

Britain's Contribution to Monitoring Nuclear Tests

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Trust & Verify

The Comprehensive Test Ban Treaty (CTBT), signed and ratified by the UK, provides for a system to collect data to allow states parties to verify adherence to the treaty. The main components of the system are the International Monitoring System (IMS) and the International Data Centre (IDC). The IMS is a global data collection system, which will transmit data to the IDC, located in Vienna, which in turn will make this data available to states parties through national points of contact (called National Data Centres).

The technical challenges involved in monitoring for nuclear explosions have not altered following agreement on the CTBT. The only differences are that when the IMS is operational, states parties will have access to more data than previously, and an on-site inspection will be possible when a suspicious event is detected. Verification of compliance with the treaty will depend on states parties being able to initiate, support or oppose calls for on-site inspections on sound scientific grounds.

States parties to the CTBT are not obliged to carry out independent verification of the treaty. Indeed, the US is the only one likely to carry out anything approaching a thorough examination of all significant disturbances detected by the IMS. But the UK, and probably several other nations, are likely to wish to maintain an independent capability to assess suspect events when necessary.

Research in the UK on test monitoring dates back to 1958, when the UK began negotiating with the US and the Soviet Union on a comprehensive ban on nuclear testing. In 1963 the governments signed and ratified the Partial Test Ban Treaty (PTBT), banning nuclear explosions in the atmosphere, in outer space, and under water. From this point on the UK concentrated on detecting underground testing. A small group of forensic seismologists has worked for nearly forty years at a site called Blacknest, close to the Atomic Weapons Establishment (AWE) at Aldermaston. Blacknest is administratively linked to AWE but is 'outside the wire', engaged in open, unclassified work.

Blacknest's main responsibility to the UK government has been to provide assessments of ambiguous seismic events and foreign test explosions. Blacknest scientists have also supported the government at international negotiations, first from 1977-1980, when a second series of intensive tripartite negotiations took place, and then again from 1994-1996, during the multilateral negotiation of the CTBT at the Conference on Disarmament in Geneva.

Over the years Blacknest scientists have made important advances in forensic seismology, developing world-class expertise in seismological methods for estimating the yield of underground nuclear explosions and distinguishing explosions from earthquakes. They have designed steerable seismometer arrays and pioneered their application to seismic detection technology and techniques later used in the USA. And they have proposed an explanation, now widely accepted, of the physical basis for the best criterion for discriminating between explosions and earthquakes.

Also significant have been occasions when, in the course of its work, Blacknest has been drawn into politically sensitive international issues. Notable among these was the question of whether or not the Soviet Union was violating the bilateral US-Soviet Threshold Test Ban Treaty (TTBT) between 1974 and 1990, the period during which the treaty, which banned underground explosions over 150 kilotons, remained unratified. US seismological techniques estimated the yield of several Soviet tests in this period at significantly above 150 kilotons, whereas Blacknest was able to show that the seismological evidence was compatible with yields within the treaty's 150-kiloton threshold. The US subsequently came to agree with the UK's estimates and analyses. The UK's moderating influence was important because it stopped the United States

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from adopting too strong a position, making the final ratification less difficult than it might otherwise have been. In addition, Blacknest has produced conclusive analyses of ambiguous seismic disturbances in the vicinity of the Soviet test sites at Semipalatinsk and Novaya Zemlya. Most recently, in August 1997, Blacknest scientists correctly identified a seismic disturbance in the Novaya Zemlya region as an earthquake, while suspicions were voiced in the US for more than a month after the event that this might have been a nuclear explosion.

Blacknest thus has a strong international reputation. It has constituted an important part of the so-called 'special relationship' between the UK and the United States. Exchanges with the US have been formalised in a Test Monitoring Joint Working Group, in operation since the 1960s, though recently curtailed. According to Robert Blandford, Senior Scientist at the US National Data Centre, '[t]he Blacknest group has been of immense assistance to the United States monitoring community over the course of approximately 40 years, and continues to be so to this day'. For the UK, collaboration with the US has provided the opportunity for technical exchanges with a richly-funded test detection programme, as well as access to classified data and analyses.

But what of the future? In view of the very limited resources that the UK government is at present willing to devote the verification of arms control and disarmament agreements, it is important to establish—the many accomplishments of Blacknest notwithstanding—that there is a continuing need for UK expertise in test monitoring.

While it is true that the nuclear weapon states, in particular, have little incentive to test secretly—because only marginal benefits would accrue to any one of them from one or a few further test explosions, given their already extensive testing experience—these countries might quickly find reasons to resume testing were the CTBT to unravel. This would be a huge setback to nuclear disarmament, and it is above all to stop this happening that it is important for those countries that have expertise in test monitoring to apply these resources to help make the ban operate smoothly. Given that every day there are tens of seismic disturbances of significant magnitudes,

the central practical problem facing the treaty is ensuring that it is not undermined by an excessive number of false alarms. National expertise will be needed for a state party to take a view on any challenge made at the CTBT Organization (CTBTO) in Vienna. And besides, even if the chances of clandestine testing are low, they are not zero. A continuing vigilance, which itself will represent a further deterrent to testing, is highly desirable.

The size of any British verification programme will be determined by the level of verification that the Ministry of Defence (MoD) wishes to carry out. The MoD will say only that it is committed to retaining a capability to carry out independent assessments of potentially suspicious seismic events.

The director of the Blacknest group recommends that the UK establish a national programme employing around 25 staff to operate the arrays, assess data from the IDC and carry out research, at a cost of a few million pounds a year. Once operational, such a programme would routinely assess seismic disturbances with body-wave magnitudes equivalent to a one-kiloton explosion or greater. In addition, the monitoring programme would evaluate any on-site inspection challenge made at the CTBTO and might respond to a request from another country, or non-governmental group, for an opinion on a seismic disturbance. The UK would, of course, be ready to respond in the unlikely event that any mischievous or misguided challenge were made against it, its dependent

territories, or a member of the European Union.

UK teams would also train CTBTO inspectors in on-site inspection techniques and be on stand-by to supply staff and equipment for on-site inspections, augmenting the CTBTO's small cadre of permanent inspectors. The research group would continue work on detecting and distinguishing low-magnitude seismic disturbances, and carry out regional seismic calibrations—to understand normal seismic activity, seismic wave travel times and special geological features—in regions where proliferation is of concern to the UK government.

A national programme carrying out these functions would develop the UK's position as a world leader in test monitoring. A high level of expertise in the field would remain at the

Verification Quote

The value of the [Chemical Weapons] Convention to the chemical industry in minimising the likelihood of the misuse of legitimate products and in building the confidence of the public in the chemical industry far outweighs the costs of compliance with it. These costs can be managed by paying close attention to CBI [confidential business information] and by acting to anticipate the requirements of the inspectors, and thus to conclude inspections as soon as reasonably possible.

Richard H. Burgess, Dupont Corporation, Delaware, USA, 'A Point of View from the US Chemical Industry', *OPCW Synthesis*, no. 4, Aug. 1998, p. 5.

disposal of the UK government, valuable collaboration with the US in the field would be maintained and the UK would benefit from cost-effective national security. Conversely, to reduce support for test monitoring now, at this crucial point in the development of the CTBT, would mean sliding into a position of reliance on the US, relinquishing responsibility for implementing the treaty, and failing to build on a rich national heritage in nuclear test explosion monitoring.

Responsibility for setting up the UK's National Data Centre—i.e. the site at which data is received from the IDC—has been sub-contracted to the British Geological Survey (BGS) in Edinburgh rather than, as might have been expected, being entrusted to Blacknest. According to the MoD, it will be beneficial to develop test monitoring expertise at BGS because it will provide access to a pool of seismologists who, while not now expert in forensic seismology, have the potential to improve the UK's ability to maintain a suitable skill base to draw on in the future.

The future of the subcontract to BGS will remain uncertain until the primary contract to manage AWE, currently held by the industrial consortium Hunting-BRAE and which expires in April 2000, is either renegotiated with Hunting or awarded to a new contractor. The intention of MoD seems to be that BGS should eventually replace all functions of Blacknest. There is widespread concern, both in the UK and abroad at the planned

closure of Blacknest, which many feel is both unnecessary and unwise. If closure does occur, steps must be taken to ensure that the expertise at Blacknest is not dissipated and that Britain continues to take a leading involvement in nuclear test explosion monitoring.

The two senior staff at Blacknest are due to retire within the next five years. New seismologists must be recruited to work at Blacknest before these retirements. (It is imperative that responsibility for assessing suspicious seismic events remains with Blacknest for this period at the very least.) A way must also be found to involve the younger scientists currently or formerly employed at Blacknest—who are already experts in forensic seismology—in whatever new arrangements for verifying the CTBT eventually emerge in the UK. Lastly, the senior Blacknest staff must be retained as consultants after their retirement, to provide as much continuity as possible through what will inevitably be a difficult transitional period if responsibility for verifying the CTBT is transferred away from Blacknest.

Tom Milne, Pugwash, London Office. *This article draws on a forthcoming British Pugwash Group report, 'Verifying Nuclear Disarmament: A Role for AWE Aldermaston', Tom Milne and Henrietta Wilson, with an Introduction by Professor Jack Harris FRS, Sir Martin Rees FRS and Sir Joseph Rotblat FRS.*

Biological Weapons Protocol Update

The eleventh session of the Ad Hoc Group (AHG) negotiating the verification protocol to strengthen the Biological and Toxin Weapons Convention (BTWC) was held in Geneva from 22 June to 10 July 1998. Fifty states parties and two signatory states participated in the session at which 22 new working papers were presented.

There were signs of engagement by all participants, with serious negotiations being undertaken to resolve contested language currently within square brackets in the draft text. A fifth version of the draft protocol was produced. Although at 251 pages it is the longest so far, there was a sense that the AHG has turned the corner from adding reams of new text to focusing on key issues and consolidating and developing the draft. This could result in production by the Friends of the Chair of clean texts without square brackets, which after a couple of readings could in turn lead to the preparation of a clean draft prepared by the Chairman and thus to the final agreed text of the protocol. This was

demonstrated by working paper 293 prepared by the Friend of the Chair on the Investigations Annex, which noted that the Ad Hoc Group had concluded three readings of the General Provisions part of that Annex and that were only a few issues which could be identified as fundamental.

The opening day of the meeting was addressed by Tony Lloyd MP, UK Minister of State, speaking on behalf of the EU, who stressed that a BTWC verification regime can now be achieved. He offered London as the venue for the signing of the protocol, at a date which he trusted would not be too distant.

Five days later a Sino-US Presidential Joint Statement on the Protocol to the BTWC was issued in Beijing during President Clinton's visit to China. This gave a useful boost to the work of the AHG by pledging that both China and the United States support efforts to strengthen the effectiveness of the Convention, including the

establishment of a practical and effective compliance mechanism. The two sides expressed their desire to cooperate in the negotiations and 'work together to *further accelerate an early conclusion* [emphasis added] of the negotiations on the Protocol'.

The final day of the AHG meeting saw two political statements. One by Argentina, Brazil, Chile, Colombia, Mexico and Peru stated that 'they attach great importance to and remain fully committed to participate constructively in the negotiations of the Ad Hoc Group of States Parties to the BTWC'. They shared the view that 'efforts should be intensified in order to bring to a satisfactory conclusion, at the earliest possible date, of negotiations of a legally binding instrument aimed at strengthening the effectiveness and improving the implementation of the BTWC'. The other statement, by some 29 Western and Eastern States (including Argentina, Canada, the Czech Republic, the EU states, Japan and the United States), stated that 'the international community must pursue the early and successful conclusion of the Ad Hoc Group negotiations as a matter of urgency'. They reaffirmed their 'commitment to redouble their efforts in order to achieve this goal'. Further, they considered that 'measures to strengthen compliance should include, inter alia, the following elements...

- Declarations of a range of facilities and activities of potential relevance...
- Provisions for visits to facilities in order to promote accurate and complete declarations...
- Provision for rapid and effective investigations into concerns over non-compliance...
- A cost-effective and independent organisation, including a small permanent staff...'

This statement was particularly welcome as it both endorsed the central elements of the future

protocol as comprising declarations, visits, investigations and an independent organisation. Along with the references in both the Sino-US Joint Presidential Statement and the statement by 29 States to further accelerating the AHG efforts to complete the negotiation of the protocol, it further demonstrated the growing political will to achieve a strengthened BTWC.

In terms of actual progress in the negotiations, the meeting made particular progress in respect of declarations, with language proposed for the following declaration triggers: past offensive/defensive programmes, current defensive programmes, vaccine production facilities, maximum biological containment laboratories (BL 4), work with listed agents (production, modification, transfer of sequences and aerosolisation), non-vaccine production facilities, and national legislation and regulations.

The Investigations Annex also progressed with the identification of the few issues which could be identified as fundamental: these included the characterisation of the Technical Secretariat; Privileges and Immunities; Confidentiality; Access and Conduct of Investigations involving States other than the State Party to be investigated; National Authority; Approved inspection equipment and its accessibility; and how an investigation is to be initiated.

Further progress was made in several areas of the draft protocol in starting to remove square brackets and focusing on the key issues. It is clear that the end-game has either already started or is imminent. All the essential elements for the strengthened Protocol are already present in the draft. The next AHG meeting, for four weeks, will be in Geneva from 14 September to 9 October 1998.

Graham S. Pearson, *Honorary Visiting Professor of International Security, Department of Peace Studies, University of Bradford. This report was supported in part by a grant from the Joseph Rowntree Charitable Trust.*



Verification Watch

Sudan Bombing

Controversy has arisen over the veracity of claims by the United States that a chemical factory it bombed on 20 August was producing chemical weapons. US intelligence alleged that

soil samples from the vicinity of the factory revealed traces of EMPTA, a precursor of the nerve agent VX and a substance thought to have no other use. It was also alleged that the factory was owned by Osama bin Laden, a terrorist leader

thought to be behind the US embassy bombings in Kenya and Tanzania earlier in August.

Sceptics, however, pointed to the complete lack of security at the plant; the absence of any corroborative evidence; two prior Sudanese invitations to the US to investigate alleged terrorist activities in the country (turned down); revelations that Osama bin Laden was not connected with it; and the fact that the bombings did not release any detectable chemical weapon agents.

The Organisation for the Prohibition of Chemical Weapons (OPCW) in the Hague added to the scepticism when it reported that a literature search had revealed that EMPTA could be used in 'limited amounts for legitimate commercial purposes'. What is unusual about the OPCW's statement is that Sudan is not a party to the Chemical Weapons Convention (CWC), had not therefore violated the treaty and thus the organisation has no legal standing in the Sudan case. It is welcome development that it nevertheless sought fit to comment on a verification issue in which it clearly has expertise. While Sudan asked the UN Security Council to dispatch an investigation team the US was, predictably, opposed.

A solution that could assist all parties involved would be for Sudan to accede to the CWC, hence opening itself to permanent monitoring of its chemical industry and ensuring that future allegations are dealt with by the OPCW in a legal framework, rather than by unilateral bombing on the basis of unsubstantiated evidence.

UN Special Commission (UNSCOM) on Iraq

Iraq has again challenged the authority of the UN Special Commission on Iraq by blocking inspections of suspected weapon sites, calling for the Commission's headquarters to be transferred from New York to Geneva to lessen alleged US influence; demanding fewer American inspectors; and by alleging links between UNSCOM inspectors and US and Israeli intelligence. UNSCOM Executive Chairman Richard Butler ended talks in Baghdad on 4 August after Iraq demanded that he certify that all of Iraq's weapons of mass destruction programmes had been accounted for and dismantled or destroyed. In response to Iraq's refusal to permit further inspections the UN Security Council suspended indefinitely its 60-day reviews of economic sanctions against Iraq. The work of the International Atomic Energy Agency (IAEA) in

monitoring Iraq's nuclear capabilities has also been affected, according to its Director, Mohamed ElBaradei. Under the restrictions imposed by Iraq, its activities fall far short of full implementation of its so-called on-going monitoring and verification (OMV) plan.

Meanwhile the longest-serving staff member of UNSCOM, Scott Ritter Jr., resigned in August, alleging that the Security Council and the United States had pressured UNSCOM to cancel two planned surprise inspections of Iraqi sites in July and August in order to avoid a confrontation with Baghdad that they were unsure how to handle. 'Iraq will, in effect, win the war', Ritter claimed. He further alleged that UNSCOM was aware that Iraq had three 'technologically complete' nuclear devices, needing only the fissionable material to make them operational. US Secretary of State Madeleine Albright responded that

Ritter did not 'have a clue' about overall US policy towards Iraq. That policy was apparently aimed at not responding to every Iraqi provocation immediately, but placing the onus on Baghdad to resolve the confrontation—presumably as a means of removing the crippling sanctions against it. Nonetheless it is clear that UNSCOM is currently not able to fulfil its mandate to verify that Iraq no longer has the capability to use, deploy or produce weapons of mass destruction.

Verification Quote

The issue of immediate, unrestricted access is, in my opinion, the cornerstone of any viable inspection regime, and, as such, is an issue worth fighting for.

Scott Ritter Jr., former senior inspector with the UN Special Commission on Iraq, on his resignation, quoted in *Jane's Defence Weekly*, 2 Sept. 1998, p. 5.

Science and Technology Scan

- the US Defense Advanced Research Projects Agency (DARPA) is seeking proposals for 'revolutionary' systems that can detect a wide variety of biological agents, including bio-engineered viruses and bacteria; while the new programme will fund detection technologies for military use, particularly in urban environments, they would presumably also assist in verifying compliance with the Biological Weapons Convention (*Jane's Defence Weekly*, 26 Aug. 1998, p. 8)
- the US Naval Research Laboratory (NRL) has developed a biological weapons sensor that can be fitted to a small radio-controlled aircraft to monitor battlefield or other use of biological weapons; using a harmless bacterium the plane has been tested in a racetrack pattern 10-30 metres above the ground and up to 2 kilometres downwind of the bacterium release site (*New Scientist*, 12 Sept. 1998, p. 11)
- the Joint Aerial Images/Microsoft project to

place a 1-2 metre imagery atlas of the world on the Internet is receiving up to 10 million computer hits per day now that the project's website is operational; the database currently uses 2-metre resolution images from Russian mapping missions as far back as 1988; 1-metre, film-based images from the project's initial Spin-2 satellite mission are expected to be posted on the website soon (*Aviation Week & Space Technology*, 27 July 1998, p. 17).

Oops!

The printed version of the July edition of *Trust & Verify* contained a number of errors, pointed out to us by Richard Guthrie, to whom we are grateful:

- the UK Strategic Defence Review (SDR) was not presented to a 'joint session of Parliament' but to the Commons and House of Lords separately

- the UK is not, as a result of the SDR, the first nuclear weapon state to achieve transparency in fissile materials; the US has for a number of years made more information available on its stocks
- the Chemical Weapons Convention (CWC) implementation legislation passed by the US Congress was vetoed by President Clinton on 24 June; it was not of course the ratification legislation for the CWC, which the US ratified in April 1997
- the US ratified the 1925 Geneva Protocol in 1975; it had signed it in 1925.

Compiled by Dr Trevor Findlay, Executive Director, VERTIC

Verification Bytes

- the Conference on Disarmament in Geneva decided on 11 August, after years of interminable debate, to establish an Ad Hoc Committee to negotiate a 'non-discriminatory, multilateral and internationally and *effectively verifiable* [emphasis added] treaty banning the production of fissile material for nuclear weapons or other nuclear explosive devices'; the Fissile Material Cut-off Treaty (FMCT), as it is widely known, would not just be a useful arms control measure in its own right, but would be a necessary precursor to the complete and verified elimination of nuclear weapons
- on 2 September Presidents Yeltsin and Clinton signed an agreement to permit the US and Russia to share data on missile launches world-wide as a transparency measure to help avoid accidental nuclear war; other states were invited to join the system and an open centre was proposed for compiling such launch data
- US satellites have reportedly detected an underground construction site in North Korea which some suspect may be part of a nuclear weapons programme; North Korea is party to the nuclear Non-Proliferation Treaty (NPT) and to the 1991 North-South Joint Declaration, both of which prohibit such activity, and to a 1994 Agreed Framework with the US, by which North Korea forswears the nuclear option in exchange for a massive civil nuclear power assistance programme
- analysis of seismic data from May's nuclear tests by India and Pakistan reveals that their size and number were exaggerated by a factor of four, according to seismologist Terry Wallace at the University of Arizona; the research, published in *Seismological Research Letters* of 16 September, suggests that 2 of the 5 tests announced by India may never have occurred, while only 2 of Pakistan's were real nuclear explosions
- since the 11 June Board of Governors meeting at the International Atomic Energy Agency, more progress has been made on Additional Protocols to strengthen nuclear safeguards; Bulgaria, Canada, Croatia, Ghana (which has provisionally applied its Protocol) and all 13 European Union non-nuclear weapon states have signed Additional Protocols, while they entered into force for the Holy See, Jordan, New Zealand and Uzbekistan (which had already provisionally applied it); France, the UK and the US have also signed Protocols; Slovakia's draft Protocol has also been approved by the IAEA Board
- A delegation from Ukraine's Supreme Rada Committee for National Security and Defence visited RAF Brize Norton and participated in an Open Skies trial flight over southern England aboard Ukraine's Antonov 30 specially-equipped aircraft on 23 September. The Open Skies Treaty plans to allow military personnel to overfly each others' countries at short notice, taking photographs as they go; Ukraine signed the Treaty in 1992 but needs to ratify it—as do Russia and Belarus—before the Treaty can enter into force.

Position Available

RESEARCHER/SENIOR RESEARCHER—VERIFICATION SCIENCE AND TECHNOLOGY

Applications are invited for a researcher/senior researcher to conduct policy-relevant research into the scientific and technological aspects of the verification and monitoring of international agreements, notably in the areas of arms control, disarmament and peace agreements. You should have a higher degree in science or technology, such as physics, chemistry, biology, engineering or seismology, or equivalent experience in these fields. You should also have a wide-ranging interest in scientific and technological developments outside your area of expertise and a demonstrated interest in the implications of such developments for international politics, including verification. Proficiency in English and ability to write for a generalist audience are essential.

A two-year contract will be offered initially, with the possibility of extension depending on performance and funding. The salary range for a researcher is £15,000 to £21,000; for a senior researcher £21,000 to £30,000.

The closing date for applications is 30 October 1998. Applicants should send a letter addressing the selection criteria, nominating 3 referees and providing a curriculum vitae. For job descriptions and selection criteria see VERTIC's website or contact VERTIC's Administrator. VERTIC is an equal opportunity employer.

International Verification Consultants Network

VERTIC is in the process of establishing an International Verification Consultants Network, comprising experts in the field of verification and monitoring, and more generally in subject areas with which VERTIC is concerned, to advise us on verification and related issues. Membership of the Network, which is by invitation only, currently comprises:

- *Dr Roger Clark*, Lecturer in Geophysics, School of Earth Sciences, University of Leeds, United Kingdom (seismic verification)
- *Dr Jozef Goldblat*, Vice-President, Geneva International Peace Research Institute (GIPRI), Geneva, Switzerland (arms control and disarmament agreements)
- *Dr Patricia Lewis*, former Executive Director of VERTIC, currently Director, UN Institute for Disarmament Research (UNIDIR), Geneva, Switzerland (arms control and disarmament verification)
- *Dr Colin McInnes*, Department of International Relations, University of Wales, Aberystwyth, United Kingdom (Northern Ireland decommissioning)
- *Dr Graham Pearson*, former Director of the Chemical Defence Establishment, Porton Down, currently Honorary Visiting Professor in International Security, Department of Peace Studies, Bradford University, United Kingdom (chemical and biological

disarmament)

- *Dr Arian Pregenzer*, Manager, Cooperative Monitoring Center, Sandia National Laboratories, Albuquerque, New Mexico, United States (co-operative monitoring).

New Grants

VERTIC has received two new grants, from the W. Alton Jones Foundation in Charlottesville, Virginia. The first, for \$US 150,000 over two years, was made under the Foundation's Sustainable World Program and will fund VERTIC's on-going research into verification of the Climate Change Convention. The second, for \$US 200,000 over two years, was made under the Foundation's Secure World Program, and is to be used for a new project called 'Verification: New Technologies, Techniques and Synergies'. The recruitment process for researchers to carry out these projects is currently underway. VERTIC is grateful for this generous support from the W. Alton Jones Foundation.

New Interns

VERTIC has acquired three new interns for the autumn:

Kristan Goeting, a Dutch Ph.D. student studying chemistry at Oxford University, is researching verification of the Chemical Weapons Convention.

Genevieve Forde, a political science student from Albion College, Albion, Michigan, is helping

with research on Northern Ireland decommissioning, helping reorganise VERTIC's library and undertaking general office duties.

Kathryn Klebacha, an International Area Studies student from Drexel University in Philadelphia, Pennsylvania, is helping edit VERTIC publications, continuing the work of previous interns on the Verification Organisations Directory and assisting with office duties. The American interns come to VERTIC through the Educational Programmes Abroad (EPA) scheme.

New Web-Site

VERTIC has upgraded its web-site with the assistance of a former American intern, Jarrod Frahm, and the Farndon House Information Trust (FHIT). The site will be continuously improved and updated from now on with the help of FHIT, through their programme funded by the Joseph Rowntree Charitable Trust. VERTIC is most grateful for this assistance. The new site can be found at www.fhit.org/vertic

Staff News

Trevor Findlay participated in several meetings, workshops and conferences since July including: a Wilton Park Conference on 'Co-operative Security' from 3-4 August; a conference in Stockholm, Sweden, from 1-2 September

organised by the Swedish National Defence College on 'Peace Support Operations: The Legal Framework'; a workshop in Geneva from 7-8 September on the Indian and Pakistani nuclear tests organised by UNIDIR; and a conference on the monitoring of the Landmine Ban Treaty organised by Landmine Monitor in Dublin, Ireland from 15-19 September.

He was interviewed on BBC Radio 4 on 6 August for a program on Richard Butler, the Executive Chairman of UNSCOM. His main publication during the period was 'Armed Conflict, Prevention, Management and Resolution', *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press for SIPRI: Oxford, 1998).

Suzanna van Moyland is completing a progress report on IAEA Additional Protocols, which compares the Model Protocol of 1997 with those for EU countries and the US, and a report on Sustaining a Verification Regime in a Nuclear Weapon-Free World as part of VERTIC's 'Getting to Zero' project. On 23 September she went to RAF Brize Norton where the UK received a delegation of parliamentarians from Ukraine who were participating in an Open Skies practice flight over the UK (see 'Verification Bytes').



VERTIC is the Verification Technology Information Centre, an independent, non-profit making, non-governmental organisation. Its mission is to promote effective and efficient verification as a means of ensuring confidence in the implementation of treaties or other agreements which have international or national security implications. VERTIC aims to achieve its mission by means of research, training, dissemination of information and interaction with the relevant political, diplomatic, technical and scientific communities. A Board of Directors is responsible for general oversight of VERTIC's operations and an International Consultants Network provides expert advice. VERTIC is funded primarily by grants from foundations and trusts, currently the Ford Foundation, the John Merck Fund, the Joseph Rowntree Charitable Trust, the Ploughshares Fund, the Rockefeller Family Philanthropic Offices and the W. Alton Jones Foundation.

Trust & Verify

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