



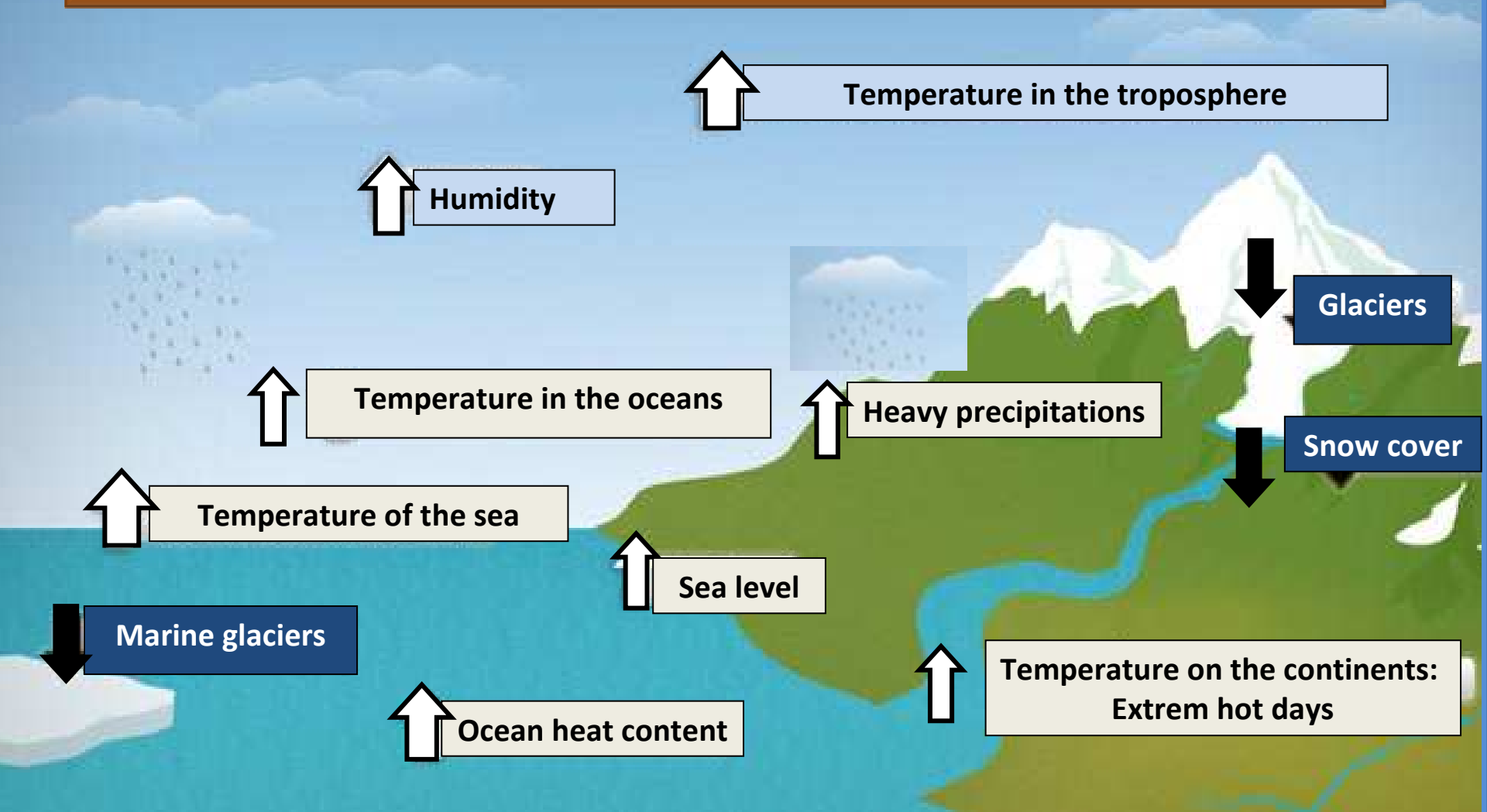
Typhoon Haiyan: Losses and Tears In the Philippines

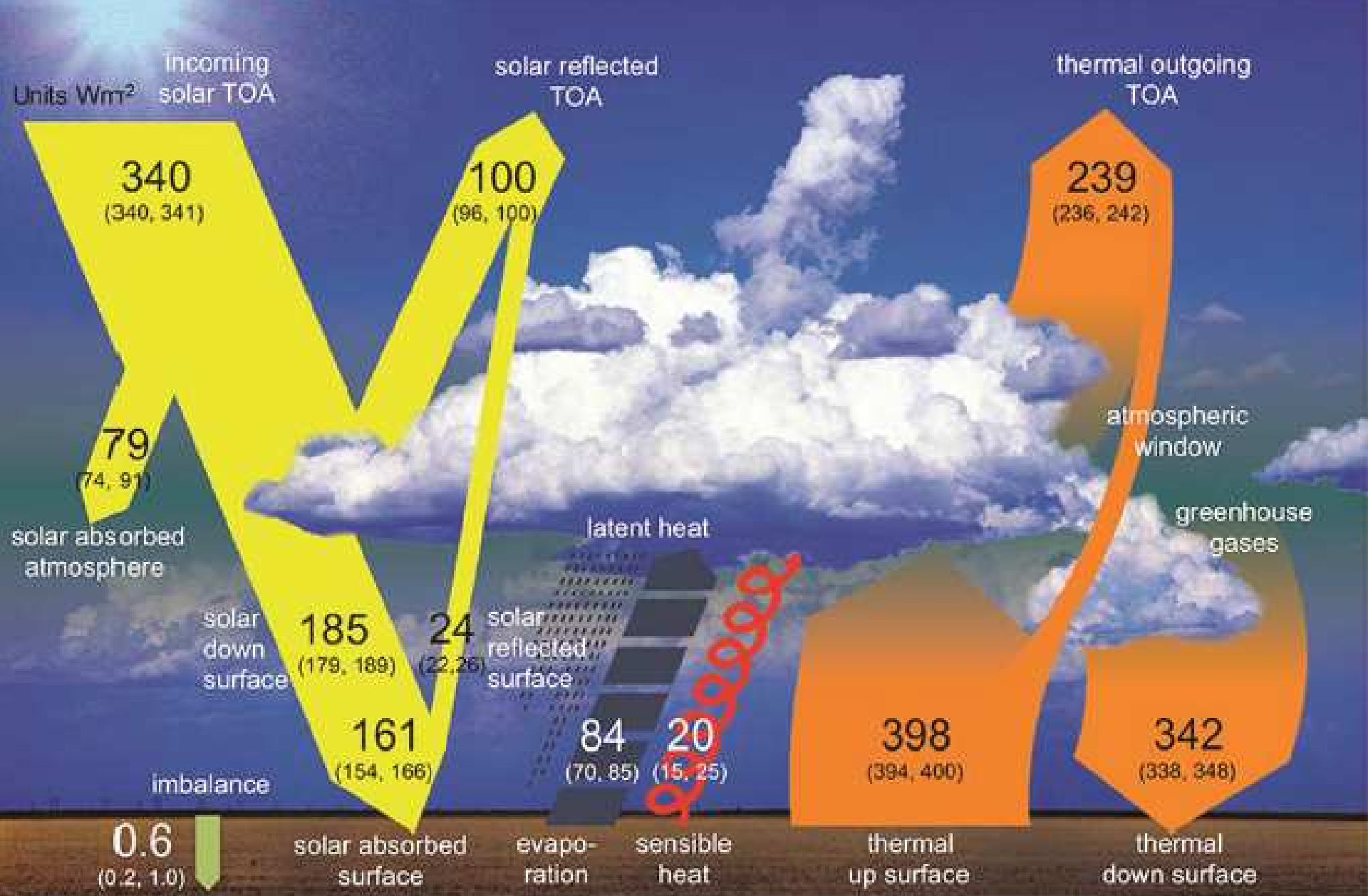
**Prof. Dr. Úrsula Oswald Spring
Regional Centre of Multidisciplinary Research,
CRIM-UNAM and University of Chulalongkorn
Bangkok, 29 of November 2013**

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- 1. How is typhoon Haiyan related to climate change?**
- 2. What are the scientific results of IPCC 2012, 2013**
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- 4. Typhoon Haiyan**
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- 6. How to prepare us for an uncertain future with more and more serious extreme events?**

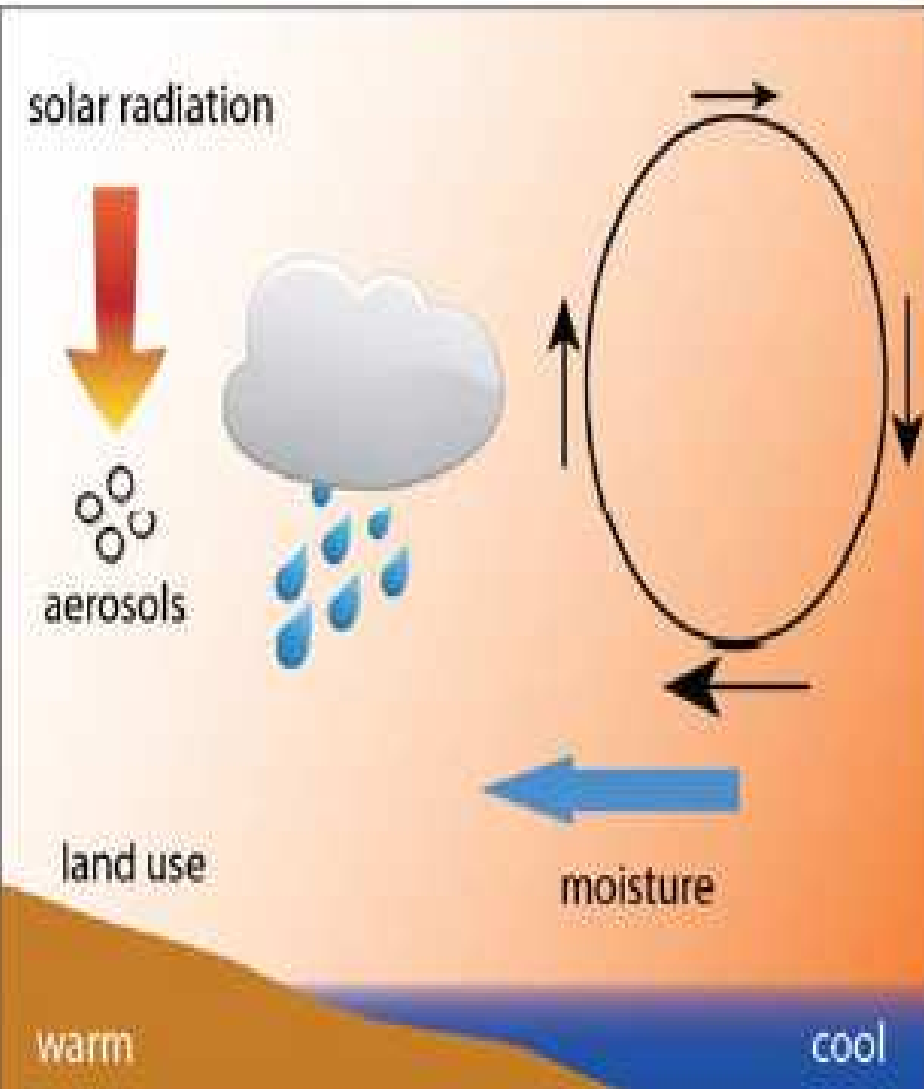
1. How is typhoon Haiyan related to climate change (CC)?



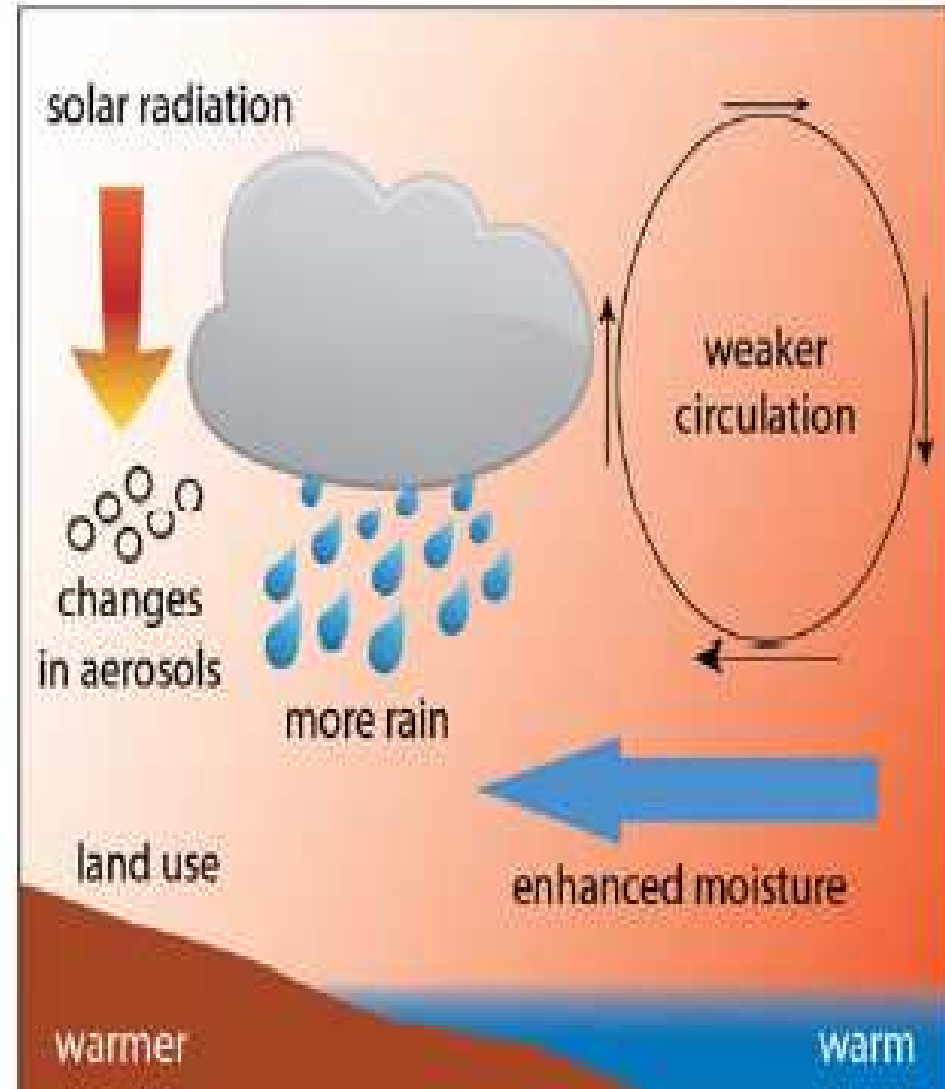


2. What are the scientific results of IPCC 2012, 2013?

(a) present

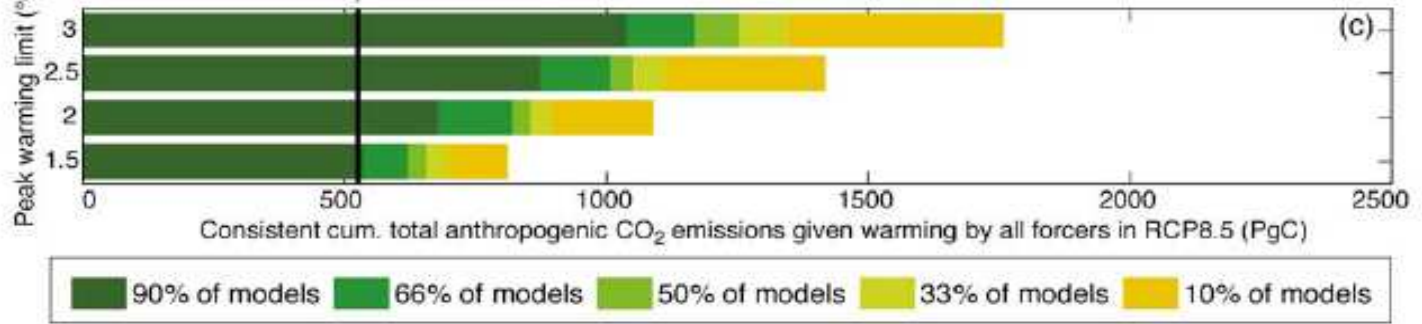
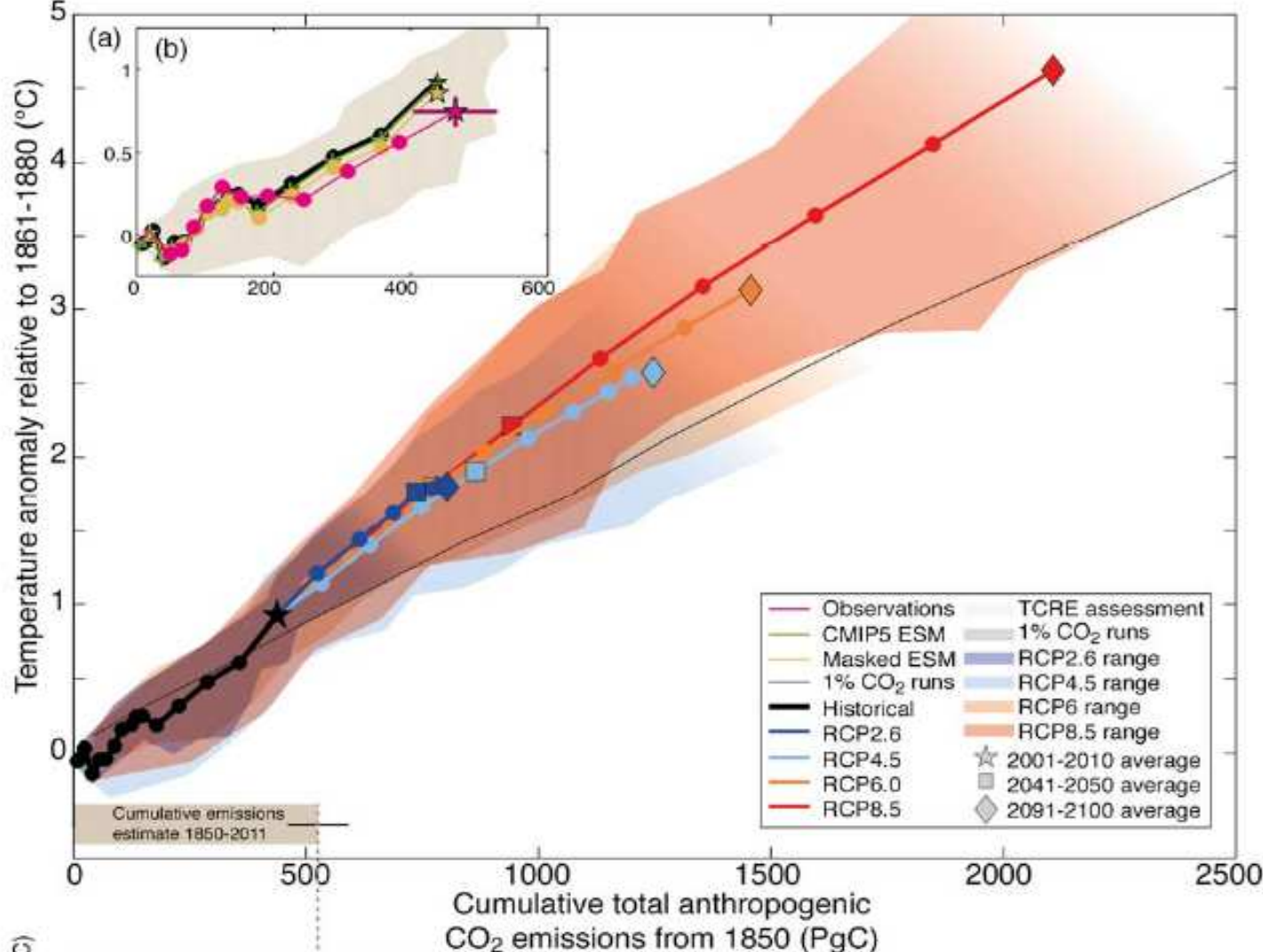


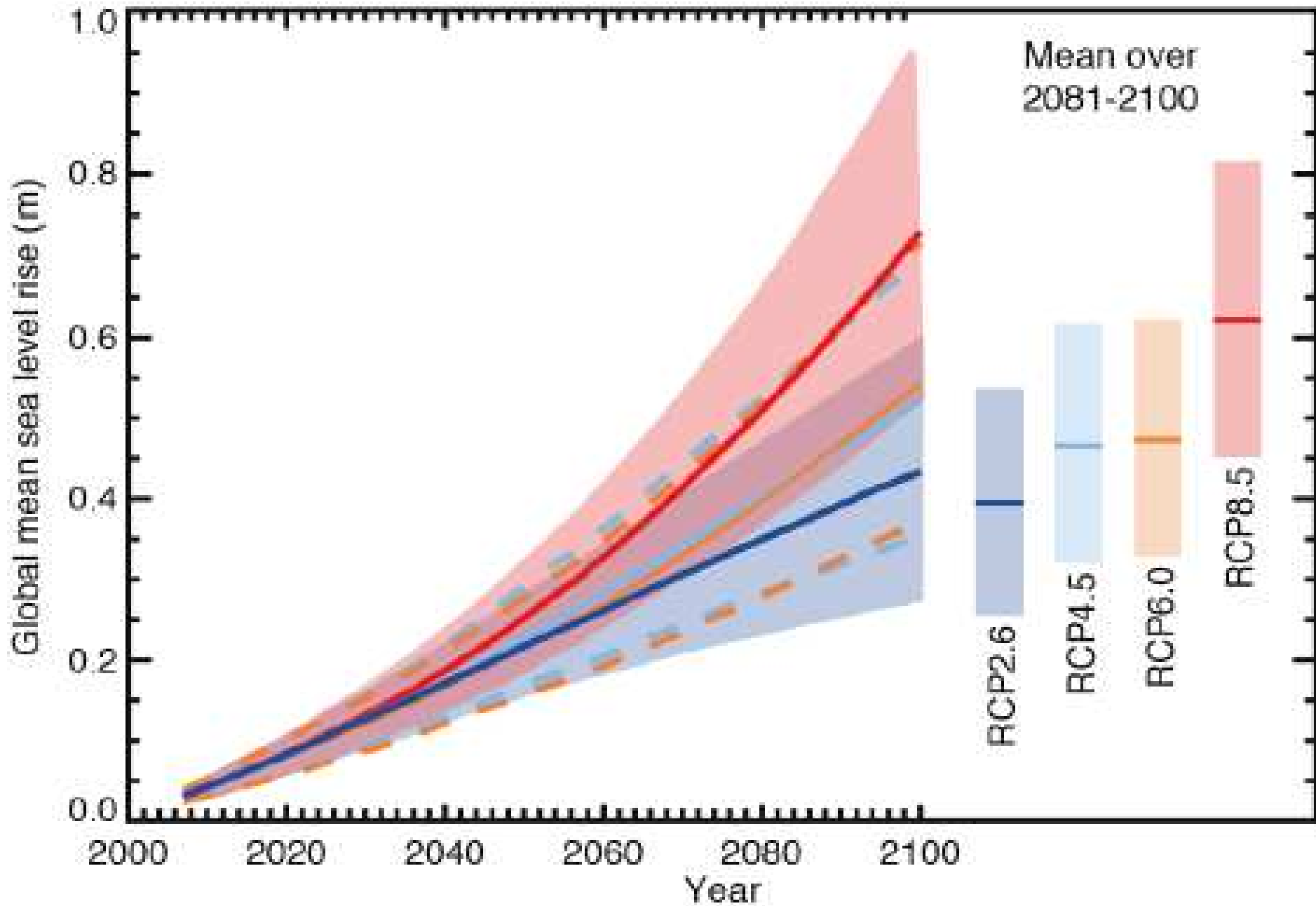
(b) future



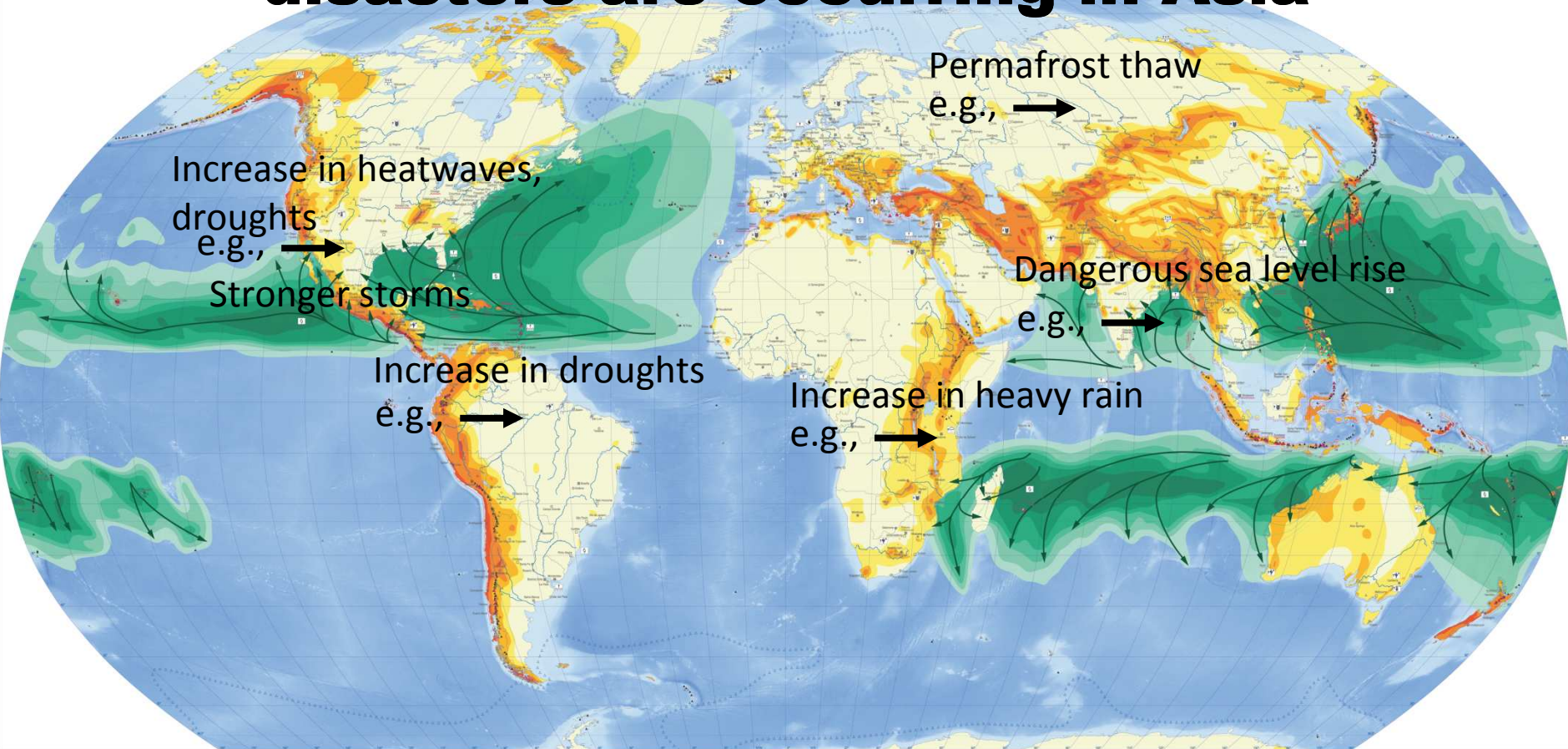
What is changing?

Temperature rise

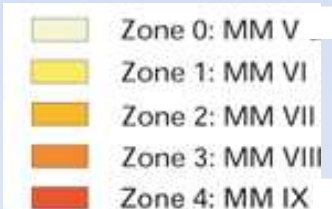




3. How will climate change affect? Biggest disasters are occurring in Asia



Earthquakes

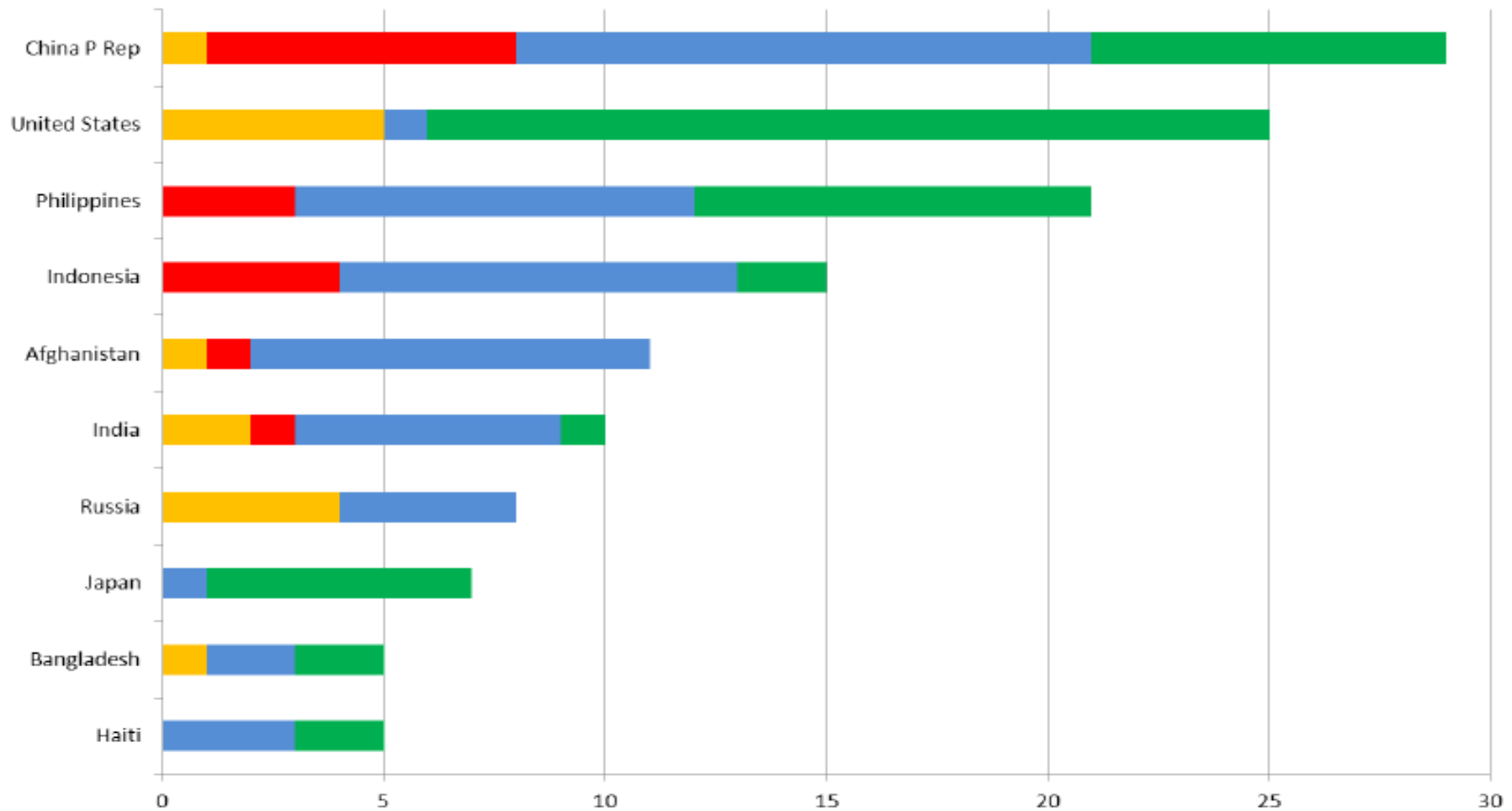


MM: modified Mercalli scale

Tropical Hurricanes

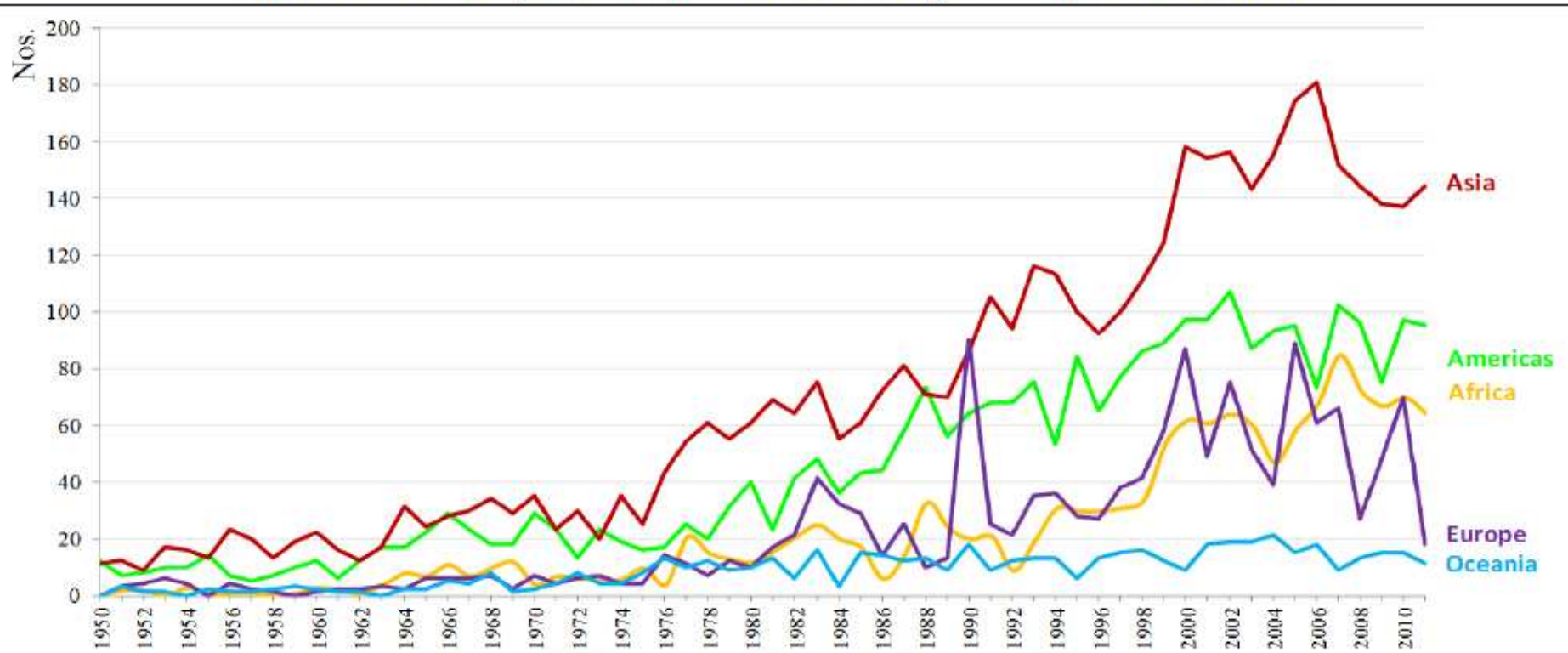


Top ten countries by reported events, 2012

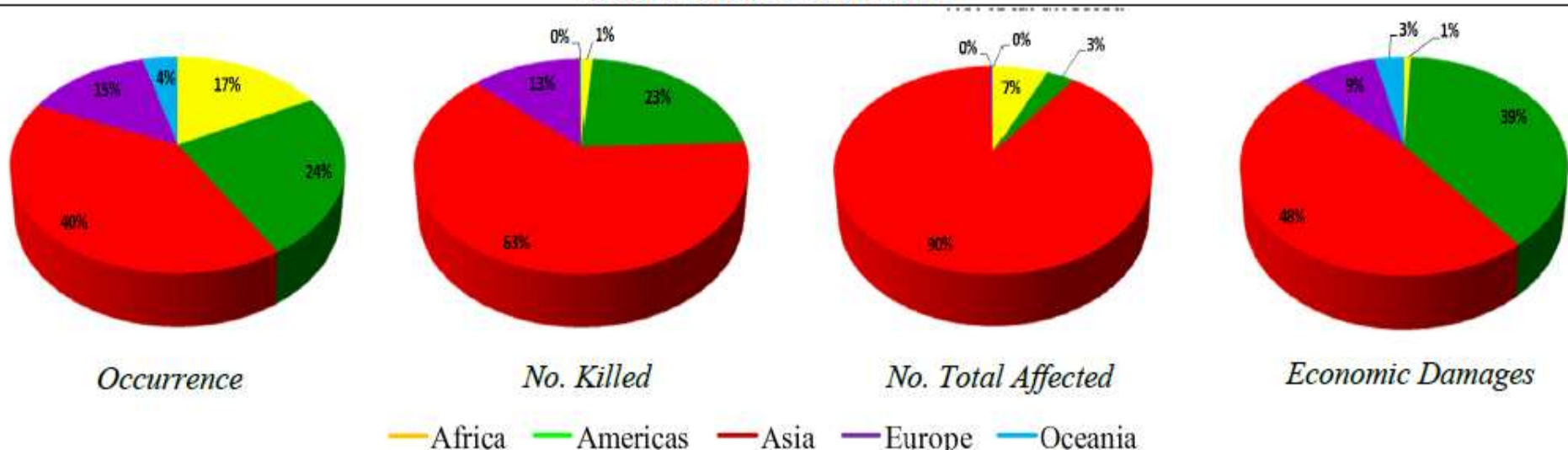


	Haiti	Bangladesh	Japan	Russia	India	Afghanistan	Indonesia	Philippines	United States	China P Rep
■ Climatological		1		4	2	1			5	1
■ Geophysical					1	1	4	3		7
■ Hydrological	3	2	1	4	6	9	9	9	1	13
■ Meteorological	2	2	6		1		2	9	19	8

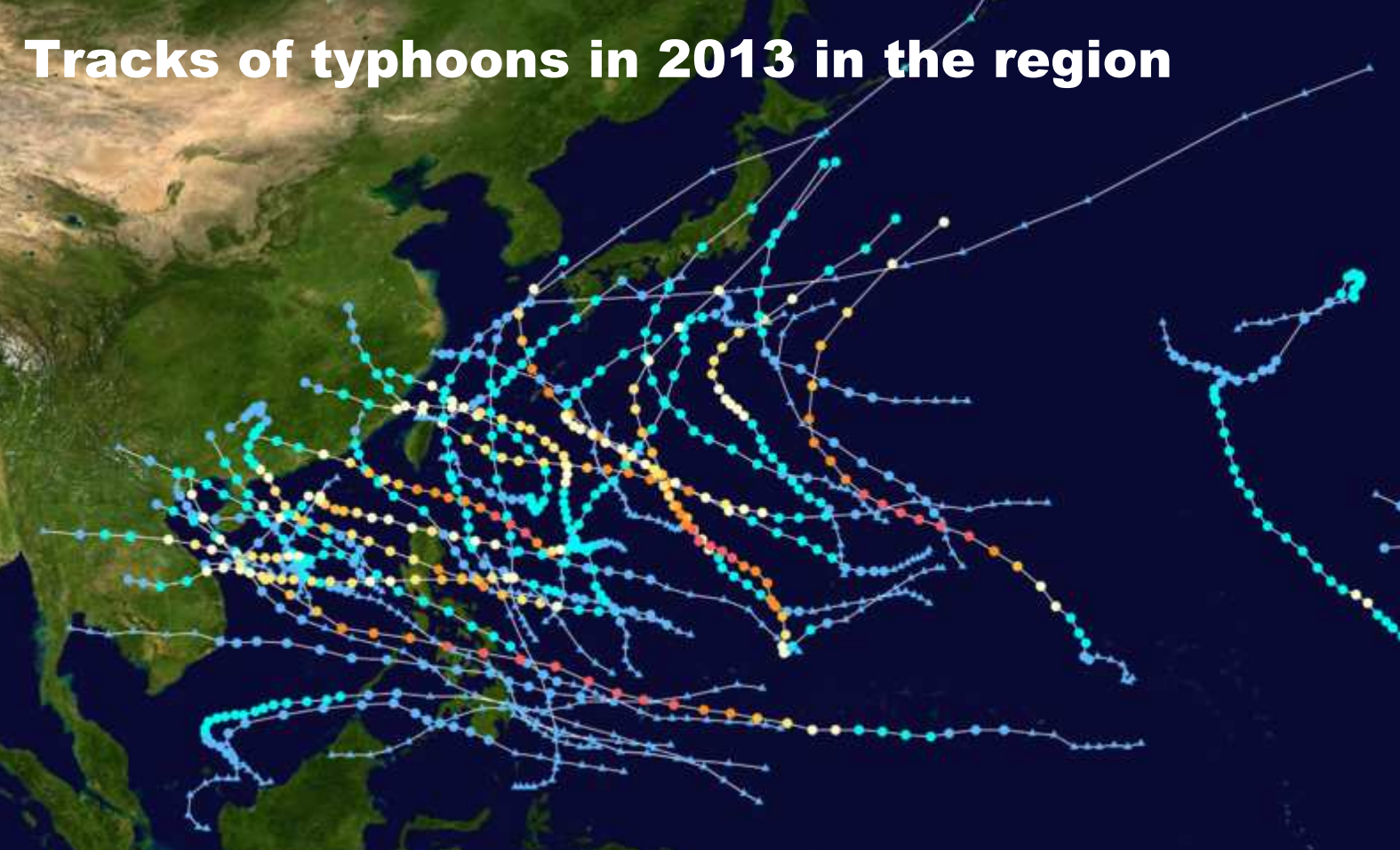
Occurrence of reported natural disasters by continent: 1950 to 2011











Asia's share: 2002-2011






Tracks of typhoons in 2013 in the region



Saffir-Simpson Hurricane Scale

	Tropical depression	<39 mph	<63 km/h		Category 3	111–129 mph	178–208 km/h
	Tropical storm	39–73 mph	63–117 km/h		Category 4	130–156 mph	209–251 km/h
	Category 1	74–95 mph	119–153 km/h		Category 5	>156 mph	>251 km/h
	Category 2	96–110 mph	154–177 km/h		Unknown		

Storm type

	Tropical cyclone
	Subtropical cyclone
	Extratropical cyclone / Remnant low/ Tropical disturbance

Typhoon Haiyan: Path of destruction

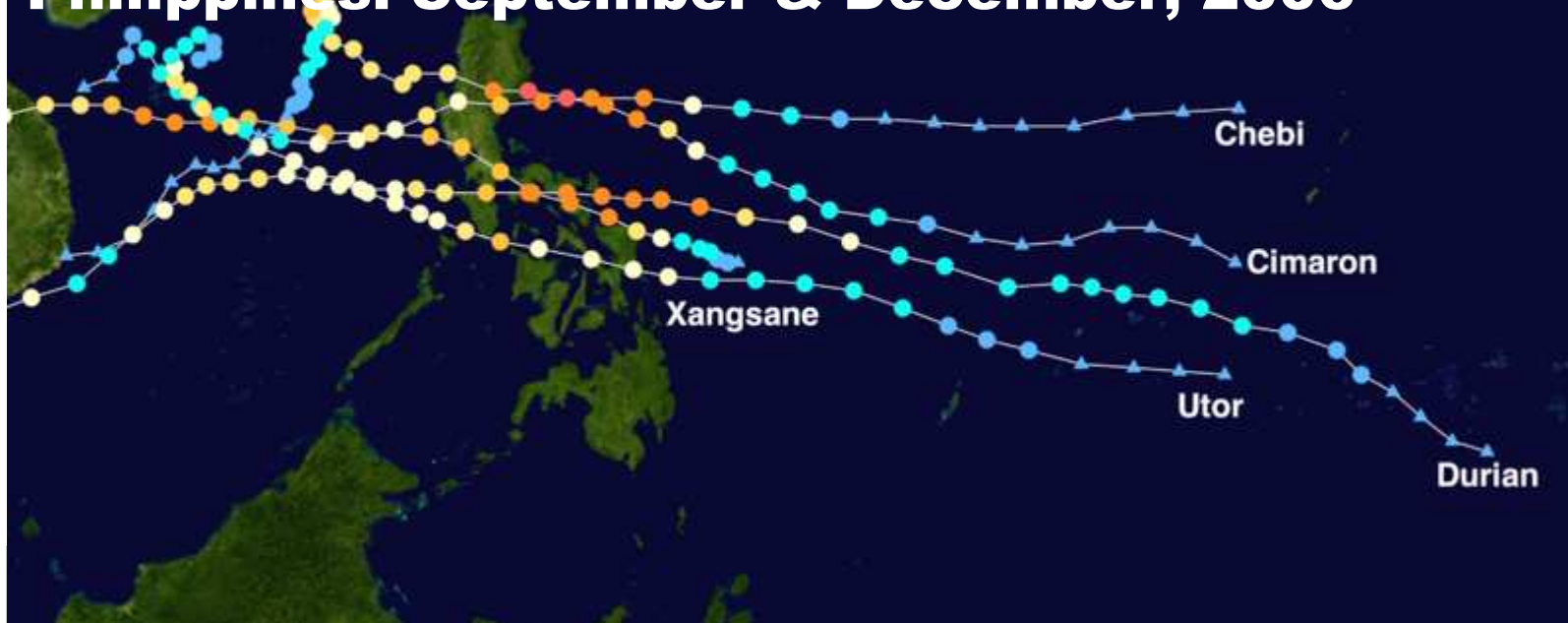
--- Typhoon path 8 Nov 2013



200 km
100 mile

Source: Hong Kong Observatory

Tracks of five typhoons that have affected Philippines: September & December, 2006



Haiyan: Formed

November 3, 2013: Saffir–Simpson: category 5

Dissipated

November 11, 2013

Highest winds

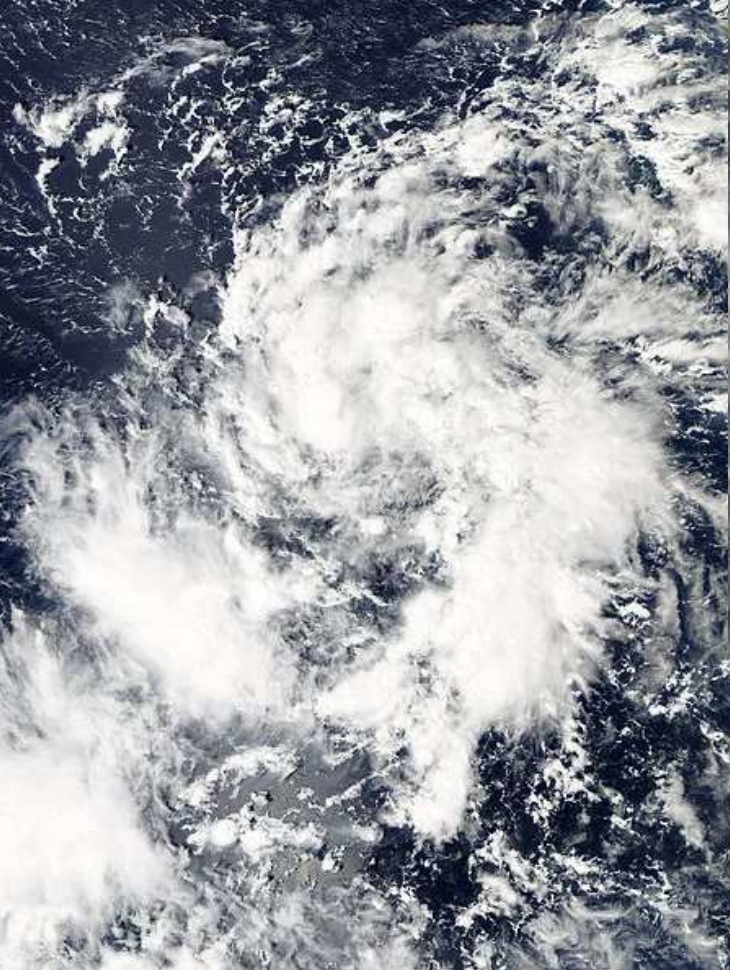
10-minutes sustained: 230 km/h (145 mph)
1-minute sustained: 315 km/h (195 mph)

Lowest pressure

895mbar (hPa); 26.43 in Hg (estimated)

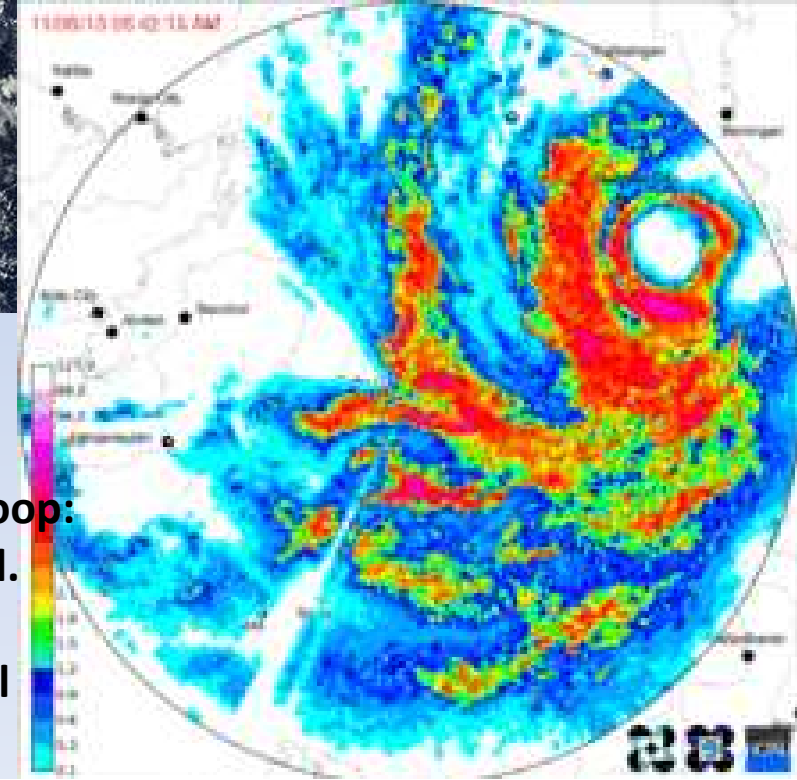
Areas affected

Micronesia, Philippines, Southern China, Vietnam



Haiyan: tropical depression:
3-11-2013

**PAGASA weather radar reflectivity loop:
Haiyan made landfall on Leyte Island.
Tacloban City was struck by the
northern eyewall, the most powerful
part of the storm.**



Typhoon
Haiyan:
nearly fully
developed:
7-11-2013

Initial human and material loss



11.5 million

people affected



2.5 million

people in need of food aid



544,606

people displaced



130,074 **1.1 million houses damaged**

houses totally destroyed



1,215

evacuation centres set up

Source: OCHA & NDRRMC



5. What can we do in the present? Emergency help

- Safe water in plastic bottles
- Potabilization plants for safe water
- Safe food in candles
- Shelter boxes
- Flashlights and candles
- Burring dead people and animals
- Vaccinations and preventive health
- Census of dead and affected people
- Secure garbage management
- Evacuation plan for further extreme events or dangers
- Physical security for all affected and protection of their behaviours
- Temporary jobs for cleaning
- Reconstruction of local airports and roads for facilitating help
- Reestablishment of telecommunication
- Reestablishment of food supply, popular kitchens
- Special attention for vulnerable people (pregnant women, babies, old and sick people: therapies, drugs, attention)
- Evaluation of loss and damages with affected people
- Trauma healing for loss and damages



A shelter kit

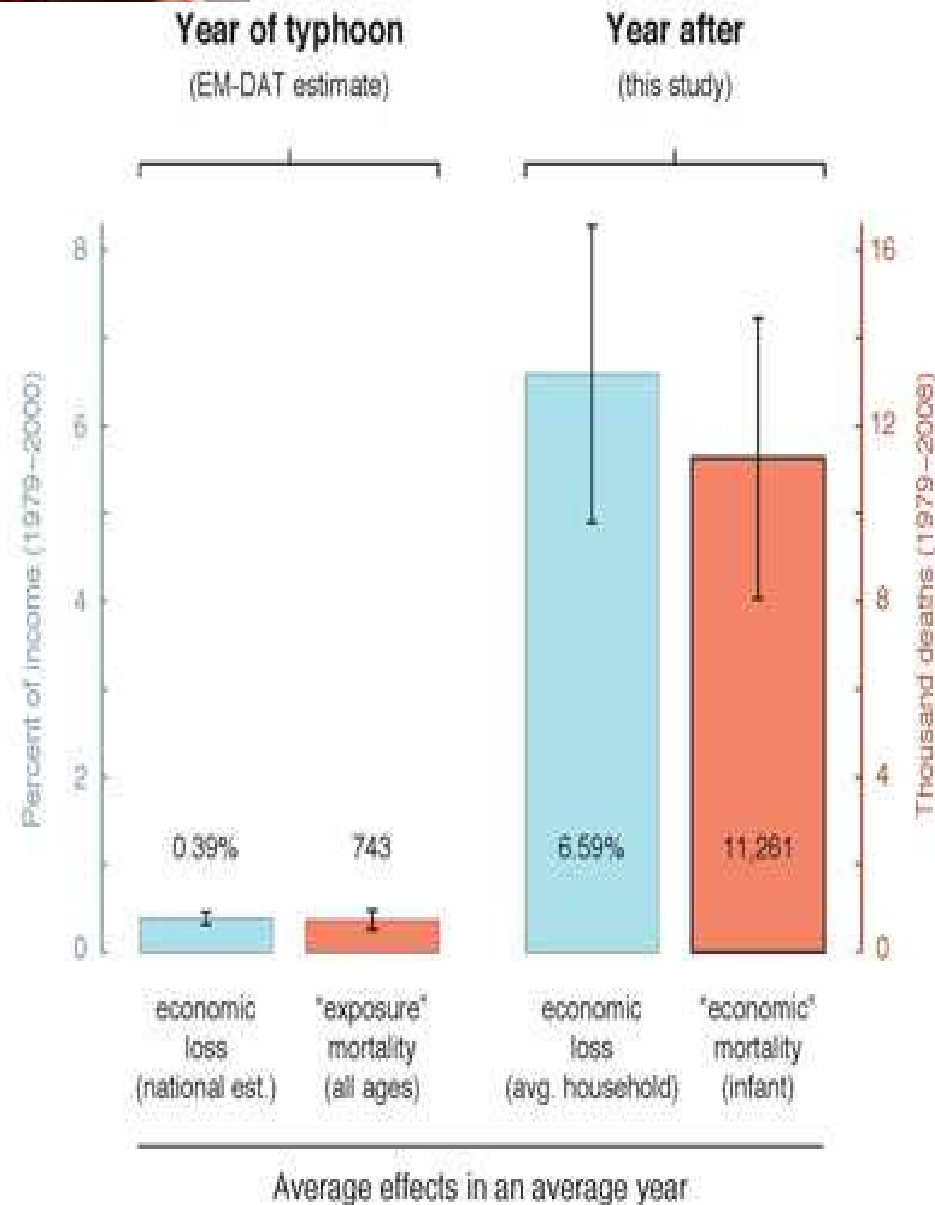


A photograph of a person, likely a woman, carrying several large plastic water jugs balanced on her head. She is walking through a neighborhood that has been severely damaged, with debris scattered on the ground and buildings in various states of ruin. The scene is set against a dramatic sunset sky with orange and purple hues. The overall mood is one of hardship and resilience.

Long-term risks of baby girls

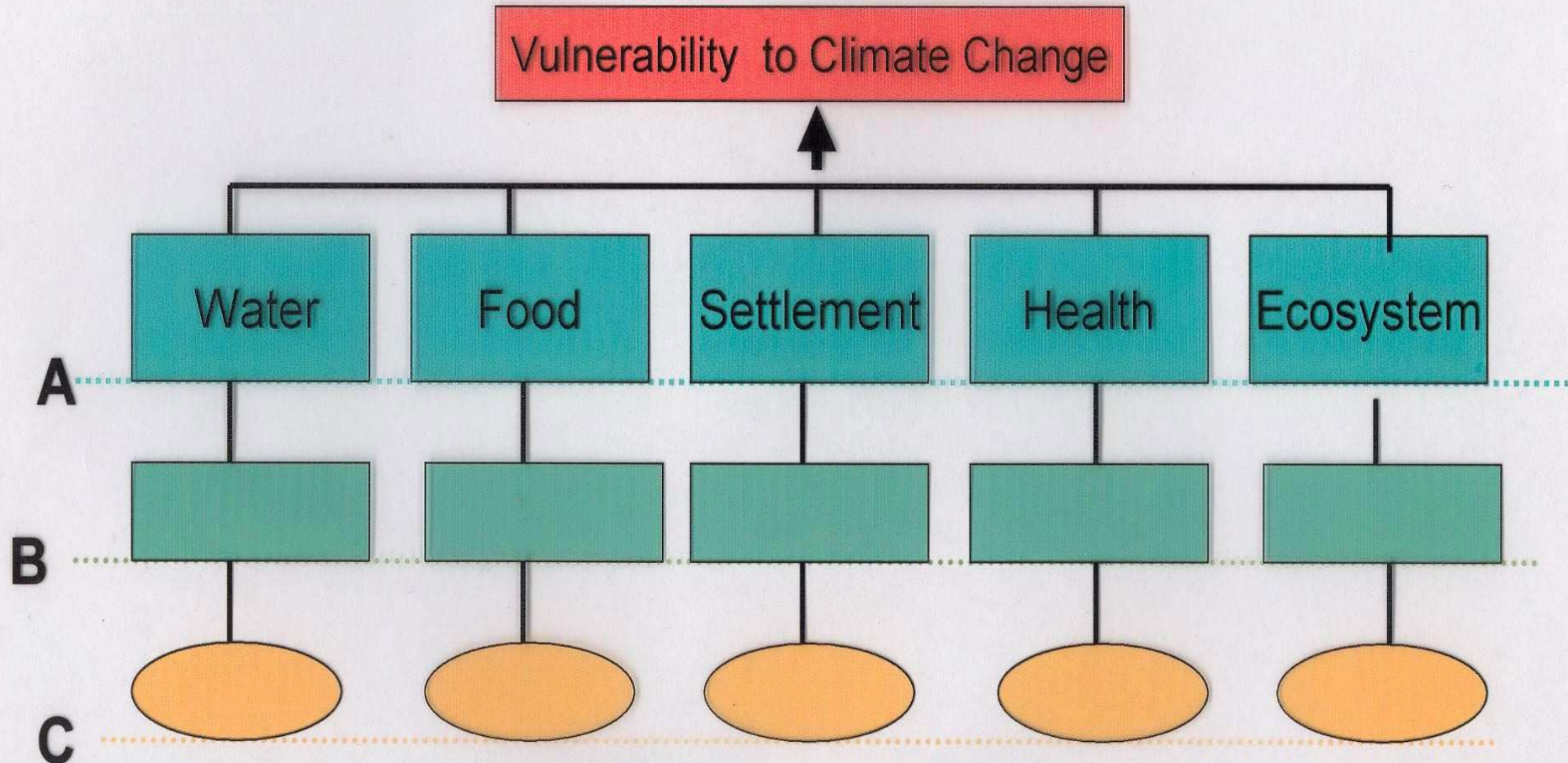


15x higher mortality rate by baby girls 2 years later (Anttila-Hughes & Hsiang, 2013)



- Typhoon area loose 6.6% of income, leading to a 7.1 % reduction in average household spending & durable assets
- Very strong storm reduces 15 % the following year (food, medicine)
- Indirect poverty-worsening effects of the storm
- Post-typhoons economic deaths account for 13 % of national infant mortality rate
- Infants are more fragile than other family members
- No increase of mortality rates for baby boys
- Risk double if she has an older sister
- Risk increase 4 times if she has an older brother
- Not intentionally: parents believe their newborn can cope with higher-than-average levels of neglect
- Parents provide more or different food or care to baby boys than girls unconsciously

Assessing Vulnerability (R.T. Watson, et al. 1998. IPCC)



A: Sectoral level; B: Coping level; and C: Sensitivity level

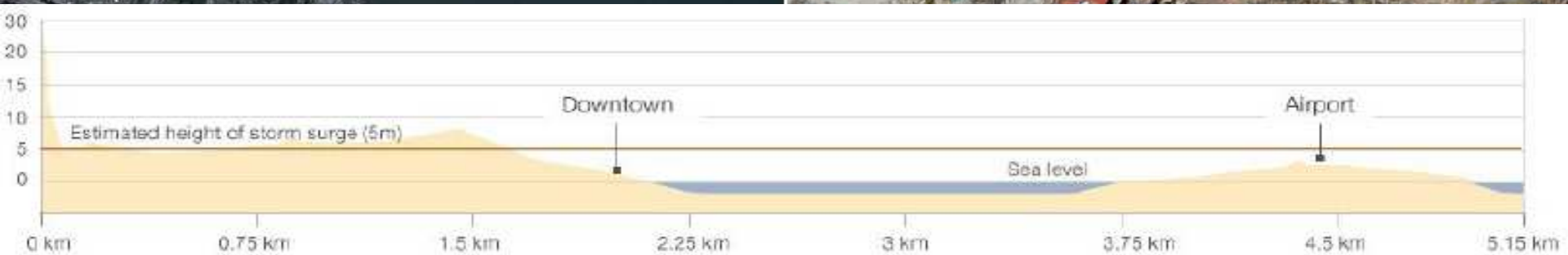
Vulnerability = f (sensitivity, adaptability, exposure)

6. How to prepare us for an uncertain future with more and more serious extreme events?

Tacloban airport area 2012



Tacloban airport area 2013



Guiuan 2012



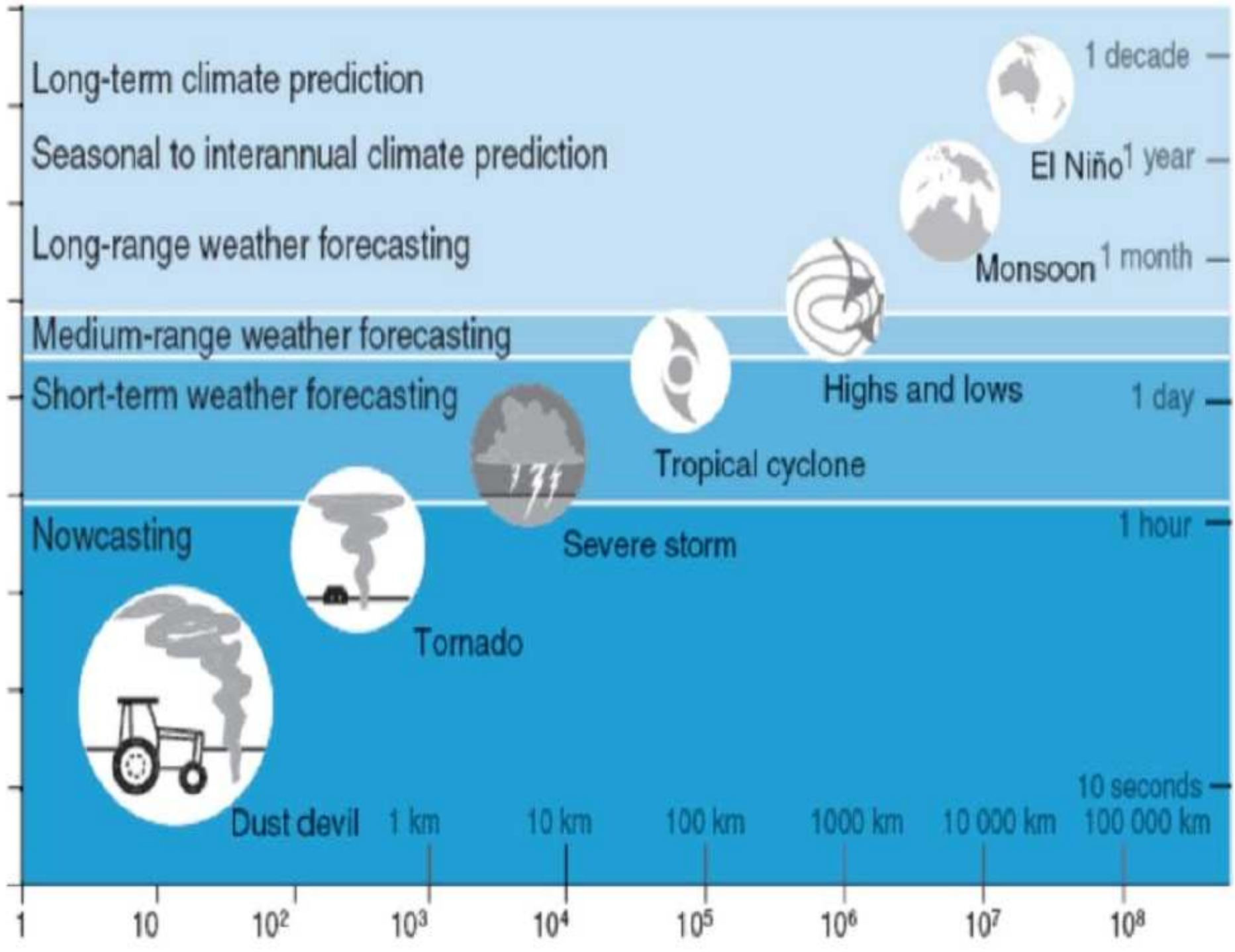
GOOGLE/DIGITALGLOBE

Guiuan 2013



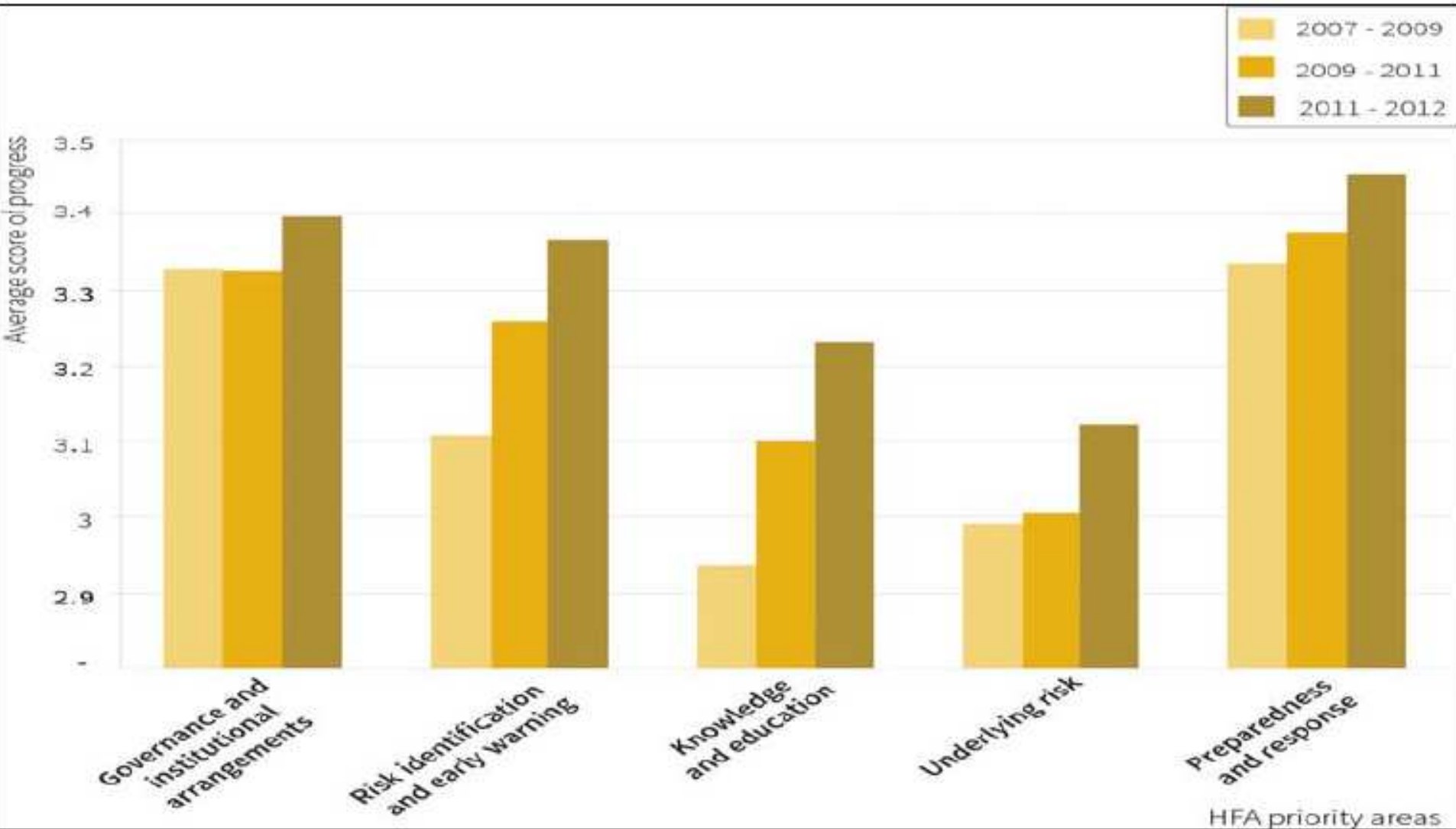
- Ecosystem restoration of mangroves, tropical forests and storm surges
- Definition with affected people of relocation in safe places
- Improvement of early warning system (cell phones, TV, internet, twitter)
- Periodic disaster training for frequent extreme events
- Training of children in DRR in schools as a new course
- Subsidies, low-interest credits and fiscal support for reconstruction
- Integration of dependency of government into a collective DRM with participation of affected people and academics
- Elaboration of local strategies for DRR and DRM
- Reconstruction of destroyed infrastructure avoiding new risks for people
- Establishment of safety areas on the shores: **people's human security is priority**



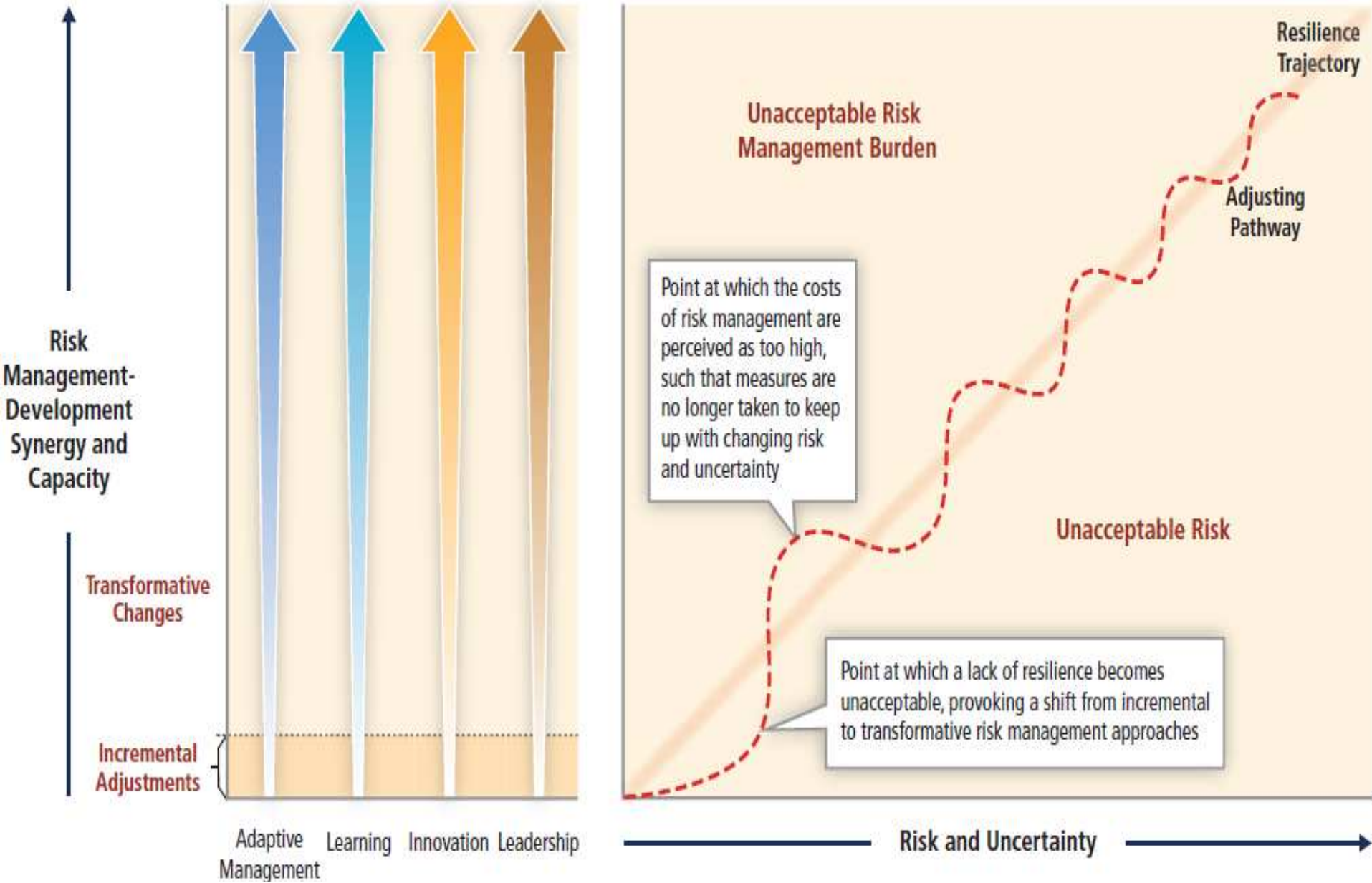


Hyogo Framework for Action (HFA)

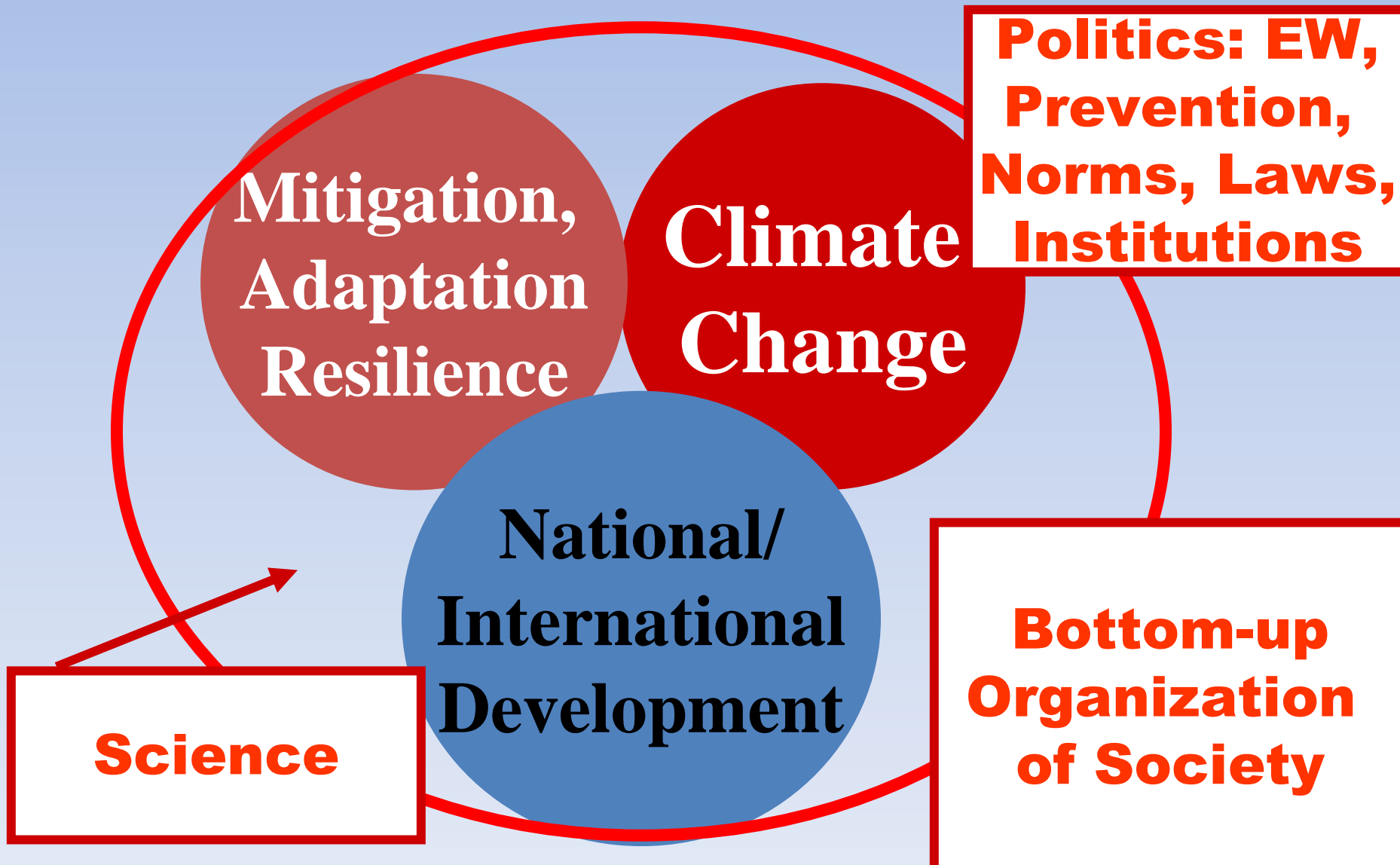
Source: UN, 2013:4



Incremental & transformative pathways to resilience



Alternatives: Prevention, resilience-building, sustainable development, poverty alleviation, planning, ecosystem recovery



Primary Actors

INTERNATIONAL

- Bilateral and multilateral partners
- Intergovernmental organizations

NATIONAL / SUB-NATIONAL

- National government and statutory agencies
- Civil society organizations
- Private sector
- Research and communication bodies
- Local government agencies

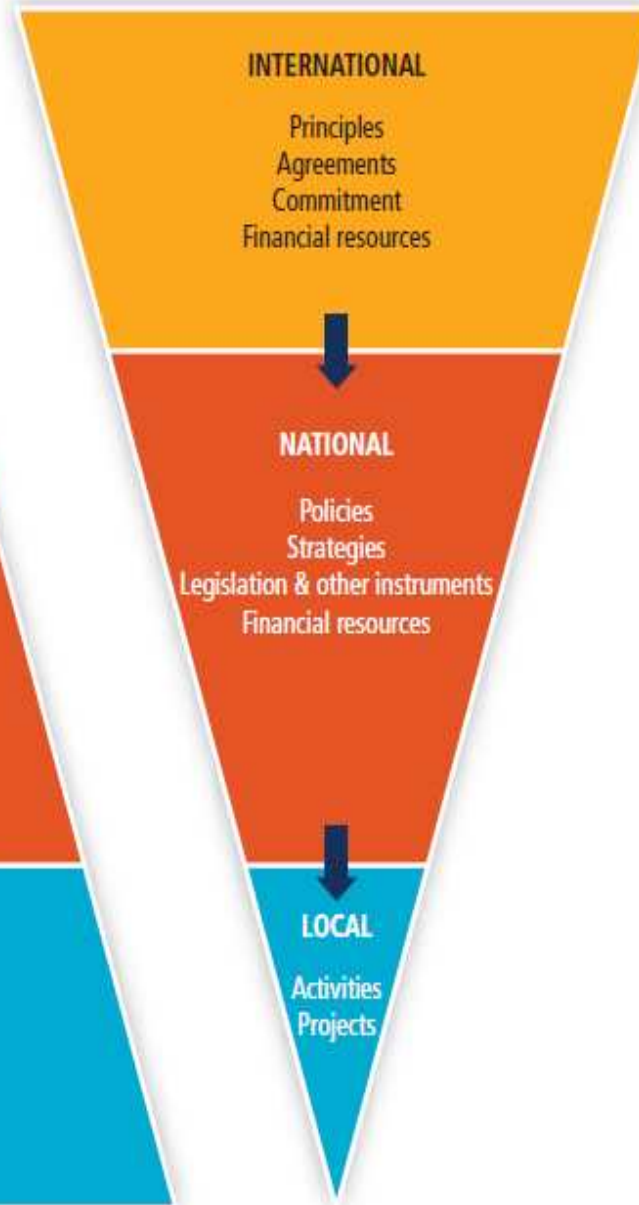
LOCAL

- Individuals, households, and communities
- Private sector
- Community-based organizations
- Faith-based organizations

"BOTTOM-UP" Functions



"TOP-DOWN" Functions



Global Climate
Projections

Regional / National
Climate Projections

Scientific and Local
Experiential
Knowledge

Vulnerability,
Risk, and Adaptation
Assessments

An aerial photograph showing a large, dense crowd of people gathered in a heavily damaged area. The ground is covered in debris, including twisted metal, wood, and other wreckage. In the background, there are several buildings, some of which appear to be partially destroyed or in ruins. The scene suggests a major disaster, such as an earthquake or a large-scale fire. The crowd is diverse in age and appearance, and many people are looking towards the camera. The overall atmosphere is one of chaos and devastation.

**Thank you very much
for your attention
uoswald@gmail.com**