Building resilience at every level: Experiences from Ketsana and Parma

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6th International Workshop on Natural Disaster Reduction
May 10-14, 2010

Outline

- Philippine setting
- Tropical Storm Ketsana
- Typhoon Parma
- Disaster response
- Conclusions and future directions

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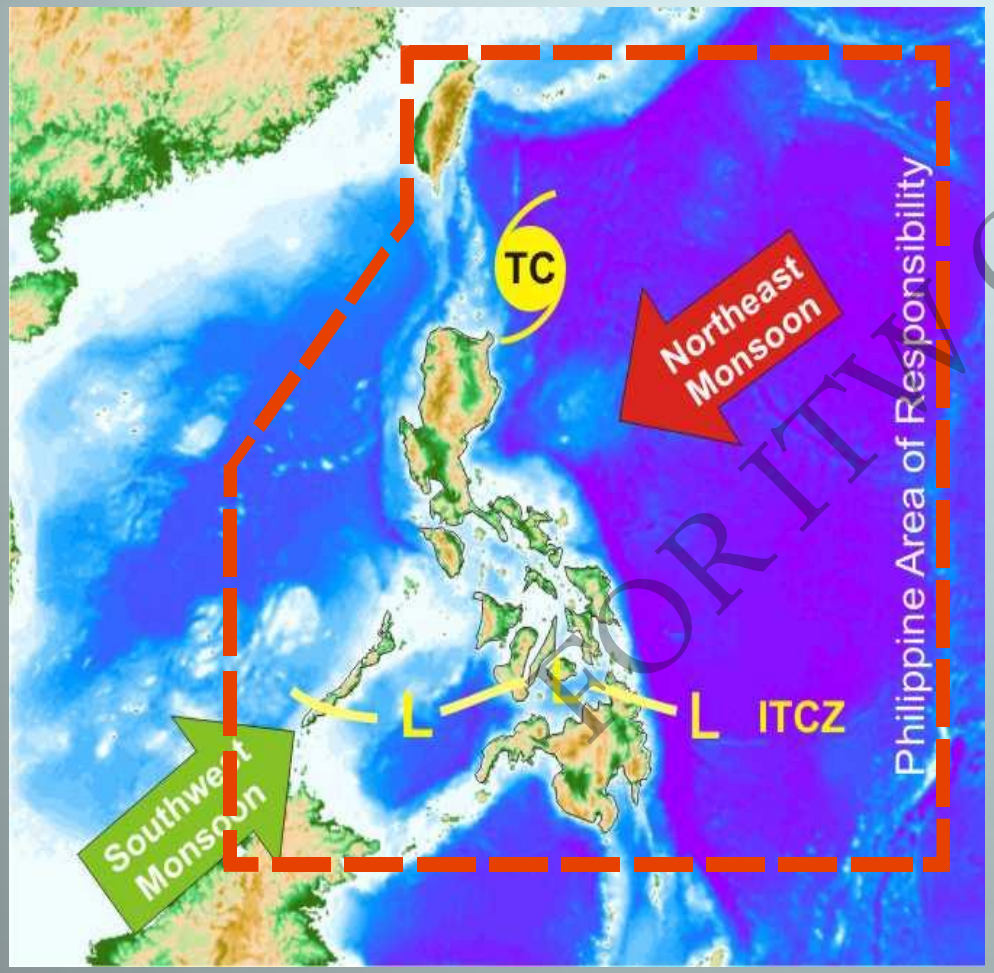
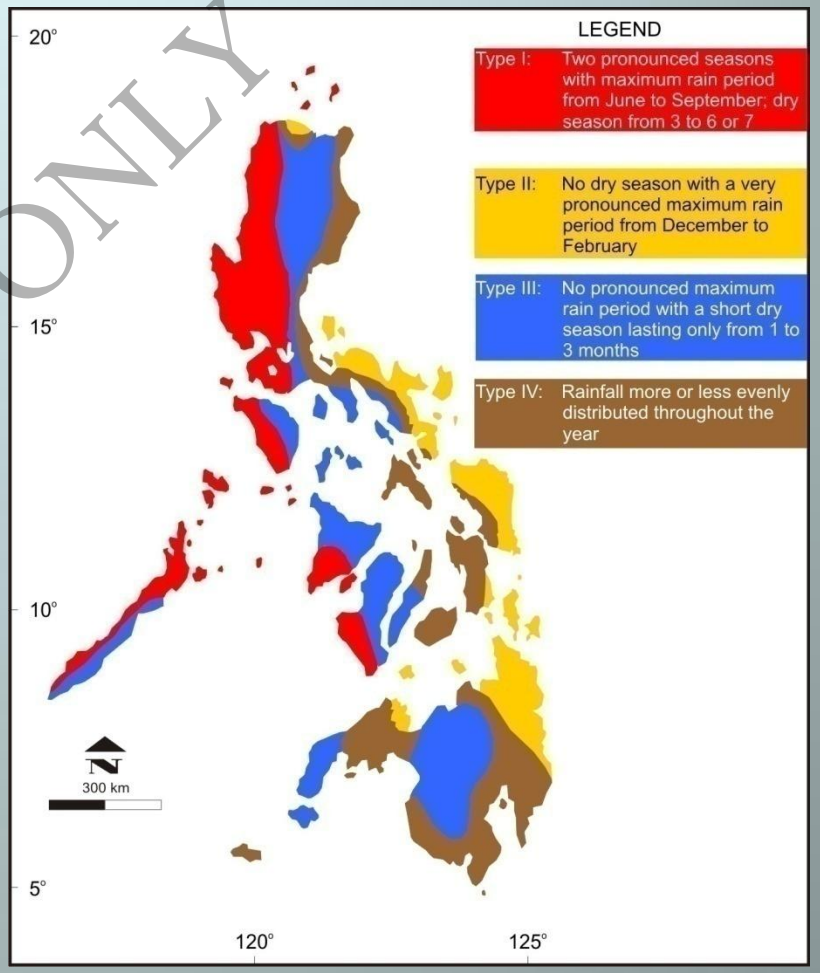
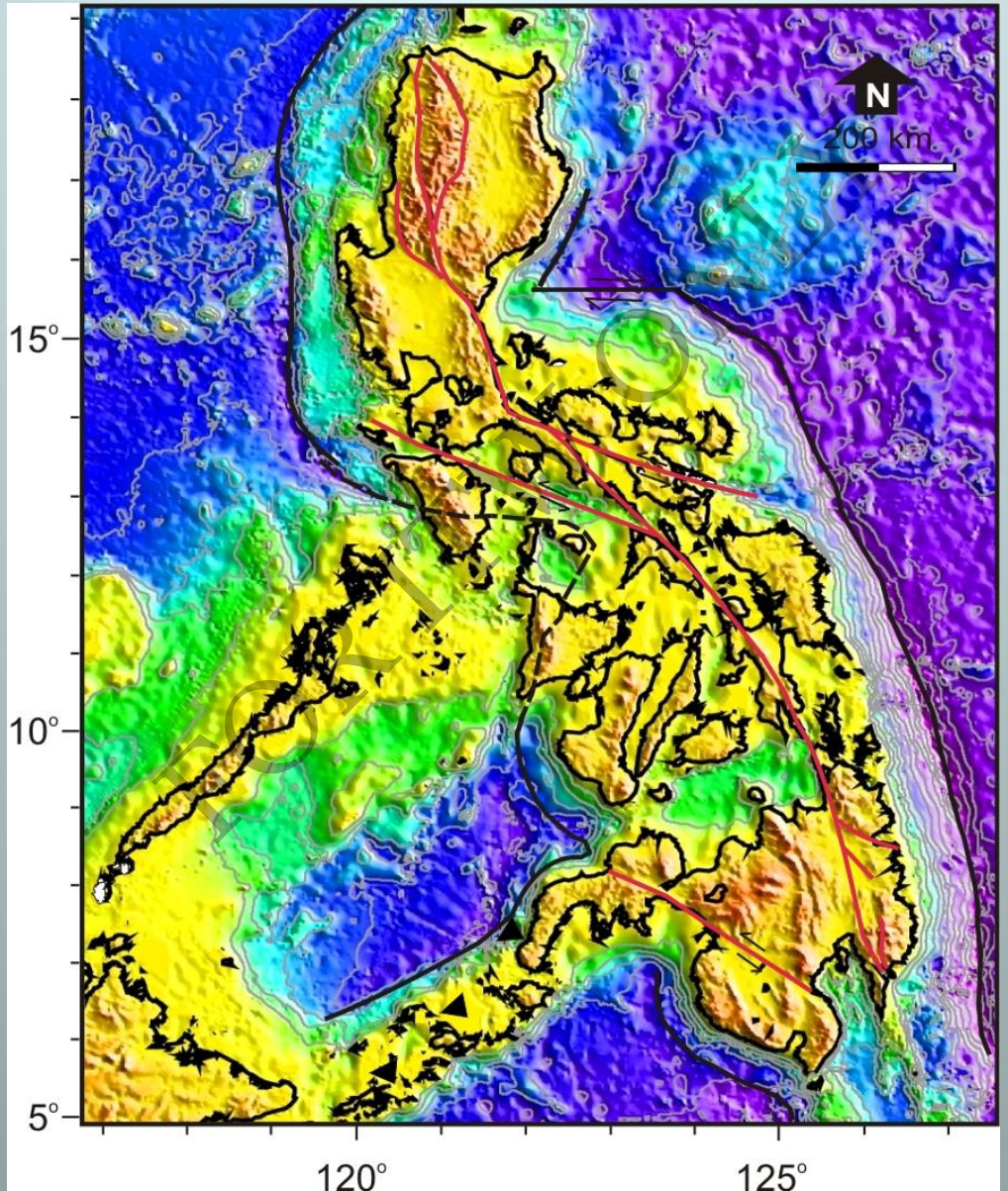
Philippine setting: Climate



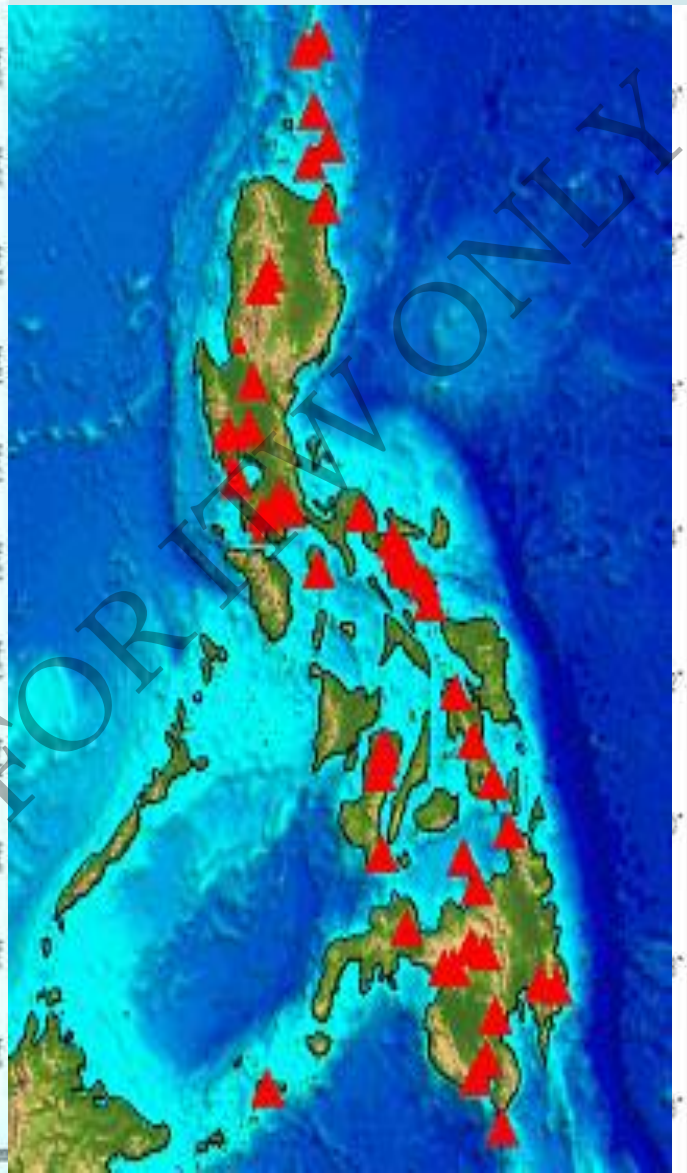


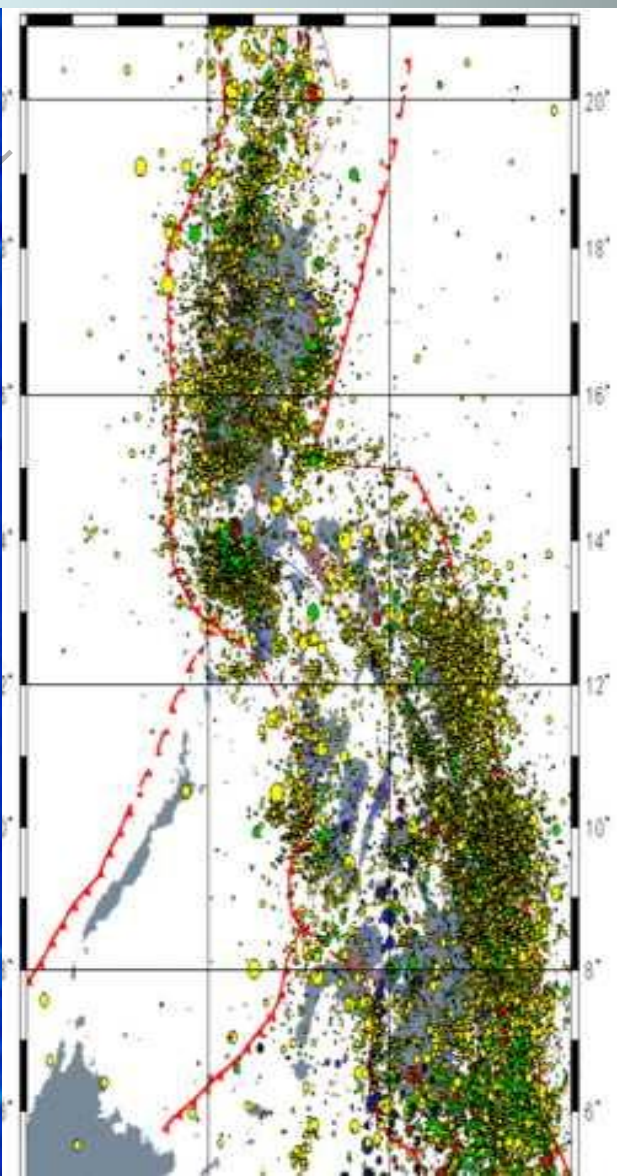
DOST-PAGASA, Yumul et al., 2009

Philippine setting: Geology



Natural disasters in the Philippines





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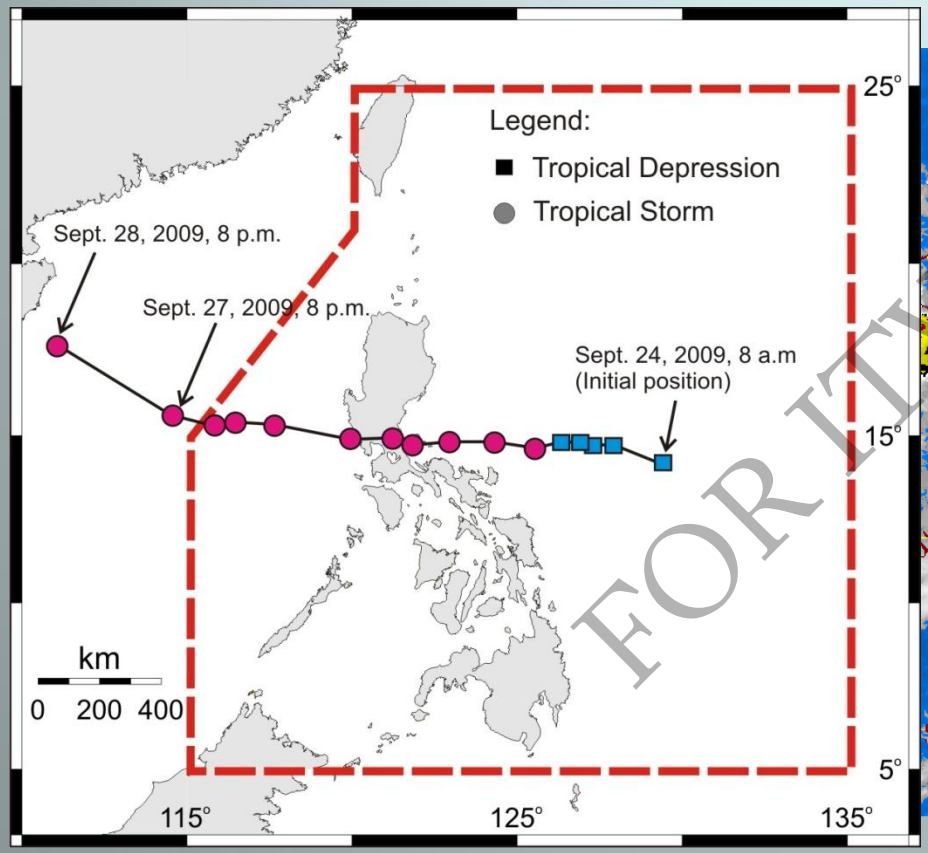
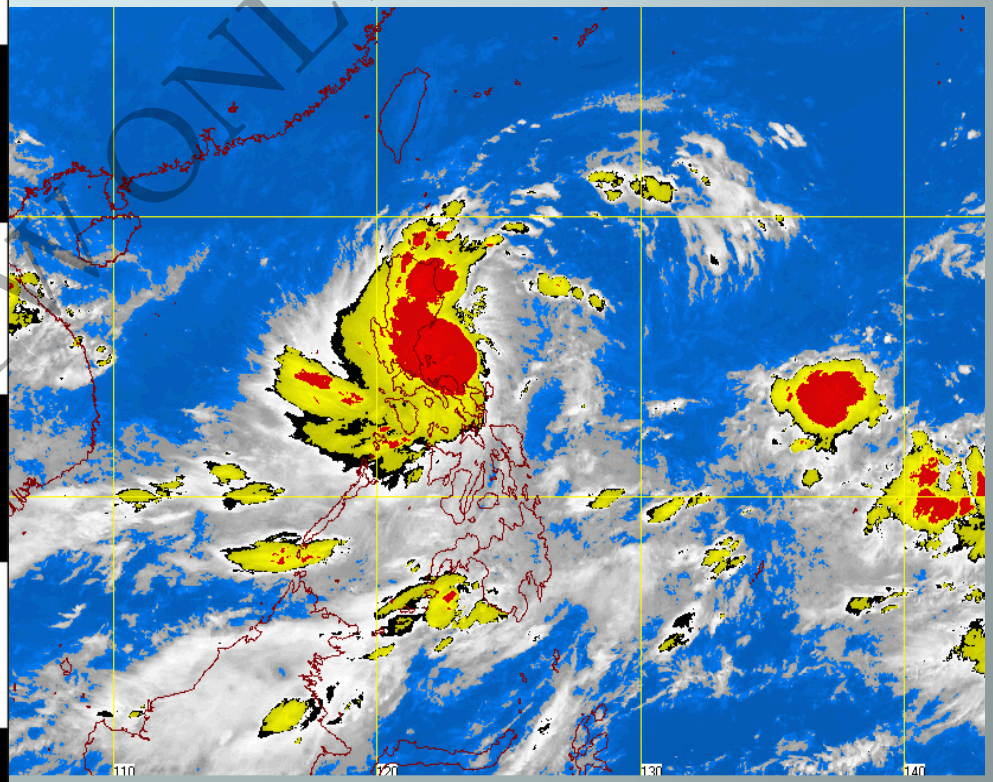
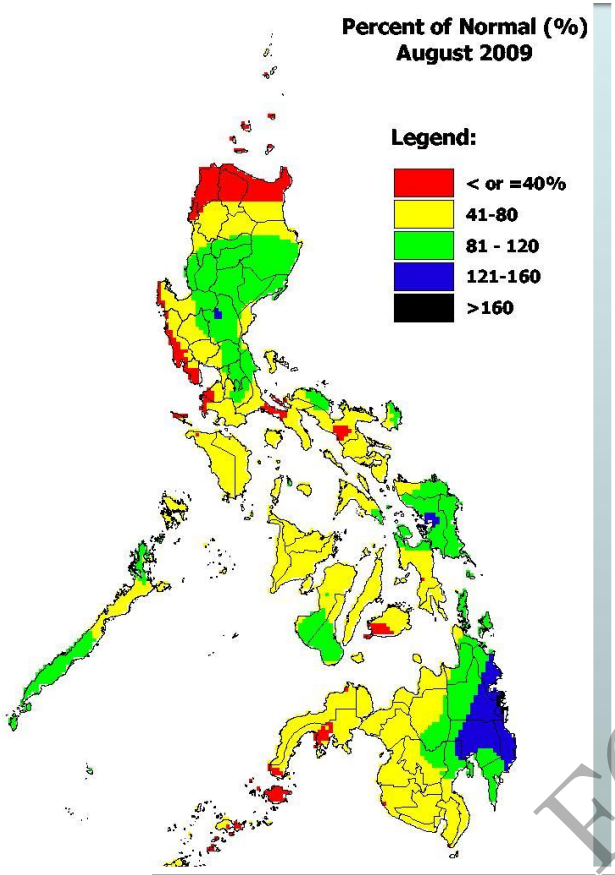
Tropical Storm Ketsana

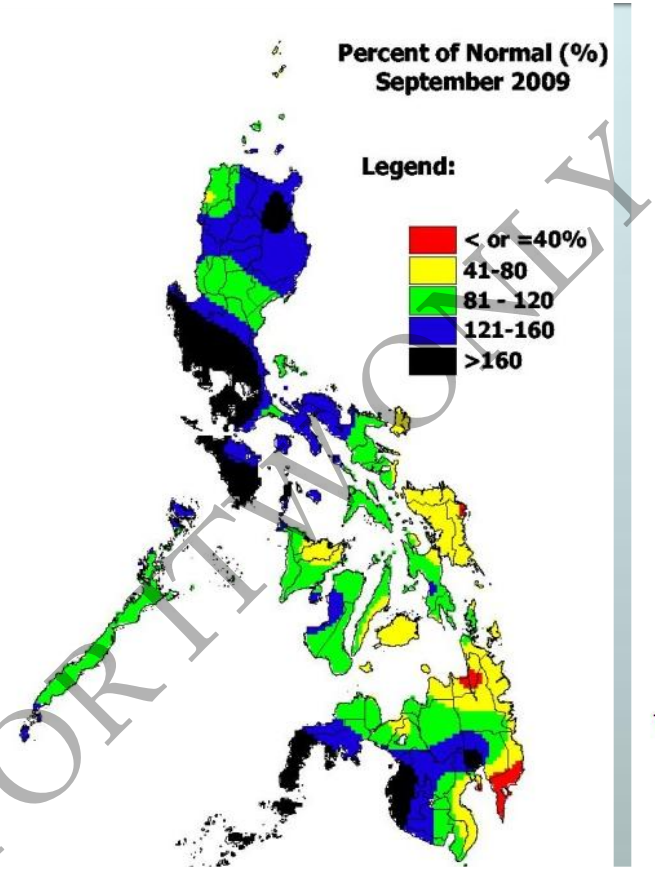


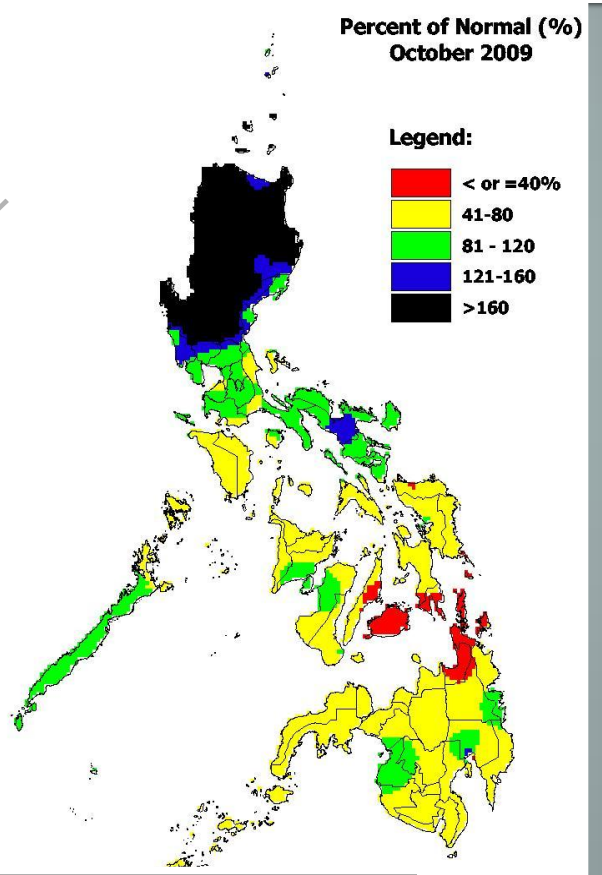


DOST-PAGASA, Yumul et al., 2009

Tropical Storm Ketsana







Station	12 hour rainfall	September Normal Rainfall
Quezon City	442	392
Manila	204	330

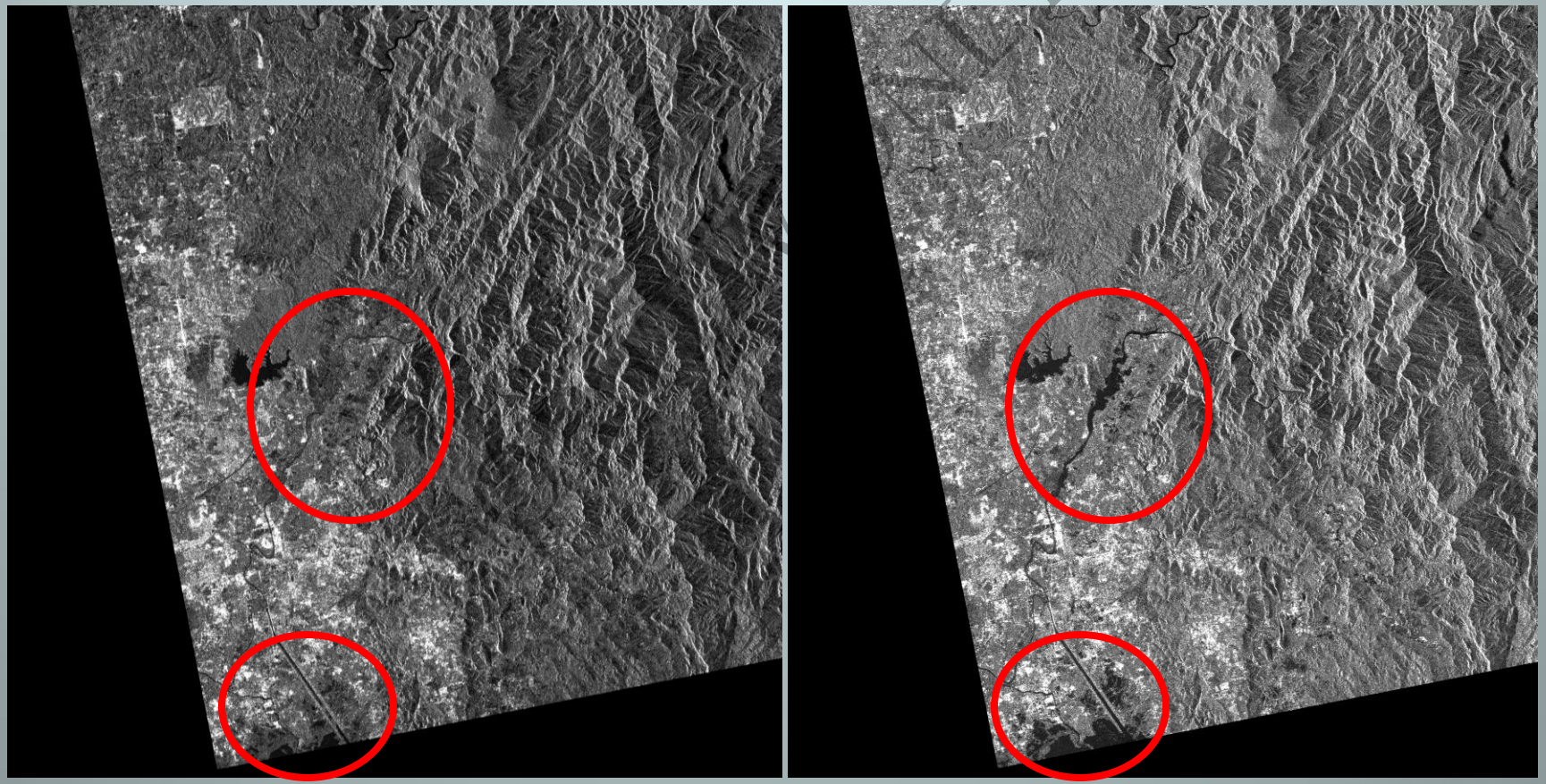
Tropical Storm Ketsana

Maximum winds	55 to 85 kph
24-hour rainfall	455 mm
Number of deaths	464
Number of affected persons	4,846,417
Cost of damage	US$232.5M
Cost of assistance	US$3.01M

NDCC, 2009

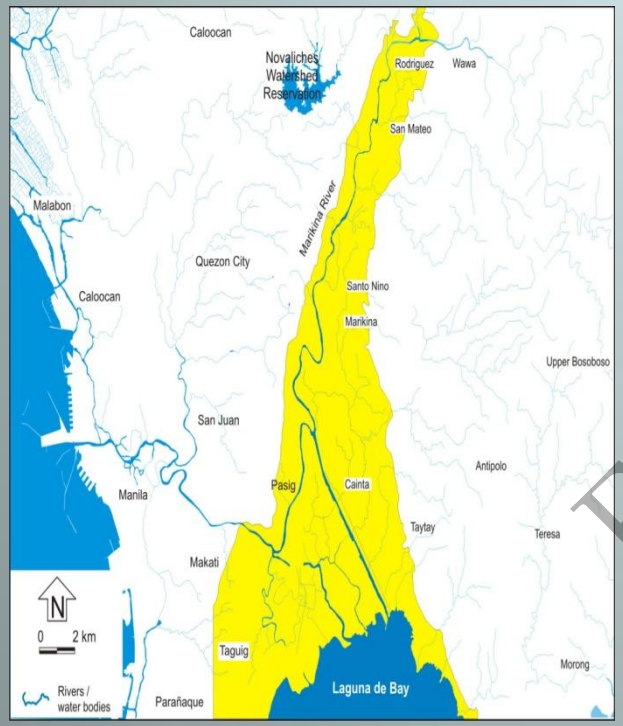
Natural hazards and impacts

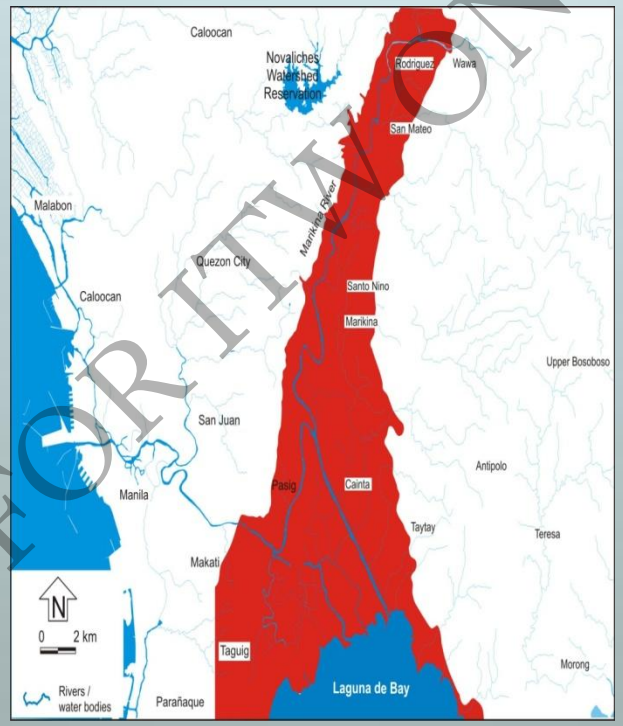
Sentinel Asia



Natural hazards and impacts

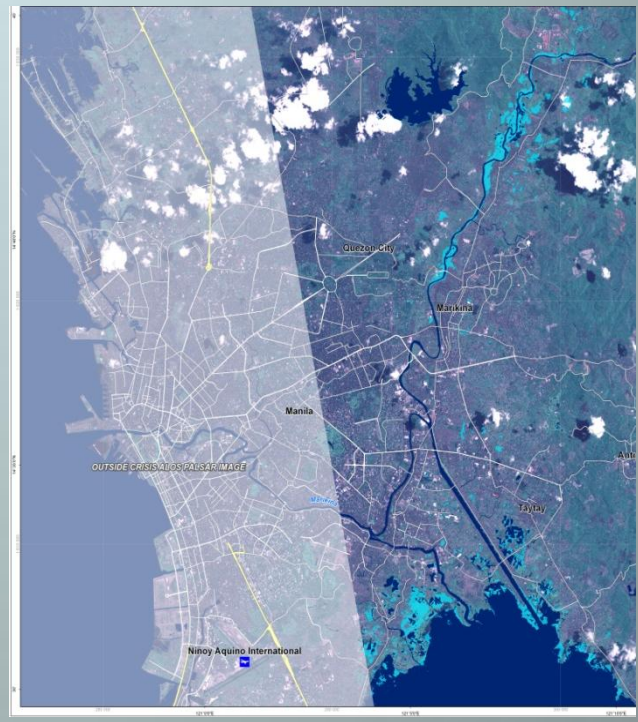
50- and 100-year flood maps





De los Angeles, 1995

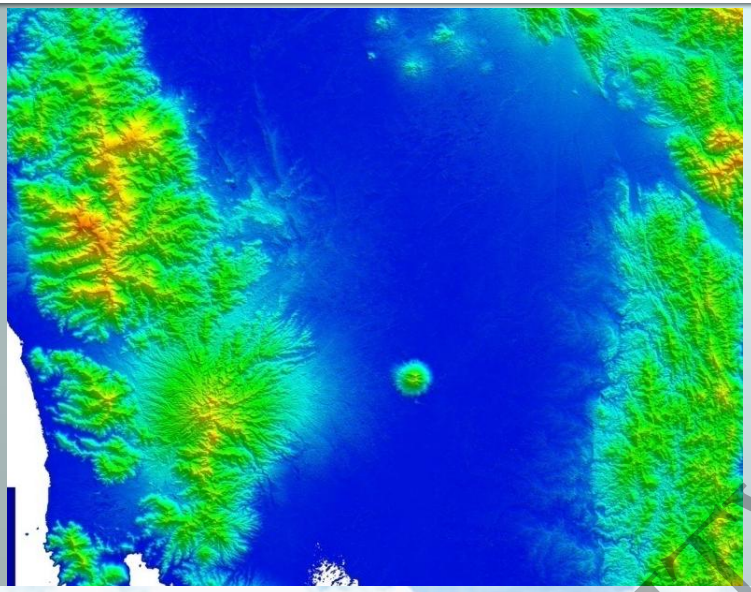
Actual flood map

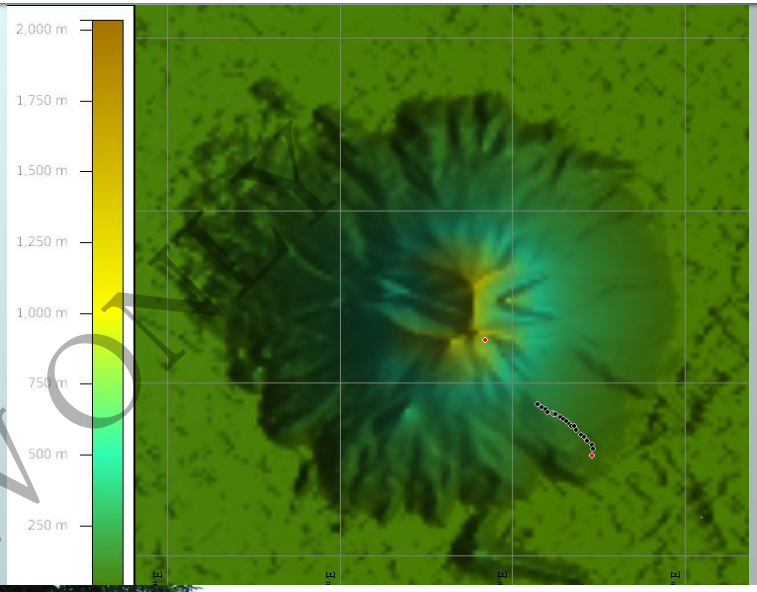


SERTIT, 2009

Natural hazards and impacts

Natural hazards and impacts





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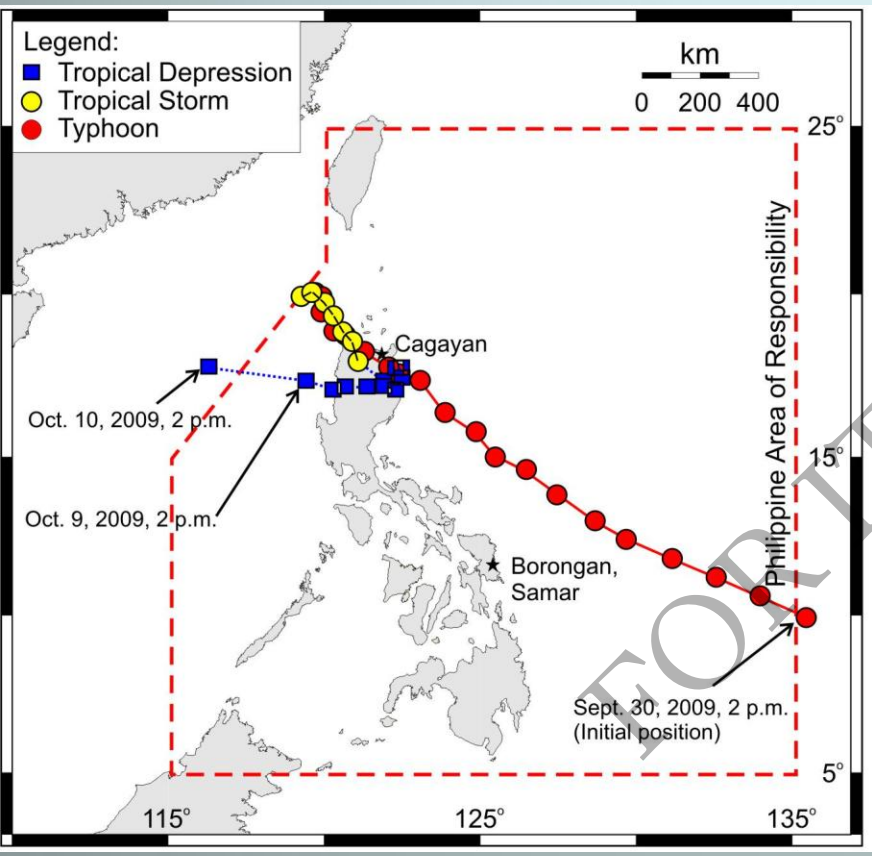
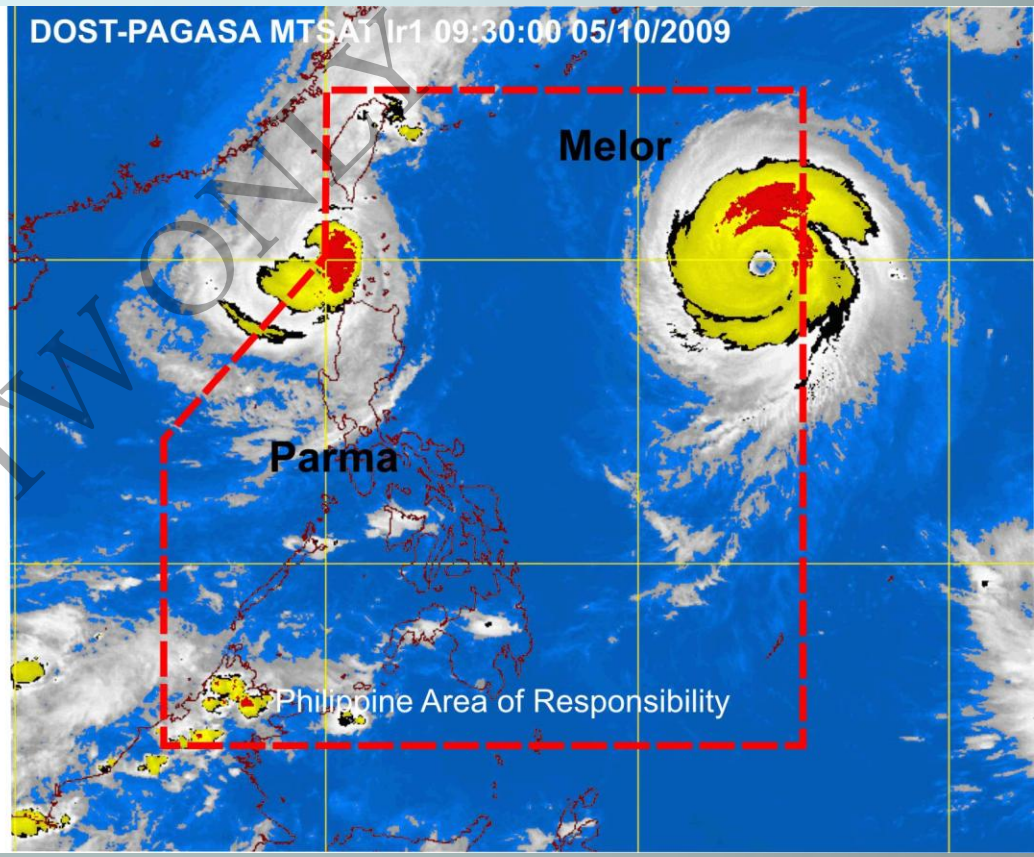
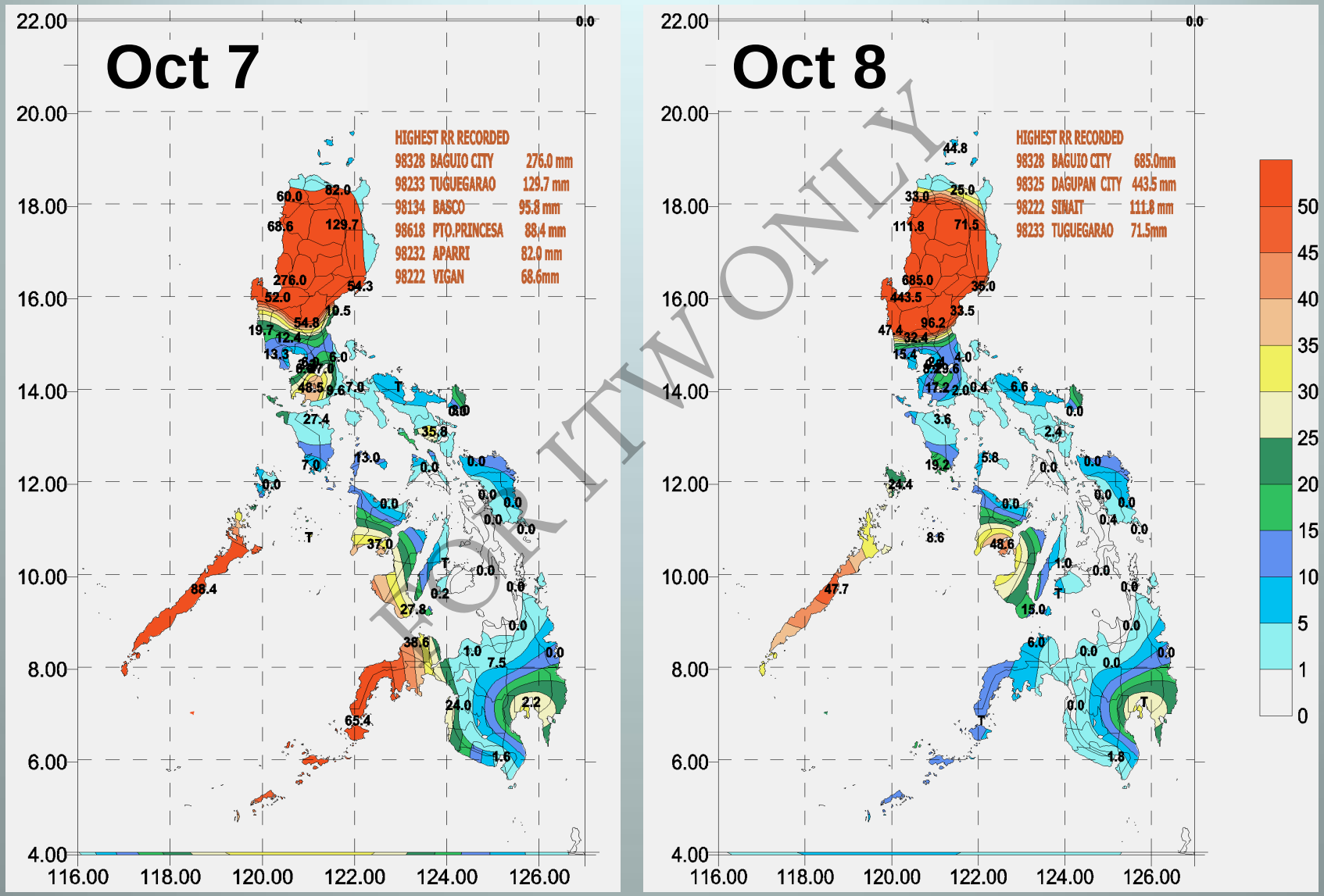
Typhoon Parma





DOST-PAGASA

Typhoon Parma



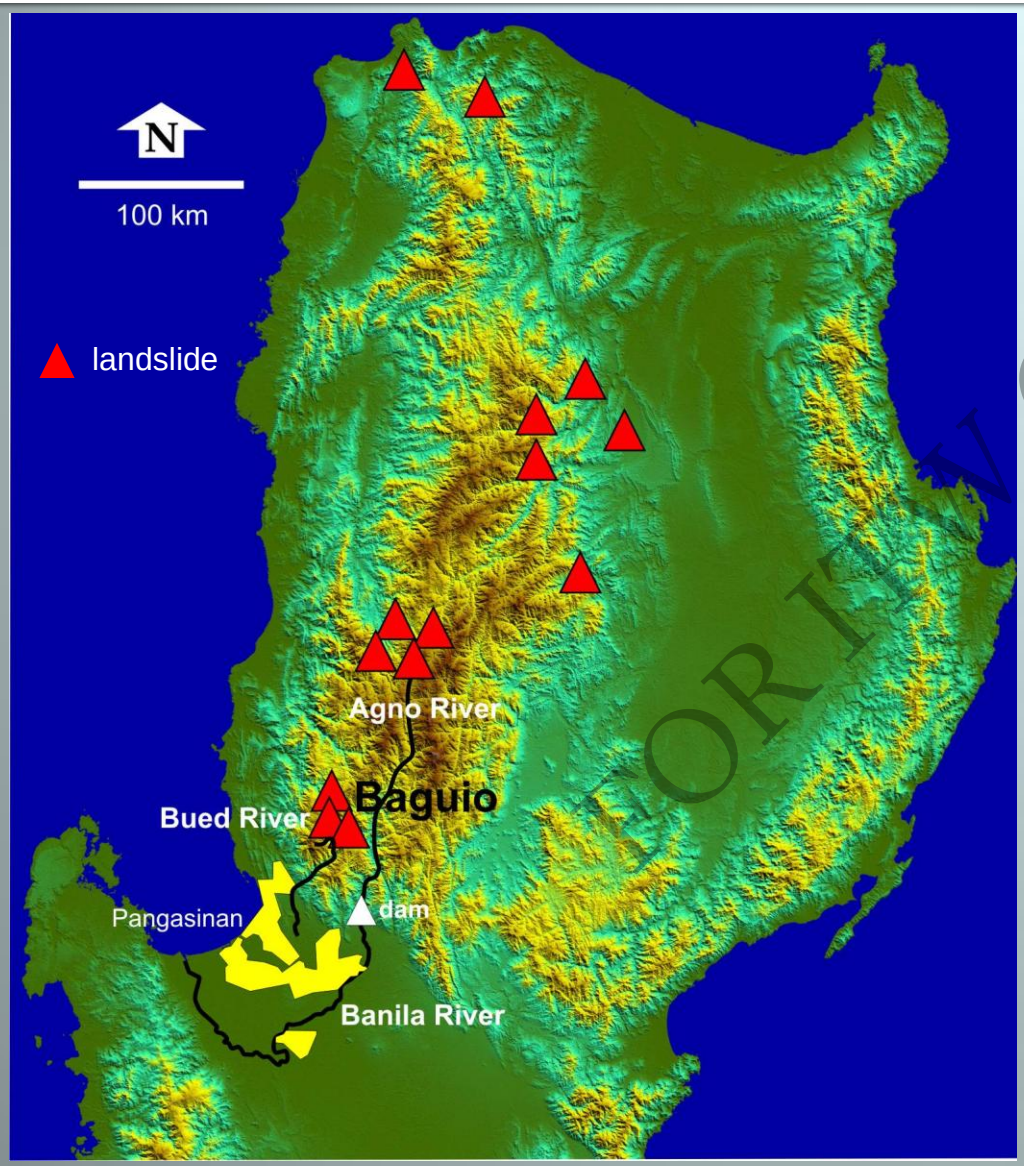
DOST-PAGASA

Typhoon Parma

	Oct 3 1st landfall	Oct 4	Oct 5	Oct 6 2nd landfall	Oct 7	Oct 8 3rd landfall	Oct 9	TOTAL RAINFALL
BASCO	32	1	9	70	96	50	11	268 (429)
SINAIT	169	417	126	75	69	112	5	974 (154)
LAOAG CITY	91	403	197	48	60	33	2	833 (143)
APARRI	155	0.0	8	35	82	25	0	305 (359)
TUGUEGARAO CITY	189	0.0	5	24	130	72	0	418 (324)
IBA	100	0.0	0	3	20	47	14	185 (273)
DAGUPAN CITY	160	8.0	T	36	52	444	35	734 (200)
CLARK FIELD	58	T	0	7	12	32	0	109 (377)
BAGUIO CITY	531	38	5	260	276	685	61	1856 (462)
CABANATUAN CITY	65	0	2	2	55	96	2	223 (207)
BALER RADAR	14	0	0	0	11	34	0	58 (498)
CASIGURAN	15	0	0	1	54	35	0	105 (541)

DOST-PAGASA

Natural hazards and impacts



Natural hazards and impacts

Natural hazards and impacts

Maximum winds	195 kph
24-hour rainfall	531 mm
Number of deaths	465
Number of affected persons	4,500,000
Cost of damage	US$570M
Cost of assistance	US$1.6M

DOST-PAGASA; Cruz, 2009

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Disaster response

Natural DM Organization and Coordination System: Current Situation

Department of National Defense

Office of Civil Defense

National Disaster Coordinating Council

Regional Disaster Coordinating Council

Provincial Disaster Coordinating Council

City Disaster Coordinating Council

Municipal Disaster Coordinating Council

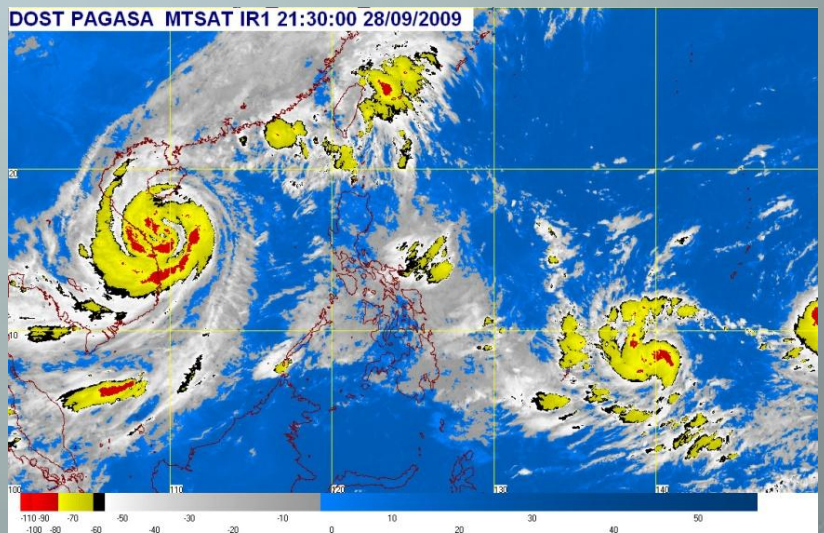
Barangay Disaster Coordinating Council

Ensure effective and efficient implementation of the National Calamity and Disaster Preparedness Plan

Disaster response

State of calamity

- Geographic setting
- Risk denial
- Disaster risk management was wanting
- System overwhelmed



Disaster response

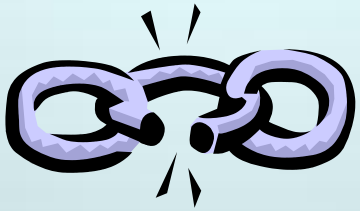
Aggravating circumstances

- Urban growth and informal settlers
- Inadequate sewerage system and flood control infrastructures
- Overwhelming of the system
- Rescuers were victims themselves

Disaster response

Enhancing Communities' Capacity to Confront Extreme Geo-Meteorological Events at the Core of Climate Change

Disaster response

- National Government  Local Government
- Varying levels of awareness of climate change and related issues
- Different degrees of preparedness
- Disconcerted or duplicated efforts
- Uncertainty in some stakeholders as to their role

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Conclusions

- Impacts of natural hazards are a function of a community's sensitivity and resilience
- Disasters do not recognize political or geographic boundaries
- Regional, national and community-based disaster risk management protocols must be in place

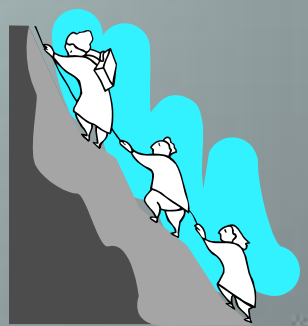
Future directions

- **Where do we want to go?**

  - Enhanced DRM capacity at the community level

- **How do we proceed?**

  - Enhance adaptive capacity (technology, information and awareness, human resource, infrastructure, governance and institutional support)



THANK YOU!