

The Restrained ADOS-A: results from the 2009 experiment

By

L.R. Centurioni and P.P. Niiler

Scripps Institution of Oceanography, La Jolla,
CA, USA

lceturioni@ucsd.edu



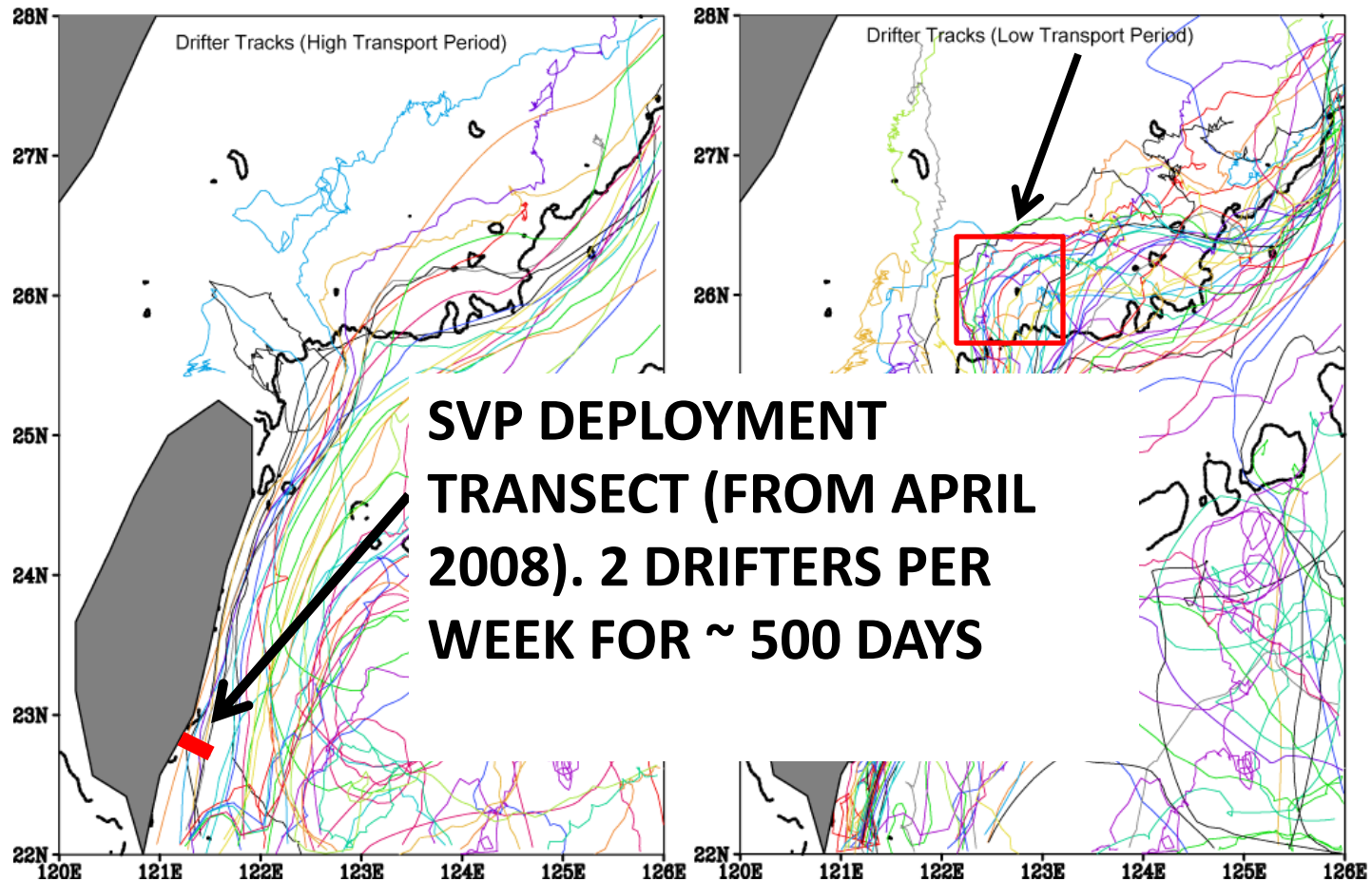
Outline

- EXPERIMENT
- TOOLS
- RESULTS
- CONCLUSIONS

The QPE Experiment: Goals

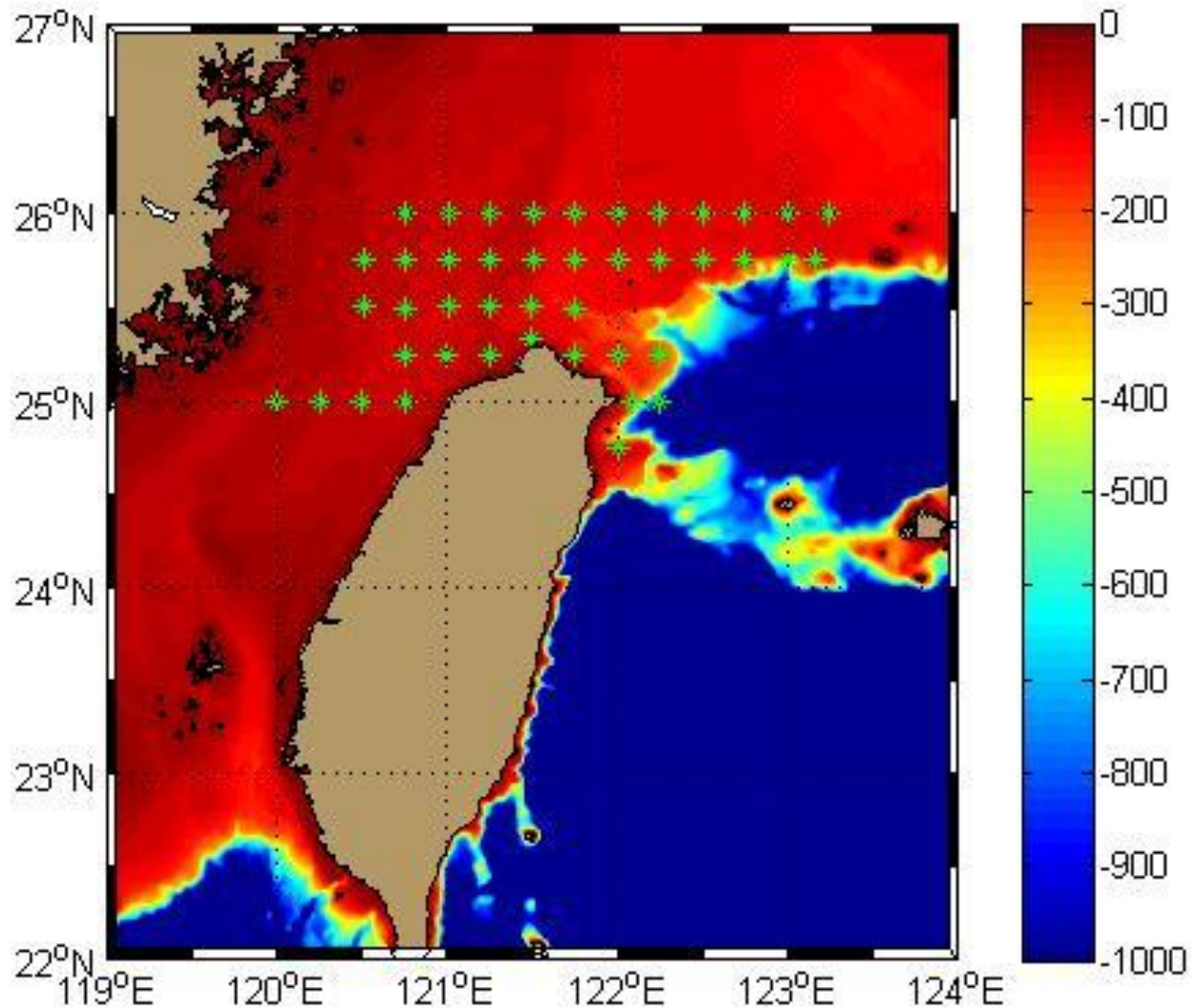
Goals

- 1) map the intrusions of the Kuroshio onto the continental shelf;
- 2) Measure the near surface velocity field;
- 3) Measure the internal tide (strength and direction);
- 4) Quantify the non-linear internal waves.

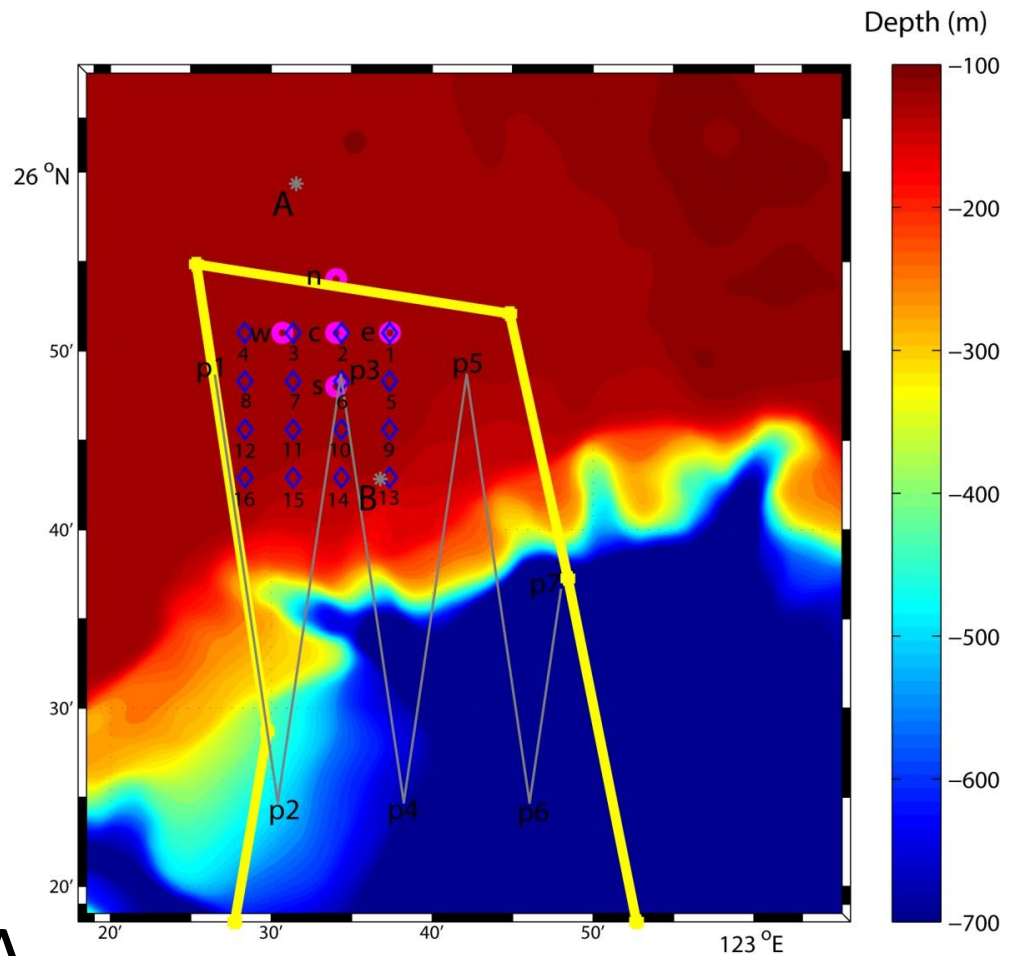
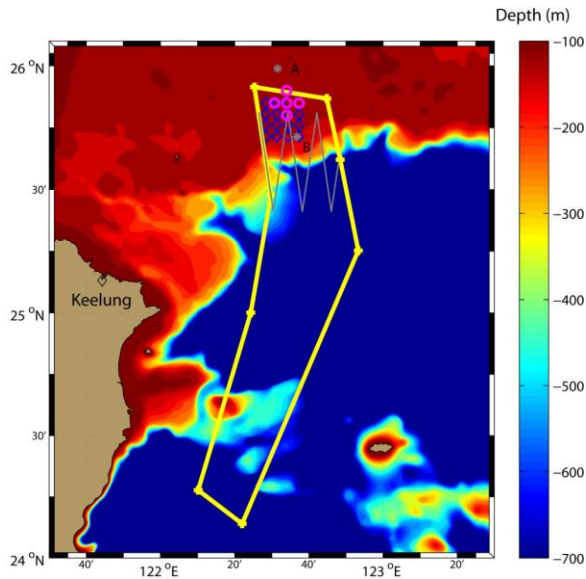


Drifter tracks during high Kuroshio transport (left panel) and low Kuroshio transport (right panel).

August '09 Drifters deployments (44)



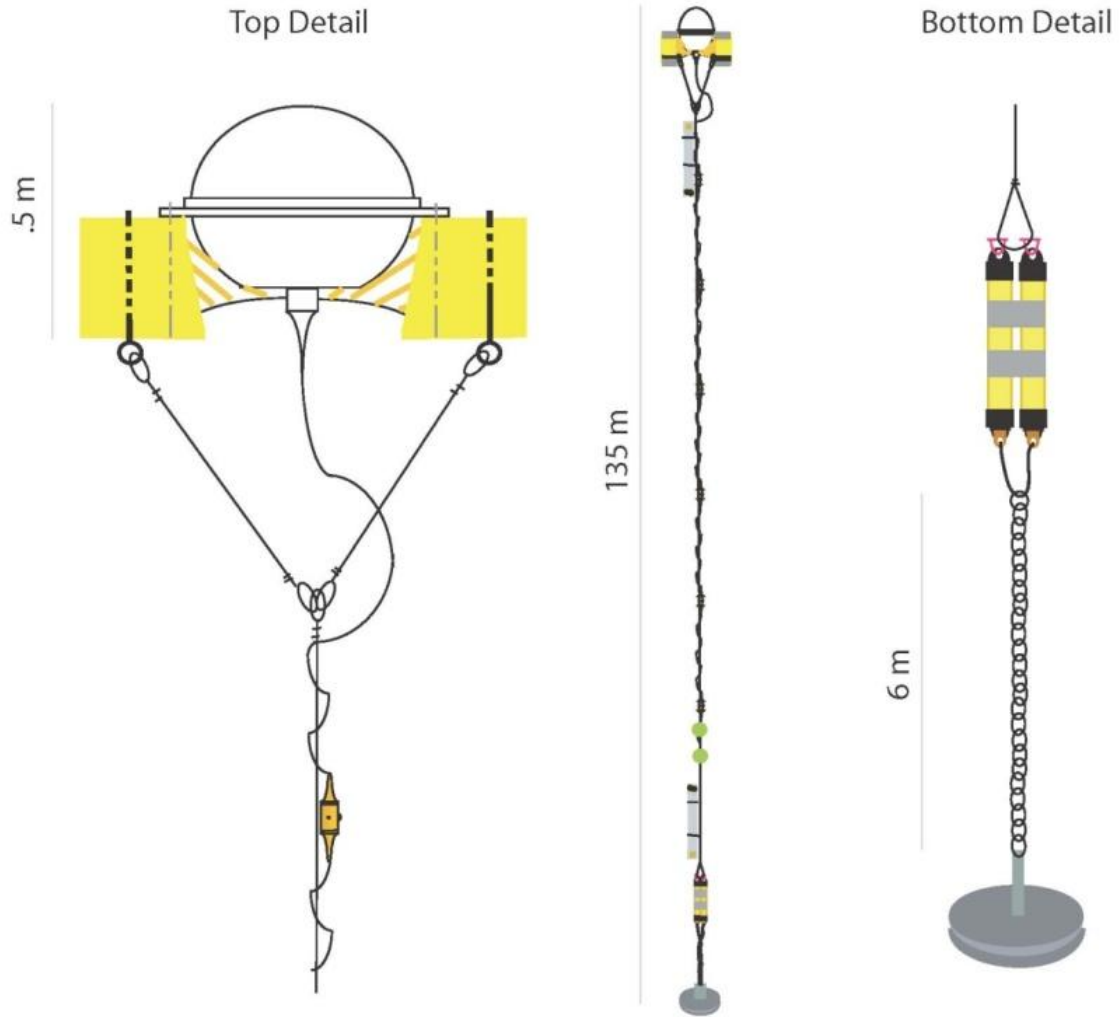
Experimental area: 2009 QPE Experiment



44 SVP-GPS

5 Restrained ADOS-A

The R-ADOS-A



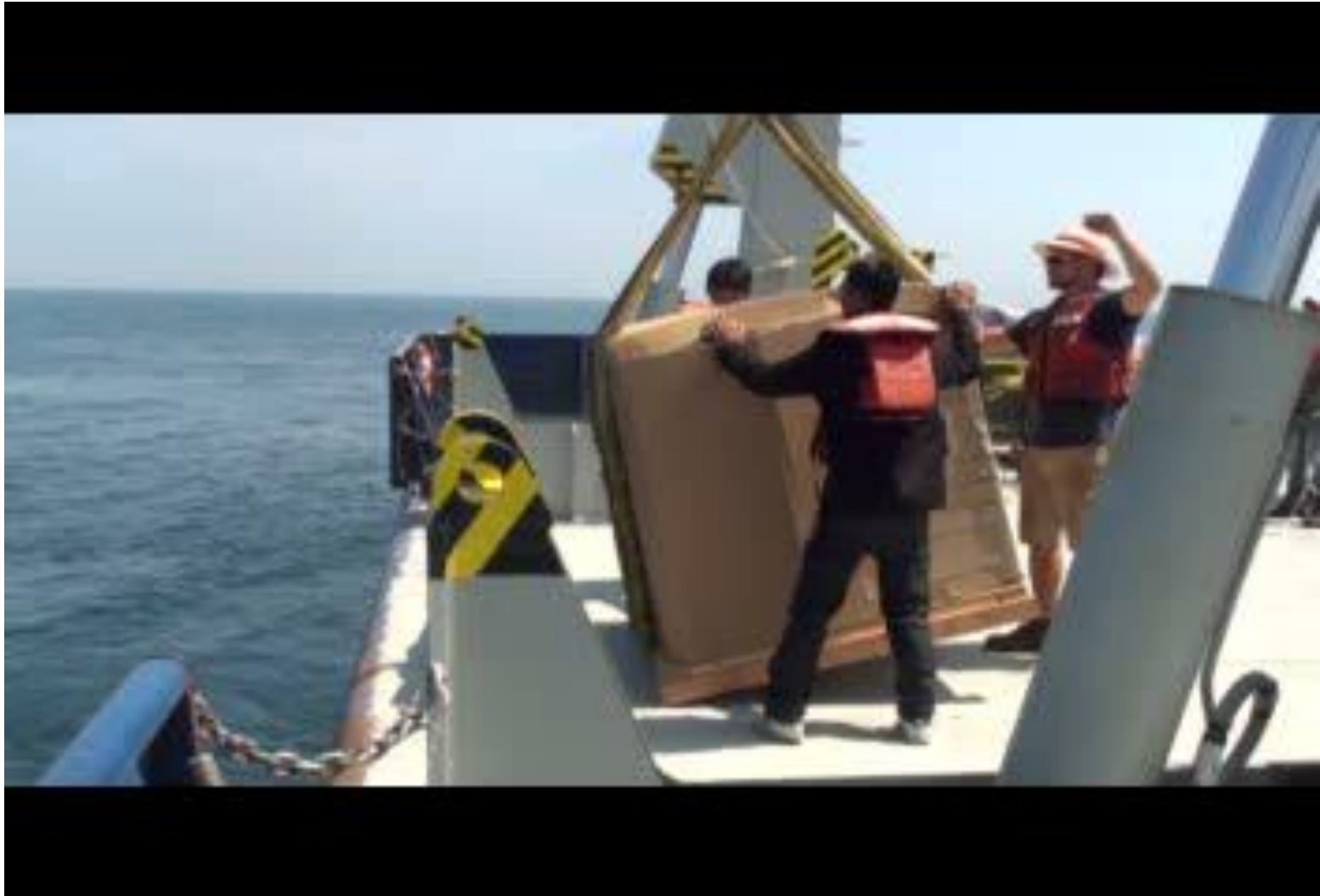
R-ADOS-A main specs

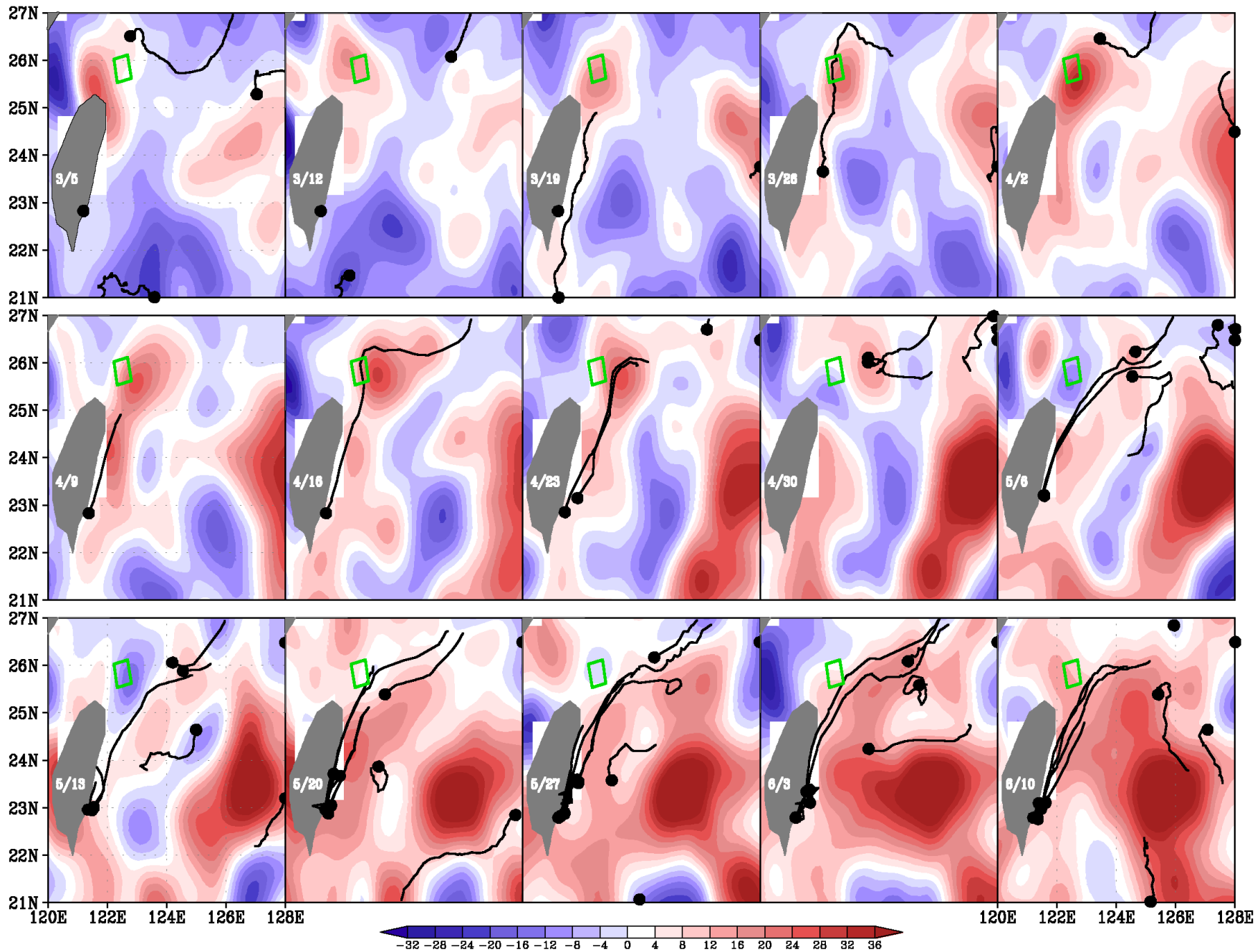
- 120 m long
- Pressure, temperature, ADCP profiler
- Inductive data transfer to controller (T,P,ADCP)
- 40 days endurance at 90 s sampling
- Iridium RUDICS comms
- 250 kgs
- Package size:1.2mX1.2mX1.2m
- Air deployable

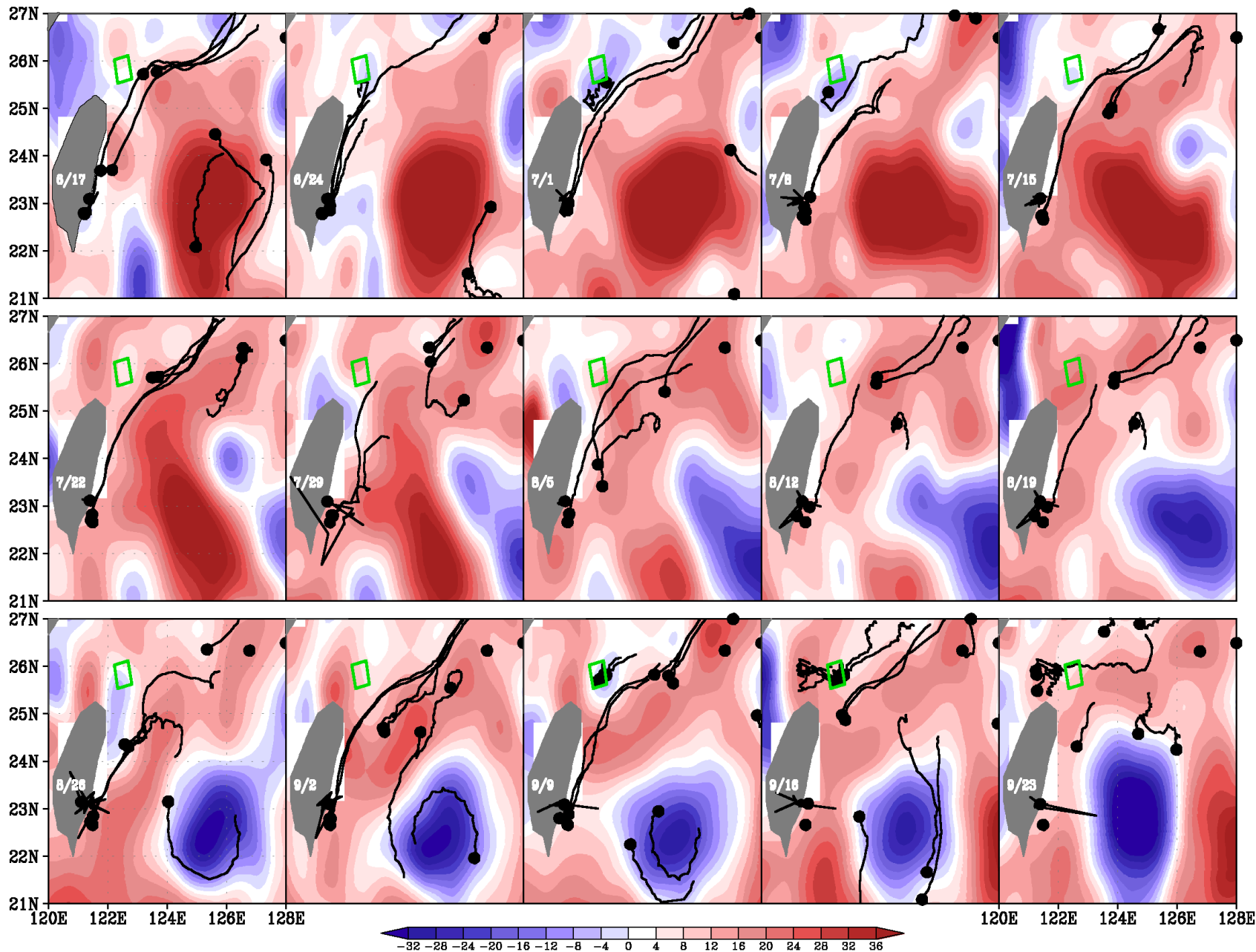
R-ADOS-A

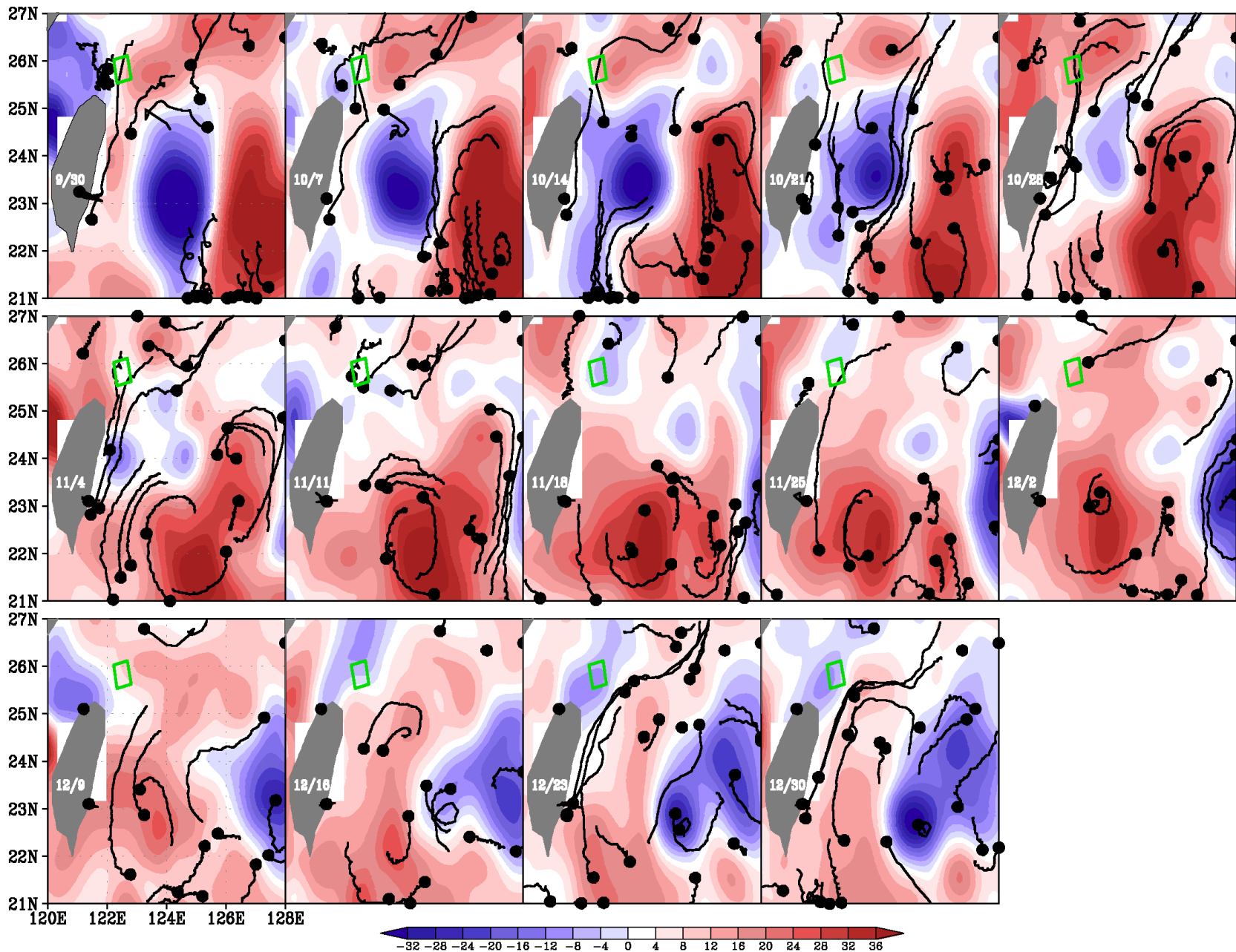


R-ADOS-A deployment movie

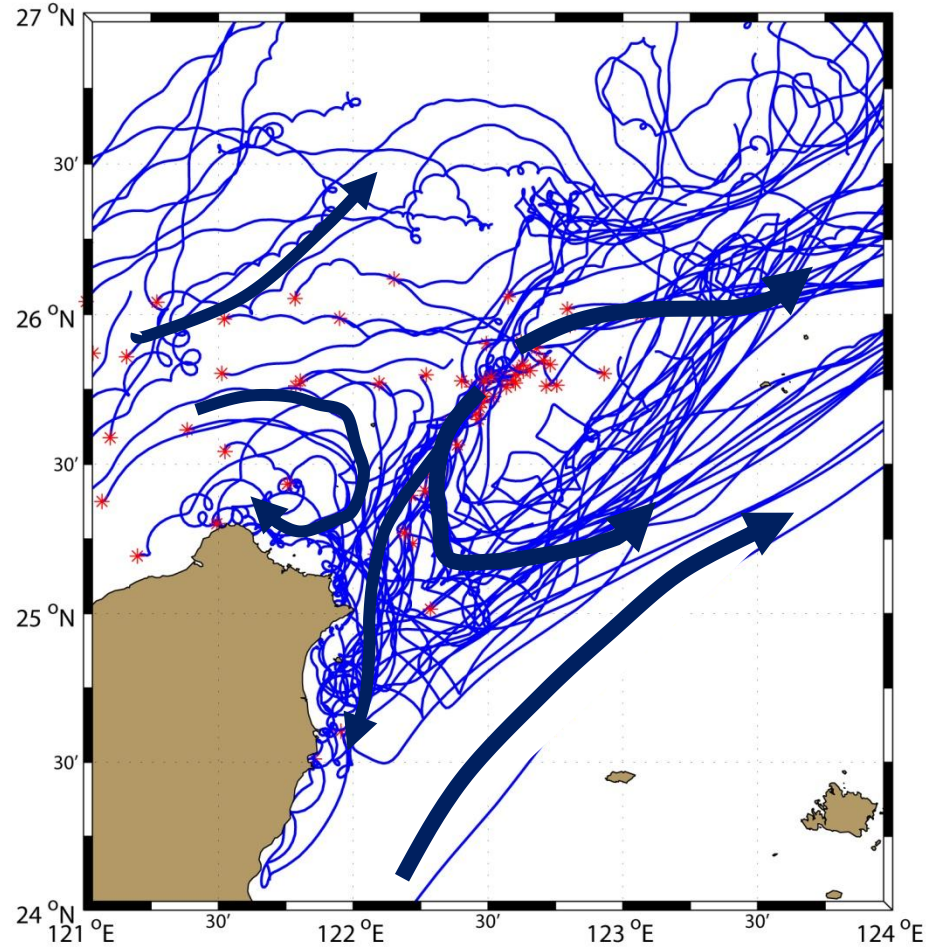


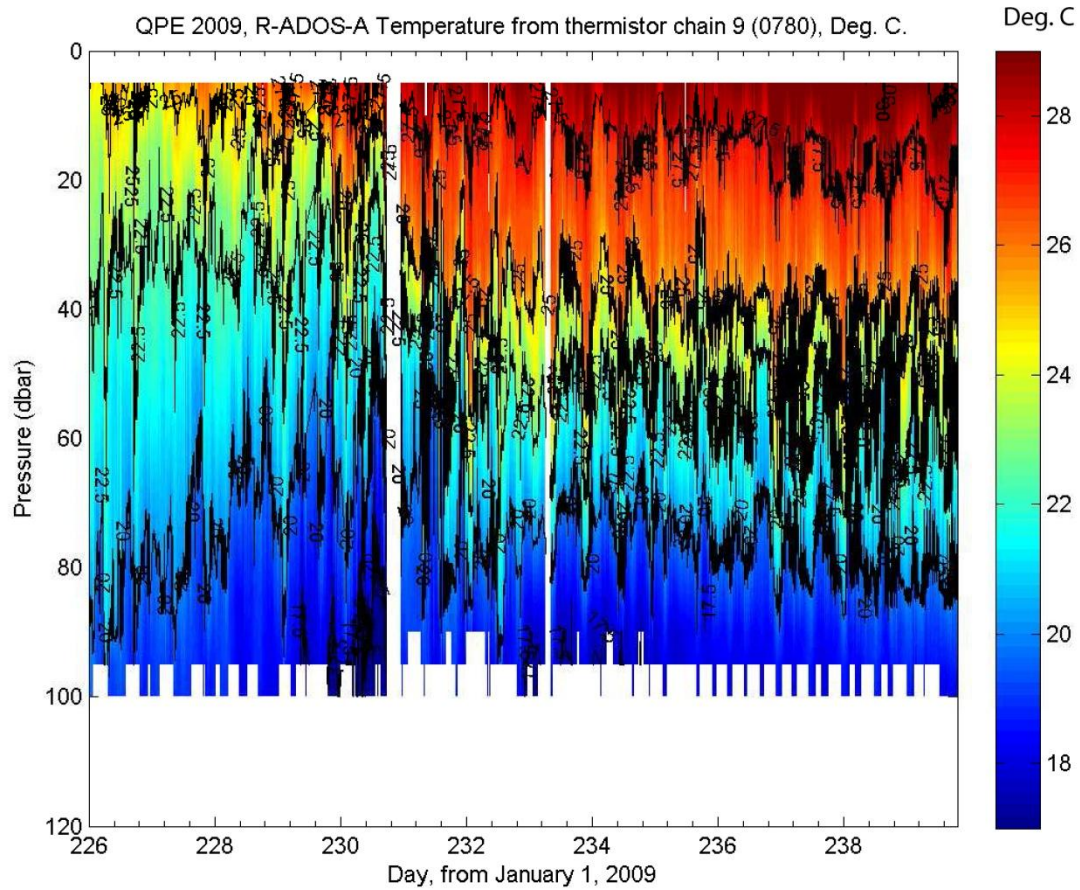


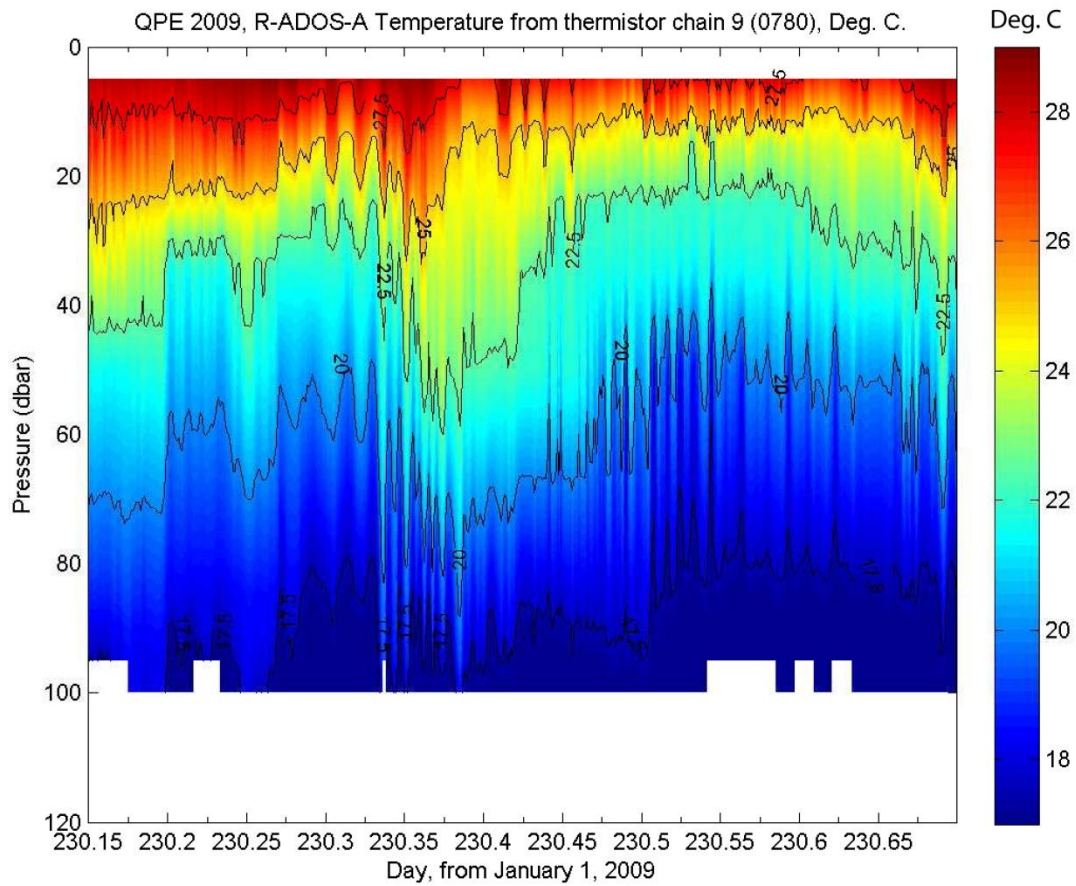


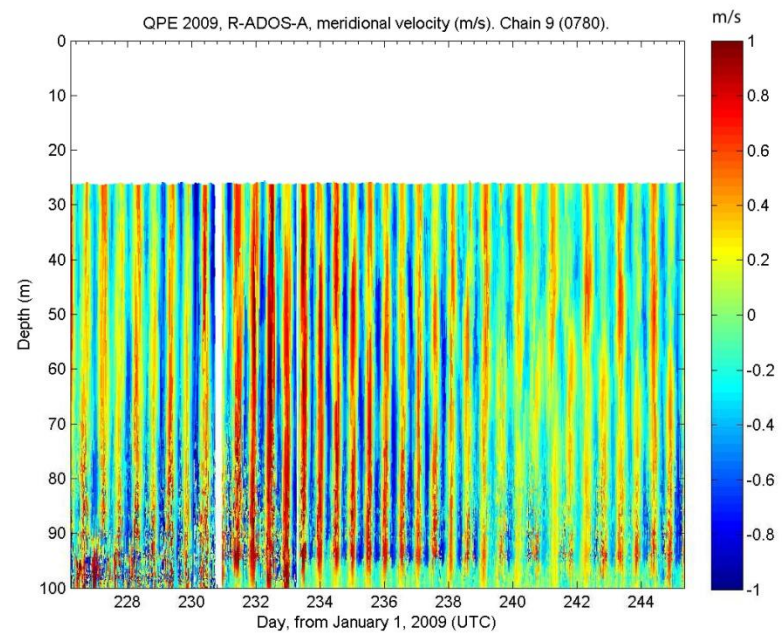
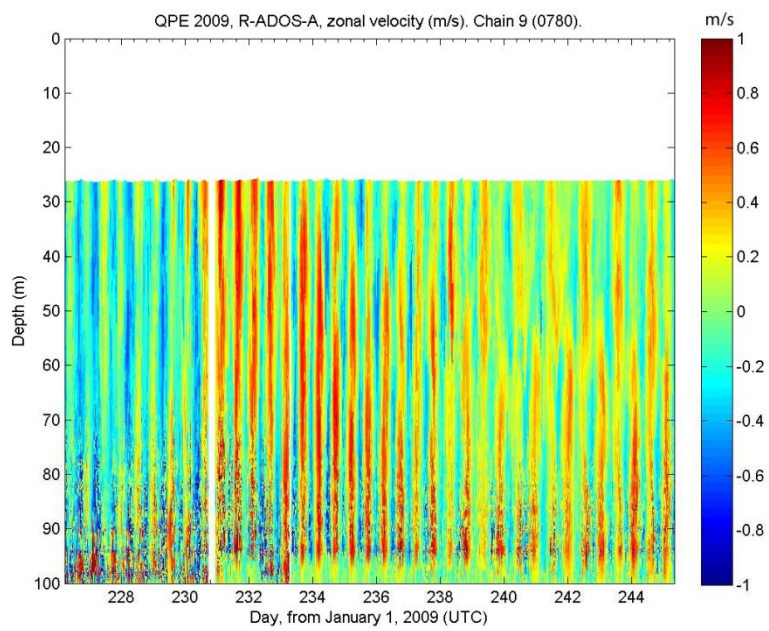


Kuroshio countercurrent and shelf circulation

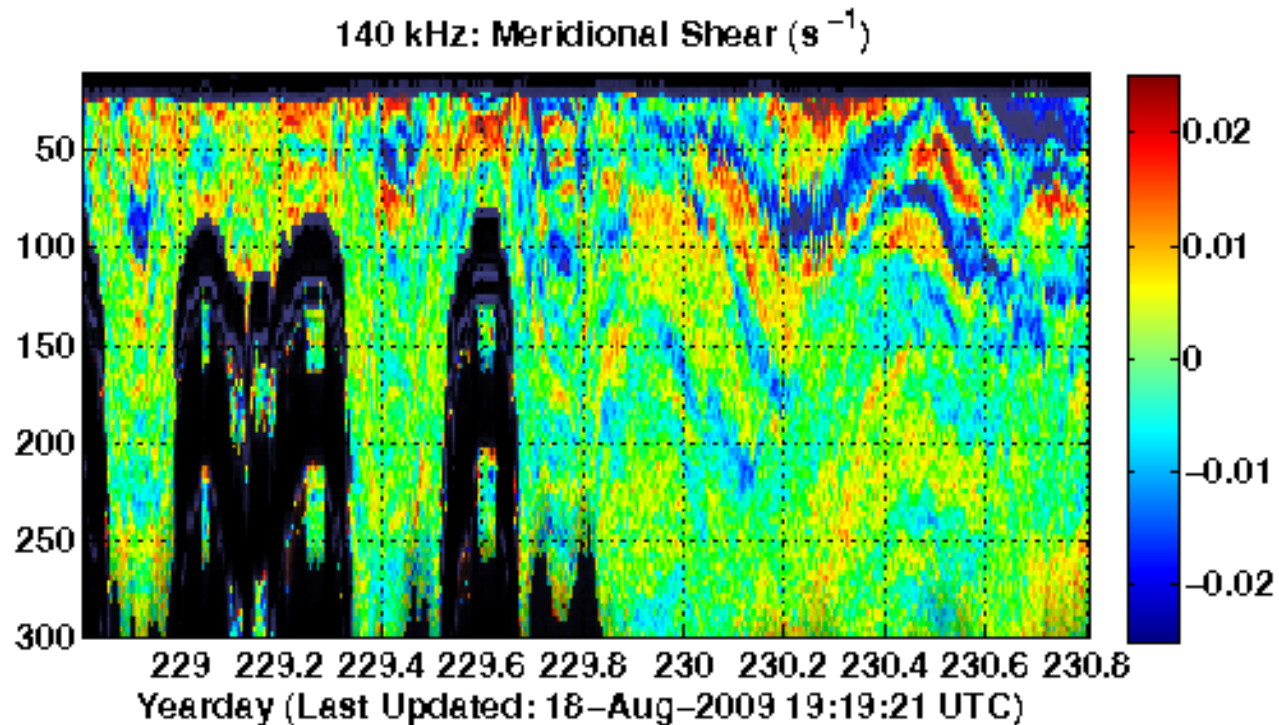




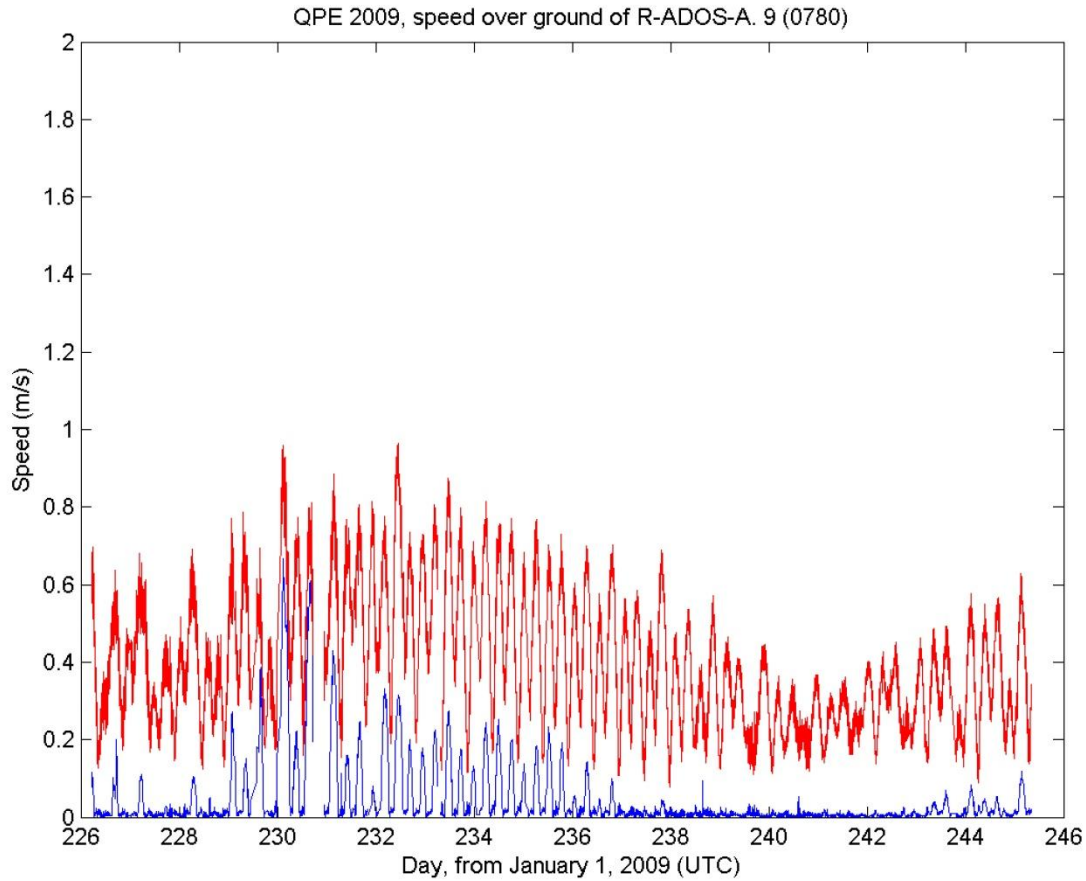




Internal tide and internal waves from Hydrographic Sonar



R-ADOS-A SPEED (BLUE) VS CURRENT SPEED (RED)



Conclusions

- The R-ADOS-A mechanical design much improved from first prototype;
- Very swift tidal currents were measured on the ECS cont. shelf (>1.5 m/s, 40 m amplitude). Phase velocity can (will) be computed from 5 elements RADOSA array;
- SVP drifters array discovered persistent (\sim 2wks) countercurrent or shingle between KH and the east Taiwan coast