



The Hazards Forum Newsletter

Issue No. 54
Summer 2006

NEWSLETTER Issue no 54

Summer 2006

Contents

2. Viewpoint: Occupational Health – are we doing enough?
3. Evening Event
4. Notes of Brain-storming Session held on 13 March 2006 at the Institution of Civil Engineers
8. Climate Science
10. 'Science in Parliament'
12. Report of Executive Committee Meeting, 20 June 2006
13. Modelling the Hurricane Risk in the North Atlantic
14. 'Strategic risk: a Guide for Directors'
15. Calendar of Events

Edited by Dr Ian Lawrenson OBE Views expressed are those of the authors, not necessarily of the Hazards Forum

Further information regarding the articles in this issue is available from Simon Whalley on 0207 665 2230
Email: hazards.forum@ice.org.uk

Viewpoint

OCCUPATIONAL HEALTH – ARE WE DOING ENOUGH?

Dr R H Taylor

It is sometimes not recognised that in a workforce of 1000 people, about 400 will typically be suffering from a health-related problem that may affect their performance at work. This is reflected in the fact that every week in the UK, about 1 million people take sick leave, 3000 of these will still be sick in six months time and, of those, 80% will not work again. The majority of longer-term illness, lasting three weeks or more, will be due to musculoskeletal and common mental disorders such as depression and anxiety.

Apart from the human suffering entailed in all of this, the cost to the UK economy and to individual businesses is enormous. Government estimates of the cost of disability-related payments, for example, amount to £35 billion per year and the costs to business of absence, ill-health retirement, insurance and other direct and indirect costs are estimated to be at least £11 billion per year. Put another way, the health risk cost to medium size or large enterprises amount to 10% to 15% of their payroll costs each year.

The issue has now been recognised as a priority for Government and is high on the agenda of the Health and Safety Executive. Despite the enormous human and financial costs involved, however, the issue is frequently the poor relation in the 'health and safety' pairing as far as many companies and their managers are concerned. Whilst most companies now pay great attention to improving safety and minimising the human suffering and costs associated with accidents in the workplace, ill-health is often not given the same priority.

There are probably many reasons for this. The subject often seems to fall between the

responsibilities of line managers, occupational health specialists, health and safety experts and HR departments. There is also the fact that GPs certify work absence and many do not fully understand occupational health issues and, in particular, the ways in which companies can help their staff to recover while continuing at work.

The issue has recently been recognised by the Inter-Institutional Group on Health and Safety (the IIG). The IIG brings together experts from each of the major engineering institutions to work together in addressing important issues in health and safety that go wider than the interests of any one institution. A sub-group has now been formed that brings together, perhaps for the first time, industry representatives, occupational health practitioners and the HSE. They have recently set out a 'Strategy' for addressing the issues and produced a document setting out the case for giving occupational health issues a higher profile in UK industry and within the medical profession. The Strategy involves raising the profile and understanding of the subject and trying to help individual engineers and managers understand what they can do to address the issue. One objective is to make sure that members are aware of the helpful advice available from the HSE and others and to identify beacons of good practice from which we can learn.

An example is the management of stress in the workplace. We all have a role in learning to identify stress among our workforce and colleagues and, if like other OH issues, it is recognised as part of the portfolio of risks that any competent manager should be recognising and taking steps to address, much can be done to manage the issues at an early stage, help individuals and, of course, reduce

potential costs for the organisation. A starting point is to read the excellent articles on the website (www.hse.gov.uk/stress/inde.htm) which provide practical advice and guidance.

Many of us may feel that there are enough demands on us in the modern workplace and that our own stress levels sometimes get high as a result! However, playing a proactive role in raising consciousness about the importance of minimising occupational ill health and acting to address it more effectively at our places of work are things that professional bodies and individual members can do relatively simply and as a result make an enormous difference to people and our organisations.

Dr Taylor is a member of the Hazards Forum Executive, and is Chairman of the Inter-Institutional Group on Health and Safety.

Evening Event

Unfortunately the Hazards Forum Evening Event on '*Improving Risk Management of Critical Computer-Controlled Systems*', planned for 20 June 2006, had to be postponed because of a threatened RMT railway strike on that day.

It will now be held on Thursday 21 September 2006, at 6pm at the Institution of Engineering and Technology, Savoy Place, London. All those previously invited to the meeting will receive an invitation for this new date.

NOTES OF BRAIN-STORMING SESSION HELD ON 13 MARCH 2006 AT THE INSTITUTION OF CIVIL ENGINEERS

OBJECTIVES

Sally Brearley gave a brief account of the meeting that was held on the 19 May 2004 on Sharing Accident Information, when papers were presented by John Chaplin (formerly of the CAA), Gerard Forlin, Barrister, Aidan Hayes Director of Health and Safety BP and Helen Rycraft of BNFL. The discussions at the end of the meeting indicated that the matter should be progressed to a conclusion. The Royal Academy of Engineering was carrying out a discussion on Accident Investigation and it was decided to await the publication of the report. The report Accidents & Agenda was published in October 2005 and focussed on seven industries that could cause big events. It was aimed to reassure the public.

There were five main conclusions summarised as:

1. Primary aim of the investigation should be to prevent future similar accidents.
2. After an accident a decision on the agency to lead the investigation should be reached quickly.
3. There are significant challenges ahead with complex control systems.
4. Near misses should also attract investigation.
5. Powerful contributor to preventing accidents is by company and individuals learning from accidents, digesting their causes and consistently applying them throughout their own organisation wherever relevant.

We now had the opportunity to build on this report and it was proposed that the objective for the Hazards Forum brainstorming session was to identify measures that would prevent a recurrence of accidents. The agenda should be:

1. What are the essentials to enable lessons to be learnt?
2. What were the barriers to learning?
3. Practical recommendations, for:
 - a) Companies
 - b) Within companies
 - c) Across industries
 - d) Internationally
4. How could the process be encouraged?

A general discussion was held and the points made are summarised below. The main conclusions appear first, followed by the details discussed.

CONCLUSIONS

- 1) The group felt that there was great willingness to be open and share lessons within the safety community and in many large companies.
- 2) However, there are significant legal, regulatory and insurance barriers that positively discourage sharing of lessons.
- 3) Recent societal and media trends that seek to allocate blame in all cases and do not recognise system failings also deter companies from sharing and being open.
- 4) Companies themselves have the greatest ability to:
 - Report accidents and incidents internally
 - Investigate in depth
 - Share and apply lessons.
- 5) Engineering / technical causes are easier to fix than managerial or behavioural causes.

- 6) Industry wide initiatives should follow where possible, but the mechanisms will differ according to the industry and the scale of hazard.
- 7) Good company processes are an essential first building block; industry-wide sharing can only happen if companies are a) willing to share and b) already have good investigation and sharing within the company.

DETAILED DISCUSSION

Immediate Response – by the Company concerned

The following actions were regarded as essential after a (large scale) accident:

- Crisis response plans should be ready to swing into action, to deal with the immediate aftermath.
- Accident investigation: trained investigators should be ready to implement a well rehearsed investigation process.
- Immediate sharing of the facts, both with the Public and internally, is essential .
- An open and honest approach is to be commended.
- Recent trends in Corporate governance, Whistle blowing, Ethical codes all support this.

Reporting

- Reporting of **all** accidents in a company is fundamental to learning lessons.
- Near miss reporting is highly recommended.
- Near miss reporting may occur on an industry basis, where common issues arise – eg aviation and railways.

The Investigation

- High level commitment is required to resource the investigation and to be prepared to share lessons quickly.
- The investigation should aim to reveal the whole truth.
- Both immediate and root / system causes should be identified, to aid learning lessons.
- A team approach to investigation was recommended.
- The investigation team should contain the 'right' mix of skills, and should be deployed early.

Sharing Lessons

- Companies have an ethical / moral responsibility to share lessons to prevent similar accidents.
- Lessons should be shared with those who need to know.
- The company culture is important: an Open or Just Culture is to be recommended, a No Blame culture encourages openness and reporting, but may not enforce accountability for one's actions.
- Openness/transparency with the public is recommended.
- Good mechanisms for sharing are required (access and language).
- Safety Alerts are commonly used to:
 - Share immediate causes ASAP within the company.
 - Reach those who undertake similar activities.
- Accident reports / Alerts should be made anonymous when sharing lessons.
- Relevant and timely sharing is important.
- A common language/taxonomy of causes can aid understanding (eg BP or Balfour Beatty common list of causes).
- Defining **what** the lessons are is not always easy, and identifying the right lessons in the first place is essential.
- Measure and communicate success too.
- Can rewards / positive incentives to share lessons be devised?
- Distribution of lessons: - sharing and learning are two separate things.

Sharing within an industry / across industries

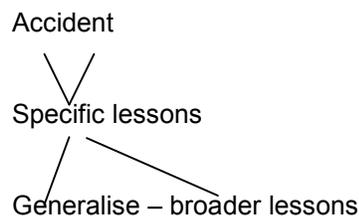
- Networks have to be in place to share lessons externally, eg Professional organisation or Industry Association.
- The HSE may issue a press release/SIMS.
- Different industries should be encouraged to talk, eg Rail and Air.
- An industry database could link to design and hazard assessment software eg chemical industry.
- Adequate databases to record findings with access by all interested parties.
- Publicity of findings.
- Effective world-wide communications medium ie internet.

Are the Lessons Received?

- Has the right audience been reached?
- Jim Reason – ‘Frequently rocked boat - loss of alertness’.
- The snowstorm effect: too many lessons cloud the visibility. Judgement is required to select relevant lessons.
- Oversight is required – ie helicopter view of snowstorm.
- Grade/hierarchy issues.
- Corporate memory tends to fade over time, as people move on.
- Can organisations train to counter ‘memory loss’?
- The significance of rules is forgotten, so rules are lost because their importance is lost, eg BP Process Safety Booklets.
- Emerging trends should be analysed and discussed.
- Knowledge collection process is required .
- Recipients of the lessons must have time and space to act on them.
- Willingness of the recipients of learning to act on the advice of others – ‘it couldn’t happen here’.
- Acceptance by those responsible for such scenarios that an incident could happen AND that controls proposed from investigation are worthy of implementation.

Acting on Lessons

- What is a lesson?
- Feed back is essential, so that systems and rules are changed to reflect the lessons learnt.
- Technical lessons are ‘easy’ to fix.
- Fixes may be narrow and specific. Need to generalise too.
- Management systems/Culture failures are much harder to fix.
- Leadership: Perverse incentives may encourage wrong behaviours.
- Management failures are general, hard to translate lessons and learn.
- Management of Change is fundamental – many accidents occur during change.



Barriers to Learning Lessons from Accidents (Real / Perceived)

- Legal issues.
 - Subcontractors and plant suppliers may be less open (Product liability – new EC regulations).
 - Legal privilege – the legal team lead the investigation.
 - Legal constraints may restrict freedom to share information publicly.
 - Fear of investigation information being used against industry.
 - Over regulation. Regulations less open?
 - Insurance - nullify D & O policy?
 - Increase in joint Police/CPS/HSE investigation for manslaughter.
 - Increasingly aggressive police investigation, eg of fatal Road Traffic Accidents.
 - Increased media, public, victim and lobby group demands for accountability.
 - Compensation culture - commercial and public.
 - Disclosure of previous convictions, eg in insurance.
 - An early guilty plea is often recommended by legal counsel.
 - Clients - need leadership to be open.
 - Sometimes, people can be unwilling to question their seniors.
 - Loss of senior people is possible, due to reluctance to take responsibility.
 - If commitment and resources are thin, then may not look too hard for solutions.
 - Competence - risk taking behaviour.
 - Most safety persons and managers want to share lessons, on ethical and moral grounds.
 - Senior management support is essential to foster a learning culture.
 - Trust and confidence.
 - People need to be prepared to prioritise learning above their own personal status, including legal position.
 - People need to be prepared to recognise causes and to share their 'mistakes' with others.
-

Climate Science

The following is an edited, shortened version of information distributed by the UK Climate Impact Programme, summarising some recent papers on climate change. Further information on UKCIP or on any of the papers summarised are available from the Editor.

The significance of recent climate warming in the context of the past 1000-2000 years.

One of the iconic images of recent climate change is a graph showing average global temperatures over the past 1000 years based on a combination of proxy data and observations. This was first published in 1998 and appeared in the second assessment report of the Intergovernmental Panel on Climate Change in 2001. The graph shows that from 1000AD to the early 1900s there was little variation in global temperatures, producing a curve that looks like the shaft of a hockey stick. The curve then rises sharply in the 20th century, like the blade of a hockey stick. The graph has been widely represented as key evidence of human-induced climate change as it shows temperatures to be higher now than at any time in the past 1000 years.

The methodology used to produce this famous hockey-stick curve has been criticised by some. However, an article in *New Scientist* earlier this year¹ examines the controversy surrounding this image and makes two important points. First, more than a dozen studies have since been conducted using different statistical techniques or combinations of proxy records, and all have produced temperature reconstructions that are similar to the original hockey stick curve. The work has therefore been replicated. Secondly, the evidence that the world is getting warmer, and that this warming is largely due to human activities, is now overwhelming. There are now many other pieces of compelling evidence that show our climate is changing, so this image is perhaps not as important as it was originally believed to be.

Others² have analysed data from tree-rings to show that temperatures in extra-tropical land areas during the late 20th century are about 0.7°C warmer than the Medieval Warm Period. Temperatures have varied by a maximum of about 1.14°C between the warmest and the

coldest period in the 2000-year palaeo record that they studied.

The spatial extent of 20th century warming has been studied³ in the context of the past 1200 years and this work concludes that there is a significant temperature signal in the northern hemisphere temperature record since 800 AD which cannot be explained by random or internal variability and therefore must be due to external forcing. They also find that the most significant and longest duration feature during the past 1200 years is the geographical extent of warmth in the mid- to late 20th century, when greenhouse gas forcing has also been at its highest.

Species distributions and ecosystems are shifting in response to recent climate warming

There is growing evidence that in Britain species distributions have shifted during the recent climate warming. However, most of this information comes from studies of a small selection of taxa, namely plants, birds and butterflies, which may not be representative of biodiversity as a whole. A recent study⁴ uses distribution datasets for 16 taxonomic groups that occur in terrestrial and/or freshwater environments in Great Britain, to show that a wide variety of vertebrate and invertebrate species have moved northwards and to higher elevations in Britain over the past 25 years. Out of the 329 species analysed 275 species shifted northwards at their range margin.

Future flood risk in Great Britain and Ireland.

Data from a regional climate model has been used to estimate change⁵ in flood frequency for 15 catchment areas across Great Britain between the 1970s and the 2080s. Findings are based on a single RCM experiment and one emissions scenario, so must be treated with caution. Nonetheless, results show that *annual average rainfall is projected to decrease* in all but one catchment but despite this, eight of the 15 catchments studied show an *increase in flood frequency* at most return periods. Two catchments show substantial reductions in flood frequency. The authors explain that the fact that flood frequency can increase despite a reduction in rainfall implies a marked change in the distribution of rainfall, either in terms of the probability of rainfall events and / or its seasonal cycle. Flood peaks decrease for a number of catchments in the south and south east, despite an increase in winter mean rainfall, possibly because of increased summer and autumn soil moisture deficits (which makes soils dry leading into winter, and soil moisture deficits need to reduce to zero before flooding can occur). Catchments further north and west show an increase in flood frequency, in some cases of over 50% at the 50-year return period.

Climate change impacts on water supply and flood hazard in Ireland

Another study⁷ has assessed the impact of two climate change scenarios on changes in effective runoff at the 10km resolution across Ireland. Their results indicate 'a decrease in annual runoff that is most marked in the east and southeast of the country, whereas an increase is likely for the extreme northwest. The reduction in effective runoff for the east of the country is particularly marked in the summer months. It is these areas that have highest population density and also winter months, an increase in effective runoff is suggested for the western half of the country which could have implications for flood frequency, as well as the extent and duration of winter flooding.'

Influence of climate on choice of holiday destination: implications for adaptation

An analysis of holiday destination choice for tourists from 45 countries⁶, representing all climates and all continents shows that tourists are attracted to coasts. Intriguing conclusions are reached. First, it is shown that people from a wide range of climates prefer the same climate for their holiday. So irrespective of the climate in which they live (be it Brazil or Russia), tourists prefer countries with a sunny yet mild climate. The optimal holiday destination has an annual mean temperature of 16.2 ± 0.5 C. Secondly, people from warmer climates are more particular about their choices than people from colder climates. People from hot places avoid cold places for their holidays, and they also avoid places that are too hot. People from colder climates do not mind the cold or the heat.

These findings have interesting implications for adaptation to climate change as they demonstrate evidence of adaptation in the extremes of behaviour and not in the mean. They also suggest that tourist resorts in places that are likely to become too hot should seek to attract visitors from cold but not hot places. Cooler tourist resorts that are likely to become sufficiently warm in future should also target tourists from hotter places. The authors suggest that tourism as a whole is likely to become more sensitive to future climate change as the bulk of future tourism is expected to originate from hotter countries.

1. **Pearce, F** 2006. *Climate: The great hockey stick debate*. *New Scientist*, 18 March 2006, Issue no. 2543
2. **D'Arrigo, R, Wilson, R and Jacoby, 2006**. *On the long-term context for the late twentieth century warming*. *Journal of Geophysical Research* **111**, 1029
3. **Osborn, T J and Briffa, K, 2006**. *The spatial extent of the 20 -century warmth in the context of the past 1200 years*. *Science* **311**: 841-844
4. **Rickling, R, Roy, D B, Hill, J K, Fox, R and Thomas, C D, 2006**. *The distributions of a wide range of taxonomic groups are expanding polewards*. *Global Change Biology* **12**: 450-455)
5. **Kay, A L, Jones, R G and Reynard, N S, 2006**. *RCM rainfall for UK flood frequency estimation. II. Climate change results*. *Journal of Hydrology* **318**: 163-172).
6. **Bigano, A, Hamilton, J M and Tol, R S J, 2006**. *The impact of climate on holiday destination choice*. *Climatic Change*. to be published
7. **Charlton, R, Fealy, R, Moore, S, Sweeney, J and Murphy, C, 2006**. *Assessing the impact of climate change on water supply and flood hazard in Ireland using statistical downscaling and hydrological modelling techniques*. *Climatic Change*, **10**, 1007.

‘Science in Parliament’

As a member of the Parliamentary and Scientific Committee the Hazards Forum receives a copy of the Committee’s journal ‘*Science in Parliament*’, which is published quarterly. As it is not feasible to circulate the journal widely, the contents of each issue are shown in the Hazards Forum Newsletter. Any member who wishes to see any of the articles should contact the Editor at ilawrenson@theiet.org

Two issues of ‘Science in Parliament’ have been published since the last Hazards Forum Newsletter.

Spring 2006 Volume 63 Number 1

Keeping UK Science World Class <i>Opinion by Lord Rees of Ludlow PRS</i>	1
Information for Health <i>Opinion by Dr Mark Walport</i>	2
Taking a Risk <i>Opinion by Dame Deirdre Hutton</i>	4
Personal Data for Public Good <i>Professor Robert Souhami</i>	5
Science and Innovation in Germany	7
Complementary and Alternative Medicine: should it be provided on the NHS? <i>Addresses to the P&SC by Lord Walton of Detchant, Professor Stephen Holgate and David Tredinnick MP</i>	8
From the Green to the Gene Revolution – a 21st Century Challenge <i>Address to the P&SC by Dr Norman E Borlaug</i>	14
Risk Management – should the Precautionary Principle be replaced by risk-related analysis for individual new technologies? <i>Addresses to the P&SC by Professor Susan Owens, Sir Colin Berry and Professor Ragnar Löfstedt</i>	16
The Importance of Science, Engineering and Technology to a sustainable Economy on the African continent <i>Addresses to the P&SC by Sir Crispin Tickell, Professor Frank Rijsberman, Professor Richard Carter and Professor Sir Gordon Conway</i>	22
Pharmacology: what is it and how important is it to the Health and Wealth of the UK? <i>C Page, R Hill, J Buckingham and G Henderson</i>	30
Visualising the Emotions of Living Kidney Donation	32
Hurricanes, Typhoons and Tropical Cyclones <i>Professor Paul Hardake</i>	34

Whit 2006 Volume 63 Number 2

Opinion by Baroness Sharp of Guildford	1
The Budget Highlights Science <i>Opinion by Dr Ian Gibson MP</i>	2
Yet more ‘Super Bugs’? <i>Roger Finch , Pamela Hunter, Richard Wise</i>	3
Counterfeiting of Medicines <i>John Ferguson, ABPI</i>	4
Building Capacity for Ecology Fund <i>Professor Sir John Lawton, Professor Alastair Fitter and Nick Dusic</i>	7
City Learning Centres <i>Ann Connor, Department for Education and Skills</i>	8
Antarctica – a Continent for Peace and Science <i>Professor David Walton, British Antarctic Survey</i>	10
CCLRC Knowledge Transfer	12
Hospitals of the Future <i>Addresses to the P&SC by Sir Richard Sykes, Prof Sir Ara Darzi Prof Richard Kitney and Susan Grant</i>	14
Annual Luncheon of the Parliamentary and Scientific Committee <i>Address by Lord Rees of Ludlow PRS</i>	22
Science and Society <i>Seminar jointly arranged by OST and P&SC</i>	25
Making an Impact <i>Jim Cousins MP and Dr Hayley Fowler</i>	30
UK and US <i>Julian Braithwaite, British Embassy, Washington DC</i>	31
Let’s prevent neural tube defects by fortifying flour <i>Baroness Walmsley</i>	32
Voice of the Future	33

Report of Executive Committee Meeting, 20 June 2006

1. The Executive Committee was pleased to approve Corus Group's application for Corporate Membership of the Hazards Forum. Corporate members are extremely important to the Forum and it is hoped other large companies might join Corus Group in applying for membership. (For information please contact the secretariat)

2. Learning from Accidents Brainstorming Meeting. Sally Brearley and John Bond (Guest for this item) reported on this meeting, concluding that:

- a) there was great willingness to be open and share lessons within the safety community and in many large companies;
- b) there are significant legal, regulatory and insurance barriers that positively discourage sharing of lessons;
- c) Recent societal and media trends seek to allocate blame in all cases and do not recognise system failings. This deters companies from sharing and being open;
- d) companies themselves have the greatest ability to:
 - report accidents and incidents internally
 - investigate in depth
 - share and apply lessons
- e) industry wide initiatives should follow where possible, but the mechanisms will differ according to the industry and the scale of hazard;
- f) good company processes are an essential first building block; industry wide sharing can only happen if companies are i) willing to share and ii) already have good investigation and sharing within the company.

It was suggested that to take the issue further forward a special afternoon event for, say, 50 invited people from a wide range of sectors could be held. Each sector could be invited to submit an historical case study and make a presentation. From these historic case studies and subsequent discussion a document could be prepared containing guidance which would be relevant today. A working group was set up to take this idea forward.

3. Evening Meetings. The 'Risk Management of Critical Computer Based Systems' event which was regrettably postponed due to the threat of a RMT rail signallers strike will now be held later in the year and the number of events held will be reduced to three. While it was agreed this was disappointing it was felt impractical to hold four now. The third event, 'Design and Risk', to be held jointly with the Design and Industries Association at the Design Council, will take place on 21st November. Meetings next year will probably look at 'Just Culture'; 'Off-site Risks from Major Hazard Sites'; 'Financial Risk'; and perhaps 'Storage of Radioactive Waste', the latter possibly being a suitable subject for a joint meeting with The Geological Society.

4. Inter-Institutional Health and Safety Working Group. The Committee received an update on the work of the group, in particular the progress being made on providing material suitable for use in engineering undergraduate courses. E-learning had been identified as the best tool for this and a demonstration CD was being produced to advertise it in the hope that sufficient funds would be forthcoming to further develop the material. A subgroup was also looking at Occupational Health and a paper appears elsewhere in this Newsletter.

J F Lee 28 June 2006

Modeling the Hurricane Risk in the North Atlantic: Adjustments are Needed

In 2004, the insurance industry had to pay a record sum of US\$ 30bn for losses caused by North Atlantic hurricanes, especially in the United States and the Caribbean. This figure was far more than doubled in 2005 by the insured losses from tropical cyclones in this region, which topped US\$ 83bn. Hurricane Katrina alone will probably cost the insurance industry around US\$ 45bn. In meteorological terms too, the exceptional year of 2004 – with its four major hurricane loss events in Florida – was followed by the most active cyclone season since track data were first recorded in 1851. There were 27 named tropical storms in 2005, passing the previous record of 21 in 1933.

The intensities, that is the wind speeds, have also reached peak levels in the last few years. Three of the ten strongest hurricanes ever recorded in the North Atlantic occurred in 2005. Hurricane Wilma had a record low central pressure of only 882 hPa – and hence, in all probability, the highest wind speeds in the Caribbean since 1851.

In addition, the recent past has seen a spate of exceptional windstorm events around the globe. This trend continued in 2005. Forming near the island of Madeira, Hurricane Vince was the most easterly and northerly tropical cyclone ever. It set course for the European mainland and reached the coast of Spain on 11 October. At the end of November, Tropical Storm Delta crossed the Canary Islands, the first tropical cyclone ever in this region.

In its recent report* Munich Re speaks of 'unsettling developments'. The many exceptional meteorological events and losses for the insurance industry speak for themselves. There is no doubt that the models used to simulate the hurricane risk in the North Atlantic need adjusting.

Science can make a central contribution to quantifying the required changes in these models. Scientific analysis is currently focusing on natural climate oscillations and the effects of climate change on the hurricane hazard. However, with the risk of change becoming increasingly manifest, risk carriers cannot wait until science has provided answers to all the relevant questions, particularly as it will not be able to do so in the short term. On the contrary, science and insurance must come to terms with a new situation – not only in the North Atlantic but probably in other regions too and with regard to other meteorological hazards.

The record losses from Hurricane Katrina in August 2005 made it very clear that adjustments are needed not only because the hurricane frequency and intensity distributions are changing, but also because of the secondary hazards associated with tropical cyclones like storm surge and inland flooding. Munich Re's report tackles the question of such secondary hazards, which have not yet been considered adequately in existing modelling approaches.

It is up to the insurance industry to incorporate in its risk management all the findings on the hurricane hazard, the loss potentials of storm surges and floods, and the factor of vulnerability. New loss distributions will consequently affect all its business processes – from the calculation of the risk price, to the calculation of the required risk capital, and to profit-oriented portfolio management. The results of re-evaluating the risk will vary from portfolio to portfolio. But one thing is certain: the adjustments required of all risk carriers will be substantial.

** Hurricanes – More intense, more frequent, more expensive: Insurance in a time of changing risks (Munich Re, 2006).*

This report may be downloaded as a .pdf file from the website www.munichre.com

New Book

‘Strategic Risk: A Guide for Directors’

The success of enterprises can often be attributed to their successful management of strategic risk. Conversely, failure to manage strategic risk can lead to often catastrophic consequences - Enron, Arthur Anderson, Kvaerner and Equitable Life were all seriously affected by a failure to think sufficiently about strategic risk.

Most organisations have well embedded procedures for assessing and mitigating project and operational risks. Strategic risks are an order of magnitude greater and, by their very nature, involve a wider range of uncertainty and the interaction between a large number of factors, with major benefits accruing from managing them well and often dire consequences from the failure to manage them effectively.

This major new printed guide and accompanying CD, compiled by a group of industry experts working under the auspices of the DTI, the Institution of Civil Engineers and the Actuarial Profession, presents in a succinct and cogent way a recommended approach to the management of strategic risk, STRATrisk, and an explanation of how to apply the approach.

The sponsors and supporters of the STRATrisk include members of the engineering and infrastructure industries, Government, and academia.

The book (ISBN 0 7277 3467 9, 32 pages, paperback, £35) is published by the Institution of Civil Engineers, and the Actuarial Profession.

Further details may be found at www.thomastelford.com/books

Calendar of Events

Date	Event	Venue	Contact/further information
2006			
AUGUST			
27-1 September	International Disaster Reduction Conference, IDRC Davos	Davos Switzerland	T: 41-81-417 0265 F: 41-81-417 0823 e: davos2006@slf.ch www.davos2006.ch
28-20	Applied Hazard and Operability (HAZOP) Study, short course by the IChemE	Leeds	Rachel Robinson, I Chem E T: 01788 578214 e: courses @icheme.org www.icheme.org/AppliedHazard
25-7 October	Workshop on Three-Dimensional Modelling of Seismic Waves Generation, Propagation and their Inversion	Abdus Salam ICTP Trieste	T: +39 0404 2240355 F: +39 040 2240585 e: mailto:smr1755@ictp.it www.ictp.it/
SEPTEMBER			
21	Improving Risk Management of Critical Computer-Controlled Systems	IET Savoy Place	T: 0207 665 2230 e: hazards.forum@ice.org.uk www.hazardsforum.co.uk
OCTOBER			
4	'Cost of Safety through Life', seminar organised by the IMechE	IMechE London	Zoe Thomas, I Mech E T: 020 7973 1291 e: z_thomas@imeche.org.uk
17-20	HAZOP Study for Team Leaders and Team Members, short course by the IChemE	University of Manchester Staff House Conference Centre	Rachel Robinson, I Chem E T: 01788 578214 e: courses @icheme.org www.icheme.org/HazopTeam

Membership of the Hazards Forum 2006

Distinguishe Members

Professor P A Bennett, FREng
 Professor Sir Bernard Crossland, CBE FRS FREng
 Dr S N Mustow, CBE FREng

Dr A C Patterson, CBE FREng
 Professor P O Wolf, FREng
 Professor Sir Frederick Warner, FRS FREng

Institutional, Corporate and Individual Members include:

British Computer Society
 British Hydrological Society
 British Psychological Society
 City University
 Cranfield University
 Ergonomics Society
 Eurogears Ltd
 Geological Society
 Institute of Measurement and Control
 Institution of Chemical Engineers
 Institution of Civil Engineers
 Institution of Engineering and Technology
 Institution of Mechanical Engineers
 Institution of Materials, Minerals and Mining

Institution of Occupational Safety and Health
 Institution of Structural Engineers
 Lancaster University
 Met Office
 National Health and Safety Groups Council
 Risk Management Solutions Ltd
 Risk Support Ltd
 Royal Academy of Engineering
 Royal Society of Chemistry
 Safety and Reliability Society
 Society of Industrial Emergency Service Officers
 University of Nottingham
 University of York

BP plc
 Corus Group
 CSE International Ltd
 Du Pont de Nemours (Luxembourg) sárl
 DSTL
 Health and Safety Executive

Lloyd's Register
 NEBOSH
 Rail and Safety Standards Board
 Shell UK Ltd
 United Utilities

Mr Ade Adeyemo
 Dr John Bond
 Mrs Patricia Bond
 Mr Iain Carter
 Mr Nigel Cheetham
 Mr Frank Crawley
 Mr Graham Dalzell
 Dr Chris Elliott
 Mr David Eves CB
 Mr Robert Foster
 Mr Robert Gilchrist
 Mr Peter Graham

Mr Frank Groszmann
 Mr Brian Neale
 Mr Peter Livock
 Dr J McQuaid CB
 Mr Mark Paradies
 Mr Fred Pell
 Mr Michael Selfe
 Mr Gordon Senior CBE
 Mr Ed Spence
 Mr Brian G J Thompson
 Mr Simon Turner