BEWARE! PREPARE! STAY ALERT!

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An unprecedented number of natural disasters occurred at the turn of the twentieth century which caused havoc and the destruction of societies and cultural heritage. Earthquakes hit Turkey, Taiwan, Greece, Seattle (USA) and Puebla (Mexico); a cyanide spill flowed through Romania, severe bushfires whipped through part of Sydney and the Blue Mountains (Australia); cyclones ripped through Hong Kong; the Caribbean and south-east United States; severe storms hit France, damaging the Palace of Versailles and Ste Chapelle before heading east through Italy, Switzerland and Austria; mudslides buried towns in Venezuela and the Philippines; a tsunami swamped the Sissano Lagoon (Papua New Guinea) and heavy rainfall caused floods which inundated parts of China, South Asia and elsewhere, while flash flooding occurred at Interlaken (Switzerland). Man-made accidents, civil disturbance, terrorism and warfare all added to the worldwide toll of destruction. The Bamiyan Buddhas (Afghanistan) were destroyed by the Taliban, the Balkans war waged an assault on many cultural monuments and the destruction of the World Trade Center (New York) left an understanding of our vulnerability to catastrophe.

Weather patterns and natural disasters throughout the world historically have influenced society much more than we are conscious of today and numerous cultures have suffered, or been obliterated, as a consequence. Some of you here may be pleased to know that it was not simply British naval superiority which lead to the defeat of the Spanish Armada in 1588 - the weather was a key factor. Having been forced into the North Sea, the Spanish fleet '

> was all but rendered ineffective by a five-day storm off the east coast of Scotland. What remained of the Armada was finished off by more … storms as the fleet tried to escape west around Ireland.[1]

That summer had experienced unusual weather patterns with 'an exceptional number of cyclonic depressions' and wind speeds greater than usual.[2]

The climate and the weather are changing again now as a consequence of El Niño[3] and this year floods in Europe have caused damage in Dresden, Prague and Budapest. At the time of writing, the annual wildfire season in Australia has had an unprecedented early spring start in Sydney and Queensland – an ominous warning after six years of low rainfall and drought! Will history repeat itself this year?

In the summer fire season of 1982-83, Australia was in the grip of the worst drought in its history, caused by El Niño, and on 16 February, 1983, temperatures in excess of 40°C combined with extremely low humidity of approximately 20% [4] and early morning wind gusts up to 60 km hr, blowing in from the dry continental centre, laid the scene for the conflagration which was soon to explode. By the middle of the day, Adelaide had become ringed by fire, fires broke out across Victoria where hot dry winds gusted up to 70 km hr. Instead of bringing relief, the cool change which arrived in the evening turned the fires into "raging tornadoes", where winds reached 100-170 km hr creating firestorms and heat-generated thermal tornadoes. Melbourne was enveloped in a pall of ash and smoke and the smell of burning gave the day an eerie feel – Armageddon had arrived! Aluminium tyre rims melted and coastal residents took refuge in the sea as the sand became too hot to stand on. The Ash Wednesday fires were responsible, *inter alia*, for the loss of 1,700 buildings, some of heritage significance, 500,000 hectares of pasture, forest and cultural landscapes, 300,000 sheep and 1,800 cattle, countless wildlife and family pets, 300,000 km of fencing were destroyed as well as the loss of 76 human lives.[5]

An unlikely observer of the weather is American correspondent Alistair Cooke who, in one of his famous *Letters from America*, on the subject of El Niño noted that Queen Elizabeth II's visit to US President and Mrs Reagan in 1982 was amidst drenching rain likened to 'a perpetual car wash'.[6] The annual coastal rainfall in the San Francisco/Los Angeles area fell in ten days. Cooke went on to note that

> Before the great storm of 1982/83, the various natural disasters that happened at the same time – long droughts in Africa and Australia – massive rains in South America, were taken at the time to be aberrations, oddities, not part of any system. The curious fact that New England and the North-eastern United States had the mildest winter in twenty-five years – was assumed by laymen to be a coincidence – and by climatologists, to be a puzzle.[7]

The signs are there but we still do not appear to heed them! We document 100 year flood lines, monitor seismic areas, cyclones and tornadoes, and prepare disaster plans because we expect that a disaster may happen, but we still build in risky areas, sometimes ignoring building regulations and warnings and, importantly, become complacent. Just because

it has not happened in living memory does not mean it won't!

What has history taught us? The Great Fire of London, perhaps England's greatest disaster, occurred principally because people ignored the warnings. London was crowded with many buildings of timber and thatch. Fires were everywhere for lighting, cooking and purifying the air against the plague. Chimneys, more often than not, were made from timber with parged plaster flues. A disaster waiting to happen!

The year 1666 had already been seen as dangerous, 666 being the number of the Beast in the Book of Revelation and amongst whose powers was the ability "to bring down the fire from heaven".[8] There was an atmosphere of heightened tension. In addition to the Plague which infested the city, the summer had been unusually hot, autumn, by contrast, was unusually wet, and the winter had been the coldest for 20 years. Was this El Niño at work?.

Since ancient times, unusual astronomical features had been regarded as the heralds of significant events or the portents of doom. Prior to the eventual conflagration Sir Christopher Wren, who was later to rebuild London, observed strange comets in the sky. Prophets and fanatics roamed the streets predicting the end of the world with the fire of heaven coming down to strike – as indeed it did: not from heaven but from the oven of the King's baker, Thomas Farriner, who had premises in Pudding Lane, a street of fast food shops. The king, Charles II, had been so concerned for the safety of London that he issued warnings for people to be alert, gave royal authority to imprison those who flouted building regulations and decreed that houses should be equipped with buckets and ladders, and that churches should act as rallying points in the event of disaster. Perhaps this was the world's first disaster plan. Contrastingly complacent was the Lord Mayor of London who failed to do anything and, as history has shown, was partly to blame for the lack of any real disaster preparedness or response despite the warnings and the high level of risk awareness. Many believed that disaster was imminent but no-one could predict where and when it might occur. On 1 September 1666 fire broke out and four days later London had burnt to the ground.[9] Whether as a consequence of superstition or not, the portents proved true, the signs were there and disaster ensued!

El Niño is again active and leading up to this year's European floods, similar but less severe than those two years ago,´[10] were a cold European summer, serious drought in Australia and southern Africa, the worst drought for 50 years across half of the United States and Vietnam's worst drought for 27 years. Part of India is experiencing searing heat while other parts have been deluged by torrential rains. In Nepal, Bangladesh, China, North and South Korea, recent rainfall has equalled a high proportion of the annual average. Some 'scientists say that as the planet continues to warm, these effects of El Niño will be felt more and more often'.[11]

Floods occur about every 100 years in Prague and authorities were prepared for the flood levels of 1890 after which embankments were built along the Vltava River. This year the worst rains since then deluged the Czech Republic. Prague's historic 14th century Charles Bridge, across the Vltava River, was closed as trees and floating debris threatened the structure. Flood waters swirled through historic buildings, the Kampa district and the zoo, where an elephant and a hippopotamus could not be rescued and had to be shot. One seal swam down the River Elbe to Dresden but later also died. Many more animals were lost. Sandbag defences protected the old quarter of Prague but historic Pilsen, Cesky Krumlov and Ceske Budejovice were flooded. Worst of all, beer production stopped! On the 13th century Judita Bridge only the decorative heads were visible above the swirling waters.[12] The 19th century National Theatre was threatened with collapse. Elsewhere waters overflowed through the city's sewerage system.

In Dresden waters exceeded the 157 year flood record. After years of painstaking works to restore the former East German city's historic buildings, flood waters soon turned it back into something resembling a war zone. Three of the city's major cultural repositories are located near the riverbank. The River Elbe overflowed and came up through the sewers into the streets of Dresden. It flooded into the basement of the 19th century Semper Oper where technical equipment and costumes were damaged and many musical scores were ruined. In the Zwinger Palace a hastily assembled team of 200 museum workers, military personnel, police and volunteers worked by candle and torch light around the clock to save priceless works of art stored in the vaults. Estimates ranging from 4,000-8,000 works of art, including some by old masters, were carried up to higher floors. Larger paintings, including one by Paolo Veronese who seems to have specialised in big paintings, could not be removed and instead were secured by ropes to the ceiling in the hope that flood waters would not reach them. "We've got four large Italians trapped in the basement" quipped curator Uda Neidhard.[13] Water levels were totally unexpected according to Martin Roth, director of the city's art collections.[14]

> We had to move at the last minute when the water started coming in. … Everyone was running through knee-high water with torches, passing works of art to each other. The vaults are ruined. They will take a long time to restore. said Roth. [15]

At the Albertinum 650 paintings and 11,000 statues were removed up a narrow staircase to safety by the same crew who had earlier evacuated the Zwinger Palace.

> We had candles and we had to go up [with] those very heavy things. … You had women carrying heavy boxes. I put an Egyptian alabaster piece in a box with soft paper and carried it very carefully" recounted Helga Puhlmann, state art collections spokeswoman. [15]

Similar events happened in Dessau where some staff raced against time to move the Bauhaus collection.

As the topography of cities and towns changes, natural surfaces and drainage lines become built over and can no longer absorb the runoff. As a consequence, water courses become flooded and when prolonged and unusually heavy rain occurs. This summer's European floods are a classic example. They also demonstrated what can be achieved in times of crisis when curatorial staff and emergency responders work together to save collections.

How prepared are we for expected and unexpected risks? The chaotic aftermath of the World Trade Center attack revealed an unexpectedly high level of poor preparedness in cultural property institutions in Lower Manhattan, notwithstanding a generally high level of disaster planning awareness. Located in the affected area were, several important cultural repositories and heritage buildings, A post-disaster survey carried out by the Heritage Emergency National Task Force revealed that while 93% of respondents reported no structural damage and 80% reported no damage to collections, it became

> clear that less than half were minimally prepared for any type of emergency. Only 47% had an emergency response plan and just 47% had an emergency communications strategy. Even fewer institutions, 42% had staff trained in disaster response procedures. [17]

Nevertheless, the majority reported orderly evacuations, many were able to close down air intake and ventilations systems and seal openings thus preventing extensive damage to collections from the pollution which was created by the collapse of the towers. At the Museum of Jewish Heritage the computerised shutdown of mechanical systems ceased when electrical power was cut off. Well-rehearsed in emergency procedures and in view of the burning towers, museum engineers on the roof manually cranked the vents closed and despite the imminent collapse of the towers, stayed to complete the task and also close off water valves. When staff were allowed back into the building two weeks later they found no dust inside the building. Covers over the skylight and windows helped maintain an acceptable level of humidity thus saving the collection. [18]

The Pentagon Library was not so lucky after the nose of the plane came to a halt against the back wall of the library. A large part of the collection which was in high use was not catalogued and it was not insured because it was part of the federal government. After the disaster access to the library was delayed for several weeks during which time the library was without air conditioning.

> …green, black, pink and red mould [was] growing in large areas. It had eaten through walls, spread inside walls, and snaked around ceiling tiles, doors, and windowsills. Because of the dangerous red and pink moulds, the whole library area was considered toxic.
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> …soot covering large areas was found to contain hydrochloric acid. It damaged computers … ate into the wood. … the Pentagon roof contained asbestos that fell onto parts of the collection when part of the ceiling collapsed. [19]

Following the event, disruptions to electronic communications meant that many institutions could not locate their employees and telephone lists were inaccessible. Security checks caused traffic chaos which impacted on response and recovery efforts. Many repositories had first aid kits but no disaster supplies, only 60% of respondents had a current catalogue or inventory and of these only half had an off-site record copy. One key finding was that emergency services priorities and objectives which were different from those of the curators which ultimately impacted upon heritage response and recovery efforts. [20]

Notwithstanding the increasing worldwide risks to cultural heritage, high levels of awareness and disaster planning many cultural heritage institutions are seemingly under-prepared for disasters. Disasters such as those already discussed should be wake-up calls. Now is the time to check – are you prepared?

ICOMOS, through Blue Shield (ICBS) and ICORP (International Scientific Committee on Risk Preparedness) can, and should, play a leading role in raising awareness and ensuring effective risk preparedness strategies in all cultural heritage institutions in all member countries. As a priority ICOMOS must encourage the establishment of more national committees. The mission of ICBS is to collect and disseminate information, and to co-ordinate action in emergency situations. ICOMOS must promote appropriate standards for risk management amongst the custodians of the world's cultural heritage. This is particularly important as worldwide standards of risk preparedness vary from country to country and many cultural heritage managers either do not have, or have disaster plans of varying quality and practicability which will directly affect the effectiveness of response and recovery strategies and the ultimate salvation and rehabilitation of heritage places and collections. This should also be followed up by training and trialling of risk preparedness strategies to ensure that they are are implementable when required and in local conditions. Given that the emergency services are primarily focussed on saving lives, ICOMOS should also play a key and active role in liaising with those agencies to ensure closer collaboration and a common set of principles and objectives between all personnel who will be relied upon for disaster prevention, response and recovery of our cultural heritage. Witness the lessons learned from the German experience and the Pentagon. Members of ICOMOS should lend their expertise in these endeavours. I hope that you will all leave this conference with these aims in mind.

1 Bryant, Edward. *Natural Hazards*. Cambridge University Press, 1991. p. 23.
2 ibid.
3 Areas of the Pacific Ocean influence global weather patterns and the El Niño effect occurs when a warm stream in the central and eastern Pacific Ocean changes the currents and affects wind and rain resulting in simultaneous extremes of rainfall and drought in different regions of the world.
4 D. Chapman. Op. cit. p. 35.
5 E. Bryant, Op. cit. p. 168.
6 Cooke, Alistair. *Letter from America*. No. 2540: The Advent of El Niño. *BBC News*. 26 October 1997. news.bbc.co.uk
7 ibid.
8 Hanson, Neil. *The Dreadful Judgement: The True Story of the Great Fire of London*. London, Doubleday, 2001. p. 75.
9 *The Great Fire*. BBC. (Video programme) passim.
10 "What's Behind the Weather?" *BBC News. World Edition*. 13 August, 2002. news.bbc.co.uk
11 "El Niño Blamed for Weather Chaos". *BBC News. World Edition*. 11 August 2002. news.bbc.co.uk
12 Green, Peter S. "Tens of Thousands Flee Prague as Floods Invade Historic Center". *The New York Times*. 13 August, 2002. www.nytimes.com
13 Green, Peter S and Pohl, Otto. "As Floods Ebb in Prague, Threat Rolls into Germany". *The New York Times*. 14 August, 2002. www.nytimes.com
14 "Art Saved From European Floods". *BBC News. World Edition*. 15 August 2002. news.bbc.co.uk
15 ibid.
16 Riding, Alan. "Dresden, Battered by Elbe, Fights to Preserve its Heritage". *The New York Times*. 15 August, 2002. www.nytimes.com
17 ibid. p.16.
18 ibid. p.11.
19 ibid. p.13.
20 ibid. pp.19-20.

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