NTU-MESO/P3 Lab
研究重點：臺灣災害性天氣中尺度過程

指導老師: 周仲島教授

國立台灣大學大氣科學系中尺度P3研究室

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Scientific interests

1. Monsoon season, Meiyu season, approaching frontal system, embedded mesoscale convective systems, heavy rainfall events, big disasters associated with flood and land slide, hazard mitigation.

2. Typhoons, especially landfalling typhoons, terrain effects on changes of track, intensity, and wind and rain distributions.

3. Severe local storms, mountain-generated organized multicellular storms, hail storms, tornadoes, and others.

4. QPF and QPE, hazard mitigation technology development, forecasting and monitoring technology development

綠島中尺度實驗 (2001, NSC), GIMEX

東亞中尺度系集預報系統 (2001, CWB+ WRA), MEFSEA
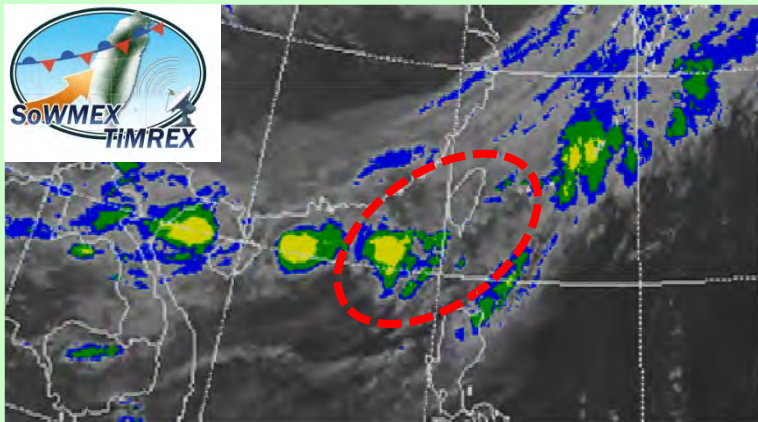
環島都卜勒雷達網聯 (2002 CWB+ WRA), QPESUMS

機載投落送計畫 (2003 NSC+CWB), DOTSTAR

福爾摩沙三號衛星 (2005 NSC+NSPO), FOMOSAT III/COSMIC-GPS

車載X波段雙偏極雷達 (2006 NSC), TEAM_R

西南氣流實驗 (2008 NSC+ CWB+ NSF-NCAR), SoWMEX/ TiMREX

山區降雨量測計畫 (2014-, 南高屏地區) NTU VPR + NCU TEAMr + CAFWW/TTFRI-CPOLs + CWB QPESUMS

台灣天氣研究計畫 (2000-2016) (Taiwan Weather Research Program): by advancing our theoretical, observational, and modeling capacity in order to improve high impact weather prediction accuracy.
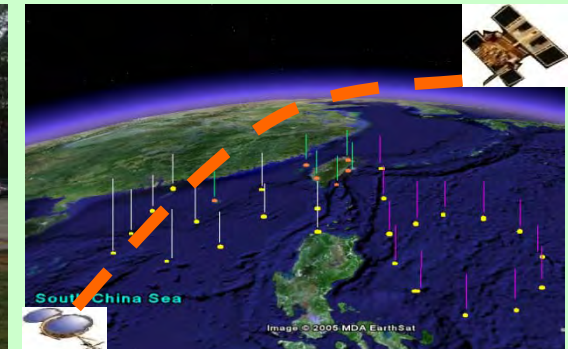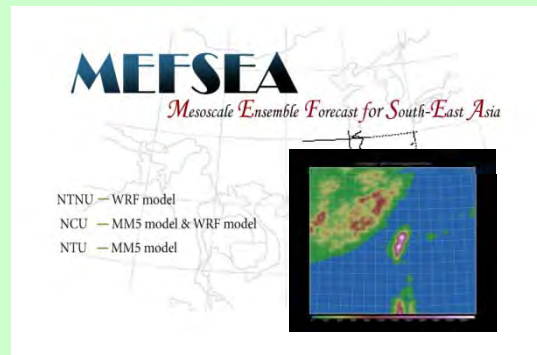
system in south Taiwan (1552 LST, 31 May 2008, RHI-38 degree), graupel/rain mixture at low levels

0752 UTC 31 MAY 2008 4km
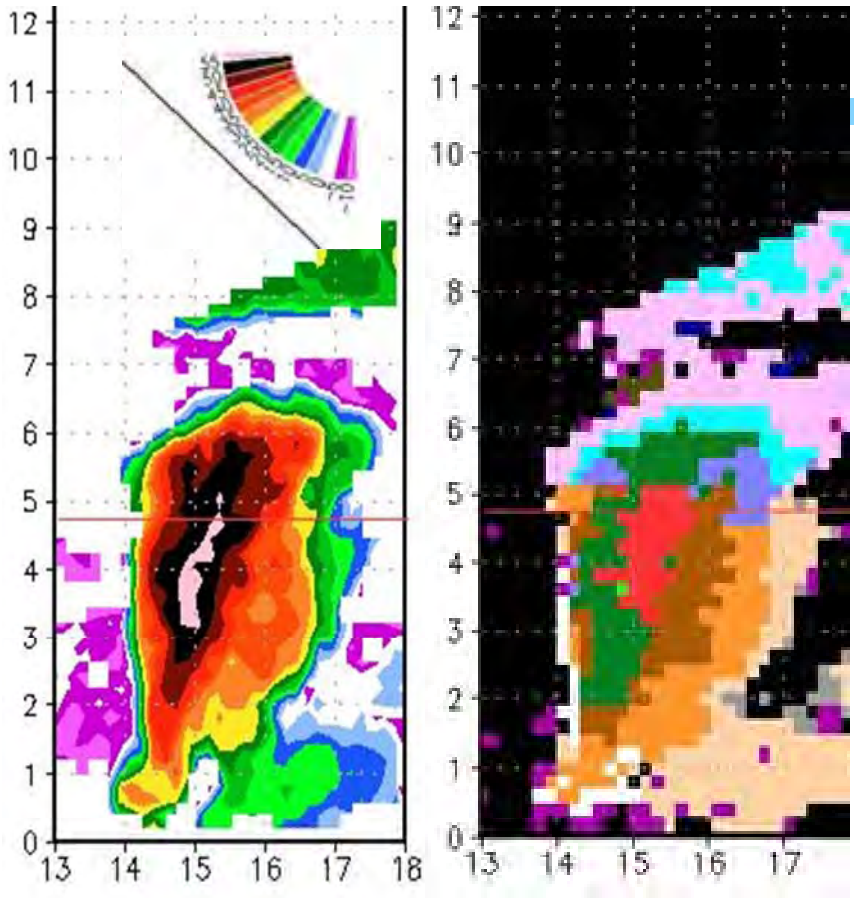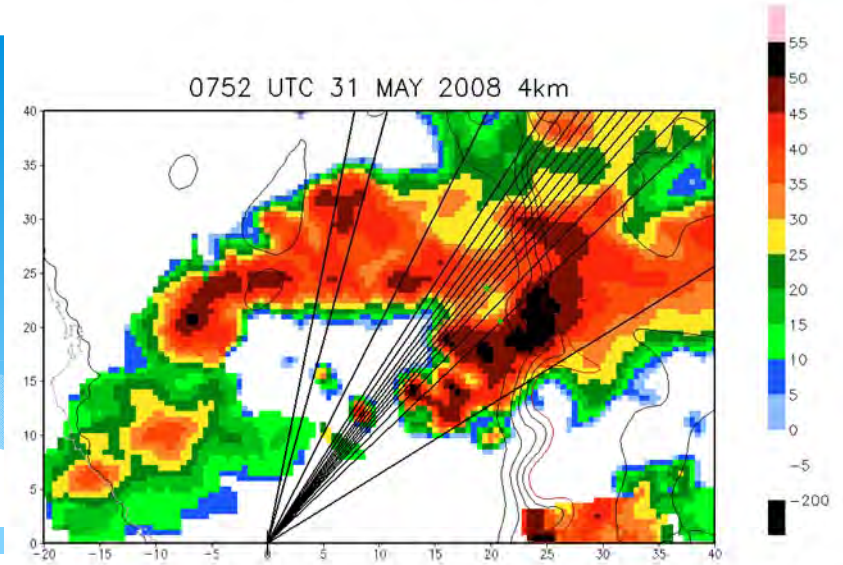
cluuter
second trip
insects
no supercoolded water
irregular ice crystal
ice crystal
wet snow
dry snow
graupel/rain
graupel/small hail
rain/hail
hail
heary rain
middle rain
light rain
drizzle
cloud
nothing

Vr Z_{DR} ρ_{HV} K_{DP}

2013-07-22-02:42
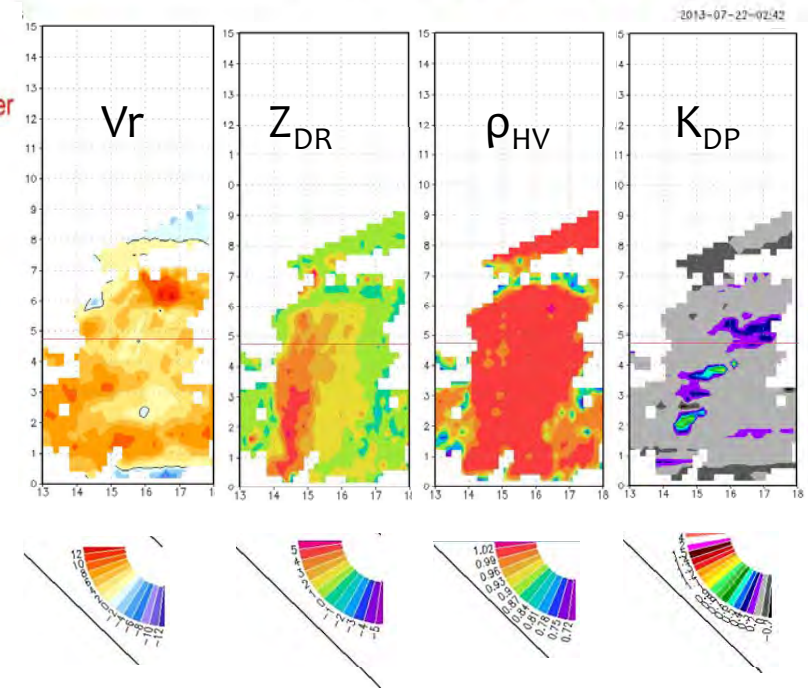
Raindrop size vs ZDR: 2.7mm (1.5dB); 3.45mm (2.0dB); 5.30mm (3.6dB); 5.8mm (4.0dB); 7.35mm (5.5dB)

臺灣天氣雷達一覽圖

TTFRI CPOL

NTU-VPR

CAA

CCK

MKO

RCCG

RCWF

RCHL

GI

RCKT

Taiwan Doppler Radar Network Update (2014)

- CWB, 4 S-band Doppler radars
- Air-Force, 3 C-band Doppler radars with two of them are dual-polarized;
- CAA, 1 C-band Doppler radar;
- NTU, 1 S-band VPR
- NCU, 1 C-band and 1 mobile x-band (TEAM-R) polarimetric radar
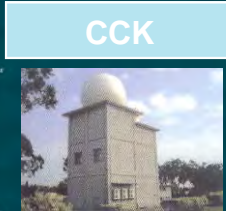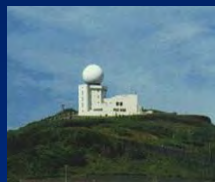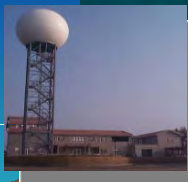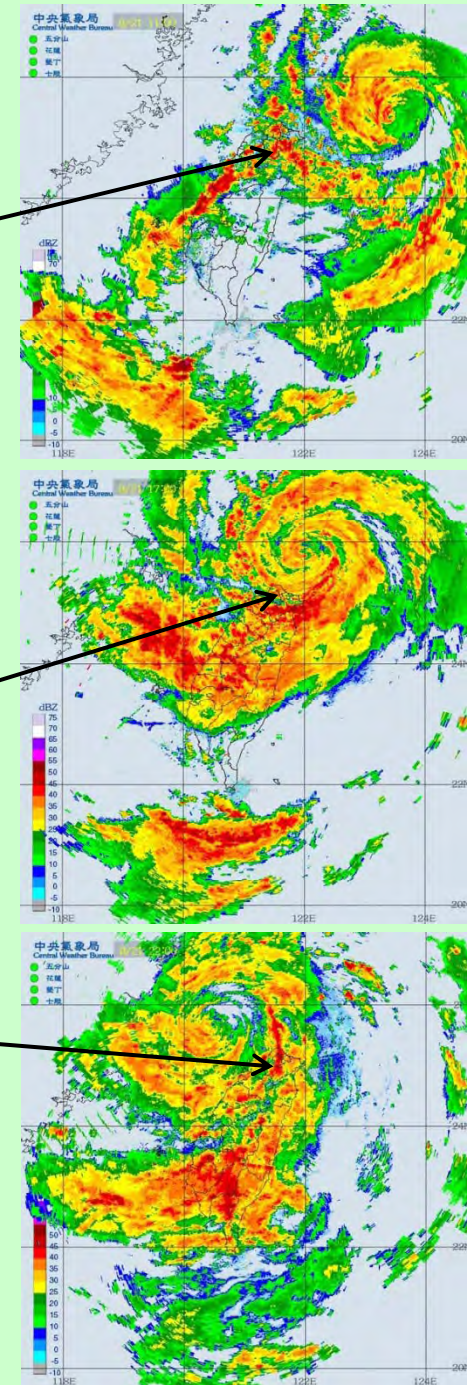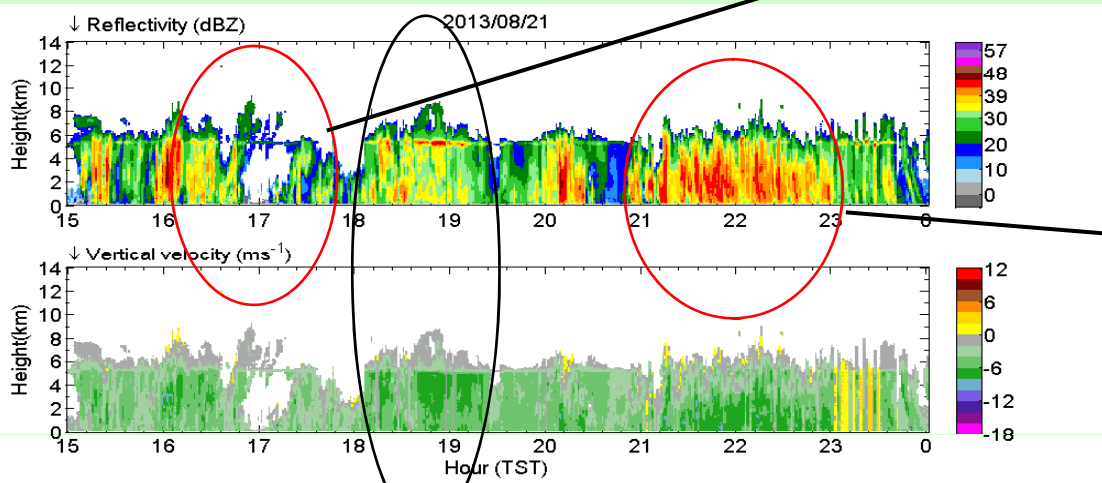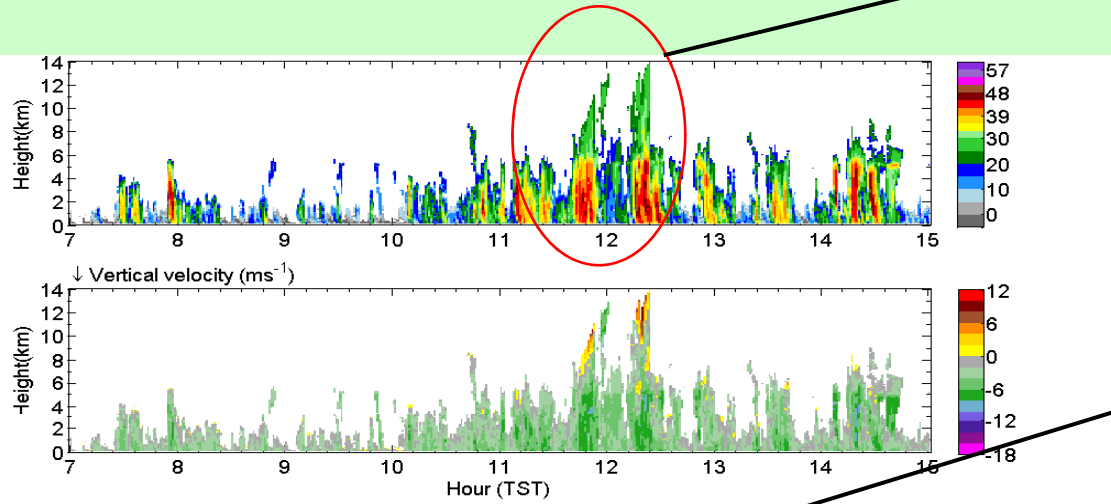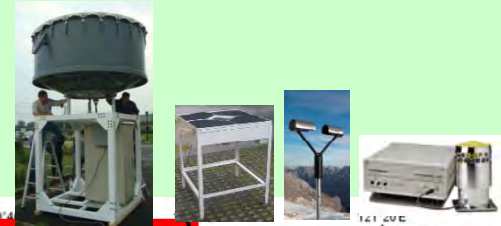- WRA+CWB, 5 C-band polarimetric radars (new)

Vertically-pointing radar observations of typhoon Trami rainband characteristics, 21 August 2013

2014山區降雨量測實驗:高雄楠梓仙溪小林村
水庫進水量>>雨量站量測雨量總值

Doppler radar

Rain profiler
Disdrometer

Polarimetric
radar

Rawinsonde

**Mountain
precipitation
measurement
experiment**