

Rolling list of upcoming workshops, training and exercises organized by the PTS

Disclaimer: The information was last updated on 7 March 2019. This list is updated on a regular basis.

For the latest up-to-date information, please consult the web sites for “Calendar of Events” (<http://www.ctbto.org/the-organization/calendar-of-events/>) and “Workshops, Training and Exercises” (<http://www.ctbto.org/the-organization/workshops-training-and-exercises/>)

2019

<i>Dates</i>	<i>Venue</i>	<i>Meeting/Event</i>	<i>Target audience/participants</i>	<i>Background / Objectives</i>	<i>Lead Division(s)</i>
11 – 29 March	VIC, Vienna, Austria	Training Course on NDC Capacity Building: Access and Analysis of Radionuclide IMS Data and IDC Products	<ul style="list-style-type: none"> NDC technical staff and authorized users (preferably Principal User or Regular User); <p>The participants should have experience in radionuclide data analysis and/or similar experience related to nuclear test ban verification.</p> <p>Linux background and some SQL experience are required.</p> <p>Passing the NDC e-Learning course is a prerequisite.</p>	<p><u>Objectives</u></p> <ul style="list-style-type: none"> To understand the roles of NDCs in the verification regime; To build and/or improve the NDC capabilities; To provide participants with sufficient knowledge for accessing and using IMS data and IDC products; and To provide practical experience in analyzing IMS radionuclide data. 	IDC
21 – 22 March	VIC, Vienna, Austria	NDC-in-a-Box Alpha Tester Group (ATG) Technical Meeting	<p>Members of the ATG</p> <p>ATG members should be experienced users of SeisCom3 and should have an overview of the tools, protocols and processes their NDC uses to obtain and process IMS and non-IMS waveform data.</p> <p>ATG members must have access to event bulletins spanning and extended amount of time to train the system.</p>	<p><u>Objectives</u></p> <ul style="list-style-type: none"> To establish the Alpha Testers Group (ATG), whose role is to represent the NDC-in-a-Box user community and help specify the needs of those who will use the final product; and To kick-off the common work that would last for about one year; this will be pursued against the background of PTS efforts to integrate the NET-VISA associator with SeisComp3 and to incorporate the result of this PTS effort into an upcoming NDC-in-a-Box, with the aim of enabling NDCs that process IMS data using SeisComp3 automatic pipeline to create an event set that is closer to the one built at the IDC. 	IDC

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1 – 5 April	Goetzendorf, Austria	Expert Meeting on Rapid Deployment and Field Infrastructure	A limited number of external experts dealing with rapid deployment and field infrastructure necessary for on-site inspections, and PTS staff	<p><u>Objectives.</u></p> <ul style="list-style-type: none"> To assess the status of rapid deployment and field infrastructure capabilities and to consider the suitability of related concepts and equipment specifications as documented in the report of WS-23; the scope of the meeting comprises a demonstration and subsequent discussion of developments undertaken under the auspices of the OSI Action Plan and focusing on progress made in relation to: <ul style="list-style-type: none"> ✓ as regards rapid deployment, mobilisation concepts and options including strategic airlift, dangerous goods transportation, modularized equipment storage and transportation solutions, including the second generation of a specialized rapid deployment platform; and ✓ as regards field infrastructure, sustainment of an inspection team in the field in various environments as well as integrated infrastructure and logistics support concepts, including associated equipment upgrades and procedures. 	OSI
8 – 12 April	Goetzendorf, Austria	OSI Rapid Deployment, Sustainment and Recovery Course of the Third Training Cycle (RDSR-3TC)	On-site inspection (OSI) third training cycle surrogate inspector trainees	<p><u>Objectives</u></p> <ul style="list-style-type: none"> To provide hands-on training on the OSI-specific concepts, equipment and procedures related to Rapid Deployment, In-field Sustainment and Recovery of an OSI mission. The course will cover all phases of an OSI, with an emphasis on the Inspection phase. 	OSI
8 – 12 April	Uppsala, Sweden	Technical Training for RN Station Operators with SAUNA Equipment – Advanced Training	<p>Invited States Signatories should nominate participant(s) who are station operators involved in the operation and maintenance of the following stations:</p> <p>AUX04, AUX09, BRX11, GBX66, GBX68, JPX38, MXX44, NOX49, NZX46, SEX63.</p> <p>Applicants are encouraged to complete the following e-learning modules: EN-MON04, EN-MON06, EN-OSI00.</p>	<p><u>Objectives</u></p> <ul style="list-style-type: none"> To provide IMS station operators with the required knowledge and technical understanding of SAUNA noble gas monitoring systems in order to perform operations and maintenance tasks. 	IMS
8 – 12 April	Poissy, France	Technical Training for RN Station Operators with SPALAX Equipment – Advanced Training	Technical staff of IMS radionuclide stations directly responsible for the operation and maintenance of SPALAX noble gas systems (one class per year covering all topics).	<p><u>Objectives</u></p> <ul style="list-style-type: none"> To provide IMS station operators with the required knowledge and technical understanding of IMS SPALAX noble gas monitoring, in particular with the operations, maintenance, and management of specific noble gas systems. 	IMS

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22 – 26 April	Antananarivo, Madagascar	NDC Training for French Speaking NDCs	<p>The training is dedicated to the French speaking countries.</p> <p>The participants should be French speaking NDC technical staff or authorized users (preferably Principal User or Regular User).</p> <p>The participants should have experience in waveform or radionuclide data analysis and/or similar experience related to nuclear-test-ban verification. Linux background and some SQL experience are required.</p>	<p><u>Objectives</u></p> <ul style="list-style-type: none"> • To understand the roles of National Data Centres (NDCs) in the verification regime; • To build and/or improve the NDC capabilities; • To provide participants with sufficient knowledge for accessing and using IMS data and IDC products; and • To provide practical experience in analyzing IMS data. 	IDC
6 – 10 May	VIC, Vienna, Austria	Training Course on NDC Capacity Building: NDC Waveform Training Course Using SeisComP3	<p>The training is open only to the CTBT States Signatories, in particular to those participating in the Capacity Building Program;</p> <p>Target audience would be technical staff/authorized users involved or to be involved in the use of IMS data and IDC products.</p> <p>NDC staff is the main target group.</p> <p>Participants should have experience in waveform data analysis; experience with UNIX/Linux operating system and SQL would also be beneficial.</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To strengthen the capacity of the States Signatories' participation in the verification regime and to enhance their use of PTS data and products for civil and scientific applications using SeisComP3 	IDC
20 – 25 May	Dubna, Russian Federation	Technical Training for Russian-Speaking Station Operators of IMS Radionuclide Stations	<p>Station operators of IMS radionuclide stations installed in the Russian Federation directly concerned with the operation, maintenance and repair of such equipment.</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To provide station operators with the knowledge and technical understanding on the operations, maintenance and management of a manual radionuclide station and, more specifically, to provide hands-on training for the various operational and maintenance procedures. 	IMS
10 – 14 June	VIC, Vienna, Austria	Technical Training For Waveform Stations Operators with USGS	<p>Preference will be given to station operators listed below:</p> <p>Armenia: AS003 Brazil: AS010, AS011 Chile: AS019 Cook Island: AS024 Denmark: AS027 Ethiopia: AS030</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To provide station operators with the basic knowledge and technical understanding on the operations, maintenance and management of an IMS station using waveform technology and, more specifically, to provide hands-on training for the various operational and maintenance procedures. 	IMS

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10 – 14 June	VIC, Vienna, Austria	Technical Training For Waveform Stations Operators with USGS (continued)	<p>Gabon: AS034 Mali: AS062 Mexico: AS063 Namibia: AS067 New Zealand: AS070 Papua New Guinea: AS075 Philippines: AS079 Samoa: AS095 Solomon Island: AS098 United States: AS105, AS106, AS111, AS114, AS116 Venezuela: AS117 Zambia: AS119</p> <p>Invited States Signatories should nominate participant(s) who are station operators involved in the operation and maintenance. Candidates should preferably have a basic understanding of Linux.</p> <p>Applicants are encouraged to complete the following e-learning modules: EN-MON01, 07, 08, 09, 10, 14 and 15; EN-POL01, 02, 03 and 04; EN-USER14</p>		IMS
10 – 21 June	VIC, Vienna, Austria	Training Course on NDC Capacity Building: Access and Analysis of Waveform IMS Data and IDC Products	<p>NDC technical staff / authorized users (preferably Principal User or Regular User); Seismologists with an advanced degree who operate or have access to regional and local seismic network data and the means of processing that data to provide accurate phase pick information; Participants should have experience in waveform data analysis and/or similar experience related to nuclear test ban verification, as well as Linux background and some SQL experience; Passing the NDC e-Learning course is a prerequisite.</p>	<p><u>Objectives</u></p> <ul style="list-style-type: none"> • To understand the roles of NDCs in the verification regime; • To build and/or improve the NDC capabilities; • To provide participants with sufficient knowledge for accessing and using IMS data and IDC products; and • To provide practical experience in analyzing IMS data. 	IDC

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17 – 21 June	TBD, Austria	OSI Training of Trainers (ToT) Course for OSI external facilitators	Open to all States Signatories. All nominations should be submitted through the Permanent Missions in accordance with the Note Verbale and announcement, not later than 15 February 2019.	<u>Objectives</u> <ul style="list-style-type: none"> To expand the core group of OSI external facilitators (instructors) in support of the continuation of training efforts as part of enhancing the OSI readiness towards entry into force of the Treaty. 	OSI
17 – 21 June	VIC, Vienna, Austria	RN Laboratory Workshop	<p>Applicants should be from the State Signatories hosting the IMS radionuclide laboratories and non-IMS noble gas capable laboratories for CTBT IMS network.</p> <p>Applicants from vendors should have direct relationship with the IMS laboratory activities.</p> <p>Participants are expected to submit an abstract for an oral presentation on the topics of the workshop.</p>	<u>Objectives:</u> <ul style="list-style-type: none"> To discuss and address developments and issues pertaining to laboratory operations; To review and plan Proficiency Test Exercises (PTEs) for particulate samples and noble gas (NG) inter-comparison exercises, certification, surveillance assessment and measurements; To discuss INF.96, Revision 10; To share operational experiences and lessons learned towards quality improvement; and To discuss advances in gamma spectrometry and noble gas measurements. 	IMS
19 – 20 June	VIC, Vienna, Austria	NDC Workshop on IDC Progressive Commissioning Plan	NDC staff with technical expertise in one of the four IMS technologies, the functions of the IDC and in performance monitoring and testing.	<u>Objectives:</u> <ul style="list-style-type: none"> To provide NDCs an opportunity to be involved in activities related to the IDC Progressive Commissioning Plan, focusing on the NDCs' roles and responsibilities in the IDC Progressive Commissioning as specified in the IDC Validation and Acceptance Test Plan as well as their participation in the IDC Experiments. 	IDC
20 – 21 June	VIC, Vienna, Austria	Technical Meeting on the IDC Validation and Acceptance Test Plan (VATP)	<p>Scientists, engineers and other persons who have technical expertise in one of the four IMS technologies, the functions of the IDC and in performance monitoring and testing.</p> <p>The participants are expected to provide their technical input to the IDC Validation and Acceptance Test Plan.</p>	<u>Objectives:</u> <ul style="list-style-type: none"> To continue the process of completing the IDC Validation and Acceptance Test Plan, focusing on reviewing the changes made since the December 2016 meeting and further improving the test content. 	IDC

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24 – 28 June	Hofburg Palace, Vienna, Austria	CTBT: Science and Technology Conference 2019 (SnT 2019)	Scientists, technologists, academics, students, CTBTO policy makers, members of the media and representatives of organizations involved in research and developments that are relevant to all aspects of CTBT verification	<u>Objectives</u> <ul style="list-style-type: none"> To broaden and strengthen the engagement of the scientific communities working in test ban monitoring, including young scientists, and to enhance the geographic and gender representations of these communities; To support the exchange of knowledge and ideas between the CTBTO and the broader scientific community; To identify opportunities and possible solutions to continuously improve nuclear test monitoring and verification; To identify how scientific developments and cooperation can support national needs and frame policy objectives in support of the CTBT; and To promote the wider civil and scientific applications of techniques and data used for test ban verification 	IDC
1 – 2 July	VIC, Vienna, Austria	Technical Meeting on SHI Software Engineering at the IDC	<p>Experts responsible for the software development for waveform monitoring at the National Data Centres (NDCs). Experts involved in software development for environmental monitoring applications, particularly in waveform methods, including signal processing, user interfaces, database systems.</p> <p>Participants should have in-depth knowledge of at least one aspect of SHI data processing at the IDC.</p>	<u>Objectives:</u> <ul style="list-style-type: none"> To reviewing current status of the construction phase, including project plan, projected milestones and updated deliverables; To present the results of preparations for phase 3 of reengineering within the IDC, with a focus on improving agility and improving technical readiness levels of enhanced algorithms and approaches; and To discussing technical and scientific issues arising from evaluation, integration and deployment of RP3 deliverables. 	IDC
1 – 3 July	Quito, Ecuador	CTBT: Science and Technology Conference	Scientists, technologists, academics, students, CTBTO policy makers, members of the media and representatives of organizations involved in research and development that is relevant to all aspects of Treaty verification; representatives of Permanent Missions.	<u>Objectives:</u> <ul style="list-style-type: none"> To broaden and strengthen the engagement of the scientific communities working in test ban monitoring, including young scientists, and to enhance the geographic and gender representations of broader scientific communities; To identify opportunities and possible solutions to continuously improve nuclear test monitoring and verification; To identify how scientific developments and cooperation can support national needs and frame policy objectives in support of the CTBT; and To promote the wider civil and scientific applications of techniques and data used for test ban verification. 	LEGREL

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1 – 19 July	VIC, Vienna, Austria	Training Course on NDC Capacity Building: Access and Analysis of Radionuclide IMS Data and IDC Products	NDC technical staff and authorized users (preferably Principal User or Regular User). The participants should have experience in radionuclide data analysis and/or similar experience related to nuclear test ban verification as well as Linux background and some SQL experience. Passing the NDC e-Learning course is a prerequisite.	<u>Objectives</u> <ul style="list-style-type: none"> • To understand the roles of NDCs in the verification regime; • To build and/or improve the NDC capabilities; • To provide participants with sufficient knowledge for accessing and using IMS data and IDC products; and • To provide practical experience in analyzing IMS radionuclide data. 	IDC
1 – 19 July	ESMF, Seibersdorf, Austria	On-Site Inspection Geophysical Techniques Course of the Third Training Cycle (GPY-3TC)	On-site inspection (OSI) third training cycle surrogate inspector trainees	<u>Objectives:</u> <ul style="list-style-type: none"> • To provide equipment hands-on training in the use of ground based Magnetic Field Mapping (MFM); Electrical Conductivity Measurements (ECM); Ground Penetrating Radar (GPR) and Gravitational field mapping (GRAV); • To provide hands-on training in the use of SAMS, active seismic techniques and resonance seismometry, so as to enable the participants to display competence on seismic techniques regarding its: i) deployment; ii) acquisition; iii) processing; and iv) analysis, interpretation and reporting of data; and • To provide training on the operation and maintenance of the equipment and the use of related data processing software and hardware and to familiarize surrogate inspectors with resonance seismometry equipment and data analysis techniques as this technology is developed. 	OSI
8 – 11 July	VIC, Vienna, Austria	International Hydroacoustic Workshop (IHW) 2019	All scientists, engineers and other persons involved in hydroacoustics, ocean observatories, acoustic sensor technologies, cabled and autonomous underwater systems, modelling and related fields.	<u>Objectives:</u> <ul style="list-style-type: none"> • To support the CTBTO verification regime by creating a forum for scientific know-how exchange on: <ul style="list-style-type: none"> ➢ Technological advancements in marine engineering pertinent to the sustainability and improvement of the hydroacoustic component of CTBT's IMS; ➢ Data analysis and signal processing methods for CTBT verification purposes; and ➢ 3-D modelling for long-range hydroacoustic signal propagation. 	IMS

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15 – 19 July	Bucharest, Romania	NDC Intermediate Level Infrasound Data Analysis Training	<p>Applicants should be involved in the use of IMS Data and IDC Products, in particular NDC researchers and analysts, other persons involved in infrasound technology and related fields.</p> <p>The participants should have a degree in geophysics and/or atmospheric science and/or acoustics, experience with data processing and worked in areas related to SHI technologies.</p> <p>The participants should also have attended the beginner infrasound data analysis training or a regional infrasound integrated training.</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To improve the knowledge on how infrasound data can help in the verification regime and civil and scientific application; • To refine user skills of infrasound tools available in the NDC in a Box (NiaB) package with processing data from IMS infrasound arrays and other waveform technologies; • To learn how to use additional tools in NiaB that help enhance analysis of waveform arrays; • To stimulate cooperation in infrasound data analysis between NDCs; and • To promote the exchange of experience and expertise in Infrasound technology among the NDCs 	IDC
16 – 20 September	VIC, Vienna, Austria	Technical Training for Station Managers with Stations Operating under PCA Contracts	<p>Individuals with managerial and planning responsibility at certified IMS stations with PCA contracts in place or PCA contracts to be concluded in 2019.</p> <p>Invited States Signatories should nominate participant(s) who are station managers involved in the operation and maintenance of the following stations:</p> <p>Brazil: RN11, PS07, IS09;</p> <p>Canada: PS08, PS09, PS10, IS10, RN14, RN15, RN16, RN17;</p> <p>Cameroon: RN13;</p> <p>Cote D'Ivoire: PS15;</p> <p>Denmark: IS18;</p> <p>Germany: RN33, PS19, IS26, IS27;</p> <p>Iceland: RN34;</p> <p>Japan: RN37, RN38;</p> <p>Mexico: RN44;</p> <p>Malaysia: RN42;</p> <p>Kazakhstan: PS23, IS31;</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To provide Station Managers with the knowledge and technical understanding of the PTS procurement process, how to initiate a change in the station budget, and how to plan for operations and maintenance at IMS stations under PCA contracts. 	IMS

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16 – 20 September	VIC, Vienna, Austria	Technical Training for Station Managers with Stations Operating under PCA Contracts (continued)	<p>Norway: PS27, PS28, IS37, RN49; Panama: RN50; Papua New Guinea: RN51; Portugal: RN53, IS42, HA07; Tanzania: RN64; Thailand: RN65, PS41; Turkey: PS43; United Kingdom: IS51</p> <p>Nominated individuals shall be directly related to the management of PCA contracts.</p> <p>The selected participants should complete the following e-learning modules before the start of the course: EN-MON07, 08, 10, 13, 14 and 15.</p> <p>The participation of station managers of IMS stations not listed above will be subject to availability of places in the training course.</p>		IMS
16 – 20 September	Kuala Lumpur, Malaysia	East Asia NDC Regional Workshop (EARNW) 2019	<p>Invited States should nominate participant(s) who are involved in the use of IMS Data and IDC Products (waveform and radionuclide).</p> <p>Preference would be given to NDC operators and NDC's customers.</p> <p>This Workshop is dedicated to the following countries: Australia, China, Indonesia, Japan, Republic of Korea, Malaysia, Mongolia, Philippines, Russian Federation, Singapore, Thailand, United States of America and Viet Nam</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To strengthen the knowledge of the CTBT and the work of the Commission; • To further build-up the capacity of the CTBT State Signatories to participate in the implementation of the verification regime and assess how participants are making use of IMS data and IDC products; • To encourage NDCs within the region to undertake a joint exercise for the analysis of waveform and radionuclide data and compare their results; and • To promote the exchange of experience and expertise among the NDCs. 	IDC

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22 – 30 September	Ottawa, Canada	On-Site Inspection Additional Overflight Course of the Third Training Cycle (AOF-3TC)	On-site inspection (OSI) third training cycle surrogate inspector trainees	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To provide competencies via hands-on training on Airborne Additional Overflight Techniques during an OSI with a view to enabling the participants to: <ul style="list-style-type: none"> ➢ Plan appropriate flights for MSI, GRM and MAG in response to questions set in ITF; ➢ Install MSI, GRM and MAG equipment on an airframe in line with procedures; ➢ Navigate an overflight mission using PTS equipment; ➢ Operate MSI, GRM and MAG equipment in-flight; ➢ Uninstall MSI, GRM and MAG equipment; and ➢ Process overflight data in line with procedures and upload data products to GIMO 	OSI
25 September	United Nations Headquarters, New York, United States of America	Tenth Conference on Facilitating the Entry into Force of the CTBT (Article XIV Conference)	High-level, preferably ministerial level, representatives attending the United Nations General Assembly, including Signatory and non-signatory States, as well as intergovernmental organizations, Group of Eminent Persons (GEM) and CTBTO Youth Group (CYG).	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To promote entry into force of the CTBT. 	LEGREL
30 September – 2 October	VIC, Vienna, Austria	Expert Meeting on Advances in Waveform Processing and Special Studies	Experts from NDCs and research establishments that are involved in testing, applying and developing waveform methods that may be suitable for inclusion into the IDC waveform automatic processing pipeline, or may be applicable to Special Studies and Expert Technical Analysis.	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To explore advances to waveform processing that may improve the IDC waveform pipeline processing, including tools and methodologies for testing and validation; and • To discuss waveform Special Studies and Expert Technical Analysis - methods, use of data and content of UEB and SRMR. 	IDC
3 – 4 October	VIC, Vienna, Austria	Expert Meeting on Special Studies in RN and ATM Methods	Experts from NDCs and research establishments that are involved in applying and developing radionuclide and ATM methods that may be suitable for Special Studies and Expert Technical Analysis.	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To review methods that may be suited for Special Studies and ETA; • To discuss the possible content of the URR and SRMR; • To explore the potential use of various non-IMS data for SRMR; and • To advance common understanding of methods to be developed for the SSREB, URR, SRMR and NDC responsibilities. 	IDC

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13 – 25 October	ESMF, Seibersdorf, Austria	On-Site Inspection Radionuclide and Noble Gas Course of the Third Training Cycle (RNNG- 3TC)	On-site inspection (OSI) third training cycle surrogate inspector trainees	<u>Objectives:</u> <ul style="list-style-type: none"> To acquire competencies required to perform advanced activities related to paragraphs 69(c-d) of the protocol; To obtain practical knowledge and hand-on capabilities on all equipment related to radionuclide and noble gas sampling, handling and analysis; and To validate the pertinent Standard Operating Procedures and Work Instructions. 	OSI
14 – 15 October	La Havana, Cuba	Science Diplomacy Conference	Government officials, including those from the Ministries of Foreign Affairs, Science and Technology, and Emergency Response; participants to <i>International Convention on Science, Technology and Innovation</i> , taking place in Habana.	<u>Objective:</u> <ul style="list-style-type: none"> To enhance the understanding of the Treaty by relevant actors in Cuba who could eventually contribute to Treaty signature and ratification, by highlighting the synergies between science and policy/diplomacy and focusing on the potential contribution of CTBT data and technologies to civil and scientific applications as well as on the consistency between Cuba's position in nuclear non-proliferation and disarmament and the Treaty's objectives. 	LEGREL
14 – 18 October	Fairfax, Virginia, United States of America	Technical Training for Station Operators RASA Training	<p>Invited State Signatories should nominate participant(s) who are station operators involved in the operation and maintenance of the following stations with RASA systems:</p> <p>Brazil: RN11 Canada: RN15 Chile: RN18, RN19 Ecuador: RN24 Germany: RN33 Japan: RN37, RN38 Kuwait: RN40 United Kingdom: RN66</p> <p>The participants should have basic Linux knowledge.</p> <p>Applicants are encouraged to complete the following e-learning modules: EN-MON04, EN-MON06, EN-OSI04</p>	<u>Objective:</u> <ul style="list-style-type: none"> To provide hands-on training and practical lessons to Station Operators on the operation, maintenance and repair of the RASA equipment. 	IMS

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14 – 18 October	VIC, Vienna, Austria	SEISCOMP3 Training	<p>The training is open only to the CTBT States Signatories, in particular to those participating in the Capacity Building Program;</p> <p>Target participants would be technical staff/authorized users involved or to be involved in the use of IMS data and IDC products. NDC staff is the main target group.</p> <p>The participants should have experience in waveform data analysis. Experience with UNIX/Linux operating system and SQL would also be beneficial.</p>	<p><u>Objective:</u></p> <ul style="list-style-type: none"> To strengthen the capacity of the States Signatories' participation in the verification regime and to enhance their use of PTS data and products for civil and scientific applications using SeisComp3 	IDC																												
14 – 18 October	Bruyères-Le-Chatel, France	NDC Advanced Training on Infrasonic Data Analysis	<p>NDC staff with technical background on waveform technologies.</p> <p>Prior participation in PTS infrasonic trainings such as NDC Infrasonic Data Analysis Training or Regional infrasonic trainings (ARIWIT or LACRIWIT), and participation in the intermediate level infrasonic training is an asset.</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> To improve the National Data Centre capabilities; To provide participants with sufficient knowledge for understanding infrasonic sources and atmospheric propagation; and To provide practical experience in processing and analyzing IMS infrasonic data with NDC-in-a-Box tools. 	IDC																												
21 – 25 October	Olen, Belgium	Technical Training for Station Operators CANBERRA Training	<p>Invited States Signatories should nominate participant(s) who are station operators involved in the operation and maintenance of the following stations:</p> <table border="0"> <tr><td>Argentina</td><td>RN03</td></tr> <tr><td>Cameroon</td><td>RN13</td></tr> <tr><td>Canada</td><td>RN14, RN16, RN17</td></tr> <tr><td>Cook Island</td><td>RN23</td></tr> <tr><td>Ecuador</td><td>RN24</td></tr> <tr><td>Fiji</td><td>RN26</td></tr> <tr><td>Germany</td><td>RN33</td></tr> <tr><td>Mongolia</td><td>RN45</td></tr> <tr><td>Kiribati</td><td>RN39</td></tr> <tr><td>Mauritania</td><td>RN43</td></tr> <tr><td>New Zealand</td><td>RN46, RN47</td></tr> <tr><td>Panama</td><td>RN50</td></tr> <tr><td>Philippines</td><td>RN52</td></tr> <tr><td>UK</td><td>RN66</td></tr> </table>	Argentina	RN03	Cameroon	RN13	Canada	RN14, RN16, RN17	Cook Island	RN23	Ecuador	RN24	Fiji	RN26	Germany	RN33	Mongolia	RN45	Kiribati	RN39	Mauritania	RN43	New Zealand	RN46, RN47	Panama	RN50	Philippines	RN52	UK	RN66	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> To provide hands-on training and practical lessons to Station Operators on the operation, maintenance and repair of the Canberra Gamma Detector System manufactured by Canberra Industries Inc. 	IMS
Argentina	RN03																																
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21 – 25 October	Olen, Belgium	Technical Training for Station Operators CANBERRA Training (continued)	<p>The participants should have basic Linux knowledge.</p> <p>Applications from other stations using Canberra detector equipment may be considered on a space available basis.</p> <p>Applicants are encouraged to complete the following e-learning modules: EN-MON04, EN-MON06, EN-OSI04</p>		
28 – 29 October	VIC, Vienna, Austria	NDC-in-a-Box ATG (Alpha Tester Group) Technical Meeting	<ul style="list-style-type: none"> • ATG members, who should be experienced users of SeisComp3 and should have an overview of the tools, protocols and processes their NDC uses to obtain and process IMS and non-IMS waveform data. • ATG members must have access to event bulletins spanning and extended amount of time to train the system. • In order to be effective in the work envisaged for the Meeting, it is recommended that each participating NDC nominate only one person for ATG membership and that the ATG as a whole should not exceed 8 members with broad geographical representation. 	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> • To report on test results following the execution of the tests as laid out in the test plan; • To identify areas of future improvements; and • To provide guidance on activities to support the roll-out of the new capabilities to NDCs. 	IDC
28 – 31 October	ESMF, Seibersdorf, Austria	On-Site Inspection Leadership Course of the Third Training Cycle (LSP-3TC)	<ul style="list-style-type: none"> • On-site inspection (OSI) third training cycle surrogate inspector trainees who will take the roles of : <ul style="list-style-type: none"> ➢ the inspection team leader, ➢ the deputy team leader, ➢ technical subject leaders; and ➢ all technical surrogate inspectors who may serve as field team leaders. 	<p><u>Objective:</u></p> <ul style="list-style-type: none"> • To provide leadership training suited to complex OSI situations, focusing on the roles and tasks of OSI leadership, team management, negotiations with the ISP, planning and decision making during an OSI, adaptive training (training others), critical thinking and report writing for non-scientific audience. 	OSI

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28 October – 1 November	Chiang Mai, Thailand	NDC Capacity Building Workshop and Regional Seismic Travel Time (RSTT) in combination with Data Sharing and Integration Training (Asia)	<p>Participants should be involved in the use of IMS data and products, in particular NDC analysts, scientific staff from seismological observatories, and/or tsunami warning centres or researchers from academic institutions with seismological background and experience.</p> <p>Participants should have an advance degree in seismology and/or geophysics, a good command of English language and have worked in areas related to tomography, receiver functions, regional seismic studies and earthquake data processing.</p>	<p><u>Objectives of the Workshop:</u></p> <ul style="list-style-type: none"> To strengthen participants' knowledge of the CTBT and the work of the Preparatory Commission; To further build up the national and regional capacities in implementing the Treaty and participating in the verification regime, as well as to promote the civil and scientific application of verification technologies, in particular to promote the importance of Ground-Truth (GT) event locations in defining regional seismic velocity structures and models; and To share data and to develop the RSTT in Asia through the acquisition of GT seismic locations. <p><u>Objectives of the Training:</u></p> <ul style="list-style-type: none"> To understand and learn how RSTT can help regional networks achieve more precise event locations; To learn how RSTT can be interfaced with current locators used in daily earthquake location procedures; To recognize the importance of obtaining better regional locations for future tomographic studies; and To stimulate regional cooperation in data exchange through the NDCs and/or regional network operators. 	IDC
4 – 29 November	VIC, Vienna, Austria	NDC Capacity Building: NDC Waveform Analyst Training Course	<p>NDC technical staff/authorized users (preferably Principal User or Regular User)</p> <p>Seismologists with an advanced degree who operate or have access to regional and local seismic network data and the means of processing that data to provide accurate phase pick information;</p> <p>The participants should have experience in waveform data analysis and/or similar experience related to nuclear test ban verification as well Linux background and some SQL experience.</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> To understand the roles of NDCs in the verification regime; To build and/or improve the NDC capabilities; To provide participants with sufficient knowledge for accessing and using IMS data and IDC products; and To provide practical experience in analyzing IMS data. 	IDC

<i>Dates</i>	<i>Venue</i>	<i>Meeting/Event</i>	<i>Target audience/participants</i>	<i>Background / Objectives</i>	<i>Lead Division(s)</i>
5 – 7 November	Oak Ridge, United States of America	Technical Training for Station Operator RN ORTEC Training	<p>Invited States Signatories should nominate participant(s) who are station operators involved in the operation, maintenance and repair of the following stations, with ORTEC gamma detector systems manufactured by AMETEK.</p> <p>RN04, RN05, RN06, RN07, RN08, RN09, RN11, RN19, RN22, RN34, RN37, RN38, RN42, RN51, RN53, RN63, RN67, RN68</p> <p>Applicants are encouraged to complete the following e-learning modules: EN-MON04 EN-MON06 EN-OSI04</p> <p>Candidates must be proficient in English.</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> To provide a hands-on training or practical lessons on ORTEC gamma detector maintenance and repair that are important in the conduct of IMS radionuclide station operation and quality assurance; and To provide the station operators, through hands-on training, with the technical basis and the practical capability to perform repairs that may be applied at the station when necessary. 	IMS
18 – 22 November	VIC, Vienna, Austria	TT PKI Operators Training for RN and Waveform Stations	<p>Invited State Signatories should nominate participant(s) who are PKI operators at the following stations:</p> <p>Argentina: RN01 Australia: PS02, IS07, RN04, RN05, RN06, RN07, RN08, RN09, RN10 Brazil: PS07, IS09 Canada: PS09, RN14, RN16, RN17 Germany: PS19, IS26, IS27 Israel: AS048, AS049 Japan: PS22, AS051, AS052, AS053, AS054, AS055, IS30 Malaysia: RN42 New Zealand: RN46, RN47 Niger: PS26 Norway: PS27, PS28, AS072, AS073, IS37 Portugal IS42</p>	<p><u>Objectives:</u></p> <ul style="list-style-type: none"> To provide PKI Operator with the basic knowledge and technical understanding on Data Authentication, Public Key Infrastructure (PKI) concepts and terminology and Data Surety, how to generate key pairs and submit certificate requests, and how to retrieve and install certificates for radionuclide and waveform station systems such as SSI, Guralp, Nanometrics. 	IMS

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18 – 22 November	VIC, Vienna, Austria	TT PKI Operators Training for RN and Waveform Stations (continued)	<p>Russian Federation: PS32, PS33, PS34, PS36, PS37, AS082, IS43, I S44, IS45, IS46, RN56, RN57, RN58, RN59, RN60, RN61</p> <p>Spain: PS40 Sweden: AS101 Switzerland: AS102 Tanzania: RN64 Tunisia: PS42, IS48 United Kingdom: RN67, RN68 Ukraine: PS45</p> <p>The participation of PKI Operators of IMS stations not listed above will be subject to availability of places in the training course.</p> <p>Applicants are encouraged to complete the following e-learning modules: EN-POL01, 03 and 04 EN-MON18</p>		IMS