

# CRED CRUNCH

Issue No. 9

“Disaster Data: A Balanced Perspective”

June 2007

## Extreme temperature disasters

As pointed out in our March issue, the 2006 disaster figures confirm that extreme temperature events are among the deadliest disasters of recent years. The consequences of the 2003 European heat wave, for which a recent study estimated more than 71,000 dead, are still fresh in our minds. Extreme temperature disasters, and particularly the aforementioned heat wave, have become a major source of concern regarding natural disasters in Europe, sparking considerable debate.

The recorded figures in EM-DAT show that the numbers of reported heat waves and cold waves have increased by a multiple of 5.3 over the last 20 years. Since 1987, 286 extreme temperature disasters have been reported: 181 cold waves and 105 heat waves. The majority of these events (72%) occurred during the last decade. The figures not only show an increase in their occurrence, but also in their magnitude. Seven of the ten deadliest disasters of the last 20 years have occurred between 2002 and 2006.

However, comparing the extreme temperature disaster-related figures both over time and between regions is a tricky task. These difficulties are mainly due to the lack of a common standardized and recognized extreme temperatures impact assessment method. This lack of consistency makes it very difficult to compile a harmonized data set. This is especially seen in heat wave mortality figures, where the estimation methods differ greatly between the regions and over time. For example, in the numerous published studies specifically assessing the 2003 heat wave mortality, estimates result mainly of a statistical treatment. The lack of a common estimation methodology led to inconsistencies in the published mortality figures. Furthermore, these mortality estimation methodologies have primarily been used for assessing European heat wave impacts, but are rarely used for assessing the impacts of heat waves occurring in other regions of the world.

In the coming decades, with global warming and the worldwide aging population, there is a great risk that the exceptional circumstances of the 2003 European heat wave will become increasingly common.

These figures remind us that regardless of what has been done to prevent the adverse impacts of heat waves; the vulnerability of the human societies remains high. The future increase of heat wave occurrence and magnitude not only calls for maintaining prevention efforts in Europe, but also expanding these efforts to other parts of the world.

Dr. Debarati Guha-Sapir

## Extreme temperature disasters: Summary

	1987-1996	1997-2006	1987-2006
<b>All Events</b>			
Occurrence	79	207	286
Number of killed	6,999	91,497	98,496
Average disaster mortality	88,6	442,5	344,4
<b>Cold Wave</b>			
Occurrence	50	131	181
Number of killed	2,600	8,250	10,850
Average disaster mortality	52,0	63,2	59,9
<b>Heat wave</b>			
Occurrence	29	76	105
Number of killed	4,399	83,212	87,611
Average disaster mortality	151,7	1,094,9	834,4

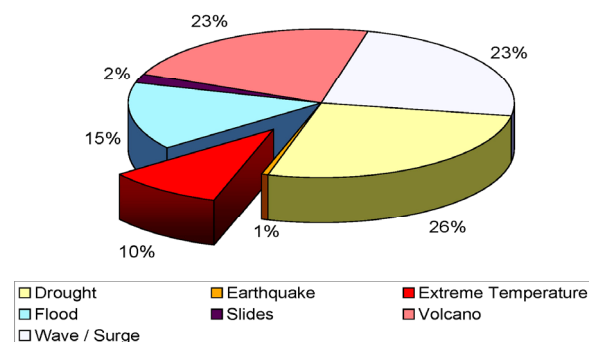
## The 10 most deadly extreme temperature disasters from 1987 to 2006

Year of occurrence	Disaster type	Region / Country	Number of killed
2003	Heat wave	Europe	72.210
2006	Heat wave	Western Europe	3.392
1998	Heat wave	India	2.541
2003	Heat wave	Indian Subcontinent	1.472
2005	Cold wave	Europe	1.330
2002	Heat wave	India	1.030
1987	Heat wave	Greece	1.000
2002	Cold wave	India	900
2002	Cold wave	Bangladesh	700
1995	Heat wave	United States	670

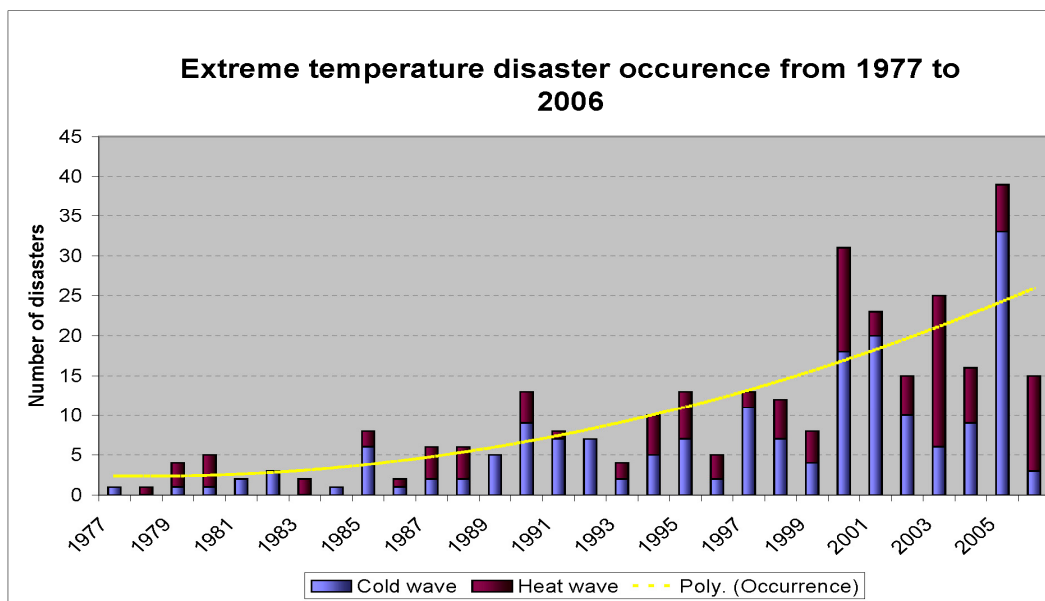
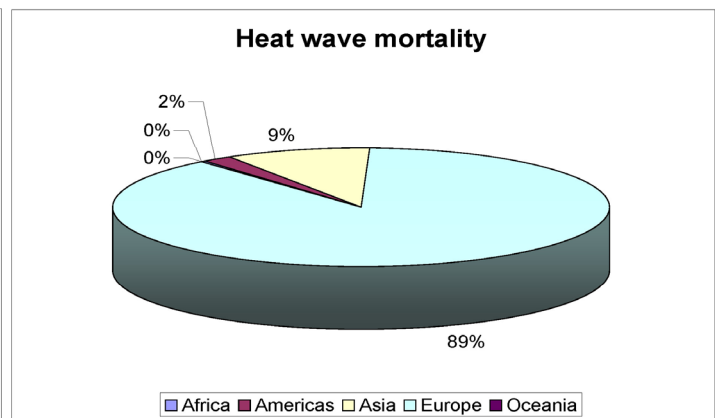
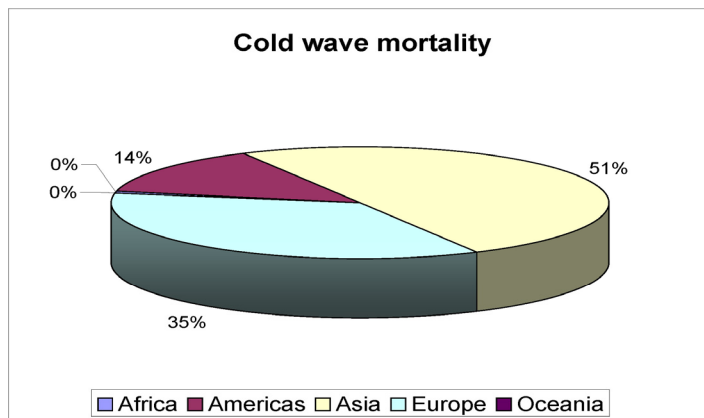
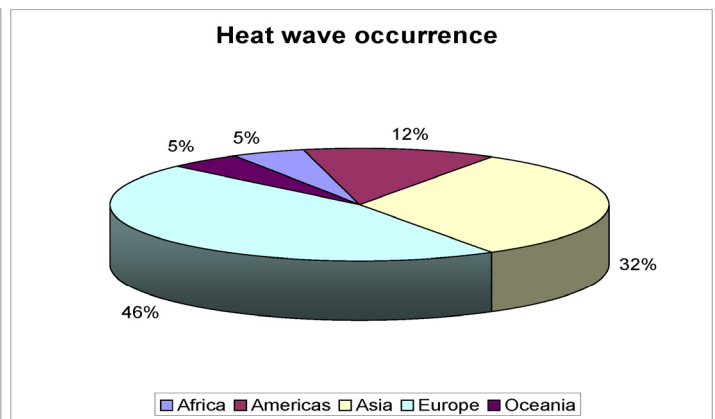
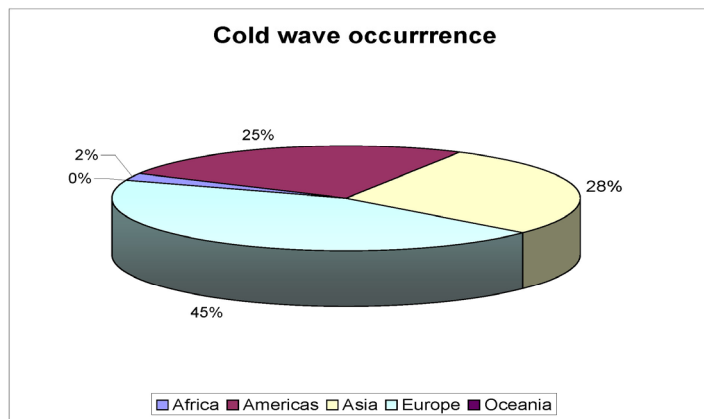
## Countries with the greatest extreme temperature disaster occurrence from 1987 to 2006

Heat wave		Cold wave	
Country	Occurrence	Country	Occurrence
United States	12	Bangladesh	18
India	12	Russia	14
Pakistan	9	India	14
Romania	7	Mexico	13
China P Rep	6	Poland	8
Spain	4	United States	5
Australia	4	Turkey	5
Greece	3	Argentina	5
France	3	Romania	5
Russia	2	Afghanistan	5

## Natural disasters mortality from 1987 to 2006



## Extreme temperature disaster figures from 1987 to 2006: Comparison for the main world regions



2003 heat wave mortality	
Country	Number of killed
Italy	20.089
France	19.490
Spain	15.090
Germany	9.355
Portugal	2.696
Belgium	1.175
Switzerland	1.039
Netherlands	965
Croatia	788
Czech Rep	418
Austria	345
United Kingdom	301
Slovenia	289
Luxembourg	170

## CRED News

- June 2007, report release on the « **Annual Disaster Statistical Review: Numbers and Trends 2006** ». This report is accessible on the CRED website: <http://www.cred.be> or on request at [below@esp.ucl.ac.be](mailto:below@esp.ucl.ac.be).
- July 2007, **International CRED Course: Assessing Public Health in Emergency Situations (APHES)**, July 16-27, Brussels, Belgium (<http://www.cred.be/cred1/publicat/APHES%20-%20CRED%20summer%20course.pdf>).

Please note that disaster data are subject to change as validation and cross-referencing of the sources is undertaken and as new information becomes available. For any enquiries please contact [cred-crunch@em-dat.net](mailto:cred-crunch@em-dat.net) or visit [www.em-dat.net](http://www.em-dat.net).