

Title	HPC Workshop for Nuclear Explosion Monitoring
Objectives	The workshop will explore advancements and innovations in the application of High-Performance Computing (HPC) & Machine Learning (ML) in monitoring nuclear explosions across land, ocean, and atmosphere utilizing technologies from the seismic, hydroacoustic, infrasound and radionuclide domains with the support of atmospheric transport modelling.
Agenda	<ul style="list-style-type: none"> • Full-wave SHI (seismic, infrasound, hydroacoustic) modelling in complex environments; • 3D long-range acoustic propagation modelling; • Generation and use of 3D tomographic velocity models; • Radionuclide detector-based simulations; • Numerical Weather Prediction (NWP) modelling for the atmosphere and ocean; • Simulation of explosions, cavity formation, subsurface gas transport, and prompt atmospheric releases; • Uncertainty quantification and adaptive learning • Artificial Intelligence/Machine Learning (AI/ML) for: <ul style="list-style-type: none"> ○ Digital twins (DTs) ○ Atmospheric transport and radionuclide source localization ○ Anomaly detections of atmospheric radioactivity ○ Instrument failure detection and data quality assessment ○ Signal and event detection, classification, discrimination, and data fusion ○ Array processing ○ AI tools for code translation to modern architectures and languages ○ Implementation in operational settings ○ Implementation to assist in IMS station maintenance • Early applications of quantum computing in nuclear explosion monitoring; • SHI HPC methods and algorithms applied to civil and scientific applications;
Location	Vienna International Centre, Vienna, Austria and online
Dates	11-13 May 2026
Language	English

Participants Profile	<p>The target audience for the workshop will consist of scientists, engineers, and other persons involved in High-Performance Computing and seismic, hydroacoustic, infrasound, atmospheric transport, and radionuclide simulation and data analysis.</p> <p>Please be informed that the Provisional Technical Secretariat solicits presentations and posters from participants on the topics of the Workshop for travel funding applications.</p>
Application Procedures	<p>Applicants are invited to submit their registration and abstract information through the CTBTO registration platform at ctnw.ctbto.org, prior to the 16 January 2026 deadline.</p> <p>States Signatories wishing to nominate experts are requested to inform the Provisional Technical Secretariat (see Point of Contact) through their respective Permanent Mission by the deadline.</p> <p>Financial support may be available for a limited number of participants. Such assistance must be requested at the time of registration (by selecting the relevant box during online registration).</p> <p>Submitted applications will be reviewed and subsequently the successful applicants will be notified.</p>
Deadline for Application	16 January 2026
PTS Point of Contact	<p>Capacity Building and Training Section, IDC/CBT International Data Centre Division CTBTO Preparatory Commission P.O. Box 1200, A-1400 Vienna, Austria Tel: +43 1 26030 6132 Email: conferences and workshops@ctbto.org</p>
Financial Information	<p>Support will be considered only for participants whose abstracts are accepted. We encourage applicants to seek funding from non-CTBTO sources first. Applicable to PTS-funded participants only:</p> <p>In accordance with the Staff regulations and rules and Administrative Directives, the PTS will provide the following:</p> <ul style="list-style-type: none"> • The PTS travel agent will reserve, issue and forward the flight ticket to the participants for the most direct and economic route; • Funded participants are not allowed to purchase their own tickets unless, under exceptional circumstances, when authorized to do so and only if this proves to be the most cost efficient for the PTS; • The PTS will book a hotel and cover the costs of accommodation;

	<ul style="list-style-type: none"> • Upon arrival a Daily Subsistence Allowance (DSA) sufficient to cover the related expenses during the workshop; and • Health insurance for the duration of the workshop. <p>Requirement: Scanned passport copies.</p>
<p>Other Pertinent Information</p>	<p><u>In person and online oral Presentations</u></p> <p>PowerPoint presentations should not exceed 20 minutes, including time for discussions and questions.</p> <p><u>Visas</u></p> <p>Participants should apply for visas, if needed, at the corresponding consular office upon receipt of an acceptance letter PTS, in order to ensure timely processing.</p> <p><u>Health/Accident Insurance</u></p> <p>It is strongly recommended that prior to departure non-funded participants should acquire health and accident insurance for the duration of the workshop. All PTS-funded participants shall be covered under the Global Medical Insurance scheme under third party liability insurance</p>