*Moorings:*

Four Atlas moorings were deployed in 2008 in the region of maximum Typhoon frequency. Data from two of the moorings was used in this study. The exact location of the northern mooring (ITOP mooring A4) was 123.84°E, 22.13°N. Mooring A4 had temperature sensors at the following approximate depths below the surface: 1, 4, 8, 12, 20, 30, 40, 50, 65, 80, 100, 120, 150, 250, 360, 500, 600, 800, 1000, and 1400 m. The exact location of the southern mooring (ITOP mooring SA2) was 123.27°E, 21.23°N. Mooring SA2 had temperature sensors at the following approximate depths below the surface: 30, 40, 50, 60, 120, 300, 470, 600, 800, 1000, 1200, and 1400 m. The sampling interval for both moorings was 5 minutes.

*AXBTs*

 A total of 72 AXBTs that were successfully air-deployed from two C-130 aircraft during the investigation of Typhoon Fanapi and its wake: 31 on 15 September, 32 on 18 September, 4 on 19 September, and 5 on 20 September. The AXBTs sampled temperature every approximate meter from within a few meters of the surface to at least 300 m depth, with a few exceptions.

*EM-APEX*

Seven EM-APEX were air-deployed from a C-130 aircraft during the 17 September 00Z ‘pre-storm deployment’ flight in a line perpendicular to the 24-hour forecast track and with spacing of ~45 km. The EM-APEX floats profiled approximately every 45 minutes between the surface and 250 m. Due to a programming glitch, the EM-APEX floats failed to surface after their initial 10-day mission.

*ADOS drifters*

Fourteen ADOS (Autonomous Drifting Ocean Stations) were deployed during three C-130 flights. Eight were deployed with the 7 EM-APEX during the 17 September pre-storm flight; 7 at the same locations as the EM-APEX and 1 ~50 km further south along the deployment line. The remainder of the ADOS drifters were deployed directly into the cold wake during two flights on 20 September and 21 September.

The ADOS drifters reported recorded data every 15 minutes, storing the most recent 90 minutes in case of failed transmission. The drifters had 10 evenly spaced temperature sensors and 3 pressure sensors along a 150 m chain at 45 m, 105 m, and 150 m. The ADOS data has been processed extensively, including removal of erroneous data, interpolation of the data to fill in time gaps of less than 3 hours, small temperature adjustments based on a comparison with EM-APEX observations (mostly on the order of 0.1°C to 0.2°C), and interpolation to 10 m depth intervals based on the calculated tilt of the chain in the water column. In this study 1-m resolution profiles were constructed using linear interpolation of these 10 m resolution profiles.

*SUPER drifters*

The SUPER drifters are enhanced ADOS drifters equipped to also measure 3-D subsurface currents and solar radiation, thus they were analyzed similar to ADOS in this study. They measured both temperature and pressure at 30 locations along their 150 m chain. In one of the SUPER drifters, the sensors were spaced every 2 m from 2 m to 20 m, and every 6.5 m after that. The other SUPER drifters had sensors every 1 m for 10 m and then every 7 m below that. The SUPER drifters were also equipped with various meteorological sensors, the data of which was not utilized in this study.

*UCTD:*

The *R/V Revelle* towed an OceanScience underway CTD more-or-less continuously between 17 September (year day 260) and 11 October (year day 284). It arrived at the cold wake approximately 4 days after Typhoon Fanapi’s passage. A total of 3162 casts were made, the vast majority of which were 6 minute profiles to ~160m while steaming at 10 kts. Due to instrument failures and operator errors, some of the profiles were discarded, leaving a total of 2917 good UCTD profiles. The *R/V Revelle* started sampling at the A4 (northern) mooring and steamed NE along a line parallel with the pre-storm float deployment line (manuscript Figure 2f). After sampling the western part of the wake (the “filament”) until 29 September (year day 272), the ship moved to the eastern wake region and focused on the south-west edge of the “cold pool” before heading back to the western part of the wake on 7 October (year day 280).

*Seagliders:*

There were 10 successful deployments of a total of 9 Seagliders from *R/V Revelle*. Seaglider 176 was deployed twice. The first deployment of Seaglider 176 was brief, thus it is not included in this study. Eight Seagliders were deployed both inside and outside the western part of the wake and 2 were deployed on the edge of the cold pool. The Seaglider dives were to 500 m and were taken approximately every 2 hours. Seagliders took a total of 6006 profiles during ITOP.