



APEC Center for Typhoon and Society (ACTS) : An Introduction

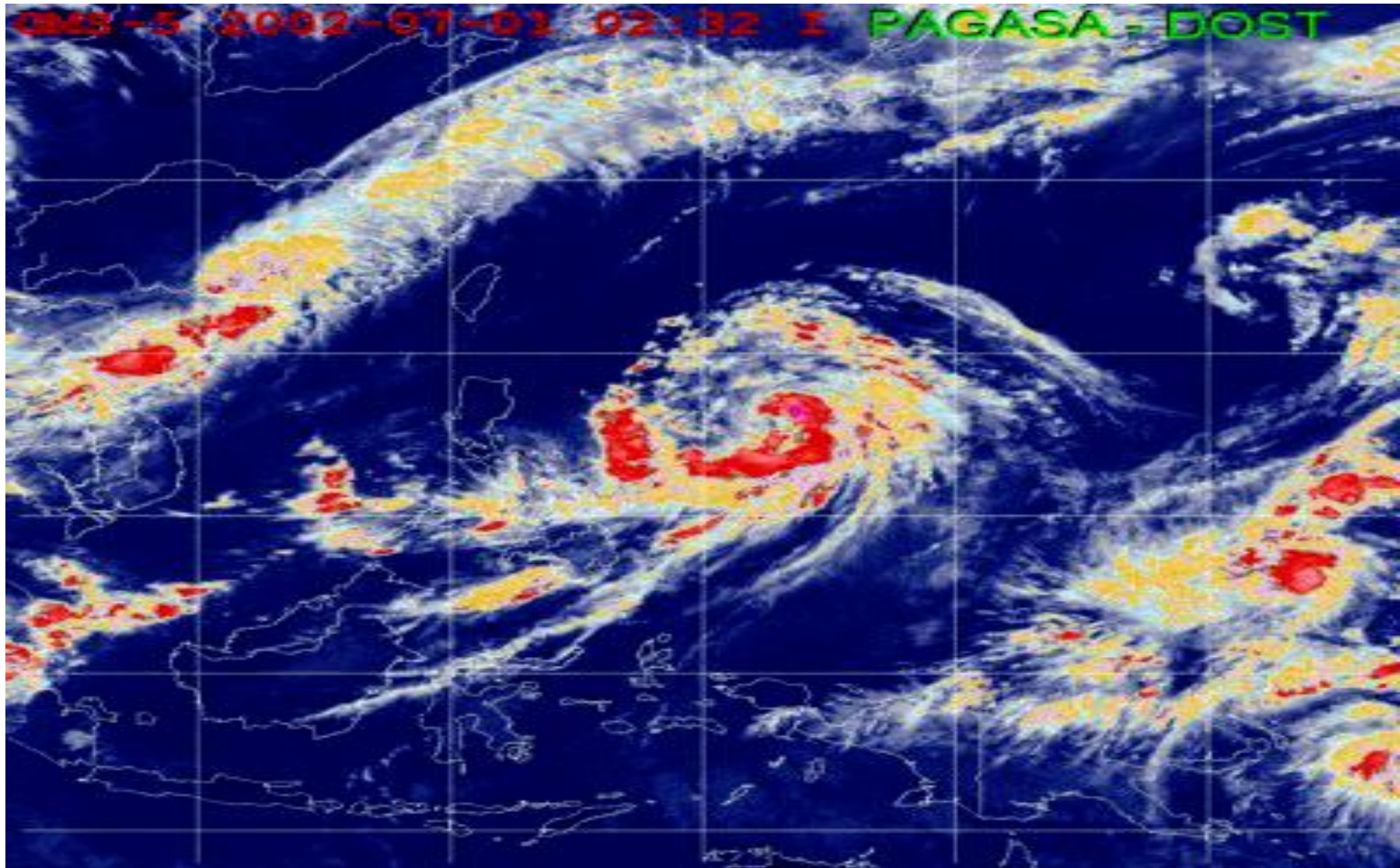
A concept has been proposed to APEC ISTWG

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Typhoon is a common threat to Asia-Pacific Region



Typhoon and Heavy Rain

LANDSLIDES



MUD FLOWS



Flood over the plain area



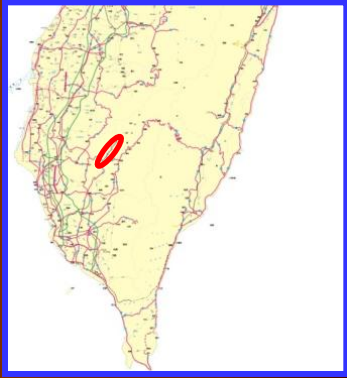
▣ Losses caused by single Typhoon or Hurricane (USD)

- ▣ 2003 Maemi (Korea) 0.6B
- ▣ 2005 Katrina (USA) 81 B (storm surge)
- ▣ 2006 Saomai (China) 2.5B (super typhoon)
- ▣ 2006 Larry (Australia) 1.3B
- ▣ 2007 Fitow (Japan) 1.0B
- ▣ 2009 Morakot (Chinese Taipei) 1.0B
- ▣ 2009 Parma (Philippines) 0.8B
- ▣ 2009 Ketsana (Vietnam) 0.8B

Scientific issues: Localization of quantitative precipitation estimation and forecast

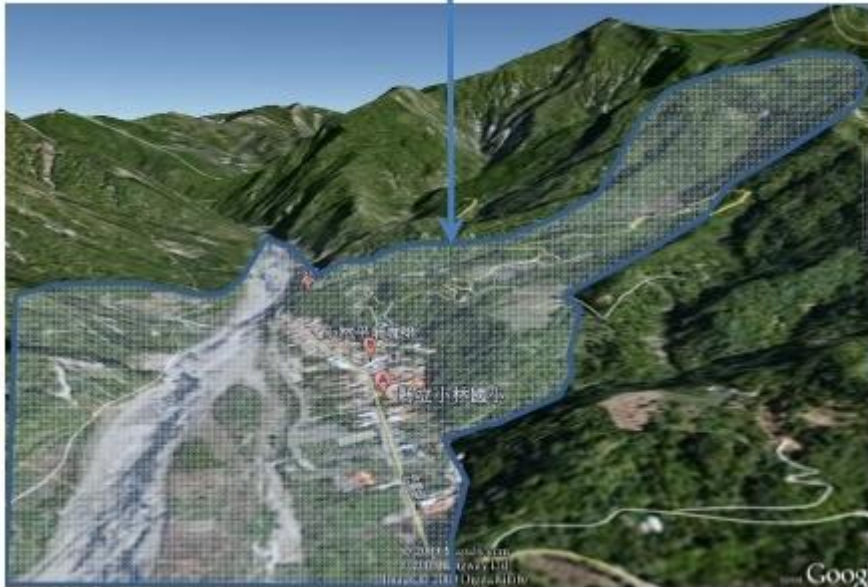
- ▣ Typhoon track forecast errors have been reduced to 100km/24 hours fcst
- ▣ Intensity and rainfall forecasts are still in a preliminary stage
- ▣ Intensity forecast (over the ocean) is a global issue, however,
- ▣ Rainfall forecast for landfall typhoons is regionally characterized and closely related to local conditions (e.g., monsoon, terrain, ..)

An example: Tragedy in Siao-Lin



- ▣ In Jiasian Township of Kaohsiung County
- ▣ More than 400 died and many missing
- ▣ Landslide, barrier lake and mountain collapse

Buried Area

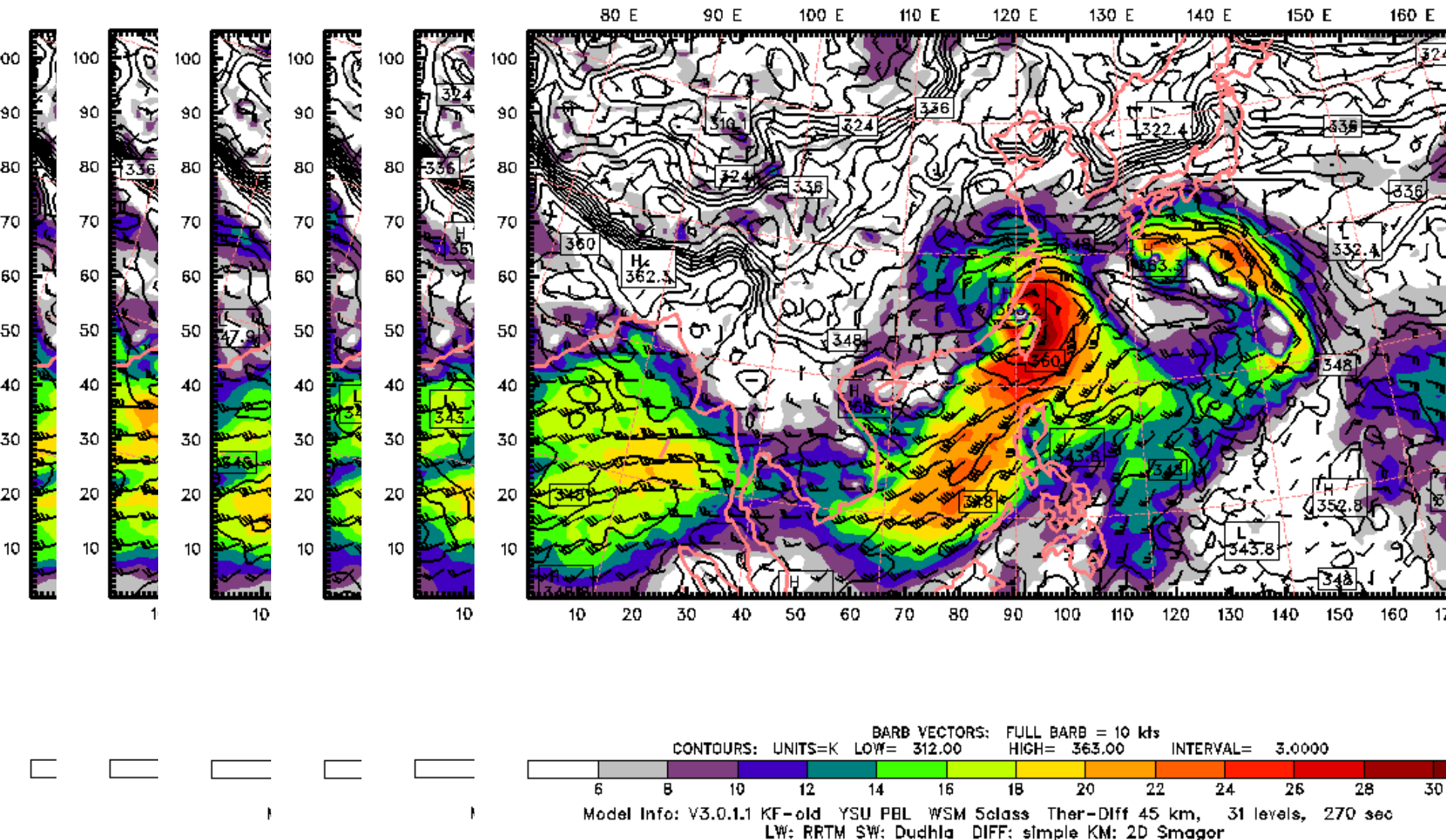


Before



After

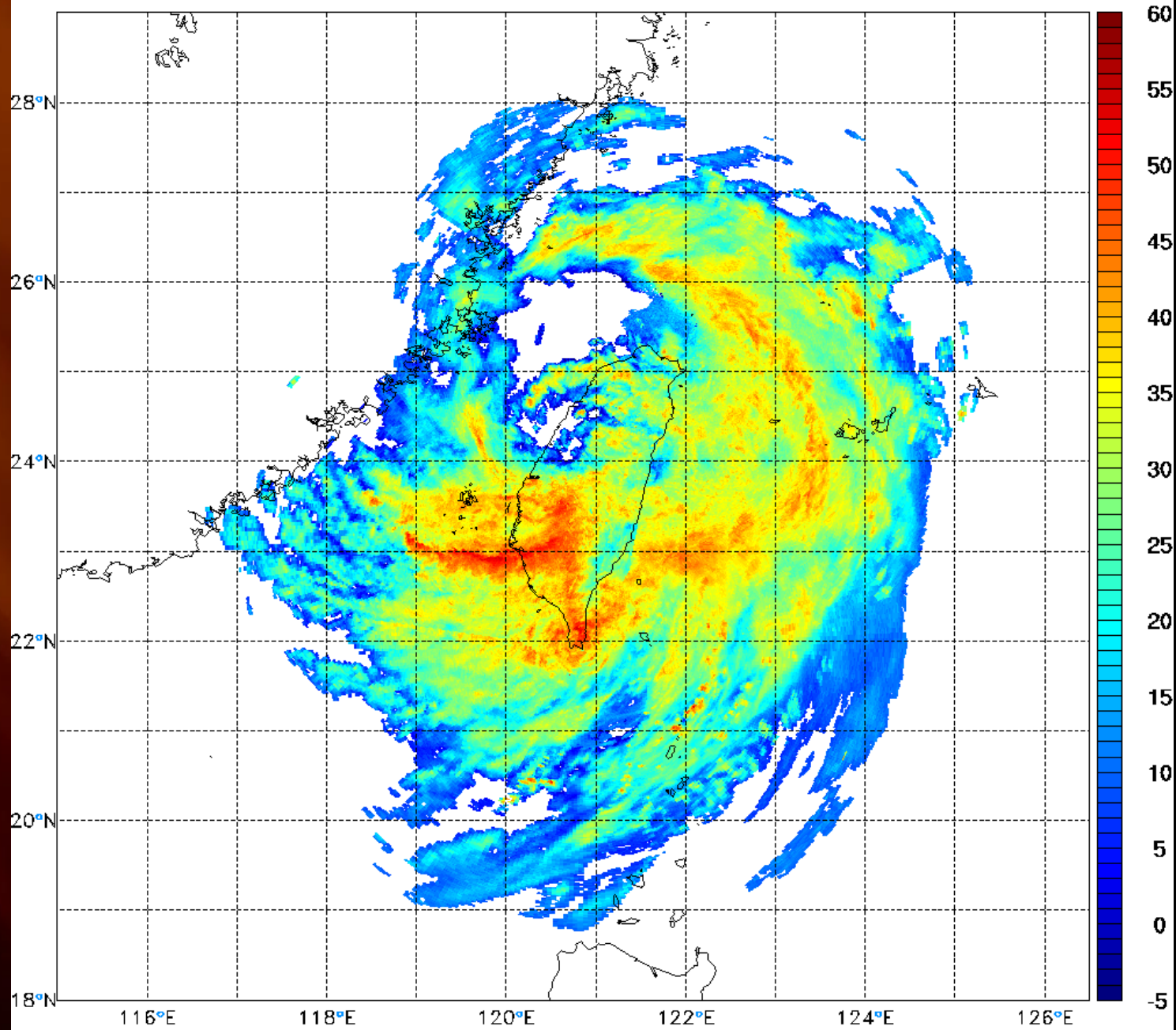
Typhoon-monsoon interaction, atmospheric moisture transport at 925 hPa

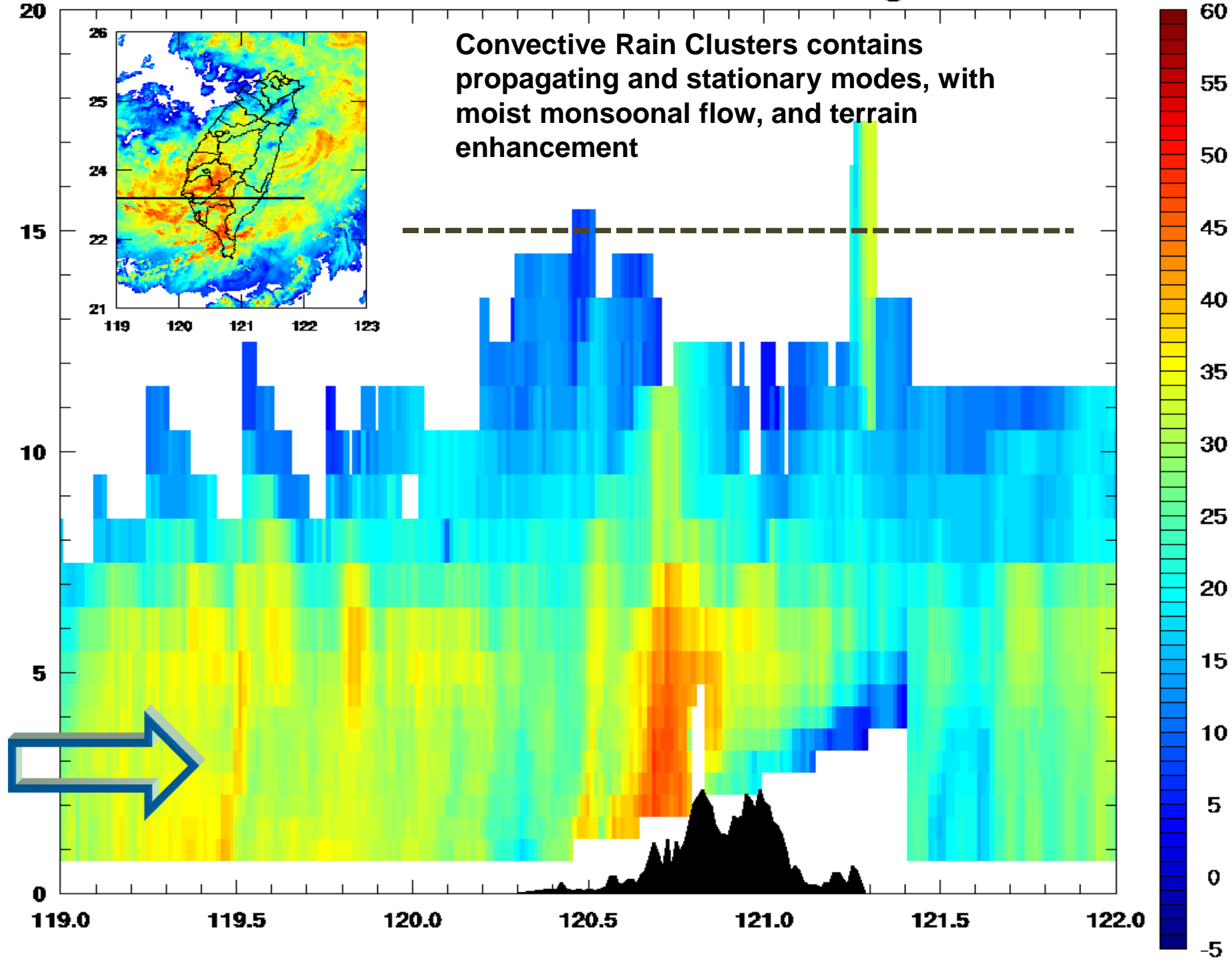


CWB QPESUMS

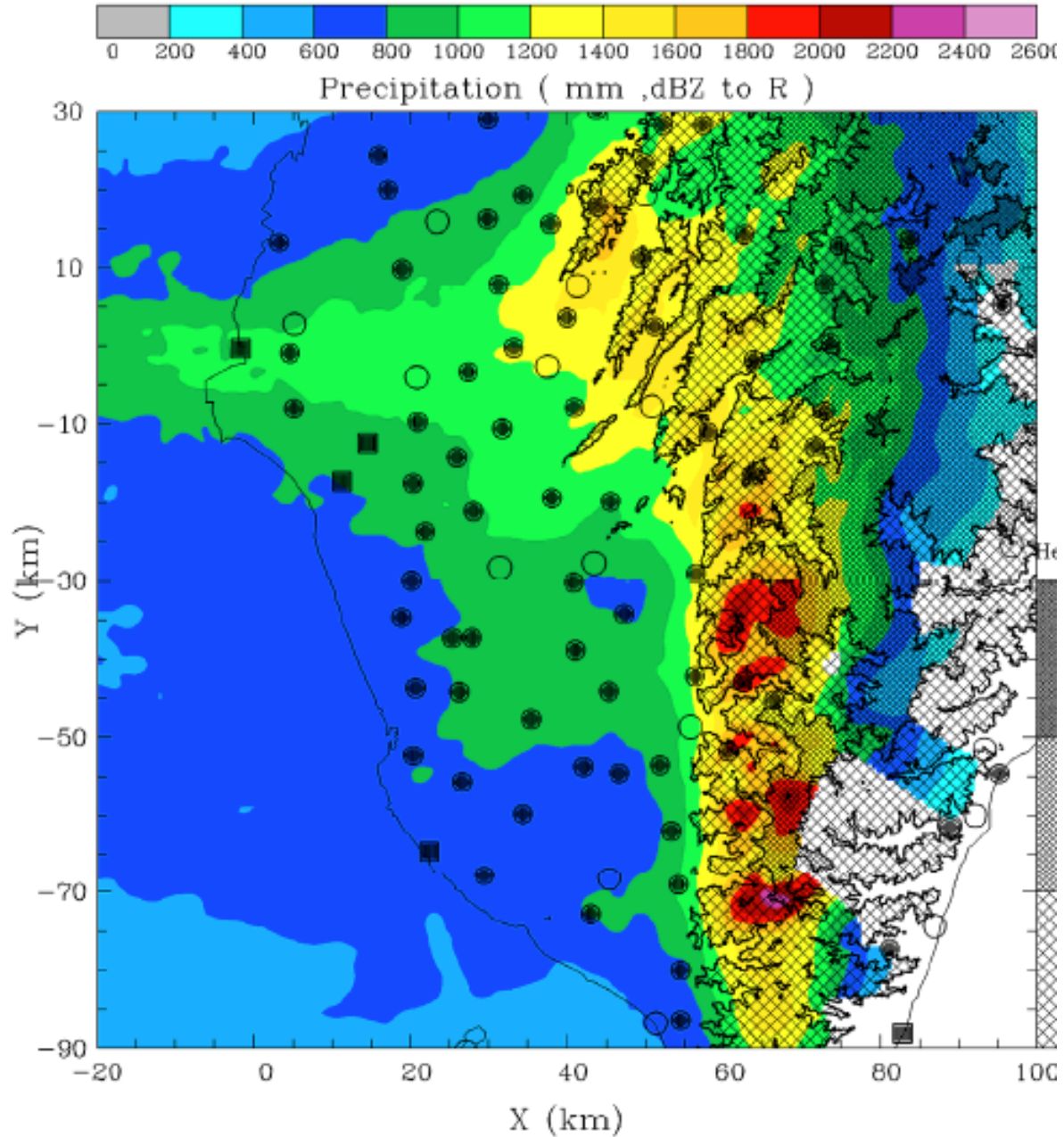
COMPOSITE REFL

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Major heavy rain locations are in narrow river basins.



Interaction of typhoon, monsoon, and complex terrain is characterization of typhoon induced disasters in **monsoon influenced regions**



Objectives of the Proposed Initiative

- **Improve the understanding** of typhoon and heavy rain characteristics in Asia-Pacific region, especially the interaction of typhoon, monsoon, and complex terrain
- **Establish a collaborative platform** on sharing typhoon and heavy rain-related information and experience among member economies of APEC
- **Coordination of research works on economic and societal impacts of typhoon**

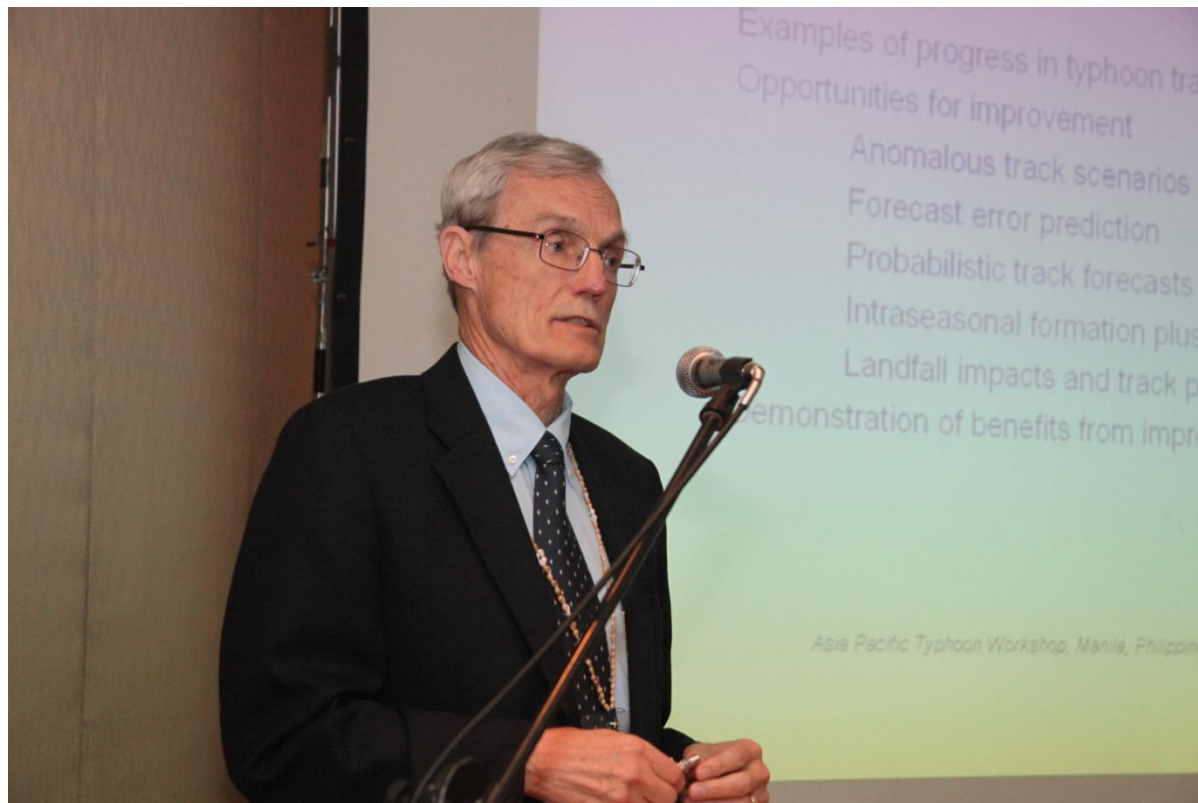
Asia-Pacific Typhoon Workshop 27-28 Jan 2010 at Manila

- More than 50 participants from operational Meteorological-Hydrological agencies and academic institutes in eleven APEC member economies attended the meeting. Consensus is reached for the function and objectives of the proposed center.



Asia-Pacific Typhoon Workshop

- **Keynote Speaker Prof. Russell Elsberry (Naval Postgraduate School)**
- Chair of the Tropical Cyclone Panel of the World Weather Research Program (WWRP) of World Meteorological Organization (WMO)
- Collaboration with world leading scientists on typhoon-monsoon-heavy rain research is encouraged



Workshop Conclusion

- The following name be chosen as the full name for the Center: “**APEC Center for Typhoon and Society**”, **ACTS** in short. This name highlights the importance of socio-economic dimension for the original proposed APEC Typhoon Center.

Objectives of the Initiative (modified)

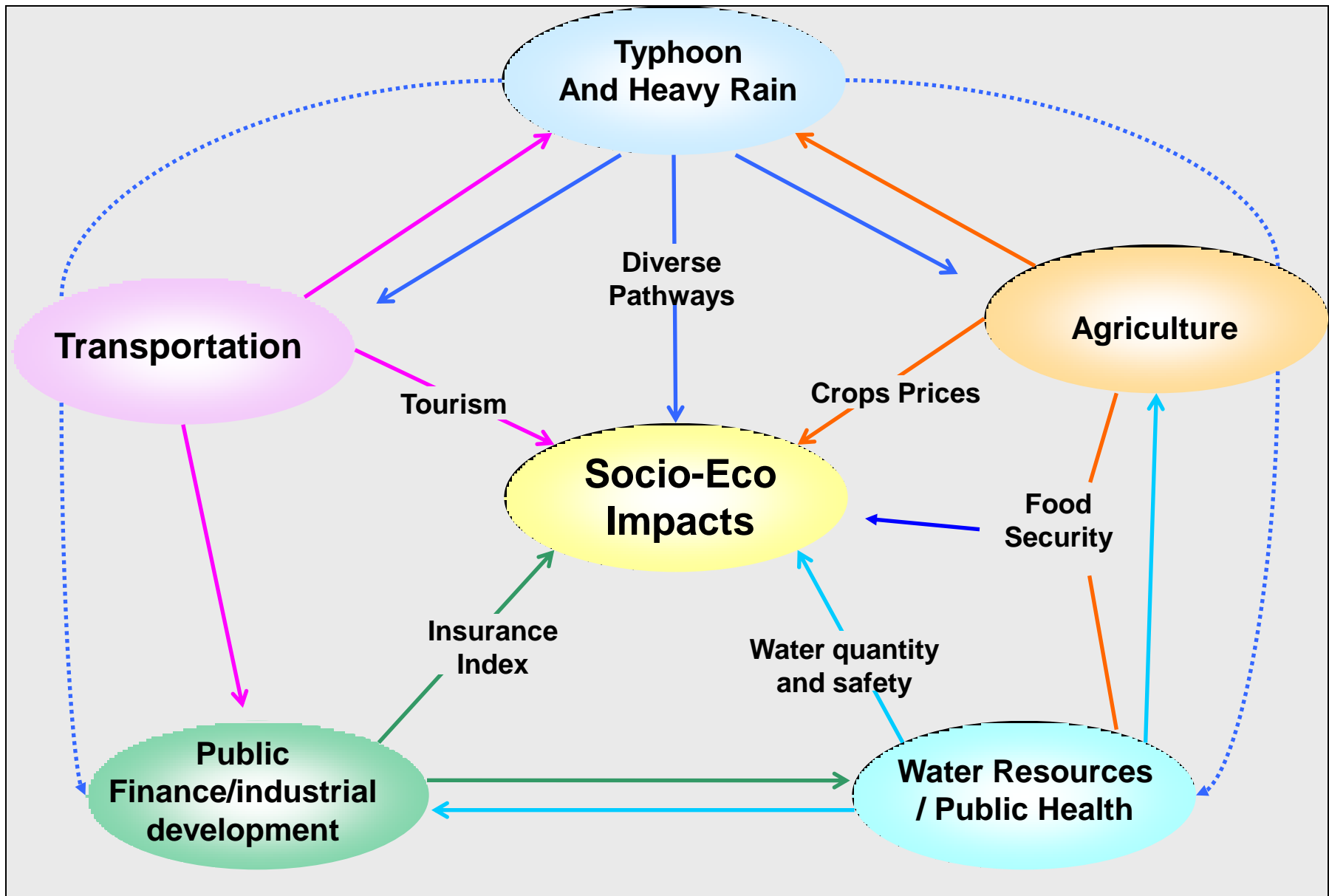
- **Localized Scientific Research on Typhoons** : ACTS will focus on its distinct regional features and various weather phenomena, e.g. interaction with monsoon, heavy rainfall and complex terrain, which are unique in Asia-Pacific area
- **A Platform for Data Exchange** : ACTS will serve as a platform to share more comprehensive data and scientific findings through the collaboration between organizations on the mitigation of the impacts of typhoons
- **Research on Socio-Economic Impacts** : ACTS will do researches on the social and economic impacts of typhoons, including those disasters associated with heavy rains.
- **Human Resources Training** : ACTS will undertake professional personnel training and organize seminars and forum regularly

Science-Tech Dimension

- A platform for collecting and exchange of technical and scientific information on typhoon in the academic and research aspects among the Asia-Pacific region
- Building the fundamental understanding of the heavy rain catastrophe under the interaction of typhoon, monsoon, and complex terrain

Socio-Eco Dimension

- Promote study of policy analysis on Socio-eco impacts of typhoon
- Vulnerability study and risk management
- Loss estimation and data bank establishment



ACTS outputs

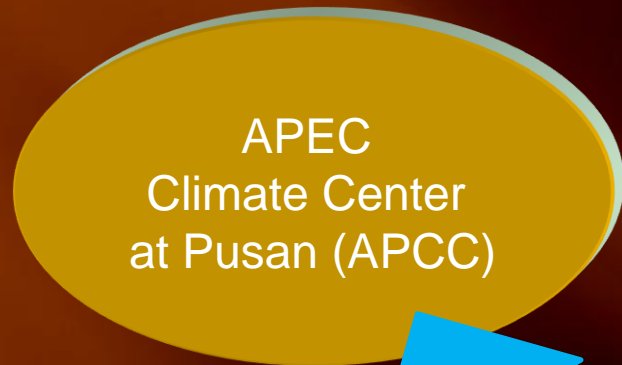
- Data sharing program
- Personnel training program
- Workshop and Symposium
- Visiting scientist/research program
- Publications

ACTS functions

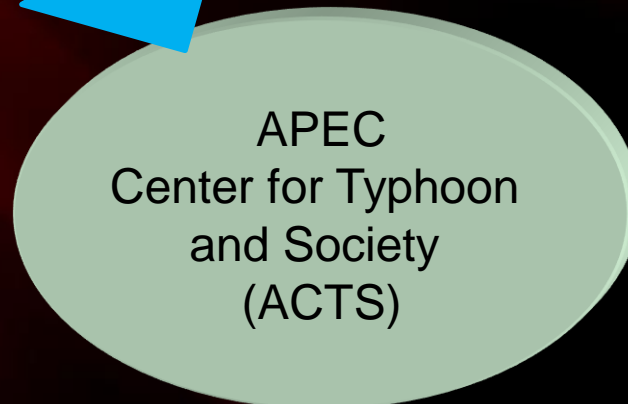
- ACTS is not an operational center
- The science-tech research of ACTS will be focused on landfalling typhoons with regional characteristics
- The socio-eco impacts will be a priority

Cooperation with existing programs (for example, APCC)

APEC
Climate Center
at Pusan (APCC)



APEC
Center for Typhoon
and Society
(ACTS)



- ▣ Seeking complementary efforts on climate-related topics with APCC

Activities to be conducted

- ▣ September 2010, ISTWG 39th meeting at Japan
- ▣ October 2010, the center will be starting to operate
- ▣ Forming ACTS: Steering committee/ scientific advisory committee/ working group/ affiliated scientists
- ▣ Feb. 2011, ACTS typhoon workshop (Taipei)

Thank you for your attention!

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