecting the Team, the Contractor shall ensure that the following minimum requirements are met by at least one (1) team member to provide the Software Engineering services related to the minimum requirements. The Contractor shall also ensure the continuity of having at least one (1) member meeting the following minimum requirements during the development (for example, when the original one (1) member needs to be replaced). For each minimum requirement, the Contractor shall specify which proposed key personnel cover the requested experience by providing adequate proof appropriately.

Said minimum requirements are:

a) Advanced university degree in Computer Science or Mathematics, Physics, or a related scientific/technical subject.

b) Excellent communication skills in English are essential.

For the following minimum requirements, the Contractor shall provide the verification of experiences in the form of a (list of) previous (software) project(s), meeting the information requirements defined in Section 6.1.3.:

c) Extensive experience, with a minimum of three (3) projects, in providing maintenance services for a Unix/Linux client/server system is mandatory (e.g. upgrading Linux systems and migrating existing software).

d) Extensive experience, with a minimum of six (6) projects, in providing software development services on a Unix/Linux client/server system is mandatory.

e) Extensive practical experience, with a minimum of two (2) projects, with one or more Agile frameworks, preferably Scrum, is mandatory.

f) Extensive practical experience, with a minimum of two (2) projects, with Git and GitLab is mandatory.

g) Relevant professional experience, with a minimum of three (3) projects, in providing software maintenance and support services for complex and custom software systems in operational use (this includes troubleshooting and issue fixing).

h) Relevant professional experience, with a minimum of three (3) projects, in developing software to automatically process data in near-real-time.

i) Extensive experience, with a minimum of four (4) projects, with the programming language Perl is mandatory.

j) Extensive experience, with a minimum of four (4) projects, with the programming language Fortran is mandatory.

k) Extensive experience, with a minimum of four (4) projects, with the programming language Python is mandatory.

l) Extensive experience, with a minimum of four (4) projects, in professional software testing methodologies is mandatory.

m) Extensive experience, with a minimum of four (4) projects, in using and building a CI/CD pipeline is mandatory.

n) Extensive experience, with a minimum of two (2) projects, in code optimization and parallelization (MPI/OpenMP), particularly in scientific computing on distributed memory architectures.

o) Sufficient knowledge and experience, with a minimum of one (1) project each, in working (reading & writing) with the GRIB, NetCDF, JSON, and XML data formats is an advantage.

p) Sufficient experience, with a minimum of one (1) project, with PyQt is an advantage.

q) Sufficient experience, with a minimum of one (1) project each, with the programming languages SQL and C/C++ is an advantage.

r) Sufficient experience, with a minimum of one (1) project, in developing and working on supercomputer clusters (High-Performance Computers), including the use of queuing systems (e.g. slurm), and a package manager (e.g. SPACK, environment modules) is an advantage.

s) Sufficient experience, with a minimum of one (1) project, with machine learning or deep learning is an advantage.

t) Comprehensive experience, with a minimum of one (1) project, in Atmospheric Transport Modelling (ATM), preferably with the ATM model FLEXPART (used at the CTBTO), is an advantage.

The Team proposed by the Contractor shall, as complementary as possible, fulfil the above minimum requirements (Team coverage of minimum requirements).

7.   Risk Management

The Contractor shall provide a business continuity plan and thorough risk assessment plan at the project's commencement to identify potential risks that could impact the successful execution of the outlined software development activities in these Terms of Reference, including contingency plans, as appropriate. Risks may include but are not limited to technical challenges, changes in project requirements/scope, resource constraints, schedule delays, integration difficulties, and third-party software dependencies. The risk assessment plan should be consistently updated, aligning with the delivery of project milestones or significant accomplishments.

Upon the project's satisfactory completion, the Contractor shall conduct a final review of the initially identified risks. Risks that have been effectively mitigated or did not materialize should be officially closed, accompanied by appropriate documentation. The insights gained from the risk management process should be methodically documented and shared with the Commission, thereby contributing to the knowledge repository for forthcoming software development endeavours.

STATEMENT OF CONFIRMATION

On behalf of (name of firm or organization): _____, I hereby attest and confirm that:

a) The firm/organization possesses the legal status and capacity to enter into legally binding contracts with the Commission for the supply of equipment, supplies, services or work.

b) The firm/organization is not insolvent, in receivership, bankrupt or being wound up, and not under administration by a court or a judicial officer, and that it is not subject to the suspension of its business or legal proceedings for any of the foregoing reasons.

c) The firm/organization has fulfilled all its obligations to pay taxes and social security contributions.

d) The firm/organization has not, and that its directors and officers have not, within the last five years been convicted of any criminal offense related to professional conduct or the making of false statements or misrepresentations as to their capacity or qualifications to enter into a procurement or supply contract.

e) The Commission, in the event that any of the foregoing should occur at a later time, will be duly informed thereof, and in any event, will have the right to disqualify the firm/organization from any further participation in procurement proceedings.

f) The firm/organization did not/will not attempt to influence any other bidder, organization, partnership or corporation to either submit or not submit a proposal/bid/quotation.

g) The firm/organization will not, in the absence of a written approval from the Commission, permit a person to contribute to, or participate in, any process relating to the preparation of a Quotation/Bid/ Proposal or the procurement process if the person:

   a. at any time during the 12 months immediately preceding the date of issue of the Solicitation was an official, agent, servant or employee of, or otherwise engaged by the Commission;
   b. at any time during the 24 months immediately preceding the date of issue of the Solicitation was an employee of the Commission personally engaged, directly or indirectly, in the definition of the requirements, project or activity to which the Solicitation relates.

h) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) have been identified on, or associated with any individual, groups, undertakings and entities identified on, the list established pursuant to the UN Security Council Resolution 1267 (Consolidated Sanctions List).[1]

i) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) are subject to any form of sanction imposed by an organization or body within the United Nations System, including the World Bank.

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[1] The Consolidated United Nations Security Council Sanctions List can be found on the following website: **https://www.un.org/securitycouncil/content/un-sc-consolidated-list**

j) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any), is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.

k) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) will use the funds received under contracts/purchase orders with the Commission to provide support to individuals, groups, undertakings or entities associated with terrorism.

l) The prices in the firm/organization's proposal/bid/quotation have been arrived at independently, without consultation, communication or agreement with any other interested companies, competitor or potential competitor with a view to restricting competition.

m) The Commission shall have the right to disqualify the firm/organization from participation in any further procurement proceedings, if it offers, gives or agrees to give, directly or indirectly, to any current or former staff member of the Commission a gratuity in any form, an offer of employment or any other thing of service or value, as an inducement with respect to an act or a decision of, or a procedure followed by, the Commission in connection with a procurement proceeding.

n) The Commission shall have the right to disqualify the firm/organization from participation in any further procurement proceedings if it does not disclose to the Commission any situation that may appear as a conflict of interest, and if it does not disclose to the Commission if any official or professional under contract with the Commission have an interest of any kind in the firm/organization's business or any kind of economic ties with the firm/organization.

o) The firm/organization expressly agrees to abide by the United Nations Supplier Code of Conduct.[1]

Name (print):_____   Signature: _____

Title/Position: _____

Place (City and Country):_____   Date: _____

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[1] https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct

VENDOR PROFILE FORM (VPF) – FOR PRODUCTS/SERVICES/WORK

1. Name of Company:

2. Street Address:

3. Telephone:

P.O. Box:
City:

4. E-Mail:

Zip Code:
Country:

5. Website:

6. Contact Person: Title:

7. Legal Status (e.g. Partnership, Private Limited Company, Government Institution)
   PLEASE INCLUDE A COPY OF THE CERTIFICATE OF INCORPORATION

8. Year Established:

9. Number of Employees:

10. Gross Corporate Annual Turnover (US$m)*:

11. Annual Export Turnover (US$m)*:

12. Type of Business/Products: Manufacturer ☐   Sole Agent ☐   Supplier ☐
    Other ☐ (please explain)

13. Type of Business/Services/Work: Engineering ☐   Civil Work ☐   Governmental Institution ☐
    Other ☐ (please explain)

14. References (your main customers, country, year and technical field of products, services or work): **

15. Previous Supply Contracts with United Nations Organizations (over the last 3 years)**

    Organization: Value in US$ Equivalent: Year:

    Organization: Value in US$ Equivalent: Year:

16. Summary of any changes in your company's ownership during the last 5 years:

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*   Please provide a copy of the most recent audited annual report and accounts. Note: Export includes services or work performed abroad or for foreign clients.

**   Please provide supplementary documentation on these items.

17. List of Products/Services/Work offered:

Product/Service/Work #	Product/Service/Work Description

18. This section shall be **<u>signed and stamped</u>** by an official legally authorized to enter into contracts on behalf of your organization:

Name: Title: Signature: Date:

Bank Details	**Beneficiary Details**
Bank Name:	Beneficiary Name: (exactly as stated on bank statements)
Bank Address:	IBAN: (if applicable)
Exact Account Holder Name:	Account number:
	SWIFT/BIC:
	ABA/Sort Code:

Additional Details (if applicable)

Correspondent bank:

Correspondent account number:

Correspondent SWIFT/BIC:

Tax Identification Number:

FOR CTBTO USE ONLY		
Evaluated By:	Initials	Date:
Updated By:	Initials	Date:
Remarks:		

*   Please provide a copy of the most recent audited annual report and accounts. Note: Export includes services or work performed abroad or for foreign clients.
**   Please provide supplementary documentation on these items.