

Head: (https://www.researchgate.net/profile/Yuei-An_Liou)

Results of recent 5-year research: (<https://scholar.google.com.tw/citations?user=ejgPYziAAAAJ&hl=zh-TW>)

Prof. Academician Yuei-An Liou was awarded double PhD in Electrical Engineering and Atmospheric, Oceanic and Space Sciences at University of Michigan. In 1996, he established Hydrology Remote Sensing Laboratory at CSRSR, NCU. His main research is to apply aerospace science and remote sensing technology to environmental issues, including urban heat island, hydrological cycles, natural hazards, eco-environment, etc. For the purpose of improving environmental sustainability by means of remote sensing technology, it is required to integrate multiple sensors to receive multi-scale remoted data. Based on the imagery data, further information can be extracted with data processing and image analyses with other observation data and geographical information systems. To elaborate effectiveness of remote sensing, by combining with respective physical models like atmospheric, land-use, hydrologic or statistical models, environmental sustainability, impacts and trends can be further analyzed and estimated.



**Academician & Distinguished Professor
Yuei-An Liou**

Research: (https://www.researchgate.net/profile/Yuei-An_Liou)

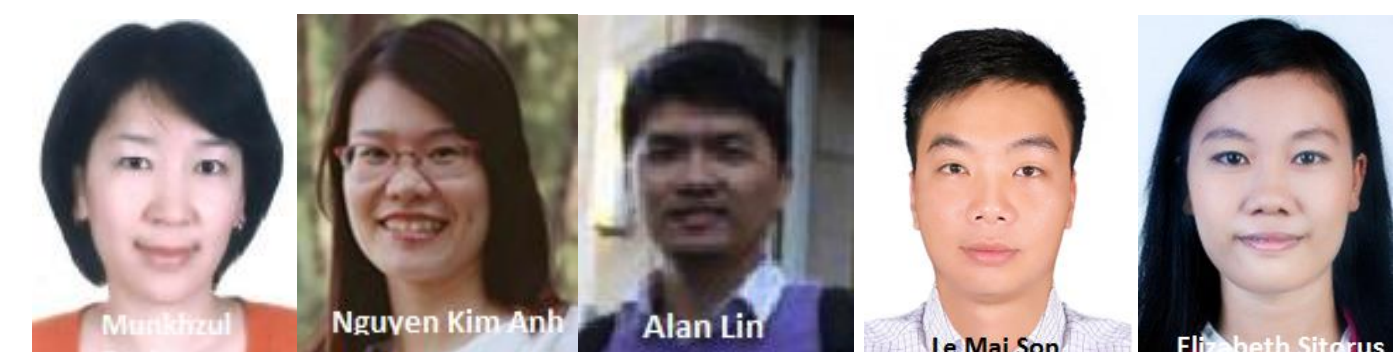
- Applications of **advanced airborne and spaceborne remote sensing** to key environmental issues such as **carbon sequestration in urban area**, **heat island**, **hydrological cycles**, as well as **natural hazards**.
- Integration of **multiple sensors** to take data with multiple scales and multiple physical measures, such as multispectral, hyperspectral, microwave, thermal, as well as LiDAR sensors.
- Development of various approaches of **data processing and image analysis** to extract information for subsequent entry to **statistical or physical models** to monitor the properties and trends of the environmental issues.
- Applications of **GNSS radio occultation (RO)** remote sensing data to study **earth's atmosphere and ionosphere research** for improving weather forecast and space weather prediction; and improvements of their data processing schemes.

Members:

Research assistants:



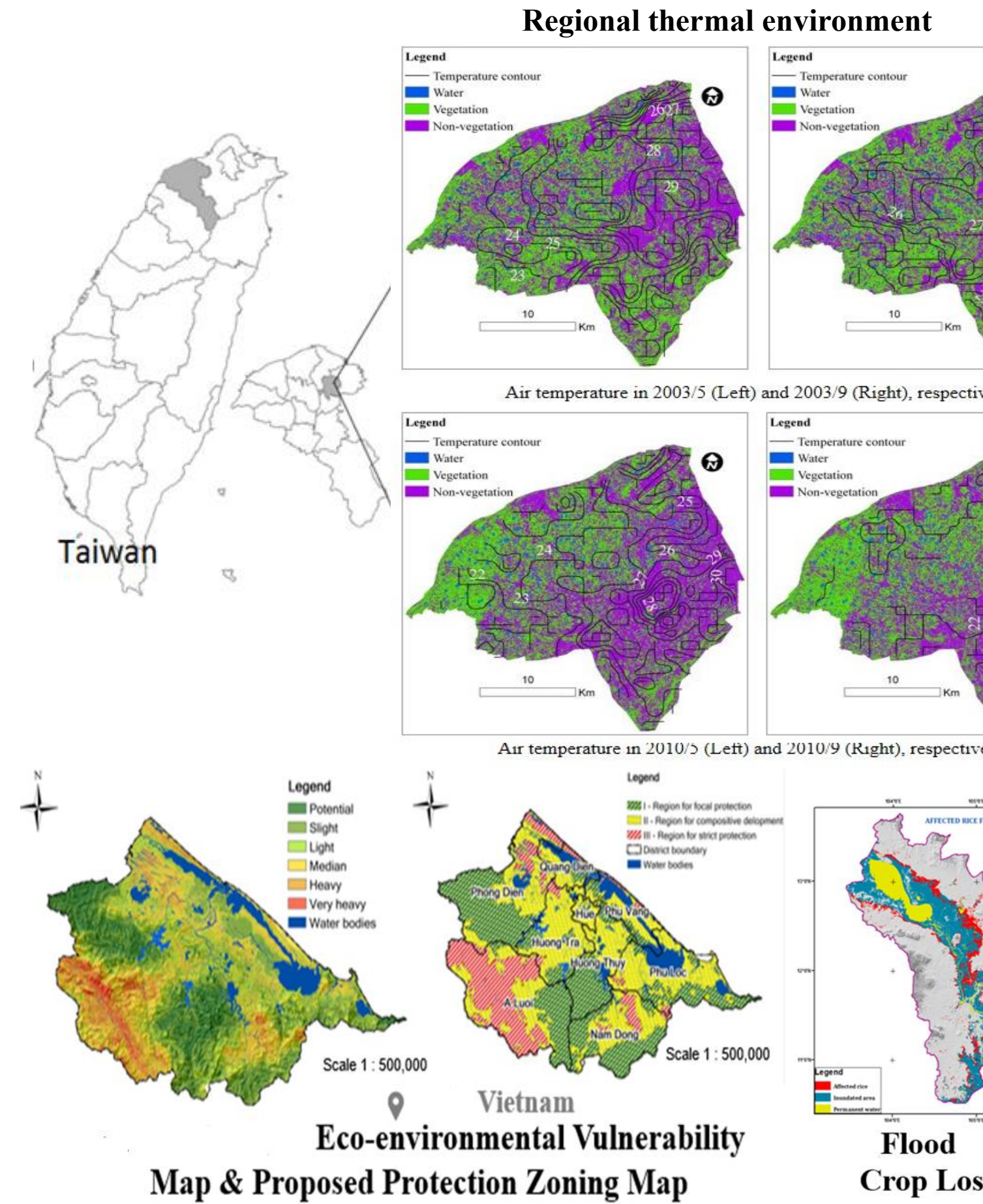
Graduate Students:



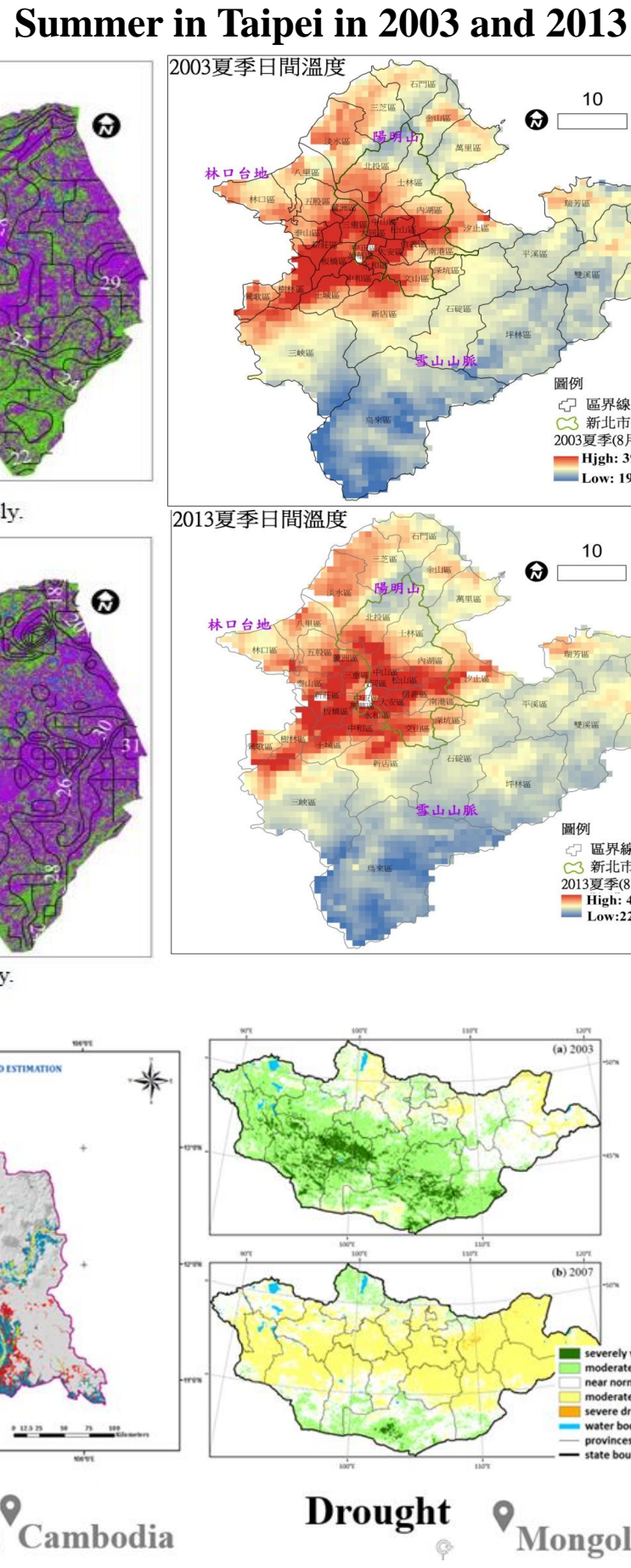
Equipment:



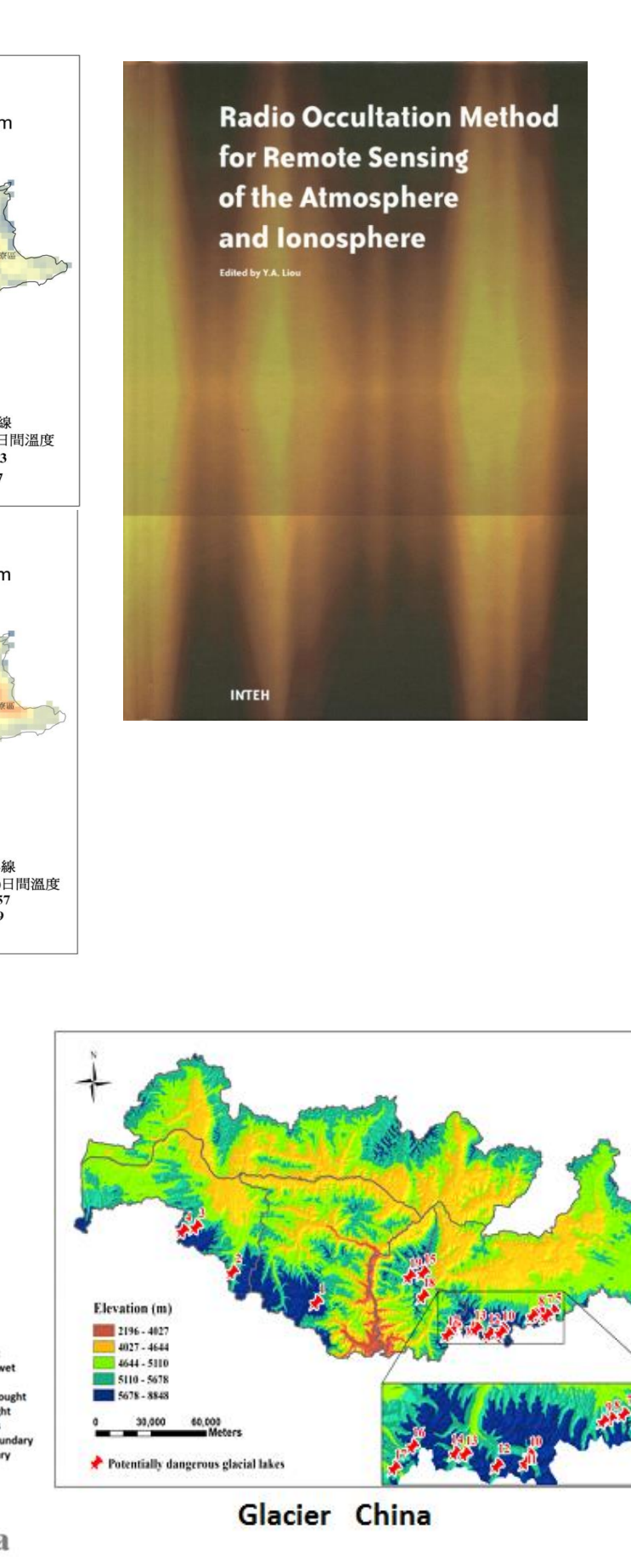
Eco-environmental monitoring and disaster reduction



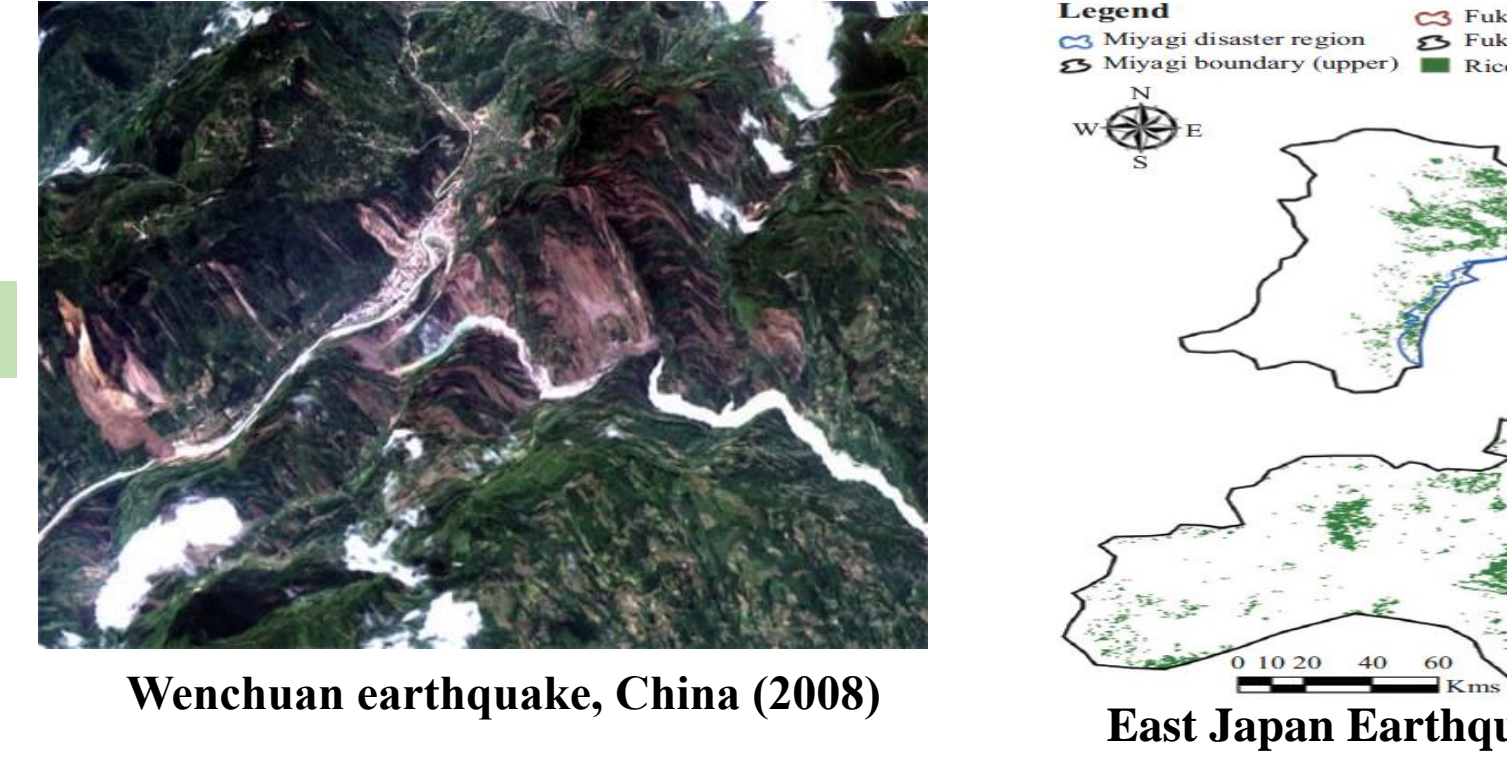
Urban heat island



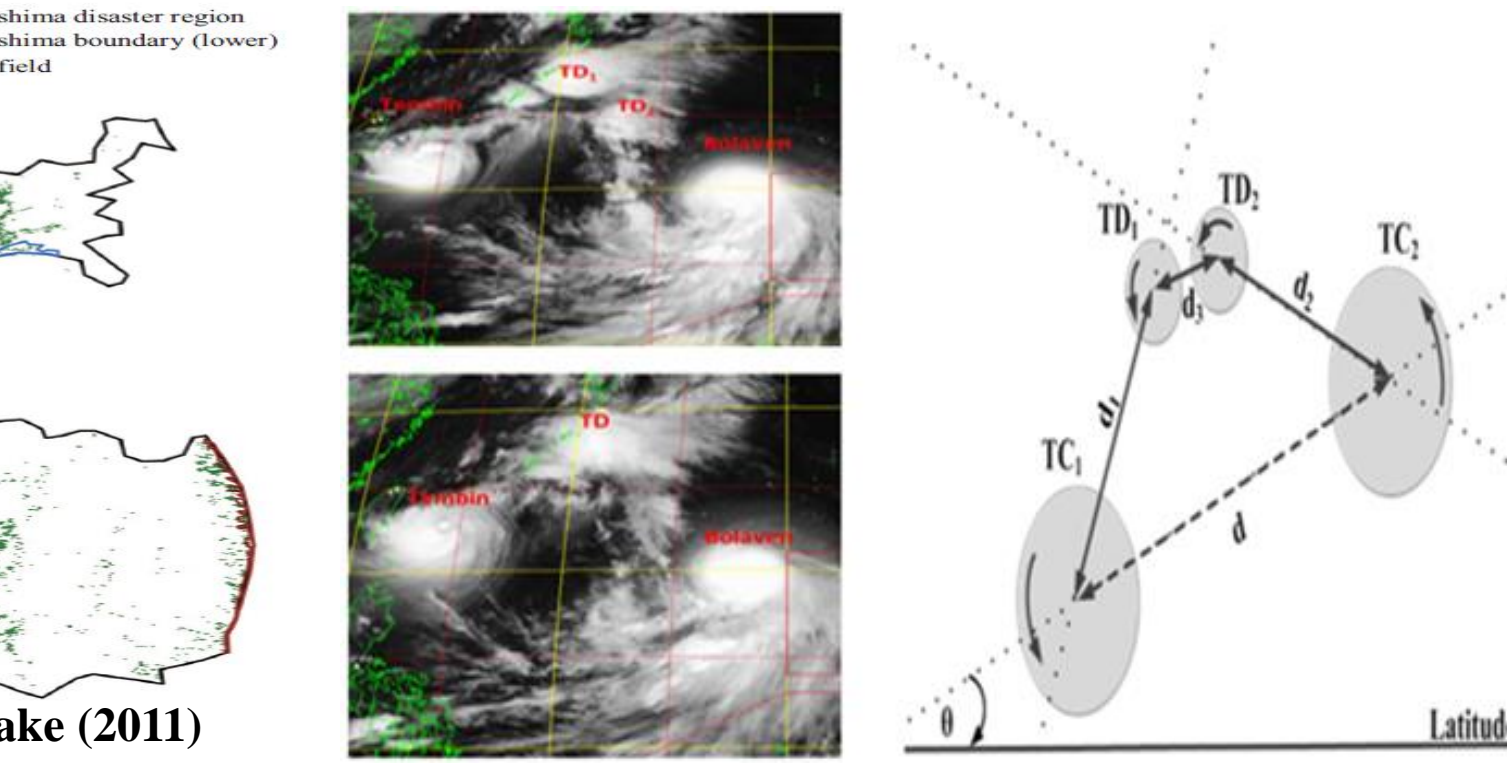
GNSS-RO



Disaster monitoring, assessment and mitigation



Hydrological hazard monitoring



Honors and Awards: (https://www.linkedin.com/in/yuei-an-liou-3530a83a?trk=nav_responsive_tab_profile_pic)



Publications: (<https://scholar.google.com.tw/citations?user=ejgPYziAAAAJ&hl=zh-TW>)

- **Liou, Y.-A.***, J.-C. Liu, et al., 2016: Generalized empirical formulas of threshold distance to characterize **cyclone–cyclone interactions**, *IEEE Transactions on Geoscience and Remote Sensing*, Volume 54, Issue 6, pp. 3502-3512.
- Nguyen, A. K., **Y.-A. Liou***, M.-H. Li, and T. A. Tran, 2016: Zoning **eco-environmental vulnerability** for environmental management and protection. *Ecological Indicators*, 69, 100–117.
- Cheng, C.-H., F. Nnadi, **Y.-A. Liou***, 2015: A regional land use **drought index** for Florida, *Remote Sensing*, 7(12), 17149–17167.
- Dao, Phuong D. and **Y.-A. Liou***, 2015: Object-based **flood mapping** and affected rice field estimation with Landsat 8 OLI and MODIS data. *Remote Sensing*, 7(5), 5077-5097.
- Pavelyev, A.G., **Y.-A. Liou***, et al., 2015: Application of the locality principle to **radio occultation studies** of the Earth's atmosphere and ionosphere, *Atmospheric Measurement Techniques*, 8, 2885–2899.
- **Liou, Y.-A.*** and S. K. Kar, 2014: **Evapotranspiration** estimation with remote sensing and various surface energy balance algorithms – a review, *Energies*, 2014, 7 (5), 2821-2849; doi: 10.3390/en7052821.

International Activities and Collaborations: (<http://www.iceo-si.org.tw/>)



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