COMPREHENSIVE NUCLEAR-TEST-BAN TREATY: SCIENCE AND TECHNOLOGY 2013 PROGRAMME

17–21 JUNE
HOFBURG PALACE
VIENNA, AUSTRIA

MEDIA SPONSOR: nature geoscience

CTBTO.ORG/SNT2013 #SNT2013
<table>
<thead>
<tr>
<th>SnT2013 Goals</th>
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<tbody>
<tr>
<td>➢ Capitalize on scientific and technological innovations for verifying CTBT compliance</td>
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<tr>
<td>➢ Promote the wider scientific application of data that are used for test-ban verification</td>
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<td>➢ Enhance the exchange of knowledge and ideas between the CTBTO and the broader scientific community</td>
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<td>➢ Enlarge the scientific community engaged in test-ban monitoring</td>
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<table>
<thead>
<tr>
<th>SnT2013 Themes</th>
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</thead>
<tbody>
<tr>
<td>➢ Theme 1 (T1): The Earth as a Complex System</td>
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<tr>
<td>➢ Theme 2 (T2): Events and Their Characterization</td>
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<td>➢ Theme 3 (T3): Advances in Sensors, Networks and Processing</td>
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Grosser Redoutensaal

Kleiner Redoutensaal

Dachfoyer

1Mittlere Lounge, Mittleres Foyer and Spiegelsalon
2Dachfoyer, Mittlere Lounge, Mittleres Foyer and Spiegelsalon
3Dachfoyer
Special Events

Tuesday, 18 June 2013

- Screening of the play “Reykjavik”: Welcome in the Grosser Redoutensaal at 18:25 followed by a screening of the play at 18:30 and a panel discussion at 19:30. A reception will be held at 20:30 in the Spiegelsalon and Maria Theresien Apartments. Drinks will be available from 18:00 in the Spiegelsalon, Mittlere Lounge and Mittleres Foyer.

Wednesday, 19 June 2013

- Young Scientists Evening: 18:30 in the Kleiner Redoutensaal followed by a reception at 20:00 in the Spiegelsalon.

Thursday, 20 June 2013

- EU Support to Verification Related Activities: 13:00 in the Kleiner Redoutensaal. Welcome followed by three presentations on EU supported verification research and a Q&A session.

Friday, 21 June 2013

- Reception honouring Executive Secretary Tibor Tóth by Executive Secretary Elect Lassina Zerbo at 16:00 in the Dachfoyer.

Exhibitors

17-20 June 2013, Untere Lounge

Canberra Packard Central Europe GmbH
Commissariat à l’énergie atomique et aux énergies alternatives (CEA/DASE)
DigitalGlobe
Environmental Systems Research Institute Inc. (Esri)
GeoSIG Ltd
Guralp Systems Ltd
Healvita Group GmbH
Instrumental Software Technologies, Inc. (ISTI)
REF TEK A Division of Trimble
UltiSat, Inc.
MONDAY, 17 JUNE 2013

10:00 OPENING CEREMONY (Grosser Redoutensaal)

- Choir of the Musikgymnasium Wien
- Dance and Drumming Act by the West and East African Group Afrococo
- Welcome by LASSINA ZERBO, Project Executive for the CTBT: SnT2013 Conference and Executive Secretary Elect, Provisional Technical Secretariat of the CTBTO Preparatory Commission
- Message from BAN KI-MOON, United Nations Secretary-General
- Opening Remarks by REINHOLD LOPATKA, State Secretary, Federal Ministry for European and International Affairs, Republic of Austria
- Opening Remarks by TIBOR TÔTH, Executive Secretary, Provisional Technical Secretariat of the CTBTO Preparatory Commission

11:30 OPENING SESSION (continued)

- Keynote lectures moderated by SIEGFRIED HECKER, Center for International Security and Cooperation, Stanford University; Distinguished Visiting Scientist, Vienna Center for Disarmament and Non-Proliferation; and Emeritus Director, Los Alamos National Laboratory
- Keynote lecture by HANS BLIX, former Director General, International Atomic Energy Agency and former Executive Chairman, United Nations Monitoring, Verification and Inspection Commission
- Keynote lecture by ROALD SAGDEEV, former science advisor to Mikhail Gorbachev and Distinguished Professor of Physics, University of Maryland, USA
- Keynote lecture by ELLEN TAUSCHER, former United States Under Secretary of State for Arms Control and International Security
- Discussion with keynote speakers

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<tr>
<th>GROSSER REDOUTENSAAL</th>
<th>KLEINER REDOUTENSAAL</th>
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<tbody>
<tr>
<td><strong>Atmospheric Structure and Infrasound (T1)</strong></td>
<td><strong>Performance Monitoring and Data Fusion (T3)</strong></td>
</tr>
<tr>
<td>T1-08. Model Order Reduction for Infrasound Propagation in Range-Dependent Atmospheres Christophe Millet</td>
<td>T3-O30. The CTBTO Link to the ISC Database Dmitry Storchak</td>
</tr>
<tr>
<td>T1-019. Surface Pressure Fluctuations Produced by Total Solar Eclipse of 1 August 2008 Julien Marty</td>
<td>T3-O34. The Role of ‘Event Definition Criteria’ in Compromising the Improvement of CTBTO Seismic Data Processing Robert Pearce</td>
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15:40 Poster Preview
**TUESDAY, 18 JUNE 2013**

<table>
<thead>
<tr>
<th>Time</th>
<th>GROSSER REDOUTENSAAL</th>
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</table>
| 08:30 | T3-O4. Application of Electrical and Active Seismic Methods to Detect Evidence of an Underground Nuclear Explosion  
*Jerry Sweeney* | T1-O15. Regional Comprehensive Standard New Seismic Noise Models Extracted from Very Broadband Stations in North Africa and Middle East  
*Abdelaziz Abdelaal* |
| 08:50 | T3-O19. OSI Noble Gas Equipment Development – System Design and Envisaged Usage  
*Mattias Aldener* | T1-O22. The Study of Ambient Noise in the Oceans, Atmosphere and Solid Earth for Enhanced Verification  
*Pieter Smets* |
| 09:10 | T3-O1. A GPS-Enabled Vehicle-Based Mobile Radiation Detection Search Tool for CTBT OSI  
*Steven Kreek* | T3-O16. Investigation of P-Wave Backazimuth and Slowness Residuals at Small-Aperture Keskin Seismic Array (BRTR), Turkey  
*Korhan Semin* |
| 09:30 | T3-O29. The Application of Airborne Remote Sensing for OSI  
*Aled Rowlands* | T3-O22. Phase Estimation Procedures That Enhance Homomorphic Wavelet Deconvolution  
*Robert Kemerait* |
| 10:30 | **Invited Presentation**  
T3-O24. Satellite Image Use in On-Site Inspection: From Site Selection Through Field Efforts  
*Ward Hawkins* |  |
| 11:00 | **Invited Presentation**  
T1-O21. The Response of CTBT Radionuclide Monitoring System to the Fukushima Accident  
*Wolfgang Weiss* |  |
| 11:30 | **Panel Discussion**  
*Synergy Between OSI and Industry*  
*Vitaly Shchukin (Moderator), Pierre Andrieux, Peter Annan, Rainier Arndt, Axel Sperber* |  |

### Subsurface Gas Transport (T2)

<table>
<thead>
<tr>
<th>Time</th>
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| 14:00 | T2-O17. Preparing an Experiment to Simulate a Small Scale Vent  
*Theodore Bowyer* | T3-O12. History of the CTBT Hydroacoustic Network  
*Martin Lawrence* |
*Charles Carrigan* | T3-O21. Optimizing the Design of the IMS Hydroacoustic Station HA04 Based on High-Fidelity 3-D Modelling of Hydroacoustic Signal Propagation  
*Mario Zampolli* |
| 14:40 | T2-O15. Migration and Detection of Gas in Geological Media: Lessons Learned from the Roselend Natural Laboratory  
*Eric Pili* | T3-O32. The European Seismological Research Infrastructure: Status and Developments  
*Torild van Eck* |
| 15:00 | T2-O11. Examining Changes in Radioxenon Isotope Activity Ratios During Subsurface Transport  
*Robert Annenander* | T3-O15. Improving Maintainability and Reliability of Operations of the Northeast Italy Seismic Network  
*Damiano Pesaresi* |
*Theodore Bowyer* | T3-O31. The EarthScope USArray Transportable Array: Results from a Continental-Scale Array  
*Robert Woodward* |
| 15:40 | **Poster Preview** | **Poster Preview** |
### WEDNESDAY, 19 JUNE 2013

<table>
<thead>
<tr>
<th><strong>Civil and Scientific Applications (T2)</strong></th>
<th><strong>Radionuclide Detectors and Networks (T3)</strong></th>
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</table>
| **08:30** | T2-O26. Usability of Global Seismological Data for Disaster Prediction, Detection, Analysis and Management  
Justin McIntyre |
| **08:50** | T2-O13. Literature Review on the Use of IMS Data in the Scientific Community  
Lucrezia Terzi | T3-O07. Comparison of ARSA, SAUNA and ARIX Detector Responses Using FLUKA for Xenon Isotope Beta–Gamma Coincidence Spectrum  
Atiyeh Maleki |
| **09:10** | T2-O22. Tracking Icebergs with Hydro-Acoustic Arrays of the International Monitoring System  
Laslo Evers | T3-O08. Compton Suppressed Gamma-Spectrometry for Comprehensive Nuclear-Test-Ban Treaty Samples  
Jonathan Burnett |
| **09:30** | T2-O06. CTBT Applications in Comoros  
Mariama Madi | T3-O10. ERMES-WORLD: Environmental Radioactivity Monitoring for Earth Sciences-World Reference Laboratory and New Developments  
Wolfango Plastino |
| **09:50** | T2-O07. Contribution of CTBTO Infrasound Data to Volcano Monitoring  
Nicolas Brachet | T3-O28. Stability of the IMS Radionuclide Detector Network and Lessons Learnt for Exotic Physics Searches  
Robert Lee |

#### Event Detection and Association (T3)  
Radionuclides and the Atmosphere (T1)

| **14:00** | T3-O11. Global Grid of Master Events for Waveform Cross Correlation: Design and Testing  
Ivan Kitov | T1-O20. Techniques for the Radioactive Source Location Problem  
Ian Hoffman |
| **14:20** | T3-O05. Automatic Classification of Extensive Aftershock Sequences Using Empirical Matched Field Processing  
Steven Gibbons | T1-O10. Localization of Possible Source Region for Multiple Radionuclide Detections Using a Logical Approach Evaluating ATM-SRS Fields  
Jens Ross |
| **14:40** | T3-O18. NET-VISA Progress and Enhancements  
Nimar Arora | T1-O17. Role of Atmospheric Transport Modelling to Assess Possible Influence of Emissions from a Radiopharmaceutical Facility on Detections at Selected IMS Radionuclide Stations  
Monika Krysta |
| **15:00** | T3-O26. Seismic Detection with Artificial Neural Networks: Reduction of Response Time and Development of Active Learning Techniques in Real Environment  
Guilherme Madureira | T1-O23. Use of CTBTO Measurements to Estimate Source Strengths and Atmospheric Removal Times of Radionuclides Set Free During Reactor Accidents  
Gerhard Wotawa |
| **15:20** | T3-O27. Seismological Observations in Turkmenistan on the Basis of a Digital Station PS44  
Kakajan Kurbanov | T1-O12. Na-22 Atmospheric Tracer and Radiochronometer  
Ian Hoffman |
| **15:40** | Poster Preview | Poster Preview |
### Seismic Travel Time Models (T1)

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Michael Begnaud</td>
<td>Regional Seismic Travel Time (RSTT) Tomography</td>
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<td>Validation of Regional Seismic Travel Time (RSTT) Predictions and Use in Event Location</td>
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<tr>
<td>09:10</td>
<td>Stephen Myers</td>
<td>1D Seismic Velocity Model with GT5 Events in Brazil and Tests of Crustal Thickness Corrections to Improve the RSTT Model for South America</td>
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<tr>
<td>09:30</td>
<td>Marjan Mobasheri</td>
<td>Evaluation of Quality Factor Beneath the Local Seismic Networks in SE Central Iran</td>
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<tr>
<td>09:50</td>
<td>Sanford Ballard</td>
<td>A Global 3D P-Velocity Model of the Earth’s Crust and Mantle for Improved Seismic Event Location</td>
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### Radiopharmaceutical Isotope Production (T1)

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<tbody>
<tr>
<td>08:30</td>
<td>Rosara Kephart</td>
<td>Fundamentals of Medical Isotope Production</td>
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<tr>
<td>08:50</td>
<td>Mika Nikkinen</td>
<td>Noble Gas Background and Radiopharmaceutical Facilities</td>
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<tr>
<td>09:10</td>
<td>Harry Miley</td>
<td>Choosing Locations for Xenon Background/Medical Isotope Investigations</td>
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<tr>
<td>09:30</td>
<td>Ian Hoffman</td>
<td>Radioxenon Isotopic Ratios from Medical Isotope Production and CANDU</td>
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<tr>
<td>09:50</td>
<td>Johan Camps</td>
<td>Increasing the Sensitivity of the International Noble Gas Monitoring Network by Mitigating Radioxenon Releases from Radiopharmaceutical Facilities</td>
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### Invited Presentation (T3)

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<th>Time</th>
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<tbody>
<tr>
<td>10:30</td>
<td>A. Peter Annan</td>
<td>Advances in Near-Surface Geophysics Surface Geophysics</td>
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<td>11:00</td>
<td>Ted Bowyer, Vann Bynum, Jean-Michel Vanderhofstad, Meera Venkatesh</td>
<td>INGE and Xenon Background Concentrations from Industrial Releases – The Story Told by Atmospheric Transport Modelling</td>
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<tr>
<td>11:30</td>
<td>Karl Koch</td>
<td>Discrimination of Two Closely Spaced Infrasound Sources Using Ray-Tracing Modeling – A Case Study</td>
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### Panel Discussion (T1)

Panel Discussion: Radioxenon Anthropogenic Release Mitigation
- Ian Hoffman (Moderator), Ted Bowyer, Vann Bynum, Anders Ringborn, Jean-Michel Vanderhofstad, Meera Venkatesh

### Waveform Events (T2)

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<tr>
<td>14:00</td>
<td>Milton Garces</td>
<td>CTBTO Roadmap for Infrasound Technology Evolution</td>
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<tr>
<td>14:20</td>
<td>James Louthain</td>
<td>M83: A New Microbarometer with Internal Calibration Capability</td>
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<tr>
<td>14:40</td>
<td>Karl Koch</td>
<td>Discrimination of Two Closely Spaced Infrasound Sources Using Ray-Tracing Modeling – A Case Study</td>
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<tr>
<td>15:00</td>
<td>Einstein Guillaume Nief</td>
<td>Optimizing Infrasound PMCC Detection Using Maximum Likelihood and Receiver Operating Characteristic Curve Analysis</td>
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<tr>
<td>15:20</td>
<td>Kevin Mayeda</td>
<td>Source Spectral Variation and Yield Estimation Derived from High Frequency P and S Codas from Local High Frequency Explosion Data</td>
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<tr>
<td>15:40</td>
<td>Jocelyn Guilbert</td>
<td>Use of CTBTO Teleseismic Data Analysis to Improve Moderate Earthquake’s Depth Estimations: Examples of Application</td>
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### Poster Preview (T3)

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<tbody>
<tr>
<td>14:00</td>
<td>T3-06. CTBTO Roadmap for Infrasound Technology Evolution</td>
<td>Milton Garces</td>
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<tr>
<td>14:20</td>
<td>T3-09. Discrimination of Two Closely Spaced Infrasound Sources Using Ray-Tracing Modeling – A Case Study</td>
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<td>T3-020. Optimizing Infrasound PMCC Detection Using Maximum Likelihood and Receiver Operating Characteristic Curve Analysis</td>
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FRIDAY, 21 JUNE 2013

GROSSER REDOUTENSAAL

### Meteor Over Russia (T2)

**08:30**
*Invited Presentation*

**T2-O23. Uncommon Events and Confidence in an International Monitoring Regime**

*Terry Wallace*

**09:00**

**T2-O1. 2012 Meteor Over Russia via CELESTIA-Based 3D Live Visualization of the Global Challenges**

*Darius Slavietz*

**09:20**

**T2-O2. 2013 Russian Fireball Largest Ever Detected by CTBTO Infrasound Sensors**

*Alexis Le Pichon*

**09:40**

**T2-O4. A Sensitivity Analysis of Meteor-Generated Infrasound**

*Christophe Haynes*

**10:00**

**T2-O20. The DPRK 2013 Underground Test and Chebarkul Meteorite: Joint Interpretation of Seismic, Infrasound, Acoustoseismic and Seismoacoustic Waves**

*Ivan Kitov*

### DPRK Events (T2)

**11:00**

**T2-O21. The PTS Response to the DPRK Announced Nuclear Test**

*Mika Nikkinen*

**11:20**

**T2-O8. Detection and Relative Location of the February 12, 2013, DPRK Announced Nuclear Test**

*Steven Gibbons*

**11:40**

**T2-O12. KIGAM Evaluation of the 3rd NK Nuclear Test: Comparison with the 1st and 2nd Tests**

*Heon-Cheol Chi*

**12:00**

**T2-O19. Source Time Functions of North Korean Events of 9 October 2006 and 25 May 2009**

*Anton Ziolkowski*

**12:20**

**T2-O25. Upper Limit Estimation of Radioxenon Release in DPRK Event**

*Yuichi Kijima*

**12:40**

**T2-O5. Analysis of the Connection Between Radioxenon Samples Collected in the IMS in April 2013 and the Announced Nuclear Test in North Korea on February 12, 2013**

*Anders Ringbom*

### 14:00 CLOSING SESSION (Grosser Redoutensaal and Kleiner Redoutensaal)

- Keynote lectures moderated by **PATRICIA LEWIS**, Chatham House, Research Director for International Security
- Keynote lecture by **SIEGFRIED HECKER**, Center for International Security and Cooperation, Stanford University; Distinguished Visiting Scientist, Vienna Center for Disarmament and Non-Proliferation; Emeritus Director, Los Alamos National Laboratory
- Keynote lecture by **MICHEL MIRAILLET**, French Ministry of Defence, Director of Strategic Affairs and Defence Policy
- Discussion with keynote speakers
- Awards presentation by **LASSINA ZERBO**, Project Executive for the CTBT: SnT2013 Conference and Executive Secretary Elect, Provisional Technical Secretariat of the CTBTO Preparatory Commission
- Closing remarks by **LASSINA ZERBO**
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**Radionuclides and the Atmosphere (T1)**

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**Thursday, 20 June 2013, Dachfoyer (16:30 - 18:30)**

**Poster Preview (Grosser Redoutensaal, 15:40)**

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ROOFTOP FOYER
1 Poster area
2 Globe (Kugel)
3 Coffee corner

FIRST FLOOR
3 Coffee corner

MEZZANINE
4 Auditorium • Großer Redoutensaal
5 Auditorium • Kleiner Redoutensaal
6 Exhibition Area • Untere Lounge
7 Press Room • Gardesalon

GROUND FLOOR (ERDGESCHOSS)

ENTRANCE/EINGANG: Josefsplatz

STAIRS TO DACHFOYER

MEZZANINE (MEZZANIN)

INTERNET CORNER

EXHIBITION AREA

STAIRS TO DACHFOYER