

**SCIENTIFIC MEETINGS DATABASE:
A NEW TOOL FOR CTBT-RELATED INTERNATIONAL COOPERATION**

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ABSTRACT

The mission of international cooperation is defined in the Comprehensive Nuclear-Test-Ban Treaty (CTBT). Ways and means of implementation were the subject of discussion during the International Cooperation Workshop held in Vienna in November 1998, and during the Regional Workshop for CTBTO International Cooperation held in Cairo, Egypt, in June 1999.

In particular, a database of “Scientific and Technical Meetings Directly or Indirectly Related to CTBT Verification-Related Technologies” was developed by the CTBTO PrepCom / PTS / International Cooperation section and integrated into the organization’s various web sites in cooperation with the U.S. Department of Energy CTBT Research and Development Program. This database, the structure and use of which is described in this paper/presentation, is meant to assist the CTBT-related scientific community in identifying worldwide expertise in the CTBT verification-related technologies and should help experts, particularly those of less technologically advanced States Signatories, to strengthen contacts and to pursue international cooperation under the Treaty regime.

Specific opportunities for international cooperation, in particular those provided by active participation in the use and further development of this database, are presented in this paper and/or presentation.

Key Words: international cooperation, scientific meetings, meetings database, opportunities for international cooperation

Introduction

Albert Einstein wrote in a letter, dated 2 August 1939, to President Franklin D. Roosevelt:

*“In the course of the last four months it has been made probable - through the work of Joliot in France as well as Fermi and Szilard in America - that it may become possible to set up a nuclear chain reaction in a large mass of uranium, by which vast amounts of power and large quantities of new radium-like elements will be generated. (...) This new phenomenon would also lead to the construction of bombs, and it is conceivable – though much less certain – that extremely powerful bombs of a new type may thus be constructed. A single bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port together with some of the surrounding territory. However, such bombs might very well prove to be too heavy for transportation by air.”*¹

Personal correspondence of this kind gives some insight into the human relations behind our history. Einstein’s prediction, as cited above, has been proven wrong only with regard to the last sentence. He was right in all his other points. Also, later in the letter Einstein drew the President’s attention to the fact that in some areas relevant to the use of science for peace rather than war, international cooperation had already been stopped and that it would probably be blocked completely in the near future as war became imminent, a dire prediction that also proved true.

After more than half a century in which “*extremely powerful bombs of a new type*” (nuclear bombs) were developed, tested, and used, a Comprehensive Nuclear-Test-Ban Treaty (CTBT) banning all nuclear explosions was finally negotiated, and as of 4 August 1999, has been signed by 152 countries, including five nuclear weapon states, and ratified by 42 States Signatories. It appears likely that nuclear explosion testing is over, after more than 2090 nuclear explosions have been conducted by countries around the world.

At the same time, verification of compliance with the CTBT (also with the previous nuclear arms treaties) has become one of the major concerns of many nations. Credible verification requires vigorous cooperation in order to enhance internationally reliable capabilities to identify possible violations, minimize false alarms, and thus maintain confidence in compliance. Development and maintenance of the **International** Monitoring System (IMS) as well as the **International** Data Centre (IDC), and the preparatory work for the conduct of **internationally** assembled On-Site Inspections, are the main tasks of a new **international** organization directly dedicated to this mission and provided for in the Treaty, the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

Fully reliable verification (by the world community) of total compliance of all states with their nuclear-test-ban obligations requires international cooperation. Remember that, in the broadest sense of the term *international cooperation*, there will be 321 internationally maintained monitoring stations and 16 laboratories located within the territory of 90 sovereign states. Also, international cooperation, in terms of the Treaty, abides by the principle that the Treaty gives equal rights and obligations to all States Signatories. This includes, in particular, the right to access the data collected by the IMS, as well as their sovereign right to use data received from the IDC for strengthening their national verification measures, in addition to possible application of these data for other peaceful purposes. However, it may be difficult for some States to take advantage of the possible “direct” benefits resulting from their status as signatories and even members of the Treaty without these important international links and cooperation.

Achievement of the political goals of the Treaty requires continuous interaction among experts working in specific areas of science and technology. It requires strengthening cooperation among researchers representing different countries but working in the same field of science. These fields of science are related to the four main components of the IMS, enumerated in the Protocol to the Treaty as: seismological,

¹ Courtesy of the Franklin D. Roosevelt Library, Hyde Park, New York.

radionuclide, hydroacoustic and infrasound monitoring. Another very broad area of cooperation encompasses developers of very sophisticated computer systems and new methods of transmission, processing and analysis of data.

Furthermore, some common tasks and final products are only possible when experts from diverse areas of science and technology are working in concert. Experts representing different technologies are encouraged to arrange, broaden and strengthen interdisciplinary contacts and international cooperation among experts representing different branches of CTBT verification-related science. Such international cooperation might enhance interdisciplinary expertise and prove to be a unique technological advantage for the scientific community to be gathered around the CTBTO mission and CTBTO personnel.

A good example of such an interdisciplinary CTBT-related meeting of researchers is the Seismic Research Symposium holding its 21st meeting this year in Las Vegas. In spite of its title, which by tradition has its roots in seismology, it, in fact, draws together representatives of each of the monitoring techniques from many different research centers and countries around the world.

International scientific cooperation, if addressing the sensitive areas related to the issues of international/national security matters, over its strictly professional and very substantive output, also has an additional aspect: It is a carrier of values, which should be numbered among the international confidence-building measures.

Because of the specific characteristics pointed out above, implementation of the CTBT is as much related to human relations as it is to technical verification. Both aspects are especially conducive to the development of international cooperation. And it is in strong opposition to any clandestine nuclear weapons' development programs - subject of the verification regime, which particularly do not want international publicity. This view is corroborated by an historical perspective of the last half-century.

Mission of international cooperation

The popular meaning of the phrase “international cooperation” is extremely broad. It is in very common use today in various contexts and with diverse connotations. However, in our paper/presentation, when we use this term, our meaning will be as it is defined by Paragraph 12 of Article IV of the Treaty, which states:

“The States Parties undertake to promote cooperation among themselves to facilitate and participate in the fullest possible exchange relating to technologies used in the verification of this Treaty in order to enable all States Parties to strengthen their national implementation of verification measures and to benefit from the application of such technologies for peaceful purposes.”²

Many attempts to elaborate on the meaning of the phrase “international cooperation,” in terms of the CTBT, have brought us to the conclusion that it is practically impossible to improve the concise wording that was finally agreed to by the distinguished representatives of States and their experts who negotiated the text of the Treaty. Therefore, when explaining the mission of international cooperation to the general public on the [International Cooperation home page](#) of the [CTBTO Open Web Site](#), the decision was made to simply use the literal text of this paragraph, represented in all six official languages of the Treaty (see URL: http://www.ctbto.org/ctbto/ic_mission.shtml).

² Full official text of the Comprehensive Nuclear-Test-Ban Treaty (see <http://www.ctbto.org/ctbto/treaty.shtml> for full information about Treaty from the CTBTO Home Page or <http://www.ctbto.org/ctbto/treaty/treatytext.ic.html#P152> for specific paragraph in context).

Ways and means to promote cooperation among States Signatories

The Treaty gives equal rights and obligations to all member States. In particular, this refers to the cooperation promoted among themselves in the terms of the quoted paragraph from the Treaty. However, there are, obviously, different needs, requirements and national priorities, in particular because the whole spectrum of large and small countries, with very different levels of economic and technological development, is represented among all States Signatories of the Treaty.

From the very beginning there have been three priority tasks for the international cooperation team at CTBTO PrepCom:

1. to discuss expectations of individual States regarding ways and means of international cooperation under the Treaty regime;
2. to define the role, which is expected by State Signatories, of the Provisional Technical Secretariat in this matter;
3. to identify as early as possible the most efficient ways/forms of its maintenance.

These tasks became the objectives of an extended set of bilateral and multilateral contacts with representatives of many States, in particular with many developing countries. These contacts also provide good opportunities for representatives of States Signatories that are less active in the PrepCom to work with updated information on recent developments of the technical and organizational infrastructure of the Treaty verification system, on the training activities offered by the PTS verification divisions, etc.

During discussions with representatives of States Signatories, it has been recognized that CTBT-related international cooperation issues are a vital interest of many States, particularly those which are developing. It has strengthened and expanded recognition that *“International cooperation under the CTBT regime is an element in broadening Treaty support and participation, thereby contributing to an early establishment and the efficient operation of the Treaty verification regime. (...) Facilitating and promoting cooperation among member States would, therefore, enhance national implementation of verification measures and peaceful application of such technologies, for example natural hazard mitigation, etc., but also assist the process of broadening Treaty participation.”*³

This political spin-off of the international cooperation activities, which are focused in the terms of the Treaty on the science and technology development and cooperation issues, was confirmed during the two international workshops organized by the PTS for the purpose of multilateral reviews and discussions of:

- ways and means to promote cooperation among States Signatories so as to facilitate and participate in the fullest possible exchange relating to technologies used in the verification of the Treaty; and
- methods for strengthening national implementation of verification measures with maximum benefit from the application of such technologies for peaceful purposes.

The first of these two meetings, the [“International Cooperation Workshop,”](#) which was held 16-17 November 1998, brought together in the Vienna International Centre representatives of 58 States Signatories from all geographical regions. The second meeting, a follow-up of the Vienna Workshop’s discussions, focused on regional cooperation opportunities. Held in Cairo, Egypt, 1 - 3 June 1999, the [“Regional Workshop for CTBTO International Cooperation”](#) was attended by participants from 22 African States (including 3 non-signatory States) and representatives of the Organization of African Unity (OAU). Some participants of the first workshop who were from African States were invited to present papers at the second workshop. France and the United States, as well as the PTS also provided speakers for the Cairo Workshop.

³ Masabumi Sato, CTBTO PrepCom/PTS; Significance and potential benefits of the CTBT; CTBT/IC/WS-I/CRP.6. Published in a compendium of documents “International Cooperation Workshop”, CTBTO PrepCom, Vienna, January 1999.

The main points discussed and some conclusions formulated during these two workshops may be summarized as follows: ⁴

- The purpose of the CTBTO is to assist its member States to monitor Treaty compliance;
- The CTBT verification system involves technologies which require expertise and qualified man-power for its effective operation;
- The CTBT can be a highly effective technological tool that can generate wide-ranging data, which can be used for peaceful purposes. The more we understand it, the better we can use it and the more benefits can be derived and offered to member States. Access to data should be as open as possible;
- The CTBTO should be a catalyst in promoting cooperation/helping to identify areas of need, acting as an information clearinghouse for cooperation;
- The regional programs/fora, if possible also to be open to non-signatory States, received particular support for information sharing/exchange of experience;
- Regional “centres of excellence” were suggested as a possible format for information sharing; the establishment of such centres in R&D institutions and universities could provide a visible means for regional cooperation, and local industries may be able to provide support;
- Regional cooperation in CTBT verification-related technologies could be promoted through the establishment of regional data centres (RDC); RDCs could be significant tools for data sharing, scientific research, training programs, and coordination, and thus strengthen participation and cooperation between all States;
- **Active participation in scientific meetings and propagation of CTBT ideals and work thereon, is a way to advance understanding of and support for the Treaty;**
- **CTBTO could receive and disseminate information concerning relevant issues in a database.**

The potential role of the CTBTO PrepCom in assisting developing countries, e.g. in the area of seismology, was a subject of very interesting considerations by one of the invited discussion initiators and included into his paper ⁵ presented at the Regional Workshop in Cairo. In particular, the tasks to be performed at a CTBT national data centre (NDC), from the most elementary in the early stages to a full range of activities, were outlined by the author of this paper in the context of non-CTBT-related *“questions of seismic hazard/risk being essential for a country that wishes to address its future development in a cost-effective and responsible manner.”* ⁶ However, with reference to the very small countries, a relevant observation was made in Cairo by another speaker, who brought to participants’ notice, that *“the issues of defining seismic activity or atmospheric radionuclide disparity (...) become intricate or meaningless when it comes to acquiring national data for a small country.”* ⁷ Creation of the Regional Data Centre(s) was then proposed and discussed, as an efficient solution e.g. for the groups of neighboring countries in the Africa Region.

In light of the success of the first regional workshop for the African region recently held in Cairo, the next two regional workshops (SEAPFE- South East Asia, the Pacific and the Far East, and LAC – Latin America and Caribbean) are already proposed by the PTS for the year 2000. Working Group A (WGA),

⁴ For more details see Summaries of both Workshops distributed with the PTS documents CTBT/PTS/INF.80 and CTBT/PTS/INF.173/Rev.1, accordingly. A compilation of all papers presented during the Vienna ’98 ICW was published by the PTS in the form of a booklet in January 1999; an appropriate set of documents of the Cairo Regional Workshop will be published in September 1999.

⁵ Robi .J. Kleywegt, Council for Geoscience, South Africa; Regional Co-operation Mechanisms in CTBT Verification-Related Monitoring Technologies; paper presented at the Regional Workshop for CTBTO International Cooperation, Cairo, Egypt, 1999, to be published by the PTS.

⁶ Ibid.

⁷ John Odeke Ilukor, Ministry of Energy and Mineral Development, Makerere University, Uganda; A Discussion on “Regional Data Centres”; paper presented at the Regional Workshop for CTBTO International Cooperation, Cairo, Egypt, 1999, to be published by the PTS.

during its [twelfth session](#) held in June 1999, expressed support for holding these regional workshops.⁸ These workshops will create additional opportunities for the PTS to strengthen/broaden relations with many countries from the next two geographical regions and should become new sources of ideas on how to promote international cooperation among the States Signatories in accordance with the expectations and specific needs of their particular region.

Role of science in CTBT monitoring and verification efforts

The researchers working in the pertinent areas of CTBT-related science and technology are fully aware of the extremely great potential for scientific developments in the areas of research related to the implementation of the Treaty regime. Also, there is no need today to convince the majority of politicians and national R&D policy makers, who are well-versed in the CTBT verification-related matters, of the key role science plays in the successful accomplishment by the Treaty's historic mission.

It is hard to overestimate the importance of the establishment in 1976 of the international scientific task force, called the Group of Scientific Experts (GSE), and/or the contribution of the successful maintenance and results of the GSETT-3 (Group of Scientific Experts Third Technical Test) to the ultimate success of CTBT. *"GSETT-3 demonstrated the feasibility and the capability of the global, seismological verification system and (...) has been a 'global training course' that has developed verification expertise in a large number of countries."*⁹ Results of such efforts, which have been made to review and to coordinate multiple CTBT-related individual research tasks encompassing all four verification technologies and data processing (see e.g. DOE CTBT R&D Programs¹⁰), confirm the general assertion of the important role of science made above. There is also no doubt that the ability to immediately apply developments resulting from the ongoing technological progress in many fields directly (but also indirectly) related to CTBT verification, might in the future be a very critical factor for the improvements in the quality of the CTBT verification regime which are necessary *"in order to create a significant deterrent against those who may be tempted to try to evade detection. (...) Successful fulfillment of this responsibility will increase confidence in the performance of the monitoring system by reducing the number of false alarms to the lowest level consistent with effective detection of Treaty violations."*¹¹

An attempt to give a comprehensive review and/or to systematize all aspects of the role of science for CTBT monitoring and verification efforts is a task exceeding both the ambition of the authors and the range of this paper. Nevertheless, two points will be briefly highlighted in this section. In our opinion, these two issues are stronger than other ones related to the mission of international cooperation and, in particular, are most directly related to development of the database of CTBT-related scientific meetings. In both cases, a short citation is borrowed from the reference source/paper where much broader consideration of the issue by other authors may be found.

The first point to be stressed here is an awareness of the complexity of scientific issues associated with nuclear test monitoring. *"It is important to recognize that the role of science is multifaceted, particularly for monitoring technologies associated with complex Earth systems. For example, the efforts to understand seismic or acoustic signals from nuclear explosions should not be conducted in isolation from understanding such signals resulting from earthquakes, quarry blasts, landslides, or other sources of wave*

⁸ See: Report of Working Group A to the Ninth Session of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization; document CTBT/WGA-12/1; item 7.14.

⁹ Ola Dahlman, Defense Research Establishment (FOA) Sweden; Group of Scientific Experts Third Technical Test (GSETT-3) experiences; CTBT/IC/WS-I/CRP.10; Published in a compendium of documents "International Cooperation Workshop", CTBTO PrepCom, Vienna, January 1999; p. 143.

¹⁰ Comprehensive Test Ban Treaty Research and Development FY 95-96 Program Plan; document DOE/NN-0003, see also the DOE CTBT R&D Program Web Site at <http://www.ctbt.rnd.doe.gov/>.

¹¹ Ibid.

*motions, some of which have properties similar to those of nuclear explosions. Similarly, one cannot simply study sources in one part of the world and generalize the results to the entire globe. Geological processes have produced great heterogeneity in the planet's interior that influences the propagation of seismic and acoustic energy on each path from source to receiver. Similarly, wind patterns, ocean currents, and ocean floor topography vary from place to place, and human activities are region dependent. There is an intrinsic need to attain an understanding of the source and propagation effects for all monitoring technologies for all significant source types and specific regions of the world.”*¹²

The second point concerns the potential for “dual-use” of elements of the verification system. It is, in fact, a specific aspect and a consequence of the first point brought up above. *“There will be many benefits from the CTBT if this system can be used for other scientific and technical applications. (...) When complete, the IMS and IDC will be the foundation for an unprecedented global test ban verification system. These same capabilities can also support a broad range of international scientific and technical cooperation. Specifically, the verification system is designed to detect and identify nuclear explosions over the entire Earth, yet it also will monitor considerable background “noise” from large numbers of earthquakes, volcanoes, atmospheric disturbances and conventional explosions. To screen these signals from potential Treaty violations, the conventional system will analyze all of these events. For these reasons, the data and information produced by this system will be useful both to States Parties for CTBT verification and to organizations concerned with geophysical monitoring (e.g. for scientific research, earthquake monitoring, weather forecasting).”*¹³ A broad list of examples of possible dual-use applications of each of the four CTBT verification technologies is presented in the paper quoted above, as well as in another invited paper¹⁴ delivered at the first [International Cooperation Workshop](#) held in Vienna in November 1998.

Both points mentioned above are of special importance for the better understanding of the role of science in CTBT monitoring and verification efforts and for understanding the potential non-CTBT verification-related practical benefits for States Parties (including those which, according to the Protocol of the Treaty, are not hosting IMS monitoring stations). These benefits are the result of spin-offs from the Treaty’s implementation-oriented research and cooperation.

Varying aspects of the issues listed above were also discussed when considering the idea of and basic guidelines for the development of the “Database of Scientific and Technical Meetings **Directly or Indirectly** Related to the CTBT Verification-Related Technologies.” It should assist the CTBT-related scientific community, as well as the staff of the PTS, in identifying worldwide expertise in the relevant, but reasonably broad, area of science and technology. Easily accessible to experts of the States Signatories, it should help them, in particular those of less technologically advanced States, to strengthen contacts and to develop international cooperation under the Treaty regime.

Scientific meetings – a window on international cooperation

When opening a discussion in Cairo on the proposals for regional cooperation in Africa, Professor G.K.King’oriah (Kenya) numbered a mobilization of local and regional knowledge and capabilities to enhance understanding of the CTBT among the important ways to promote technical cooperation. According to his paper delivered to the Workshop, *“this involves active participation in scientific meetings and propagation of CTBT at national and regional level, which can be done through the organization of*

¹² Research Required to Support Comprehensive Nuclear Test Ban Treaty Monitoring; Panel’s Report; Published by the US National Research Council, National Academy Press, Washington D.C. 1997.

¹³ Charles E. F. Meade, Defense Threat Reduction Agency, USA; Dual-use benefits of the CTBT verification system; CTBT/IC/WS-I/CRP.9; Published in a compendium of documents, “International Cooperation Workshop,” CTBTO PrepCom, Vienna, January 1999, p.135.

¹⁴ Peter D. Marshall, AWE Blacknest, UK; Benefits from an exchange of knowledge in the Treaty-related science and technologies: A personal perspective; CTBT/IC/WS-I/CRP.11; Published in a compendium of documents, “International Cooperation Workshop,” CTBTO PrepCom, Vienna, January 1999, p.153.

*regional seminars and conferences for exchanging notes on technologies and implementation strategies. Doing this automatically leads to efficient utilization of the regional capacity for the exchange of experiences and sharing of information.”*¹⁵

Early on, the PTS began formulating the idea of developing a database of CTBT verification-related scientific meetings to cover the relevant national and international scientific meetings organized by the various institutions and research centres of States Signatories and/or by international organizations. Experts participating in the [Second On-Site Inspection Workshop](#) organized by the PTS in Vienna in February 1998, were the first representatives of the CTBT-related international scientific community who were asked for their cooperation in providing initial meeting data as well as comments and ideas to assist in the database’s development.

At the same time, the PTS’s International Cooperation section started collecting meeting data based on generally accessible Internet resources (announcements of the annual meetings of the international/national R&D organizations, special home pages developed, for example, by the organizing committees of forthcoming meeting, etc.), as well as on the information provided by the PTS’s experts working in all the verification technologies.

One of the preliminary assumptions of the developers was that the list of relevant meetings encompassed by the new database would start, if possible, from the beginning of 1998.

In March 1999, 57 meetings were included in the first version of the “Database of Scientific and Technical Meetings Directly and Indirectly Related to CTBT Verification-Related Technologies,” which was presented by the PTS in the paper CTBT/PTS/INF.126. In May 1999, the next version of the meetings database, which by then included 72 meetings, was distributed with the document CTBT/PTS/INF.126/Rev.1 during the Working Group B (WGB) [ninth session](#). All States Signatories have been encouraged to actively cooperate with this development effort by contributing relevant meeting information, as well as their observations and advice, all of which can greatly assist the PTS in building the most comprehensive and up-to-date database of meetings possible. One result of this cooperation was the proposal that this database be made widely accessible to as many interested parties as possible via the Internet on CTBTO’s various web sites.

Database of Scientific and Technical Meetings ... “Goes Live” on the Internet

In April 1999, shortly before the WGB meeting in May, the U.S. Department of Energy (US DOE) proposed that the “Database of Scientific and Technical Meetings Directly and Indirectly Related to CTBT Verification-Related Technologies” be made available to the general public on the CTBTO Open Web Site as well as incorporated into the meetings list of the username/password controlled Experts Communication System (ECS) and the Documents Distribution System (DDS)¹⁶. There was already a central database of meetings that was visible on each of these web sites, and the basic tools to display and manage it already existed. As the new database contained more fields of information (e.g. organizing institution, point of contact, web site URL, topics, etc.), it was proposed that the original tools be updated to incorporate the new fields and include the new concept of individually controlling visibility (which meeting is visible on which web site). A mock-up version was created at Sandia National Laboratories¹⁷, linked to from the new International Cooperation home page on the CTBTO PrepCom Open Web Site and reported to the WGB ninth session in May.

¹⁵ George K. King’oriah, National Council for Science and Technology, Kenya; Regional CTBTO Cooperation; paper presented at the Regional Workshop for CTBTO International Cooperation, Cairo, Egypt, 1999, to be published by the PTS.

¹⁶ The DDS is another password controlled web system for missions and it has not yet been launched by the PTS.

¹⁷ Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under Contract DE-AC04-94AL85000.

During this session, “WGB agreed that the CTBTO open home page would be a useful medium for the dissemination of science and technology information and all research organizations and programme managers should be encouraged to make available any relevant web site addresses. The International Cooperation Section could include these addresses in its database of scientific meetings indicating the links to specific topics such as the proceedings of scientific symposia and workshops.”¹⁸

In June the first set of necessary changes were completed and incorporated into all of the CTBTO Web Sites in Vienna. Anyone who has a current web browser (e.g. Netscape Navigator or Communicator or MS IE) and access to the Internet may access the International Cooperation view of this database of meetings at http://www.ctbto.org/cgi-bin/ic_meetings.cgi (or from the main CTBTO PrepCom Open Web Site’s Home Page, go to “Opportunities,” then “International Cooperation”). Also open to the public is the PrepCom list of meetings which are officially sponsored by the PTS at http://www.ctbto.org/cgi-bin/ctbto_meetings.cgi (or from the main Home Page, go to “Organization,” then “CTBTO PrepCom Meetings”). The remainder of this paper deals specifically with the International Cooperation view of the central meetings database and delineates how to use this tool.

There are four types of web pages that deal with meetings:

1. **Main Meetings Page (see example in Figure 1), is where users can list meetings, decide how they want to limit, order and/or display meeting information, propose a new meeting, or review recent changes that have been made to the contents of the database;**

If the default settings are used, when the user clicks the “[List Meetings](#)” button with a mouse or other pointing device, a page displays listing in chronological order the set of all meetings that are currently underway or will begin sometime in the future.

But users don’t have to accept the default settings. Those who wish to see the information displayed differently may modify the default settings for limiting, ordering and displaying meeting information maintained in this database.

For example, users can: (defaults are in **bold** font)

- Limit meetings: (default is not to limit meetings)
 - to a specific meeting group or forum (e.g. Seismic Research Symposium, used in the examples)
 - to a selected technology (Seismic, Radionuclide, Hydroacoustic or Infrasound)
 - by searching for a word or phrase (users may enter text here)
- Limit timeframe:
 - to specific time range (**Future**, Forthcoming, Recent, Archived or No Limit, which is used in the example below); for convenience a checkbox labeled “Anytime” is provided to easily override the default action.
 - or specify year or month/year (valid years or month/year combinations are selectable)
- Order meetings:
 - by date (**chronologically** or reverse chronologically)
 - or group sessions by alphabetically sorted meeting groups or forums
- Select display view: (**Standard HTML**, Wide HTML, or Print-formatted (same as Wide HTML view but formatted without navigation bar and with a different footer)

¹⁸ Report of Working Group B to the Ninth Session of the Preparatory Commission for Comprehensive Nuclear-Test-Ban Treaty Organization; document CTBT/WGB-9/1, pages 6-7.

CTBTO PrepCom Open Web Site

[Treaty](#)
[Signature and Ratification](#)
[Verification](#)
[Organization](#)
[Opportunities](#)
[Related Links](#)
[Visitor Log](#)

Scientific Meetings Related to CTBT Verification-Related Technologies

Options: [List Meetings](#) [Propose New Meeting](#)

[Reset Defaults](#)

- **Modify default settings:**
 - **Limit meetings:**
 - to a specific meeting group (forum) by selecting from the list below
 - to a selected technology:
 - by searching for word or phrase: Match case
 - **Limit timeframe:**
 - to specific time range: Anytime
 - or specify year: or month/year:
 - **Order meetings:**
 - by date
 - or group sessions by alphabetically sorted meeting groups (forums)
 - **Select display view:**
- [View recent updates to database](#)

This website is developed and maintained by the
 Public Information Section of the
 Legal and External Relations Division of the
 Preparatory Commission for the
 Comprehensive Nuclear-Test-Ban Treaty Organization



[SITE INDEX](#)
[CONTACT WEBMASTER](#)
 Page generated: Wednesday, 04-Aug-99 03:43:44

Figure 1 – Main Meetings Page

Suppose a user is looking for the last hydroacoustic meeting held in Berlin (that's all they remember). Just limit the technology to "hydroacoustic", type "Berlin" in the "by searching for a word or phrase" text area, limit timeframe to "Anytime", "Recent" or "Archived", and click the "**List Meetings**" button.

An additional option users have on the Main Meeting Page is to "[Review recent updates to database](#)". This log file displays additions, updates or changes that have been made to the contents of the database. For the CTBTO PrepCom Open Web Site and DDS views, changes made in the previous 30 days are displayed; for ECS, this function displays meeting database updates since the last time the user checked.

2. Form page (see Figure 2) to enter information about a new meeting to add to database

The PTS's Meeting Administrator maintains this database of meeting information through Administrator tools on the ECS. Anyone wishing to contribute information about a meeting that they believe would be beneficial to have added to this database may "[Propose a New Meeting](#)" by filling in the on-line form (see Figure 2) which is displayed when a user clicks on this link from the main meetings page. The information provided is sent to the Meeting Administrator who will then decide whether it is appropriate to make the addition. Comments or corrections should be e-mailed to the Meeting Administrator at Jerzy.Knapik@ctbto.org or the CTBTO Webmaster at ctbto_webmaster@ctbto.org.

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Propose a New Scientific Meeting

If you have information about a meeting that should be added to this database, please provide it to us using the form below. The CTBTO Meeting Administrator, Jerzy Knapik (Jerzy.Knapik@ctbto.org), will review the information you submit and will decide whether or not to incorporate it into our meetings database.

Please fill in your name (and organization) as well as information on how we can contact you:

Submitter's Name (and Organization): Name, at least, is **Required**

Contact Information: E-Mail address, phone or fax number **Required**

Please fill in below as much information as possible about the meeting to be added:

Forum: **Required**

Select existing forum:

Hint: Submit with just a selected forum to see listing of all related sessions

or create new forum:

This Session: **Optional**

Venue: **Required**

Start Date: **Required -- Format must be 'DD Month YYYY'**

Stop Date: Defaults to **Start Date** if blank

Technologies: Seismic Radionuclide Hydroacoustic Infrasound

Organizing Institution(s): If more than one institution, separate with semi-colons (;)

Point of Contact: **Name or Org:**

E-mail or Fax:

Address of Web Site:

Topics Included: If more than one topic, separate with semi-colons (;)

Other Details:

Attachments: Type name of attachment as you would like it to appear in the link which is created, one link per line (files can be uploaded and attached later)

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[SITE INDEX](#)
[CONTACT WEBMASTER](#)

Page generated: Thursday, 12-Aug-99 18:35:01

Figure 2 – Form Page, to propose a new meeting be added to database

3. List Pages (see examples in Figures 3, 4, 5 and 6) display the results of a query when the “List Meetings” button is clicked;

If the default settings are used, a page displays listing in chronological order the set of all meetings that are currently underway or will begin in the future.

Figure 2 below is one example of a list page (with meeting group limited to “Seismic Research Symposium,” time-frame set to “Anytime” or “No Limit” so both meetings (one in the past and one on the future) will display, and the “Standard HTML” display view selected):

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All Seismic Research Symposium Meetings

Standard view listed by Date in Chronological order ([toggle](#))

Key: **Bold Font**> meeting is ongoing or in the future; **+**> meeting has POC or Web Site; *****> details are available; **📎**> attachments are included

Meeting Name (:Session)	Venue	Date(s)
Seismic Research Symposium: 20th Annual, on Monitoring a Comprehensive Nuclear-Test-Ban Treaty	Santa Fe, NM, USA	21-23 September 1998
Seismic Research Symposium: 21st Annual, Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty ⁺ [📎]	Las Vegas, NV, USA	21-24 September 1999

Total number of meetings returned: 2

[Back to Main Meetings Page](#)

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[SITE INDEX](#)
[CONTACT WEBMASTER](#)

Page last modified: 04-Aug-99 03:50:54

Figure 3 – List Page: Meetings ordered by date

If “Standard HTML” is selected as the display view (the default setting) the following columns of information display:

- Meeting Name (: Session)
 - This field is usually a combination of meeting group name/forum and session separated by a colon if a session exists.
 - This field is always a link to the data page for this particular meeting. The data page contains the full set of information available for a meeting and is described later.
- Venue
 - The location of the meeting or workshop (usually city, country or city/state, country).
- Date(s)
 - A character string that represents the beginning through ending dates (e.g. 21-24 September 1999)

If the user decides to “group sessions by alphabetically sorted meeting groups or forums” from the “Order by” section, meetings are first sorted alphabetically by group name or forum, then individual session names are listed sorted by date. Figure 4 is an example where meetings are grouped by session:

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All Seismic Research Symposium Meetings

Standard view listed by Meeting Name in Chronological order [\(toggle\)](#)

Key: **Bold Font**- meeting is ongoing or in the future; *****- meeting has POC or Web Site; *****- details are available; **#**- attachments are included

Meeting Name (:Session)	Venue	Date(s)
Seismic Research Symposium:		
<i>20th Annual, on Monitoring a Comprehensive Nuclear-Test-Ban Treaty</i>	Santa Fe, NM, USA	21-23 September 1998
<i>21st Annual, Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty *</i>	Las Vegas, NV, USA	21-24 September 1999

Total number of meetings returned: 2

[Back to Main Meetings Page](#)

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[SITE INDEX](#)
[CONTACT WEBMASTER](#)
Page last modified: 04-Aug-99 20:06:32

Figure 4 – List Page: Sessions grouped by meeting name/forum

With either the “Wide HTML” or “Print-formatted” display view, more information is available horizontally on the page. It may be useful with these views to use a smaller font and/or print the output in landscape mode to avoid having to scroll horizontally or having data overflow the right margin when printing.

As you can see in Figure 5 (Wide HTML view) and Figure 6 (Print-formatted view), two additional columns of information are displayed:

- Organizing Institution
- Topics Include

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Treaty	Signature and Ratification	Verification	Organization	Opportunities	Related Links	Visitor Log
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All Seismic Research Symposium Meetings

Wide view listed by Date in Chronological order [\(toggle\)](#)

Key: **Bold Font** > meeting is ongoing or in the future; * > meeting has POC or Web Site; * > details are available; ® > attachments are included

Meeting Name (:Session)	Venue	Date(s)	Organizing Institution(s)	Topics Include
Seismic Research Symposium: 20th Annual, on Monitoring a Comprehensive Nuclear-Test-Ban Treaty	Santa Fe, NM, USA	21-23 September 1998	US Department of Energy; US Department of Defense	Technologies for nuclear monitoring, with particular emphasis on the fields of seismology, hydroacoustics, infrasound and radionuclide monitoring
Seismic Research Symposium: 21st Annual, Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty*	Las Vegas, NV, USA	21-24 September 1999	US Department of Energy; US Department of Defense	N/A POC: Leslie Casey <leslie.casey@hq.doe.gov> URL: http://www.ctbt.md.doe.gov/Symposium1999

Total number of meetings returned: 2

[Back to Main Meetings Page](#)

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SITE INDEX
[CONTACT WEBMASTER](#)
Page last modified: 04-Aug-99 20:15:3

Figure 5 – List Page: Wide HTML view

All Seismic Research Symposium Meetings

Print view listed by Date in Chronological order

Key: **Bold Font** > meeting is ongoing or in the future; * > meeting has POC or Web Site; * > details are available; ® > attachments are included

Meeting Name (:Session)	Venue	Date(s)	Organizing Institution(s)	Topics Include
Seismic Research Symposium: 20th Annual, on Monitoring a Comprehensive Nuclear-Test-Ban Treaty	Santa Fe, NM, USA	21-23 September 1998	US Department of Energy; US Department of Defense	Technologies for nuclear monitoring, with particular emphasis on the fields of seismology, hydroacoustics, infrasound and radionuclide monitoring
Seismic Research Symposium: 21st Annual, Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty*	Las Vegas, NV, USA	21-24 September 1999	US Department of Energy; US Department of Defense	N/A POC: Leslie Casey <leslie.casey@hq.doe.gov> URL: http://www.ctbt.md.doe.gov/Symposium1999

Total number of meetings returned: 2

Page generated:
Saturday, 14-Aug-99 05:05:59

Any questions? Please contact:
Jerzy.Knapik@ctbto.org

Figure 6 – List Page: Print-formatted view

4. **Data Pages (see example in Figure 7) display as much information as possible about a meeting.**

When a user clicks on a meeting name and/or optional session from a list page, the corresponding data page displays all available information about the meeting, including the following fields:

- Meeting Name
- Venue
- Date(s)
- Technologies
- Organizing Institution(s)
- Point of Contact
- Web site URL
- Topics Include
- Details
- Attachments

Figure 7 is an example of a data page for the 21st Annual Seismic Research Symposium, Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty:

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Organization
Opportunities
Related Links
Visitor Log

Scientific Meeting

Meeting Name:	Seismic Research Symposium: 21st Annual, Technologies for Monitoring the Comprehensive Nuclear-Test-Ban Treaty
Venue:	Las Vegas, NV, USA
Date(s):	21-24 September 1999
Technologies:	Seismic Infrasound Hydroacoustic Radionuclide
Organizing Institution(s):	US Department of Energy; US Department of Defense
Point of Contact:	Leslie Casey < leslie.casey@hq.doe.gov >
Web Site:	http://www.ctbt.rnd.doe.gov/Symposium1999

Back to Main Meetings Page

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[SITE INDEX](#)
[CONTACT WEBMASTER](#)

Page last modified: 04-Aug-99 03:43:47

Figure 7 – Data Page

Note that fields only display if they contain information. In the example above, the “Details” and “Attachments” fields are not listed because no information is available.

The “Meeting Group” portion of the “Meeting Name” field (the text which precedes the colon), is clickable. Use this link to list all sessions of a particular meeting group/forum. In the example above, clicking on the “**Seismic Research Symposium**” link would redisplay the list page in Figure 4. Of course, all e-mail addresses and web site URLs are also clickable and can be used to send messages to meeting POCs and access additional information on a web site provided by the meeting organizer.

What's next?

Use it! Contribute to it! And increase confidence in CTBT through International Cooperation!!

In addition, consider the question, “How can we make this database more comprehensive and useful to CTBT-related researchers and the scientific community at large?”

Over time, the PTS hopes to receive more and more proposals to add new meetings of regional, national and even local interest to this database from States Signatories’ research centers, universities, etc.

New ideas on how to further develop this database are already under consideration, e.g. how to collect, process and correspondingly archive technical information such as proceedings and reports which are available to participants to make them also available to other interested parties. If properly developed, as well as continuously updated, the PTS’s database can become a unique, consolidated source of references on verification-related technological developments, a tool to assist scientists worldwide.

In the spirit of “International Cooperation,” anyone having ideas for possible enhancements or improvements to this new tool is strongly encouraged to contact either or both of the authors: Jerzy Knapik, Chief of the International Cooperation section at CTBTO/PrepCom/PTS (Jerzy.Knapik@ctbto.org) and Mary Girven, former CTBTO PrepCom Webmaster and developer of these web tools, at Sandia National Laboratories (mlgirve@sandia.gov).