

Nancy Foster 2017 Users Meeting: ADCP Ocean Currents

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Nancy Foster Users Meeting 2017

Terminology:

UHDAS:

University of Hawaii Data Acquisition System

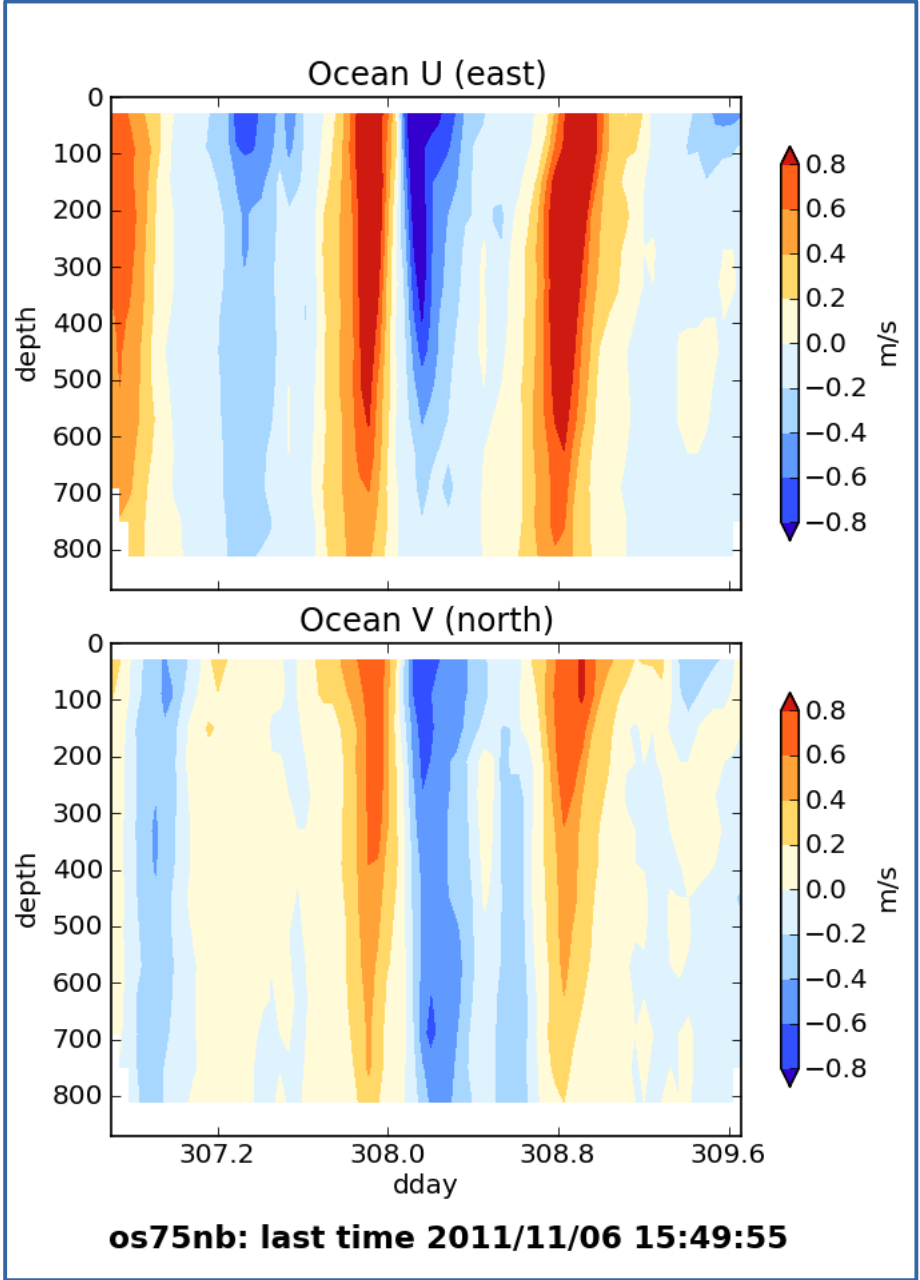
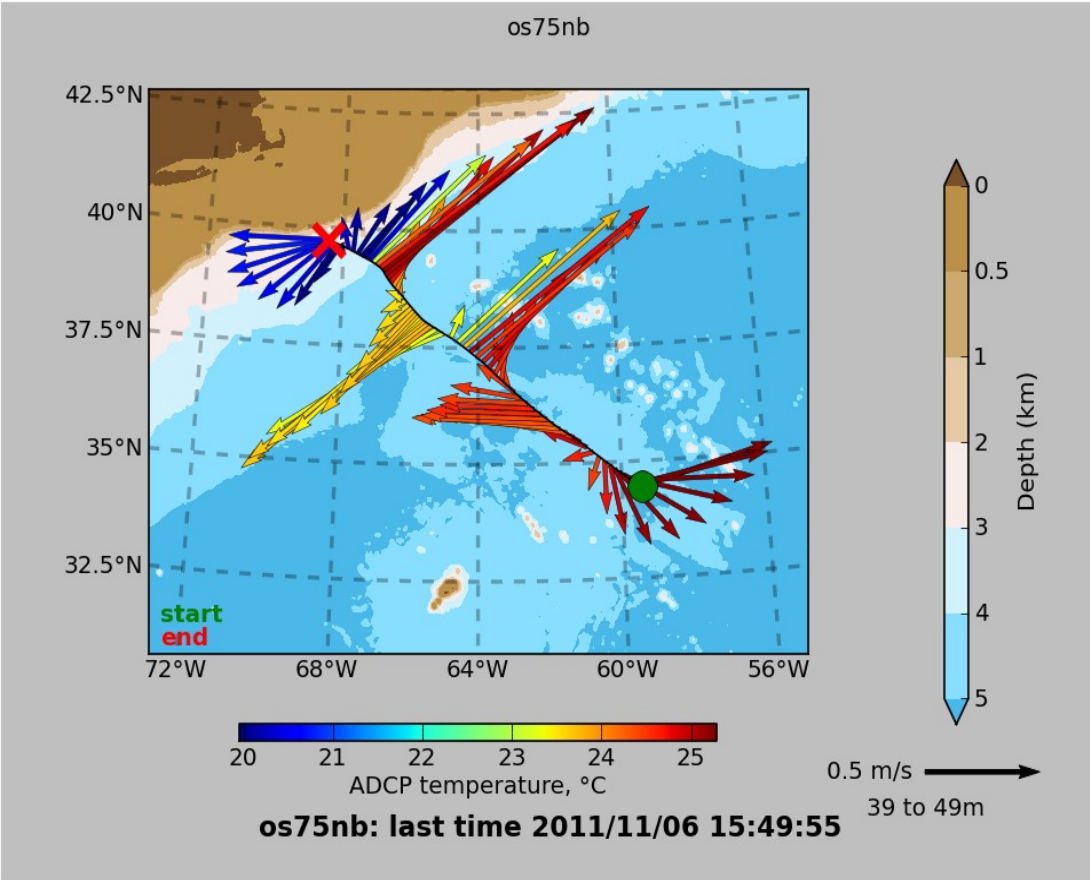
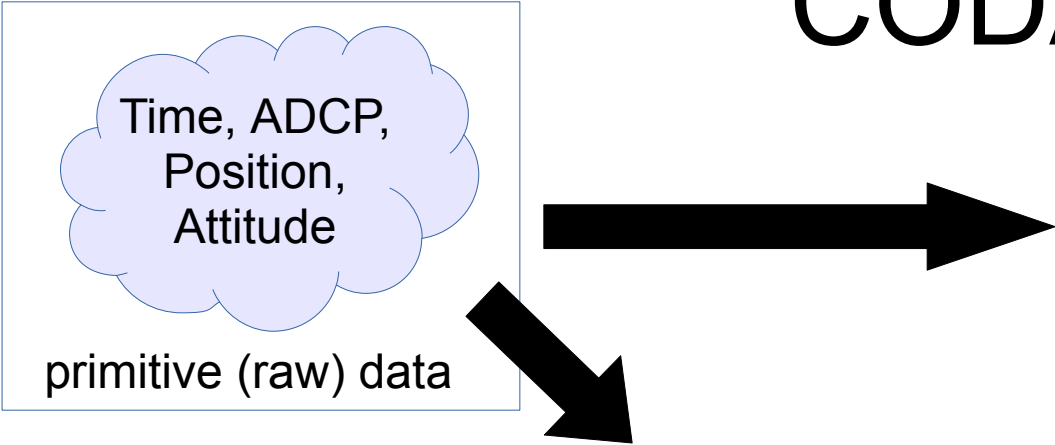
ADCP:

Acoustic Doppler Current Profiler

UHDAS ADCP system

- UHDAS is presently installed on over 30 ships
 - 8 of these are NOAA ships
 - several in process during FY2017
- UHDAS installed on N.Foster March 2015

CODAS Processing



What does UHDAS do?

Performs these automated tasks at sea:

- Data acquisition (acquire, timestamp, write files)
- Data processing (create ocean currents)
- Generates data products (multiple formats)
- Creates tools and components for monitoring
(at sea and on shore)

UHDAS: data strategy

The UHDAS team monitors data acquisition and ocean current data quality by scrutinizing the content of an automated daily email containing

- text email with summary of data logging status and warnings
- data snippet (automated plots made on shore)
- log files with information about health of computer, data acquisition, calibration residuals, etc
- create the best at-sea data possible by an automated system
- provide portable, documented (multiple operating systems) software for manual processing

UHDAS: data stewardship

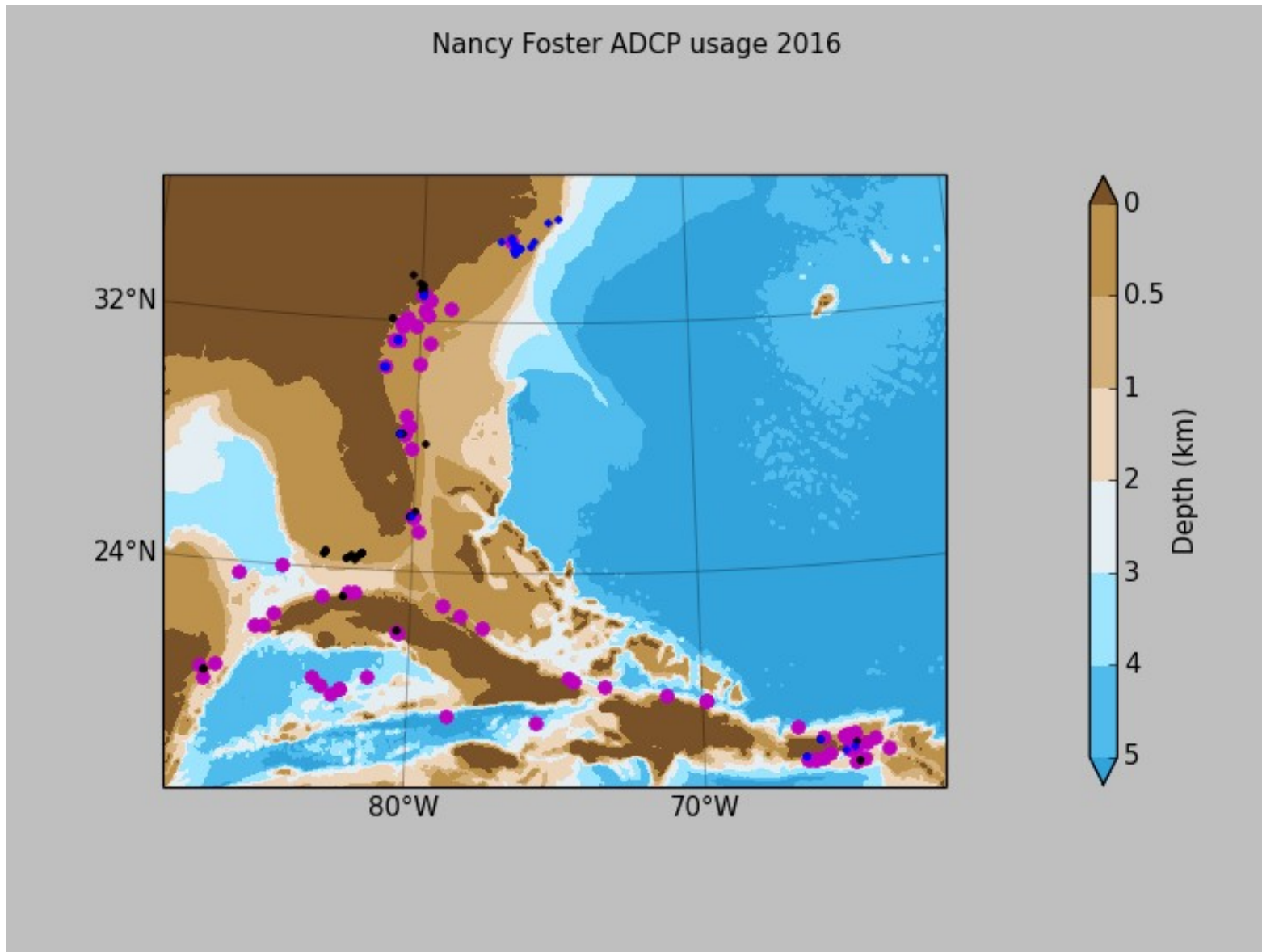
- UHDAS is not a DAC (Data Assembly Center)
 - We are working with NOAA to create a conduit for the data after the cruise, to get it archived at NCEI
- ADCP data from the cruise is your data, not “our data”
- Assume roughly 1Gb/week for complete ADCP dataset (i.e. all raw and processed data)
- At-sea automated processed data (Matlab or netCDF format) 15Mb/week

Links

UHDAS starting point: <http://uhdas.org>

- [At-sea web page](#)
- [Table of live ships reporting](#)
- [UHDAS + CODAS Documentation](#)

UHDAS on Nancy Foster in 2016



What did UHDAS do in 2016?

- 258 emails (one per day) with status and data snippets
- long ADCP runs on
 - NF1602 legs (80 sonar days)
 - NF1608_VIIRS (6 sonar days)
 - NF1610_EPA (8 sonar days)
- Other cruises: 0.25-4 sonar days
 - good enough to see that things are working
 - email goes out at 1430UTC
 - requires several hours of data to verify things are working
- POSMV worked well for the whole season
- ADCP did not work well for the whole season

2016 ADCP failure

- shipyard “protected” the transducer from paint, but put a nail hole in the urethane
- NF pulled transducer, shipped to RDI (“plug the hole with goo and hope for the best”)
- The ADCP degraded over the next several months, (see [this report](#))
- after failure, transducer was shipped to RDI for repair
- loaner WH300 on USBL pole June-Aug
- OS150 transducer was returned to N.Foster
- re-installed Sept 2016; worked well for subsequent data logging
- new calibration required every time an ADCP is installed

OS150 transducer hole



Interaction with other sonars

- ADCP ocean currents: must average many pings
 - Triggering reduces the ping rate, possibly too much
 - UHDAS can edit out acoustic interference but
only if pinging is asynchronous
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- Synchronized pinging “can work” but requires care
- Mixing sonar types remains problematic: Different scientists and science priorities)

Summary

- 2016 season
 - degradation of the ADCP on NF1602 (ADCP data was a primary dataset)
 - heroic effort to ensure that there was a working ADCP for the whole season
 - some cruises with enough transits/intermissions: sufficient chunks for adequate monitoring
 - more improvements to monitoring
- Goals for 2017
 - Continue to
 - Enhance the utility of ADCP data (incremental improvements)
 - Ensure the system is working
 - Successful cruises, good data, happy participants