



WMO  
OMM

# The Challenges of Climate Change

Presented at the WIPO Conference on  
Intellectual Property and Public Policy Issues

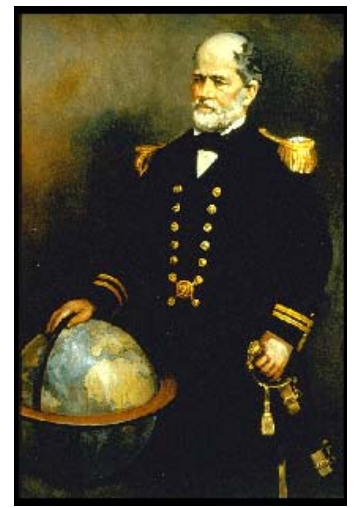
by M. Jarraud  
WMO Secretary-General  
Geneva, 13 July 2009





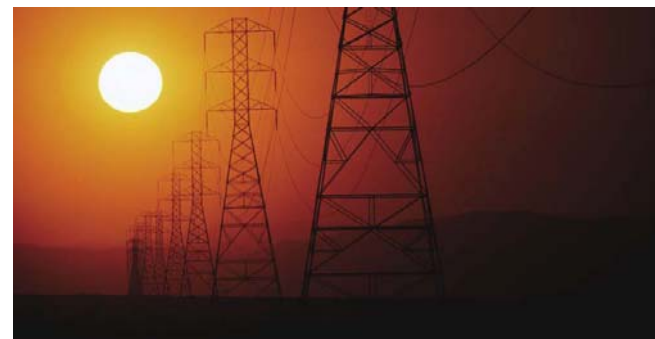
# WMO - then and now

- ✓ **Lt. Matthew Fontaine Maury: the protection of life at sea**
- ✓ **1853 (Brussels): 1st International Meteorological Conference**
- ✓ **1873 (Vienna): International Meteorological Organization (IMO)**
- ✓ **1950: IMO becomes WMO**
- ✓ **1951: A specialized agency of UN System**
- ✓ **1979: 1st World Climate Conference**
- ✓ **1988: WMO & UNEP co-establish the IPCC**
- ✓ **1990: 2nd World Climate Conference**
- ✓ **2008: 188 Members & a mandate in weather, climate and water**




# WMO databases & products: a source of benefits to nearly all socioeconomic sectors

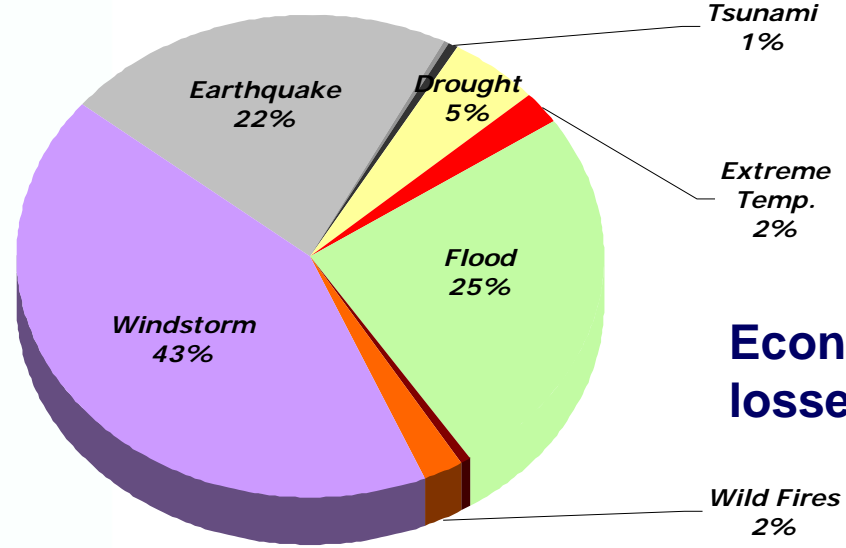
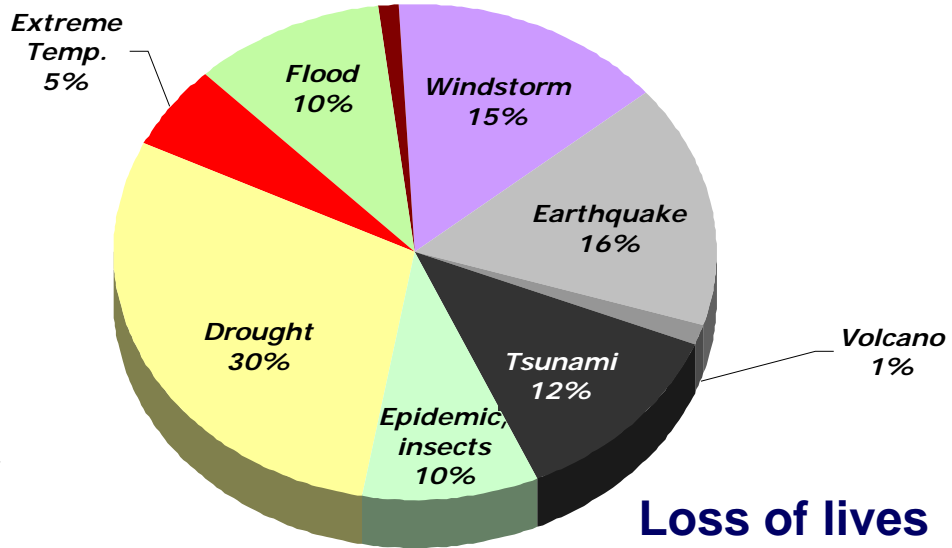
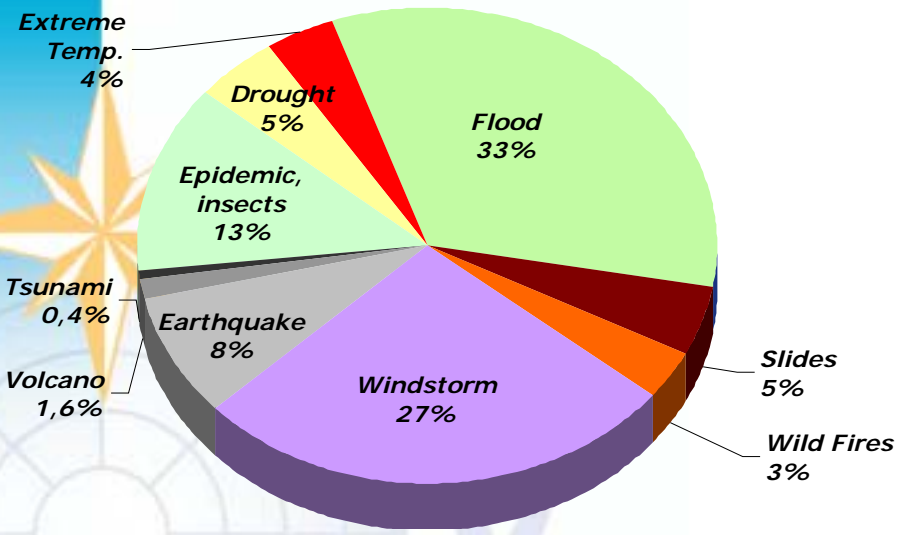
- ✓ **Transportation safety**
- ✓ **Disaster risk reduction**
- ✓ **Climate & environmental quality**
- ✓ **Building & energy efficiency**
- ✓ **Agriculture & food security**
- ✓ **Health issues**
- ✓ **Water resources**
- ✓ **Energy generation, transportation & use**
- ✓ **Capacity building**
- ✓ **International cooperation & data exchange for:**
  - **Research**
  - **Education**
  - **Provision of weather, water and climate services**



# WMO data exchange policy & practice

- 
- ✓ **Res 40 (Cg-XII) - 1995: weather & climate databases**
    - **Free and unrestricted international exchange of all meteorological and related data & products necessary for the protection of life and property**
    - **An agreement that WMO Members may be justified in placing conditions on the re-exportation for commercial purposes of additional datasets/products**
    - **Free and unrestricted access to all data and products to the research and education communities, for their non-commercial activities**
  - ✓ **Res 25 (Cg-XIII) - 1999: hydrology databases**
    - **Free and unrestricted international exchange of all hydrological and related data & products necessary for the protection of life and property**
    - **Members may wish to place conditions on the re-exportation of other datasets and products for commercial purposes**

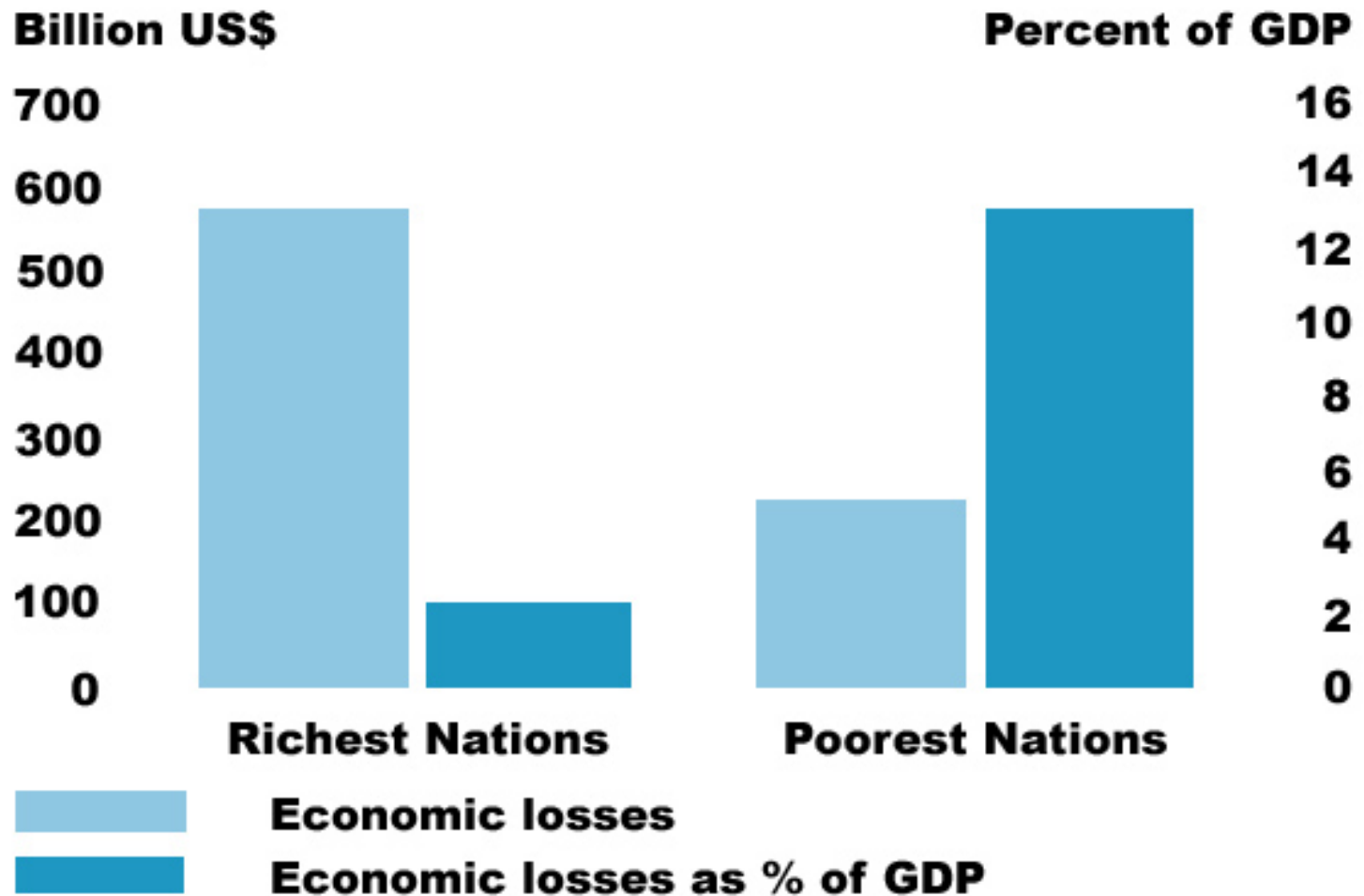
# Global: Natural disasters 1980-2005



Source: EM-DAT: The OFDA/CRED International Disaster Database - [www.em-dat.net](http://www.em-dat.net) - Université Catholique de Louvain - Brussels - Belgium

**90% of events, 72.5% of casualties and 75% of economic losses are related to hydrometeorological hazards**

# Economic impacts of natural disasters 1985-1999

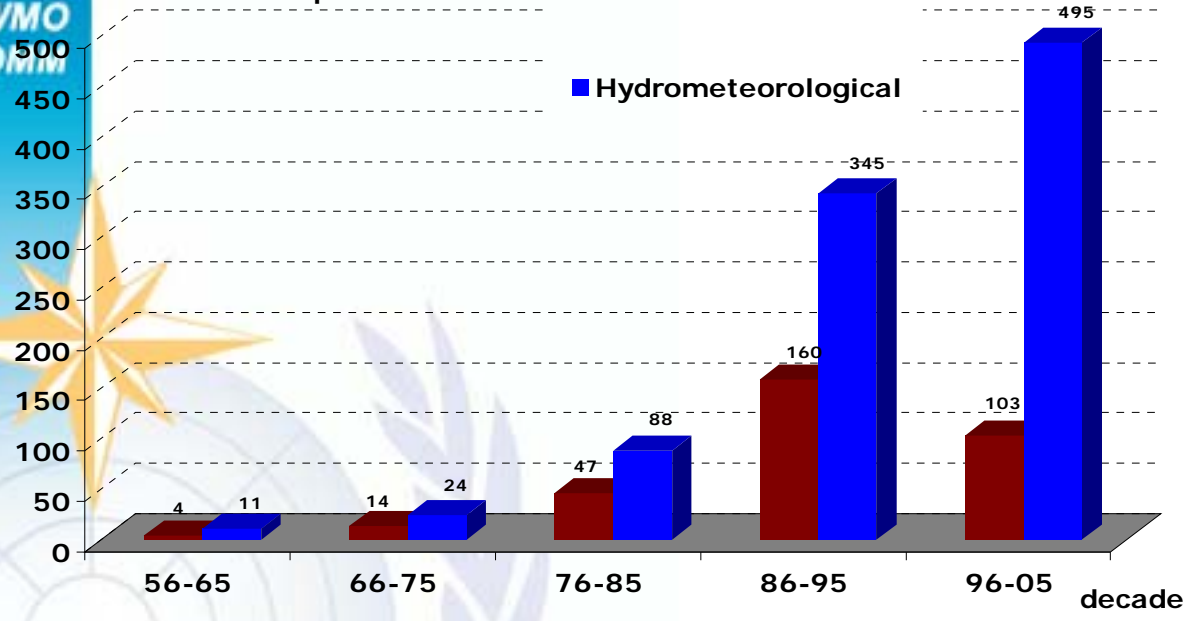


Source: Adapted from Munich Re

Billions of USD per decade

■ Geological

■ Hydrometeorological



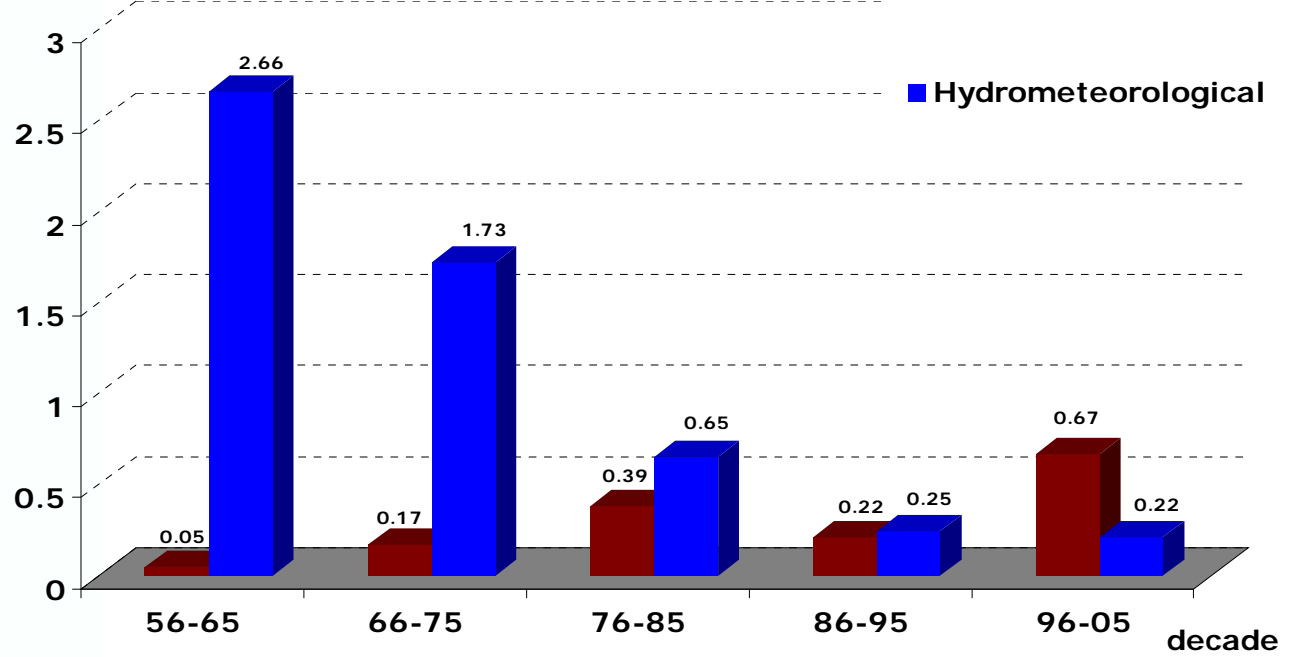
Economic losses related to disasters are on the way up

But we are saving lives

Millions of casualties per decade

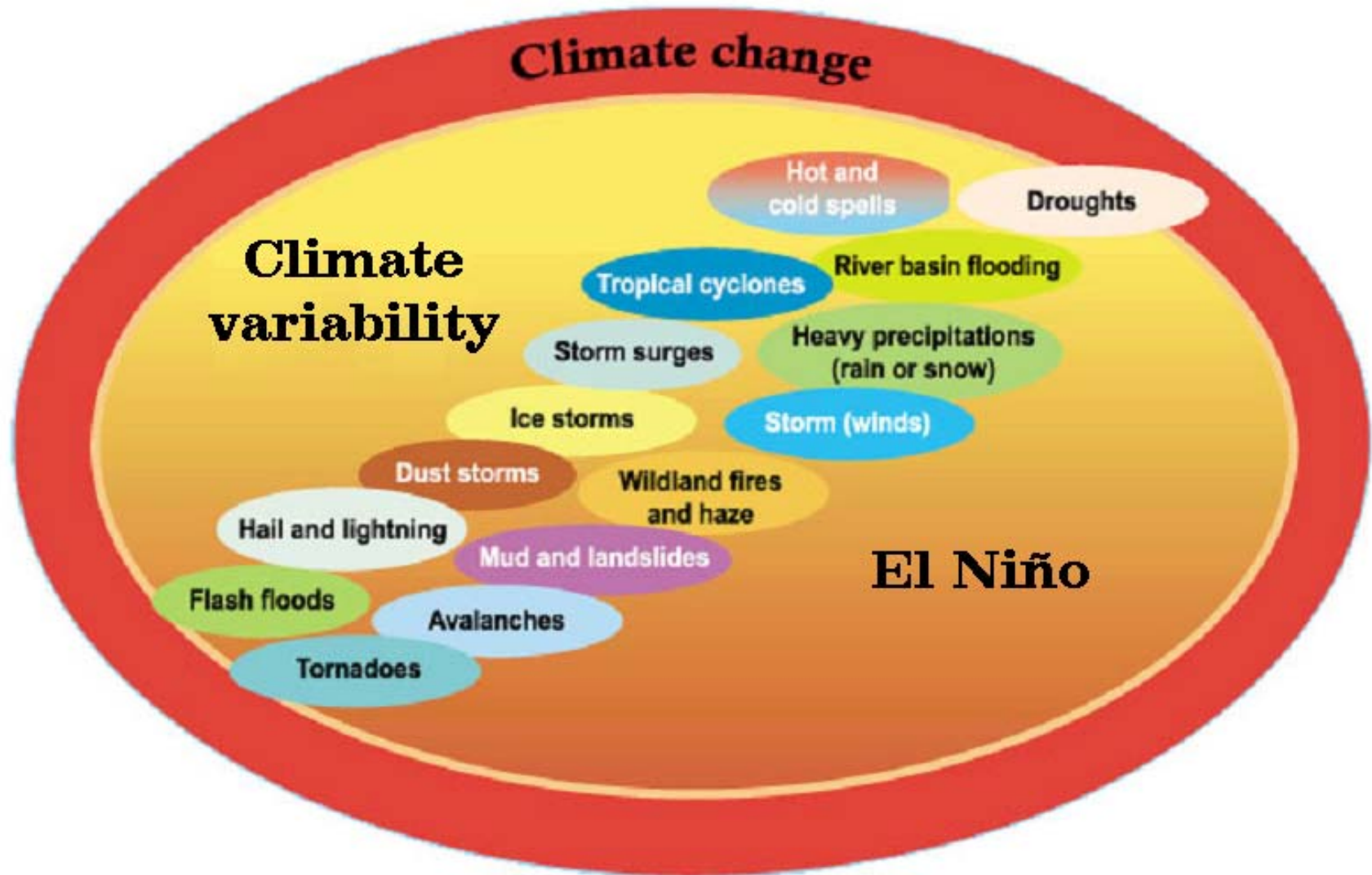
■ Geological

■ Hydrometeorological



Source: EM-DAT: The OFDA/CRED International Disaster Database

# Climate and natural disasters





# Observed Climate Change & Impacts

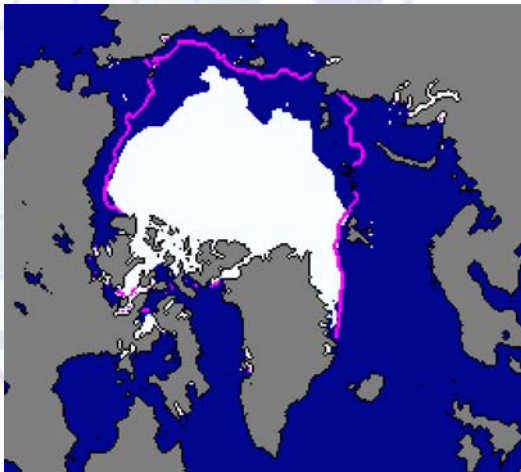
## IPCC 4th Assessment Report

- ✓ **Warming unequivocal**
- ✓ **2007 global mean sea level rise ~ 20 cm > 1870 estimate**
- ✓ **No longer just a scientific issue**
- ✓ **Long-term changes in climate visible**
- ✓ **Increasing trend in extreme events over last 50 years:**
  - **Heavy precipitation events**
  - **Hot days & hot nights**
  - **Winds**
  - **Droughts & heatwaves**
- ✓ **Impacts on agricultural production**
- ✓ **A 5th Assessment Report by 2014**

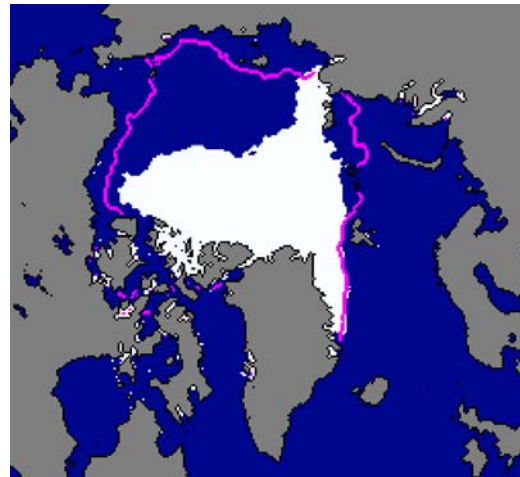


# Evolution of average Arctic sea ice extent

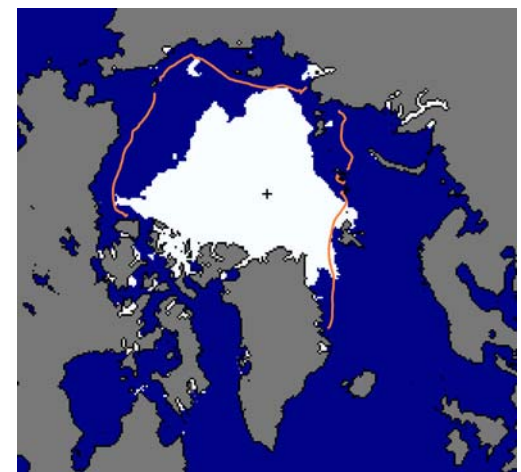
- ✓ **2008 Arctic sea ice minimum of 4.67 M km<sup>2</sup>**
  - **2<sup>nd</sup>-lowest year since the beginning of satellite measurements**
- ✓ **Record monthly low in 2007, with 4.28 M km<sup>2</sup>**



**21 September 2005**



**16 September 2007**



**12 September 2008**

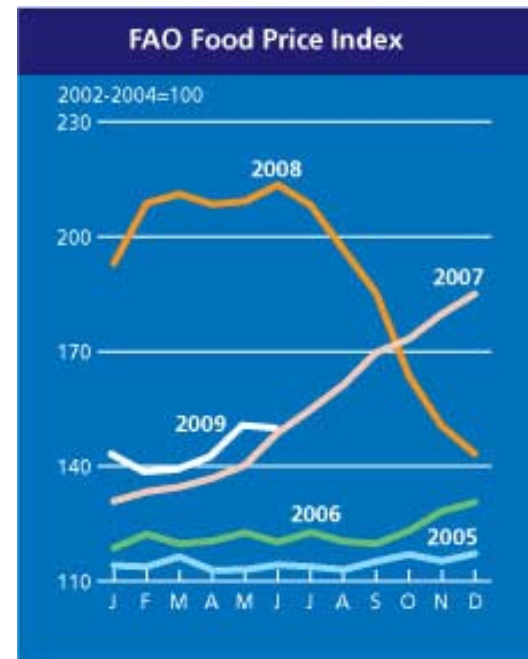
# Climate change and health

- ✓ Heat waves, smog & allergen dispersion
- ✓ Reduced evening cooling relief
- ✓ Diseases relayed by mosquitoes & ticks: malaria, dengue fever, Lyme's disease, yellow fever & several forms of encephalitis
- ✓ Reduced population of insect predators



# Food security issues

- ✓ **Hunger:**
  - **Chronic (poverty)**
  - **Transitory (disasters)**
- ✓ **Reduced food production in 2009...but danger still looms ahead**
- ✓ **Financial & credit crisis may impact on agricultural markets**
- ✓ **Uncertainty -> conservative approach**
- ✓ **Recovery mostly in developed countries**
- ✓ **International prices not lowering local food prices in the developing world**
- ✓ **UNSG chairs UN Task Force on Global Food Security Crisis**
- ✓ **Agrometeorology can help to boost yield & alleviate poverty**
- ✓ **Regional climate outlooks forums**
- ✓ **Regional climate centres/networks**



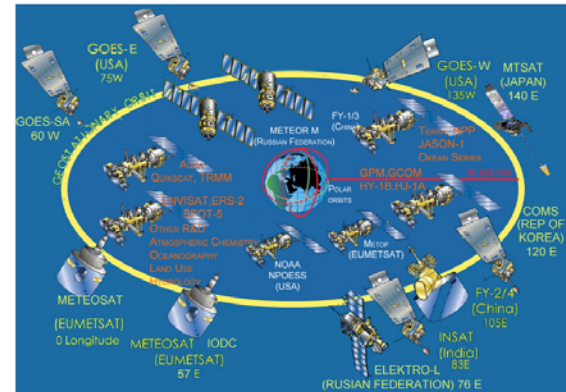
# The way forward: capacity building & training

- ✓ **Need for human resources development**
- ✓ **Training, fellowships & continuing education**
- ✓ **Voluntary cooperation by donors**
- ✓ **Special support to needs of LDCs and SIDS**
- ✓ **Women in meteorology & hydrology**
- ✓ **Need for partnerships**
- ✓ **A key role for the UN System**



# Strengthening observations & scientific research

- ✓ Sustained observation systems for climate data & disaster risk reduction
- ✓ Stimulus to scientific research
- ✓ WMO Information System
- ✓ World Weather Research Programme
  - A 10-year effort to improve accuracy of 1-day to 2-week high impact weather forecasts
- ✓ World Climate Research Programme
- ✓ A new challenge: climate change-induced high impact weather



# WMO support to the UNFCCC process

- ✓ COP 13 - Bali, December 2007
- ✓ COP 14 - Poznan, December 2008
- ✓ Commitment on maintaining momentum to COP 15 in Copenhagen for a follow-up agreement to Kyoto Protocol
- ✓ “Acting on Climate Change: The UN System Delivering as One”
- ✓ 2 basic pillars: adaptation and mitigation
  - Role of IP in technology transfer
- ✓ Decision-makers will require the most appropriate information and tools



**“The world is watching us. The next generation is counting on us. We must not fail” (UN Secretary-General)**

## World Climate Conference-3

- ✓ Geneva, CICG, 31 August - 4 September 2009
- ✓ Theme: "*Climate prediction and information for decision-making*"
- ✓ *Expected outcome: A Global Framework for Climate Services*
- ✓ 2 segments:
  - Expert: 31 August - 2 September 2009
  - High-Level: 3-4 September 2009
- ✓ Derived benefits for all sectors
  - Health
  - Food security
  - Disaster risk reduction
  - Water resources management,...





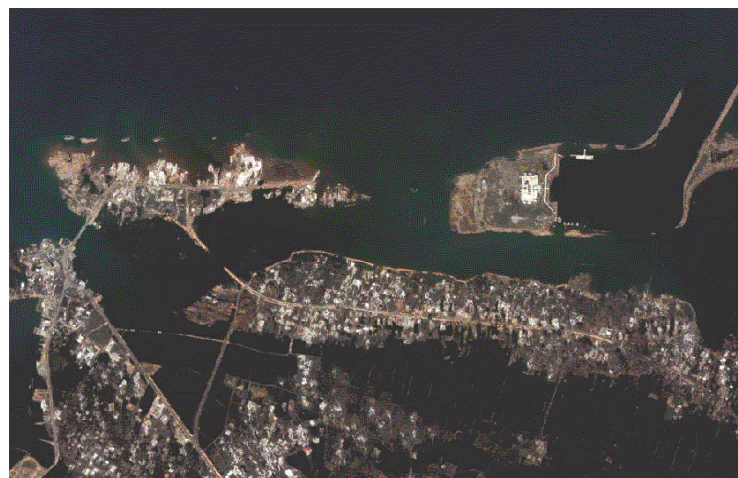
## Summing up:

- ✓ **Benefits of international cooperation**
- ✓ **Need for multidisciplinary partnerships**
- ✓ **Complementary roles of government, private sector, academia, ...**
- ✓ **Contributions to sustainable development:**
  - **Disaster risk reduction**
  - **Climate change adaptation & mitigation**
- ✓ **Technology transfer issues**
- ✓ **Capacity building**

**Intellectual property to be a catalyst and not an obstacle**



**Banda Aceh (Indonesia)  
23 June 2004**



**Banda Aceh (Indonesia)  
28 December 2004**

# World Climate Conference-3

## Geneva, 31 August - 4 September 2009



# Thank you

