# QPE Remote Sensing

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CSTARS - University of Miami

Quantifying, Predicting, and Exploiting Uncertainty Planning Meeting Kauai, Hawaii 12-16 January 2009



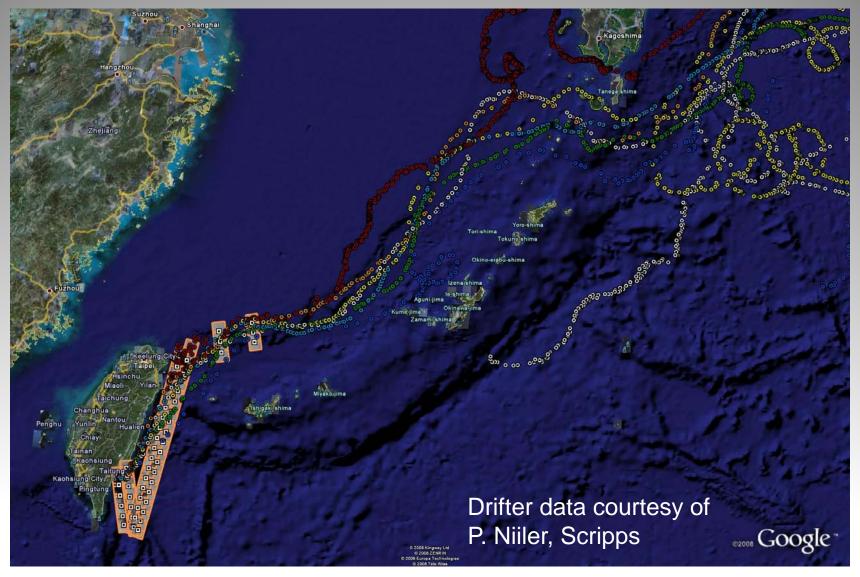






# History of Drifters starting 1 June 2008

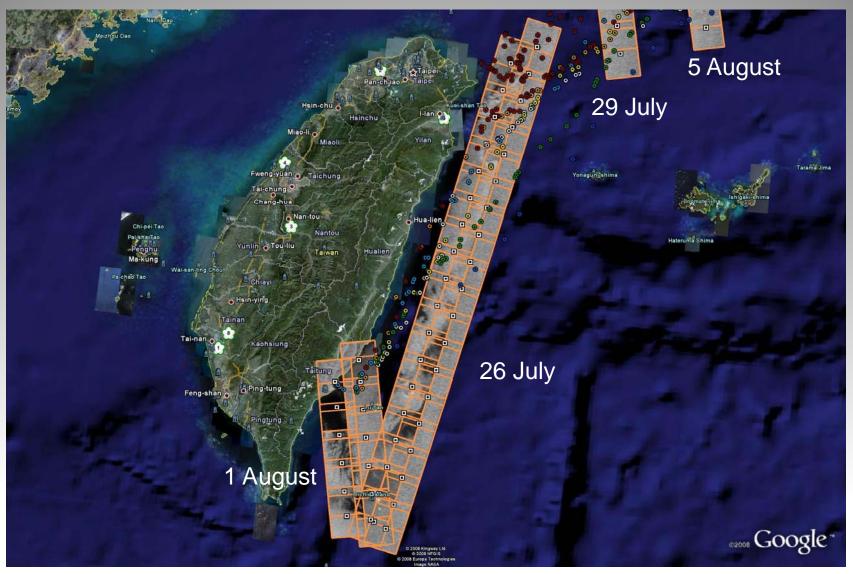






# RadarSat-2 Collections July and August 2008

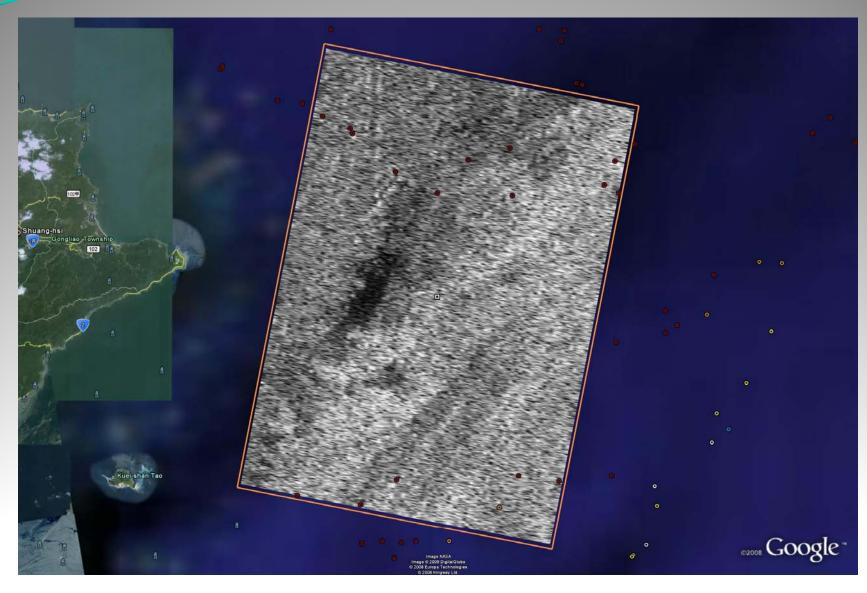






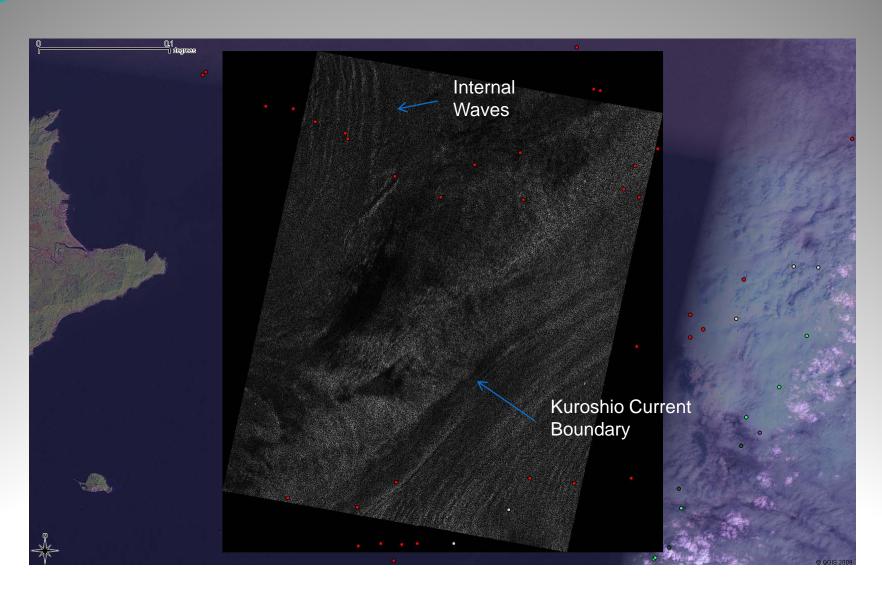
# RadarSat-2 Image Detail 3 m Resolution





# CSTARS Potential Drifter Overlay

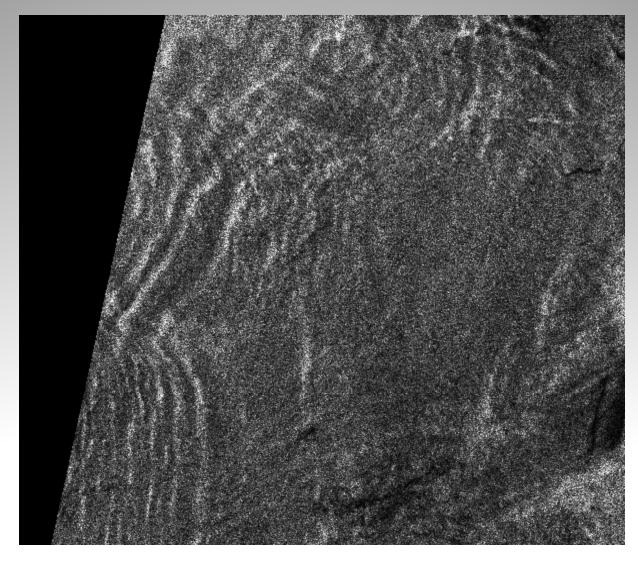








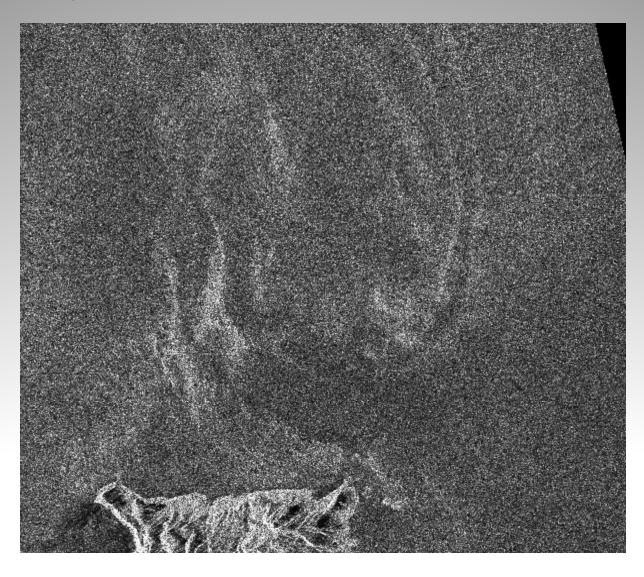
#### Internal Waves Near North East Taiwan







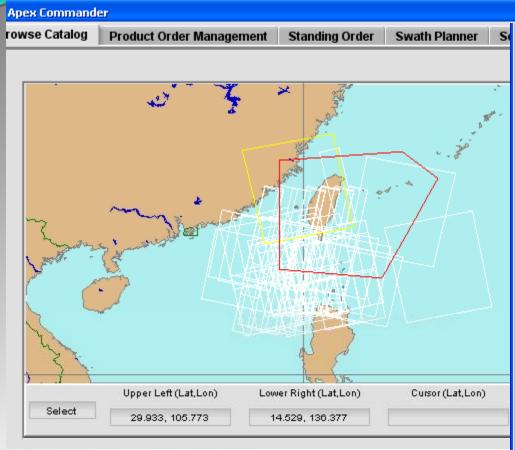
#### Ocean feature near Orchid Island Taiwan





### Archive Imagery at CSTARS





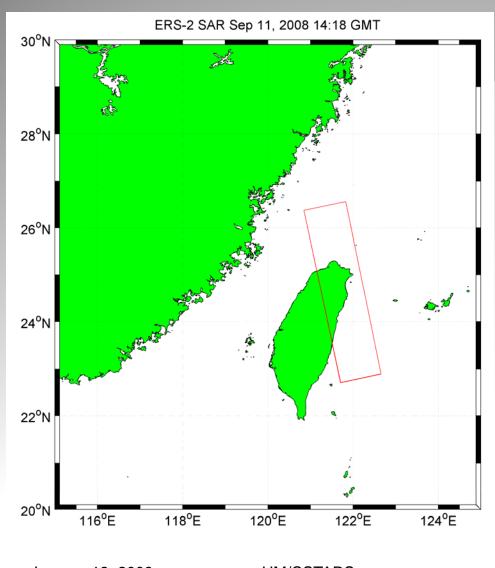
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IN_HANS_080816_E	ENVISAT1	ASAR	2008-08-16 14:04:31 L0
IN_HANS_e2_63670	ERS2	ERS2	2007-06-25 02:24:08 L0
IN_HANS_e2_63441	ERS2	ERS2	2007-06-09 02:27:00 L0
IN_HANS_e2_63398	ERS2	ERS2	2007-06-06 02:21:16 L0
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IN_HANS_e2_62525		ERS2	2007-04-06 02:38:35 L0
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IN_HANS_e2_62790		ERS2	2007-04-24 14:18:45 L0
IN_HANS_e2_63377		ERS2	2007-06-04 14:30:09 L0
IN_HANS_070525_R		RSAT1	2007-05-25 10:00:24 L0
IN_HANS_070525_R		RSAT1	2007-05-25 09:59:43 L0
IN_HANS_e2_62604		ERS2	2007-04-11 14:27:19 L0
IN_ENVISAT1_20070		ASAR	2007-04-29 01:47:48 L0
IN_ENVISAT1_20070		ASAR	2007-04-27 13:55:53 L0
IN_HANS_070425_R		RSAT1	2007-04-25 21:59:11 L0
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IN_HANS_070421_R		RSAT1	2007-04-21 09:52:10 L0
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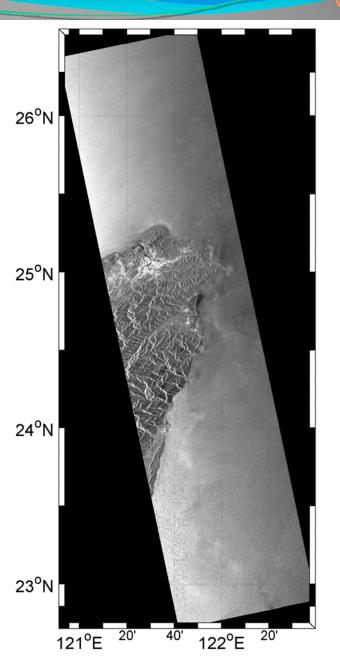
Collection mainly from NLIWI in 2007 Some in August/September 2008





#### ERS-2 Collection





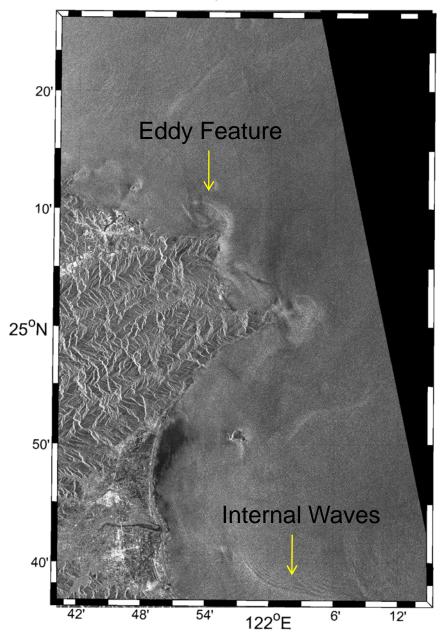
UM/CSTARS



#### ERS-2 Collection Details off Taiwan



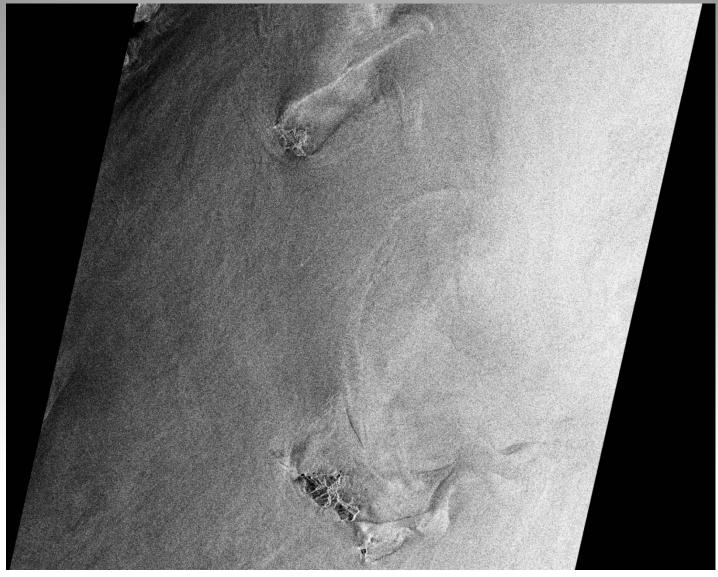






#### ERS-2 Collection Details of Lutao Orchid Island





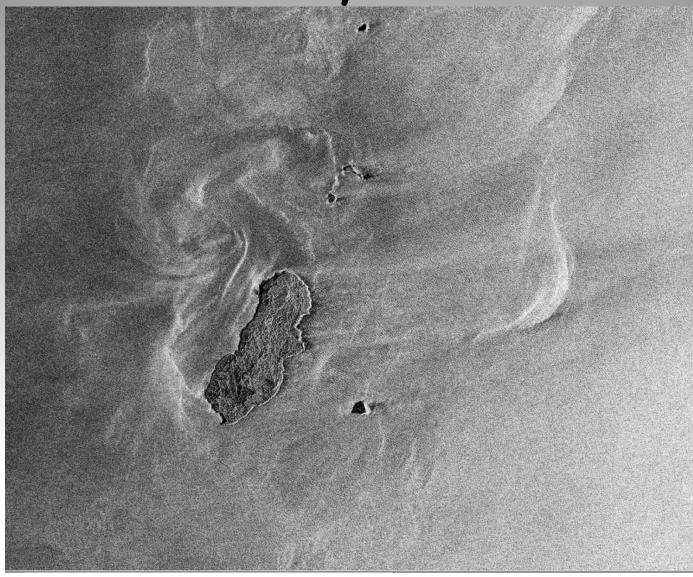
January 12, 2009

UM/CSTARS



# ERS-2 Collection Details of Itbayat Island





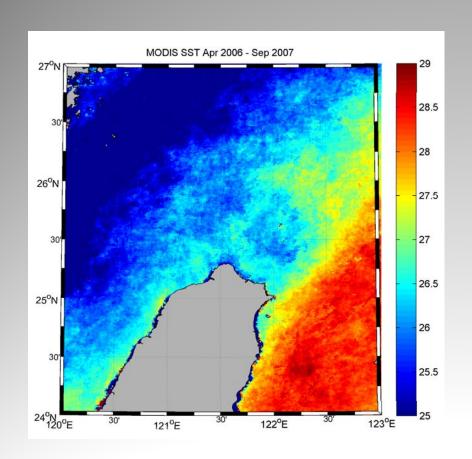
January 12, 2009

**UM/CSTARS** 

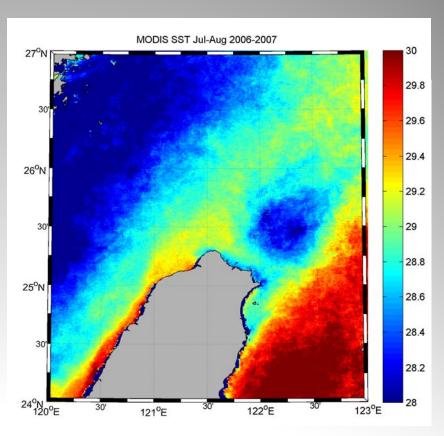




### Cold Dome with MODIS SST



Mean SST from April 2006 to September 2007

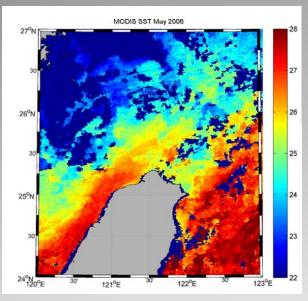


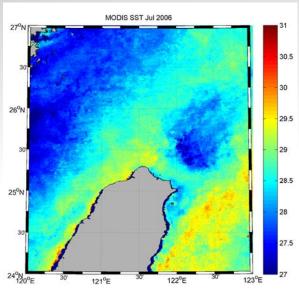
Mean SST from July and August 2006 and 2007.

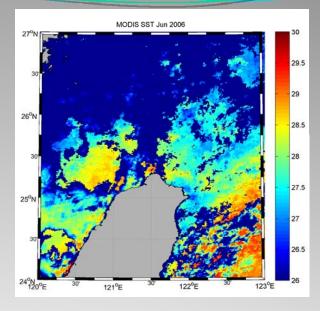
# CSTARS

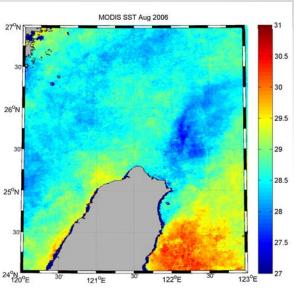
### Cold Dome with MODIS SST







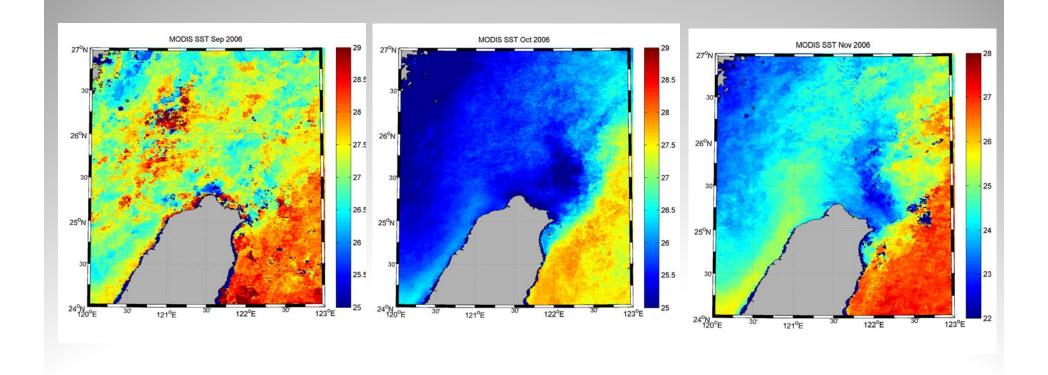






# CSTARS Cold Dome with MODIS SST

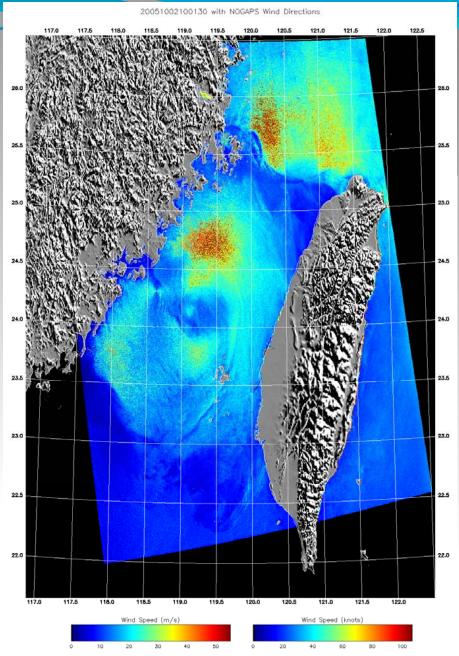




UM/CSTARS 15 January 12, 2009



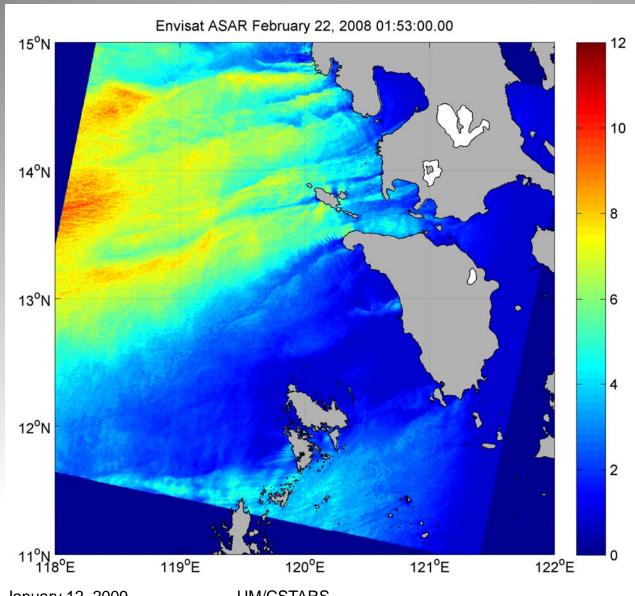
High Resolution Wind Field of Typhoon East of Taiwan from SAR Satellite





#### High Resolution Wind Field of Meso-scale Processes





Note the gap winds and the extent of the wind shadows as well as filaments of strong winds extending seaward.

**Note vortices** coming off the northern tip of Mindoro.



### Experimental Plans



- Acquire available archive data of both EO and SAR historical images
- Develop coordinated collection plan of SAR images from RadarSat-1, ERS-2 and ENVISAT, but also RadarSat-2, PALSAR, TerraSAR-X and Cosmo-SkyMed
- Develop collection plan of electro-optical (SPOT 2/4, MODIS, MERIS, perhaps others) images
- Provide satellite imagery in timely way on website