

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

Disclaimer: The information was last updated on 15 December 2018. 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 – 22 February	VIC, Vienna, Austria	Training Course on NDC Capacity Building: Access and Analysis of Waveform IMS Data and IDC Products	<ul style="list-style-type: none"> NDC technical staff and 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. <p>The participants should have experience in waveform data analysis and/or similar experience related to nuclear test ban verification.</p> <p>Linux background and some SQL experience are required. 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 National Data Centres (NDCs) in the verification regime; To build and/or improve the National Data Centre (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
11 – 15 February	VIC, Vienna, Austria	Scenario Task Force Expert Meeting	A limited number of external experts who are members of the Build-Up Exercise Task Force and PTS staff	<p><u>Objectives</u></p> <ul style="list-style-type: none"> To develop the exercise scenarios for the build-up exercises contained in the OSI Exercise Plan 2016 – 2020. 	OSI
25 February – 1 March	San José, Costa Rica	Latin America and Caribbean Regional Infrasonnd Workshop and Integrated Training for NDCs	Participants should be involved in the use of IMS data and IDC products, in particular NDC researchers and analysts, or in infrasonnd technology and related fields.	<p><u>Objectives of the Regional Infrasonnd Workshop</u></p> <ul style="list-style-type: none"> 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 infrasonnd technology; 	IDC

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25 February – 1 March	San José, Costa Rica	Latin America and Caribbean Regional Infrasound Workshop and Integrated Training for NDCs (continued)	Participants should possess a degree in geophysics, atmospheric science and/or acoustics. Participants should also have experience with data processing and worked in areas related to SHI technologies.	<p><u>Objectives of the Regional Infrasound Workshop (continued)</u></p> <ul style="list-style-type: none"> • To promote the exchange of experience and expertise in infrasound technology among National Data Centres (NDCs) in Latin America and Caribbean region; and • To strengthen participants' knowledge of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) and the work of the Preparatory Commission. <p><u>Objectives of the Infrasound Integrated Training</u></p> <ul style="list-style-type: none"> • To increase understanding of the participants regarding how infrasound data can help in the verification regime and civil and scientific application; • To provide the participants with opportunities to learn how to use the infrasound tools in the NDC in a Box (NiaB) package with processing the data collected from Costa Rica portable array experiment; and • To stimulate regional cooperation in infrasound data analysis through the NDCs. 	IDC
4 – 5 March	VIC, Vienna, Austria	NDC-in-a-Box Alpha Tester Group (ATG) 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 establish the ATG, which represents the NDC-in-a-Box user community and helps specify needs of those who will use the final product, and to kick-off the common work that will last for a period of about one year. 	IDC

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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>	<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
22 – 22 March	VIC, Vienna, Austria	Scenario Peer Review Meeting	A limited number of external experts who are members of the Build-Up Exercise Task Force and PTS staff	<u>Objectives</u> <ul style="list-style-type: none"> To review the exercise scenarios for the build-up exercises contained in the OSI Exercise Plan 2016 – 2020 and recommend improvements. 	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: 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>	<u>Objectives</u> <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).	<u>Objectives</u> <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
22 – 26 April	Antananarivo, Madagascar	NDC Training for French Speaking NDCs	The training is dedicated to the French speaking countries.	<u>Objectives</u> <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; 	IDC

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22 – 26 April	Antananarivo, Madagascar	NDC Training for French Speaking NDCs (continued)	<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 (continued)</u></p> <ul style="list-style-type: none"> 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	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	Station operators of IMS radionuclide stations installed in the Russian Federation directly concerned with the operation, maintenance and repair of such equipment.	<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 Gabon: AS034 Mali: AS062</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>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.</p> <p>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); and 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>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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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
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).</p> <p>Experts involved in software development for environmental monitoring applications, particularly in waveform methods, including signal processing, user interfaces, database systems.</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

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1 – 2 July	VIC, Vienna, Austria	Technical Meeting on SHI Software Engineering at the IDC (continued)	Participants should have in-depth knowledge of at least one aspect of SHI data processing at the IDC.		IDC
1 – 19 July	VIC, Vienna, Austria	Training Course on NDC Capacity Building: Access and Analysis of Radionuclide IMS Data and IDC Products	<p>NDC technical staff and authorized users (preferably Principal User or Regular User).</p> <p>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.</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
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.	<p><u>Objectives:</u></p> <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
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

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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.	<u>Objectives:</u> <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	2nd Expert Meeting on Special Studies and ETA with 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.	<u>Objectives:</u> <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
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																												
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> <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> <p>Applications from other stations using Canberra detector equipment may be considered on a space available basis.</p>	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
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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. 	<u>Objectives</u> <ul style="list-style-type: none"> • To establish the ATG, which represents the NDC-in-a-Box user community and helps specify needs of those who will use the final product, and to kick-off the common work that will last for a period of about one year. 	IDC
4 – 29 November	VIC, Vienna, Austria	NDC Capacity Building: NDC Waveform Analyst Training Course including Seiscomp3	<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>	<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 data. 	IDC