

BHRC LAUNCHES NEW HAZARD & RISK SCIENCE REVIEW

At this September's international convention of insurers, reinsurers, brokers and reinsurance consultants in Monte Carlo, the BHRC launched a new annual publication, the **Hazard & Risk Science Review**. Co-sponsored by reinsurance intermediary Benfield and reinsurer Partner Re., the review provides a digest for insurance professionals of new and pertinent hazard and risk science published in the preceding 12 months. New research is addressed under the headings of atmospheric hazards, geological hazards, hydrological hazards and climate change. Highlights of the 2004 issue included new predictive models for earthquakes, volcanic eruptions and landslides, improved capabilities for modelling typhoon and hurricane tracks, the launch of a new European Flood Forecasting System, and evidence for changes in current circulation patterns in the North Atlantic. Hard copies of HRSR2004 may be obtained by contacting Anna McGuire at BHRC (anna.mcguire@ucl.ac.uk). Copies may also be downloaded from the BHRC website at: www.benfieldhrc.org HRSR2005 will be launched in September next year, once again in Monte Carlo.



EDITORIAL

As more and more government legislation in many western states seeks to tighten security and raise fear of the terrorist threat, so imagined scenarios for the next Al-Quaida attack become increasingly bizarre. Gone are worries about the semtex bomb, replaced now by scares over nuclear dirty bombs, contaminated water supplies and chemical attacks. Inevitably, so-called bio-terror is high on the scaremongers list, with the possibility of terrorists initiating epidemics of smallpox, anthrax and other nasty diseases being promoted as a 'clear and present danger'. The possibility that a terrorist group might engineer the release of plague has also been raised, but just how realistic is this? In BHRC Disaster Studies Working Paper No. 10, Dr. Graham Twigg of the University of London's Institute of Historical Research argues, not very. Plague ranks high on the list of biological agents that might be used by terrorists because it is believed to have been responsible for the medieval Black Death pandemic and also because it was charged with high mortality rates in India during the late 19th and early 20th centuries. There is still, however, no convincing evidence that plague was responsible for the Black Death, while annual plague mortality rates on the Indian sub-continent turn out to be no greater than those due to local endemic diseases. Furthermore, pneumonic plague, the only form likely to be used by terrorists, has serious limitations in relation to delivery method and contact rate. Evidence from past epidemics shows that one infected person, on average, infects just 1.3 others, a situation that could adequately be handled by movement restriction, isolation and the use of antibiotics. Once again, it seems, the terrorist threat is being over-hyped, so lets hear a little less about the so-called 'war on terror' and more about how we are going to tackle the real terror of our times - climate change. [Image: Male *Xenopsylla cheopis* (oriental rat flea) engorged with blood. This flea is the primary vector of plague in most large plague epidemics in Asia, Africa, and South America. Both male and female fleas can transmit the infection. Courtesy US Centers for Disease Control.]

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DISASTER REDUCTION EXPERTS MEET IN PARIS

The first joint international conference organised by the Association Française pour la Prévention des Catastrophes Naturelles (AFPCN) and the UK Advisory Committee on Natural Disaster Reduction (ACNDR), the respective national platforms for the United Nations International Strategy for Disaster Reduction, (UN/ISDR), met in Paris in September 2004.

The conference was well attended by leading academics and civil servants from both sides of the English Channel, as well as from elsewhere in Europe. It was also attended by a number of senior politicians from the French national and regional government, including Senators, Ministers and Préfets. The topics were of great interest and much progress was made in exchanging ideas and forging relationships.

Professor David Crichton attended on behalf of the BHRC and has produced a report on the proceedings which can be downloaded from the BHRC website: www.benfieldhrc.org

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NEW PUBLICATION

The Benfield Hazard Research Centre has just published a new working paper on **Plague and bio-terrorism** by Dr Graham Twigg, Centre for Metropolitan History, University of London. Using historical and epidemiological evidence, the paper argues that plague has serious limitations for terrorists as a potential weapon of mass destruction, even though it could cause fear and panic.

This paper and the other 9 papers in the Benfield Hazard Research Centre's series of working papers in disaster studies can be found at: www.benfieldhrc.org/SiteRoot/disaster_studies/working_papers.htm

MOUNT ST HELENS RUMBLES BACK INTO LIFE

Almost a quarter of a century ago, on May 18th 1980, Washington State's Mount St Helens volcano erupted spectacularly to devastate the surrounding area and take 57 lives. Following more than 120 years of dormancy, renewed activity commenced in March 1980, with earthquake swarms heralding the arrival of fresh magma within the volcano. At the end of March, steam blasts opened new craters near the summit indicating that rising magma was coming into contact with groundwater, while by mid-April the volcano began to bulge ominously as increasing volumes of magma were emplaced beneath the north flank. On the morning of May 18th, shaking associated with a magnitude 5.1 earthquake dislodged the bulge, triggering a gigantic landslide that removed the top 400m of the volcano, leaving a 600m deep crater, two kilometres across. Removal of the north flank caused the magma beneath to decompress explosively, triggering a lateral blast that destroyed more than 600km² of full-grown forest. Pyroclastic flows followed, along with volcanic debris flows - known as lahars - that clogged rivers draining the volcano as far as the coastal city of Portland. Following this climactic event, the volcano rumbled on until 1986, with the repeated growth and destruction of a lava dome within the enormous amphitheatre excavated by the events of May 18th 1980.

Twenty four years on, in September this year, it became apparent that the volcano was not yet ready to return to a long period of slumber. Earthquake swarms started on September 23rd and three days later had reached a level sufficient to warrant the release of a Notice of Volcanic Unrest. By September 29th, earthquakes were occurring at a rate of four a minute, leading to the notice of unrest being raised to Alert Level 2. By the beginning of October an area close to the solidified lava dome emplaced in the amphitheatre between 1980 and 1986 could clearly be seen to be swelling, and on October 2nd, steam blasts triggered Alert Level 3 - indicative of a possible imminent eruption. Steam and ash eruptions continued as rising magma came into contact with glacier ice, and swelling in the vicinity of the old lava dome continued. At last, on October 12th, new, pinkish-grey lava was spotted at the surface. For the remainder of the month and the first half of November, fresh lava continued to accumulate over the new vent to form a growing lava dome. As of November 12th, lava continues to be added to the dome at an average rate of 4m³ a second, sometimes accompanied by minor steam and ash blasts. Dome growth could continue for months or even years as the volcano progressively fills the amphitheatre excavated by the May 1980 event. Small to moderate explosive eruptions remain possible, which may lead to the formation of pyroclastic flows or lahars. A major eruption, however, is unlikely and any hazardous phenomena are expected to be confined to the area around the volcano. For daily updates on the situation at Mount St Helens go to the USGS Cascades Volcano Observatory site at: <http://vulcan.wr.usgs.gov/>

[Image: A new lava dome grows in the amphitheatre excavated by the May 18th 1980 climactic eruption. Courtesy: United States Geological Survey].



ON THE BOX

The first half of 2005 will see the broadcast of two major television programmes involving BHRC Director, Bill McGuire. February sees the broadcast of a two hour BBC film, which presents a fictional account of a future volcanic super-eruption at Yellowstone (Wyoming). Bill McGuire was chief consultant on the project, which is co-funded by the US Discovery Channel, and also features in the accompanying documentary. The film will be shown in two episodes on successive evenings on BBC1, followed by the two-part documentary. Views of the early cuts suggest that it is well worth a watch. In April, Bill McGuire will feature in a two hour 'docudrama' on Channel 4, focusing on the cataclysmic 1883 eruption of Indonesia's Krakatoa volcano. The programme follows Bill and US volcanologist Mike Rampino of New York University as they visit the volcano itself and the sites of the eruption-triggered giant tsunami that took close to 40,000 lives, and uses dramatic reconstruction to relive the terrible events.

NATURAL HAZARDS IN A WARMER WORLD

The seventh of the BHRC Hazard & Risk Science one-day workshops was convened on the 14th October at The City Club, London, focusing this time on the theme: **Natural Hazards in a Warmer World**. Speakers from the BHRC, the Met Office, the Environment Agency and the University of East Anglia's Climatic Research Unit, presented evidence for the impact of climate change on natural hazards. Topics addressed included: tropical cyclones in a warmer world, the response of mid-latitude storms to climate change, recent and possible future changes in UK rainfall, climate change and flood risk, flood versus drought in the 21st century and insurance aspects of climate change-related hazards. The full programme, information about the speakers and talk abstracts will shortly be available at: www.benfieldhrc.org

RAPID ENVIRONMENTAL IMPACT ASSESSMENT IN DARFUR

The conflict in Darfur Sudan is considered to be one of the worst humanitarian crises in the world. An estimated 2.2 million persons are affected including 1.4 million internally displaced persons (IDPs) within the country, and 300,000 who have left Darfur for Chad. An estimated 70,000 have died due to the conflict.

BHRC and CARE International conducted a rapid environmental impact assessment (REA) during September. The assessment was supported by USAID's Office of Foreign Disaster Assistance and the Joint UN Environment Program/Office for the Coordination of Humanitarian Assistance.

The assessment followed the REA methodology developed by the Centre and CARE International and involved consultations in Khartoum and Nyala, South Darfur, together with meetings with IDPs in camps in South Darfur.

The key findings of the assessment were:

- The lack of sufficient and appropriate relief assistance forces those displaced by the conflict to rely on the dangerous collection of water, wood, grass, and other natural resources to survive. This danger is most often borne by women.
- In some locations, IDPs were concerned that the supplies of natural resources around displaced camps, particularly wood, were not sufficient to meet their needs, and this shortfall would lead to more severe problems in the future.
- The environmental causes and impacts of the Darfur conflict have not yet been systematically considered in peace efforts or relief operations.
- Below standard conditions in camps are, in many cases, associated with specific environmental conditions and impacts. In many cases, these conditions and impacts could be anticipated and largely avoided if experience from refugee situations were applied to managing the camps.

The assessment concluded that environmental issues are at the core of the crisis in Darfur. If these environmental issues are not addressed, then efforts at creating peaceful conditions in Darfur are not likely to be successful.

The report provides specific recommendations for addressing the immediate environmental impacts identified in the assessment. The full assessment is available on the BHRC website at: www.benfieldhrc.org/SiteRoot/disaster_studies/rea/Sudansumrtp.pdf.

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The REA pages have been recently updated: www.benfieldhrc.org/SiteRoot/disaster_studies/rea/rea_index.htm.



[Image: Dust storm approaching a refugee camp near Nyala, Southern Sudan. Courtesy CARE International 2004]

WORLD ATLAS OF NATURAL HAZARDS



BHRC is pleased to announce the publication of a major, new work on natural hazards. Written by Centre staff, Bill McGuire, Paul Burton and Chris Kilburn, with maps and graphics by Olly Willetts, the **World Atlas of Natural Hazards** is a full-colour, large format atlas of 128 pages. It is intentionally graphics- and image-driven, and contains over 200 figures. The atlas is divided into four parts: natural hazards; hazard impacts; hazard avoidance, mitigation and management; future prospects

Published by Hodder Arnold, the book retails at £150 and is aimed primarily at libraries, research groups, companies, institutions and government and international agencies. It might also make a nice Christmas present for your favourite hazard scientist or disaster manager.

World Atlas of Natural Hazards. 2004 McGuire, B., Burton, P., Kilburn, C. and Willetts, O. Hodder Arnold. London. 128 pp ISBN 0340764058. £150.



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