

# CREC CRUNCH

*“Disaster Data: A Balanced Perspective”*

November 2005

Windstorms have once again forced themselves onto the world agenda. Hurricane Katrina recently devastated parts of the United States, reminding us that countries may differ in their impact profiles – but vulnerabilities cut across both richer and poorer regions of the world. In this issue of the CRED CRUNCH newsletter, we analyse the historical occurrence and impact of windstorm disasters from a list of 2,683 windstorm disasters that occurred since 1900 and met EM-DAT's strict human impact criteria.

Windstorms, broken down in EM-DAT into hurricanes (14%), typhoons (20%), cyclones (16%), tropical storms (4%), winter storms (7%), tornadoes (7%) and storms (32%), occurred at record levels in 2005. In the Atlantic basin alone, an unprecedented 26 tropical storms formed, 13 of which were of hurricane strength. Of these, seven became major hurricanes (category 3 or above) with 3 of these reaching category 5 intensities (Katrina, Rita and Wilma). Based on the records of the last 40 years, an average season would have seen 11 named storms, 6 hurricanes and 2 major hurricanes.

But these reflect only one part of the total impact of windstorms in the world. They do not include other storms that are not in themselves major disasters but cause secondary catastrophes such as landslides, storm surges or severe flooding. Hurricane Stan is a case in hand. Although a category 1 hurricane, it brought with it torrential rains, flash floods and mudslides, resulting in the highest windstorm-related mortality for the year - 1,607 deaths.

Similarly, Hurricane Mitch left a lasting impression in the global mind for Central America, one of the regions most significantly affected by secondary disasters associated with windstorms.

Though the majority (53%) of worldwide economic damages from windstorm disasters is due to hurricanes, the bulk of the global windstorm disaster mortality is due to cyclones (66%) and typhoons (25%). These typically occur in poor countries with fragile infrastructure and large populations exposed to the hazards.

The main factors leading to death due to windstorms are poor building quality, inadequate land-use patterns, non use of shelters, insufficient lead times for warning and evacuation, non-compliance with timely evacuation or inadequate evacuation, in particular for residents of hospitals and nursing homes.

Although these factors have long been noted by disasters epidemiologists, Hurricane Katrina underlined the wide gap between knowledge and practice.

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Director

## Windstorm disasters: Summary

	2000-2004 yearly average	1990-1999 yearly average	1980-1989 yearly average
<b>No. of windstorm disasters</b>	102	74	56
<b>No. of countries affected</b>	48	34	30
<b>No. of persons killed</b>	2,586	21,011	4,214
<b>No. of people affected</b>	36 million	20 million	13 million
<b>economic damages (US\$)</b>	38 billion	19 billion	5 billion

## Top 10 windstorm disasters: 1900-2005

### By countries with greatest occurrence (impacted)

Country	Tropical Cyclones*	Storms	Tornadoes	Winter Storms	Total
United States	86	207	95	48	436
Philippines	203	13	3	1	220
China	85	47	16	15	163
Bangladesh	70	56	19	0	145
India	90	37	6	4	137
Japan	98	15	1	7	121
Australia	27	54	4	1	86
Vietnam	51	12	3	0	66
Mexico	48	11	0	2	61
Hong Kong	47	9	0	0	56

\* Tropical cyclones include: cyclones, hurricanes, typhoons and tropical storms

### By number of persons killed

Country	Year	Disaster type (name*)	No. of people killed
Bangladesh	1970	Cyclone	300,000
Bangladesh	1991	Cyclone	138,866
China	1922	Typhoon	100,000
Bangladesh	1942	Cyclone	61,000
India	1935	Cyclone	60,000
China	1912	Typhoon	50,000
India	1942	Cyclone	40,000
Bangladesh	1965	Cyclone	36,000
Honduras	1998	Hurricane (Mitch)	14,600
India	1977	Cyclone	14,204

\* Names for older typhoons are not available. In certain areas, cyclones are given alphanumeric codes

## Top 10 windstorm disasters: 1900-2005 (continued)

### By number of persons affected

Country	Year	Disaster type (name*)	No. of people affected
China	2002	Dust storm	100 million
China	1989	Hail storm	30 million
China	2005	Typhoon (Faiim)	19.6 million
Bangladesh	1965	Cyclone	15.6 million
Bangladesh	1991	Cyclone	15.4 million
China	1996	Typhoon (Sally)	15 million
India	1977	Cyclone	14.5 million
India	1999	Cyclone (05B)	11 million
China	1994	Typhoon (Fred)	11 million
China	1998	Storm	10.6 million

\* Names for older typhoons are not available. In certain areas, cyclones are given alphanumeric codes

### By reported economic damages

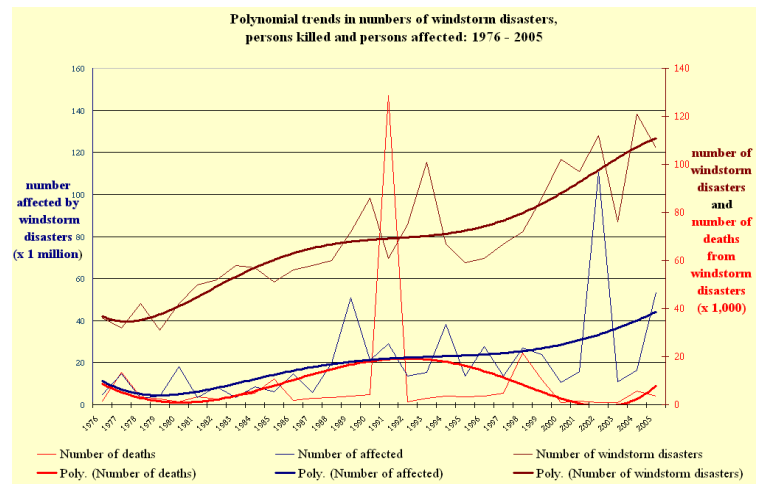
Country	Year	Disaster type (name)	Reported economic damages (in 2005 US\$)
United States	2005	Hurricane (Katrina)	125 billion
United States	1992	Hurricane (Andrew)	36.6 billion
United States	1900	Hurricane	21.7 billion
Japan	1991	Typhoon (Mireille)	14.2 billion
France	1999	Storm	12.8 billion
United States	1995	Tornado	12.7 billion
United States	1989	Hurricane (Hugo)	10.9 billion
United States	1972	Hurricane (Agnes)	9.7 billion
United States	1965	Hurricane (Betsy)	8.7 billion
United States	1999	Hurricane (Floyd)	8.1 billion

## CRED News

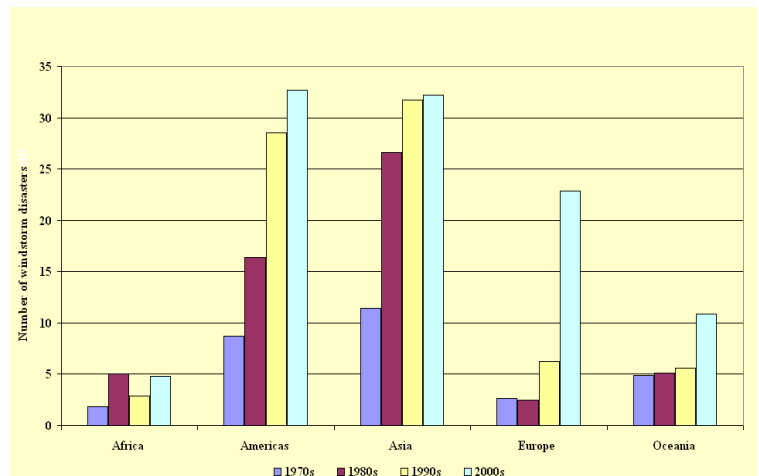
**Informing Policy for Early Warning and Preparedness: An Epidemiological Study of the Human Impact of the Tsunami in Tamil Nadu:** Funded by the UN Secretariat of the International Strategy for Disaster Reduction (UN-ISDR), this study's objectives are to develop better preparedness and mitigation policies through collecting evidence on risks factors related to the Indian Ocean tsunami and to contribute to the evidence-base for the global disaster reduction community on the human impacts of disasters. The study is jointly being carried out by the Centre for Research on the Epidemiology of Disasters and the University of Delhi, with logistical and administrative support provided by the Tamil Nadu Voluntary Health Association of India (TNVHA).

**Reinforcing data reporting from refugee camps for performance and impact monitoring:** This collaborative project between UNHCR and CRED has the overall purpose of promoting the accuracy, reliability and usefulness of public health data available on refugees under the protection of UNHCR. To achieve this, CRED and UNHCR are undertaking field missions to selected refugee camps to obtain a thorough understanding of the current data reporting processes, complete data audit of the pilot camps, and establish camp-specific baselines for selected indicators to monitor future progress of the camps.

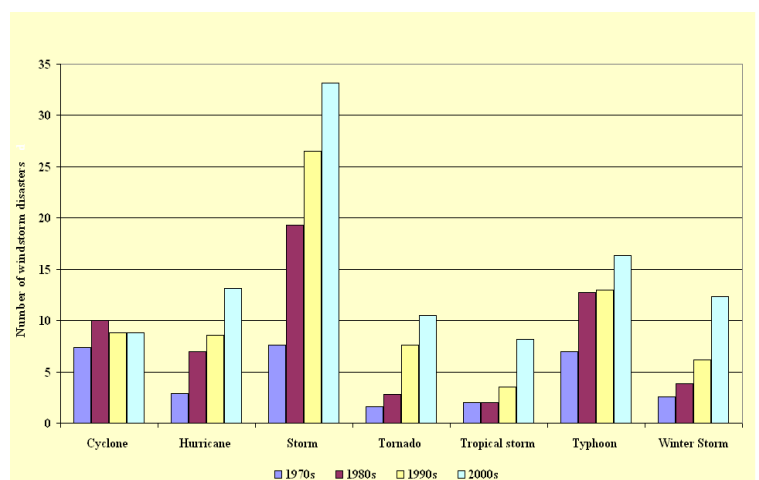
## Graph 1: Trends in windstorm disaster occurrence and impact, 1976 – 2005



## Graph 2: Trends in windstorm disaster occurrence by continent: 1970-2005



## Graph 3: Trends in windstorm disaster occurrence by disaster sub-type: 1970-2005



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)