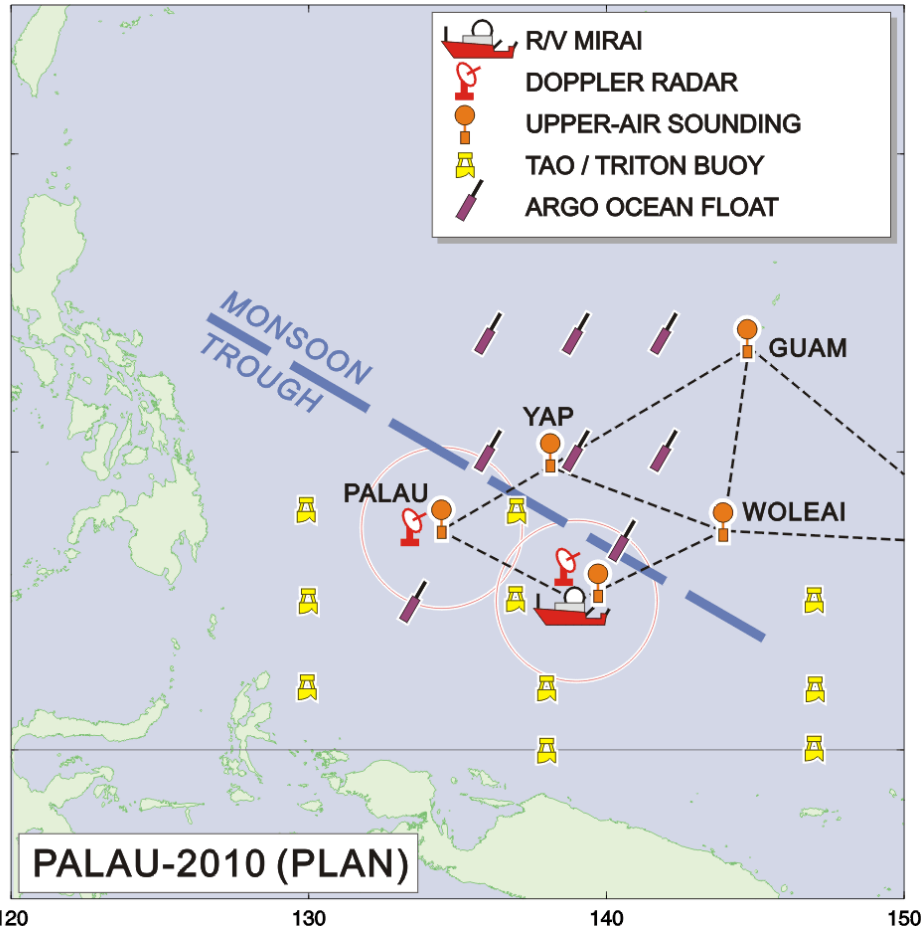


JAMSTEC's PALAU-2010 Field Campaign (May-June)



Facility:

- R/V Mirai cruise (55 days)
(Doppler radar, 3hr upper-air)
- Doppler radar at Palau
- 6-hourly upper-air soundings at Woleai Atoll
- 6-hourly Intensive upper-air soundings at NOAA stations (Palau and Yap)
- Argo mooring buoy deployment using R/V Mirai (7 buoys, 1 year operation)

Purposes:

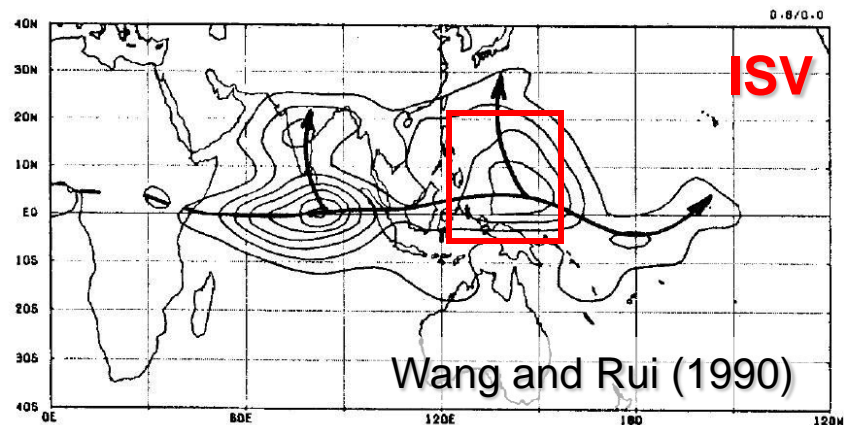
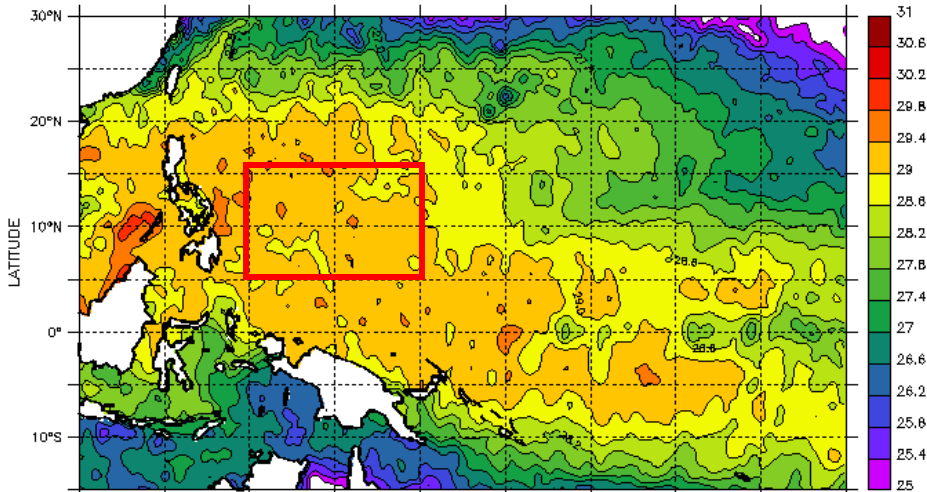
- Clarify the mechanisms governing northward propagation of summertime ISV (w/ TC genesis)
- Role of ocean mixed layer structure on the northward ISV

A possible role of ocean mixed layer in PALAU area

LAS 6.5/Ferret 5.81 -- NOAA/PMEL
 DODS URL: http://localhoet/dods/GDS_NC/gdem/
 DATA SET: tgdemv3s

SST -2000 00

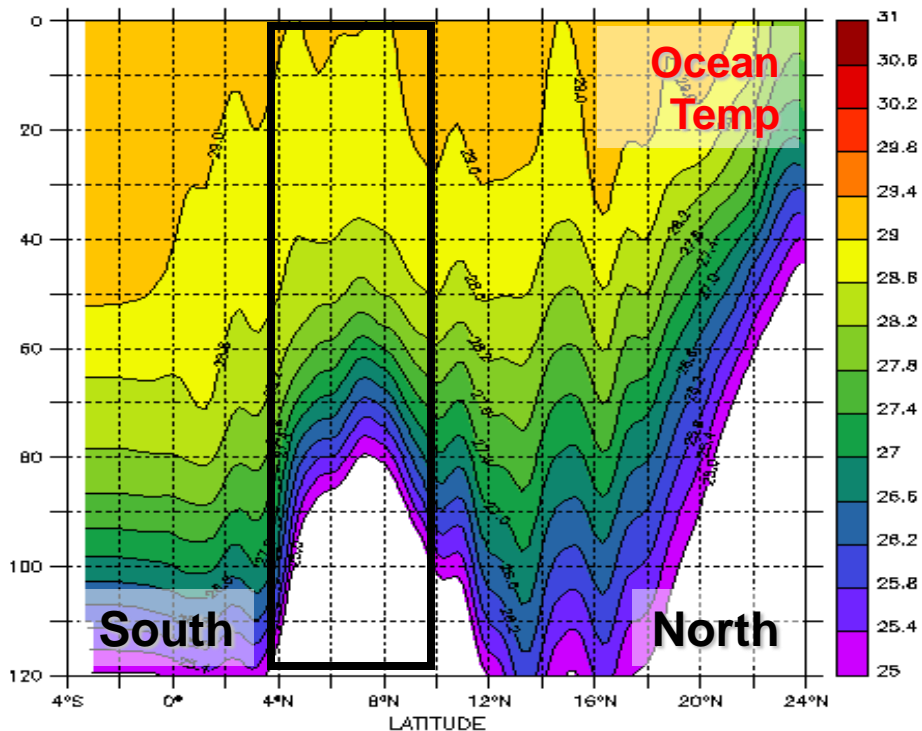
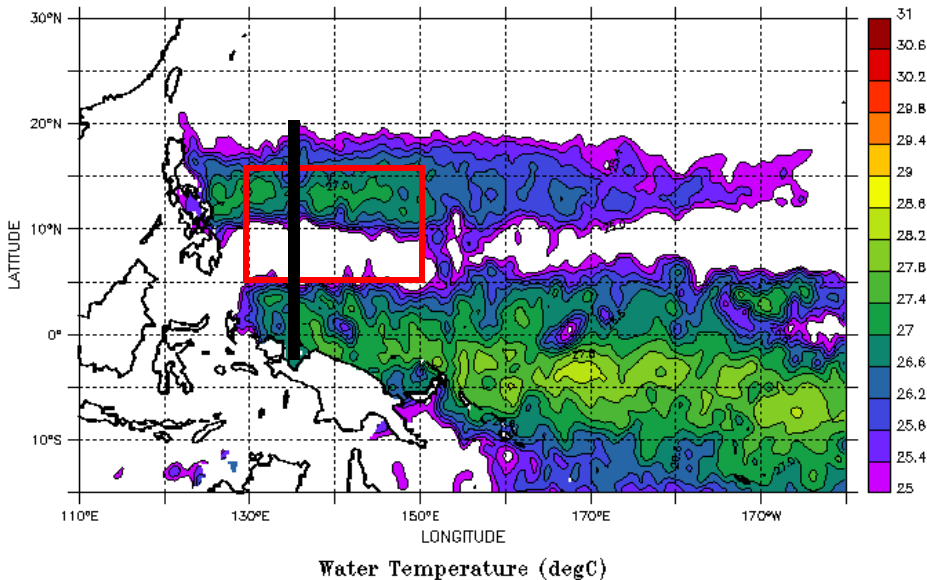
Navy GDEM Monthly Water Temperature



TIME : 01-JUL-2000 00 DATA SET: tgdemv3s
 Navy GDEM Monthly Water Temperature

Ocean Temp (100 m depth)

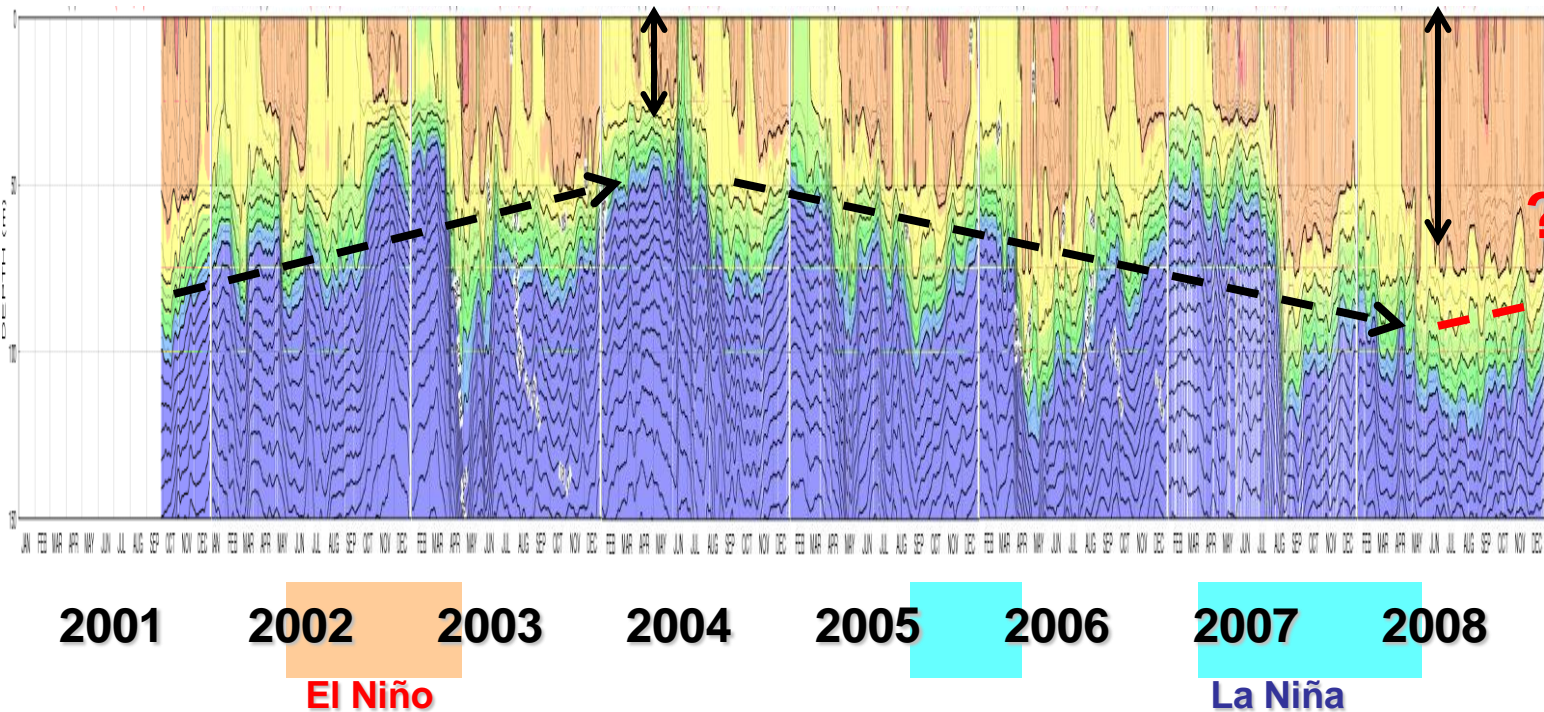
LAS 6.5/Ferret 5.81 -- NOAA/PMEL
 rda/GDS_NC/gdem/
 SET: tgdemv3s



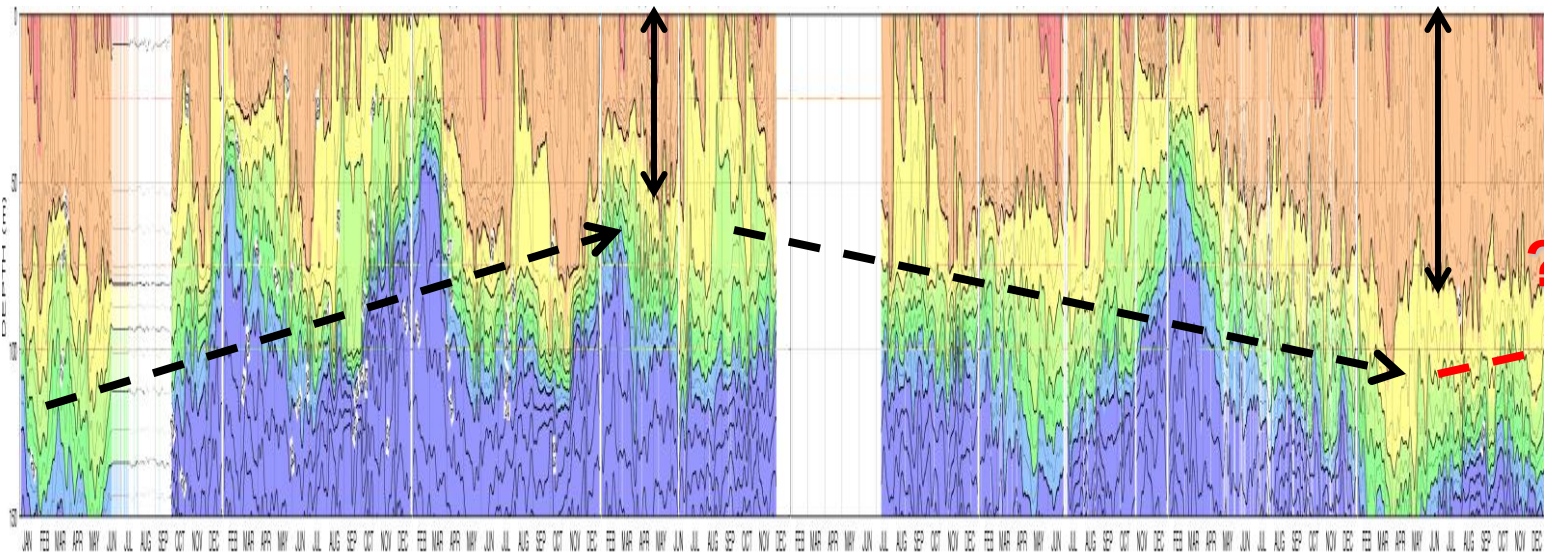
Variation of Ocean Mixed Layer Depth

Triton #10
137.0°E
8.0°N

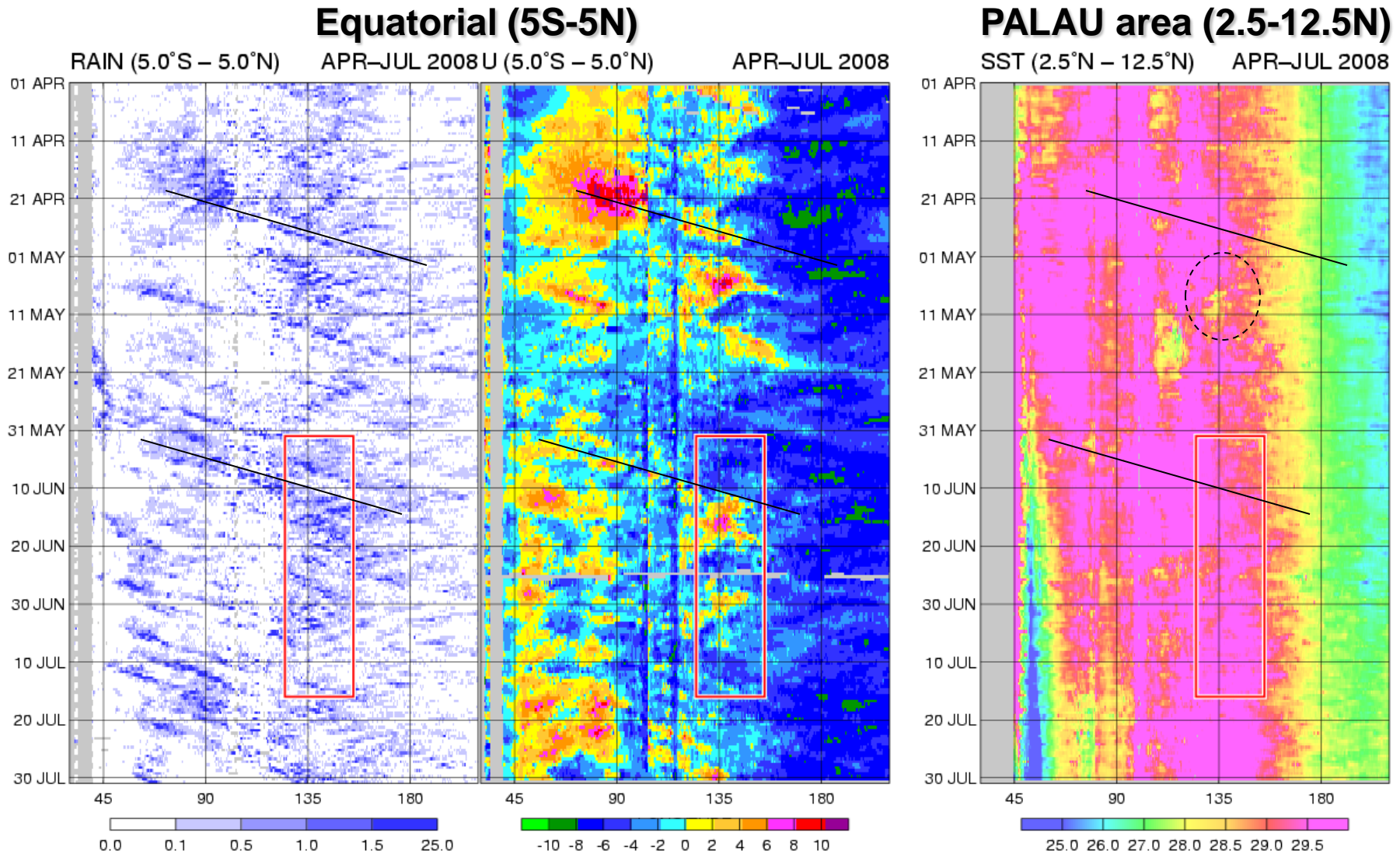
thermocline
ridge



Triton #12
138.0°E
2.0°N



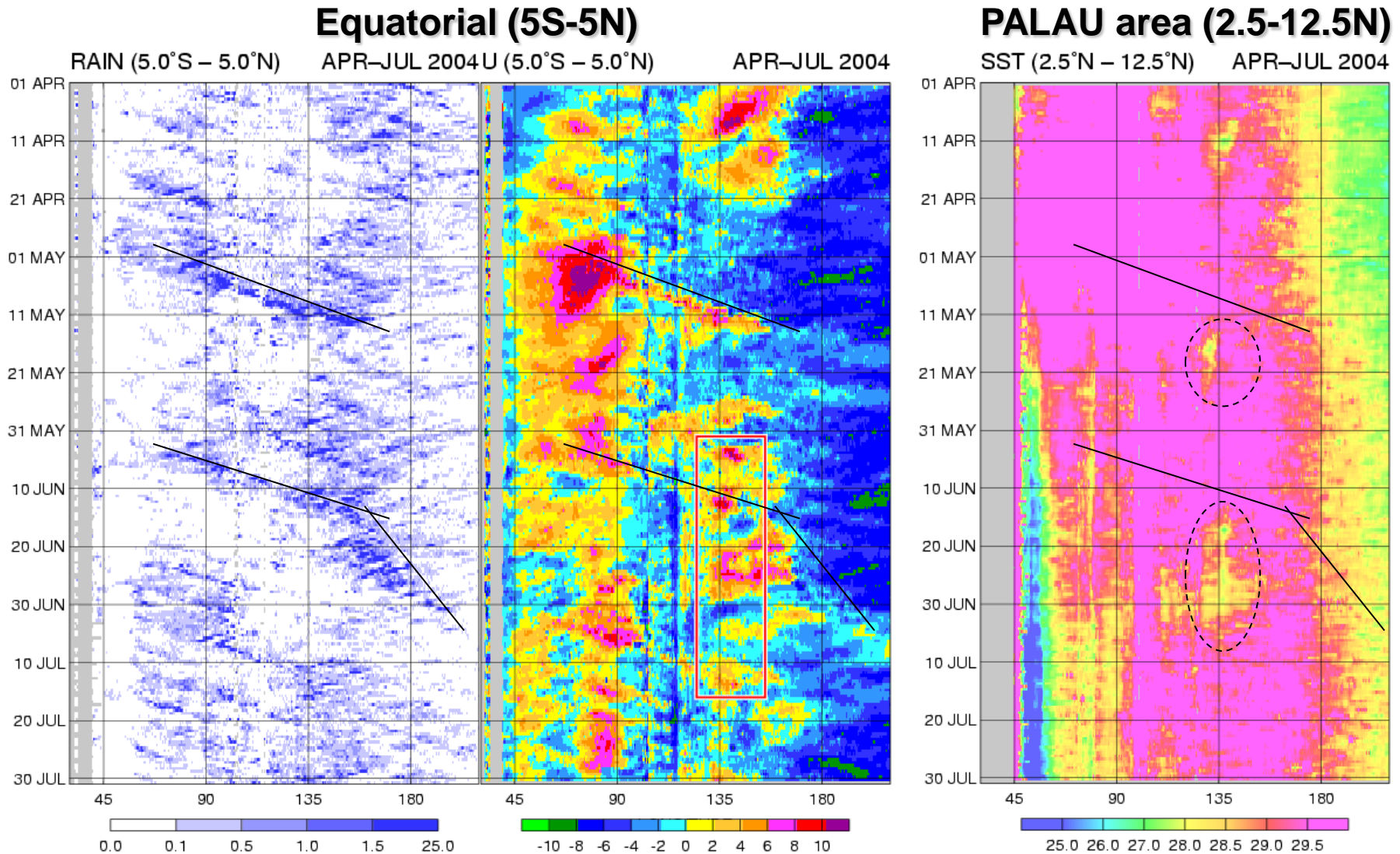
Relationship between ISV and off-equatorial SST



2008 case (deep mixed layer):

ISV → **weak westerly** (at equator) → **weak SST decrease** (off equatorial)

Relationship between ISV and off-equatorial SST

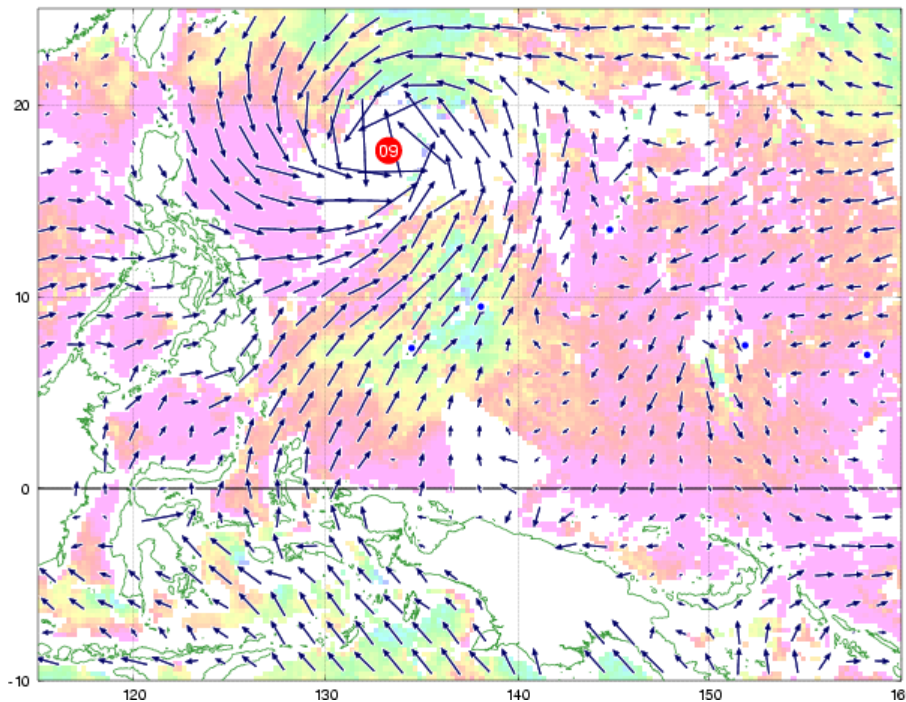


2004 case (shallow mixed layer):

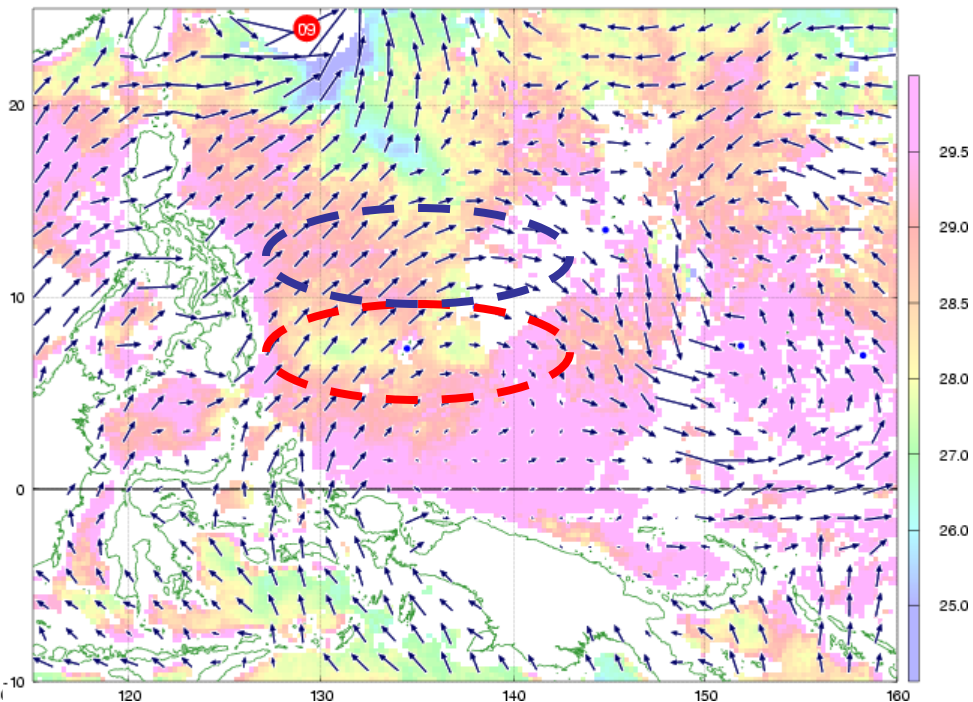
ISV → **strong westerly** (at equator) → **significant SST decrease** (off equatorial)

TC impact on the ocean structure

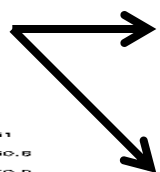
QuikScat-UV, MW-SST (DAILY MEAN) 17 JUN 2004



QuikScat-UV, MW-SST (DAILY MEAN) 2 days later 19 JUN 2004

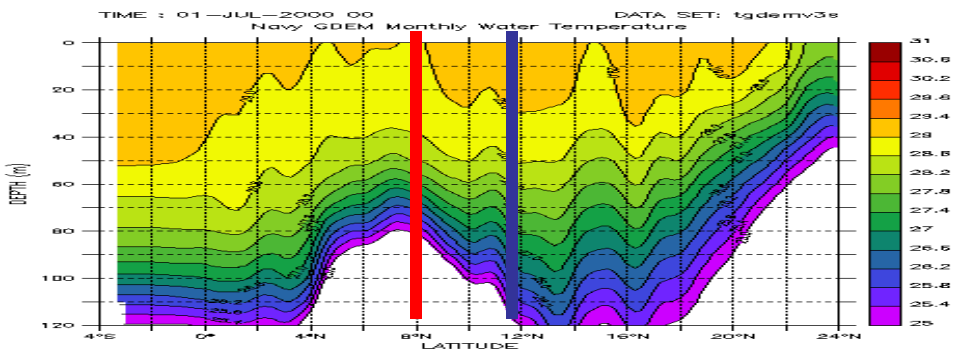


TC → SST decrease (ocean mixing)

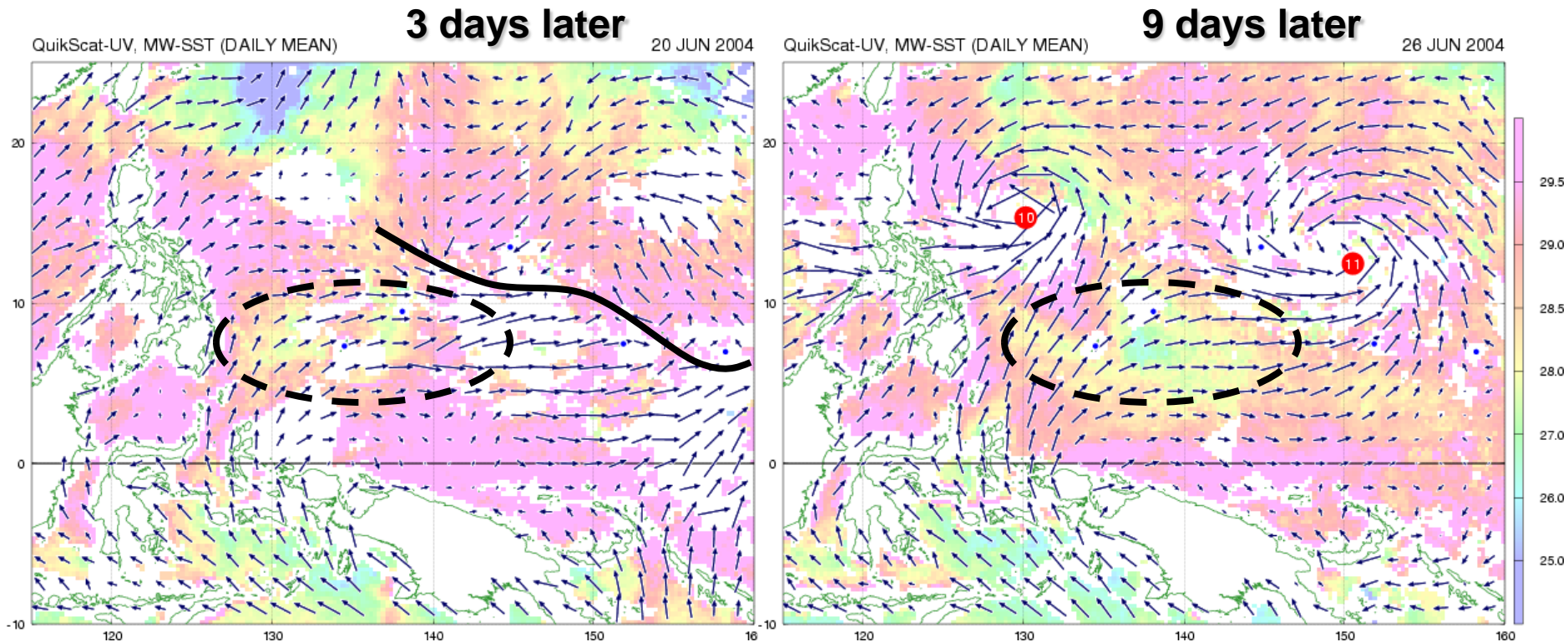


**Quick SST recovery at 12°N
(thermocline trough)**

**Slow recovery at 8°N
(thermocline ridge)**



Feedback to atmosphere?



**Low SST
westerly wind**



**Sustaining monsoon
trough north of the
low-SST area**



**Repeated TC formation
(or TD-wave amplification)**

Proposal of the extension of YOTC period

- **Extension until the autumn of 2010**
- **On-going transition of ENSO phase to El Niño can cause thinner ocean mixed layer in the western north Pacific.**
- **This gives a speculation that SST over the shallow mixed layer will be sensitive to ISV activity and can possibly cause more significant northward ISV propagation with above-normal TC cases in this basin, as like the 2004 summer case.**
- **Observational data during the PALAU-2010 field campaign (upper-air soundings, ocean temperature/salinity, etc.), provided immediately to GTS, will be a good source of the operational data assimilation systems.**

