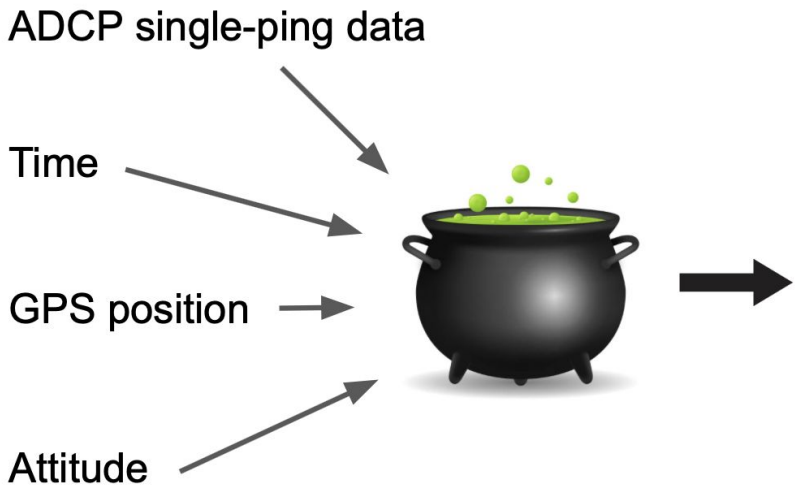
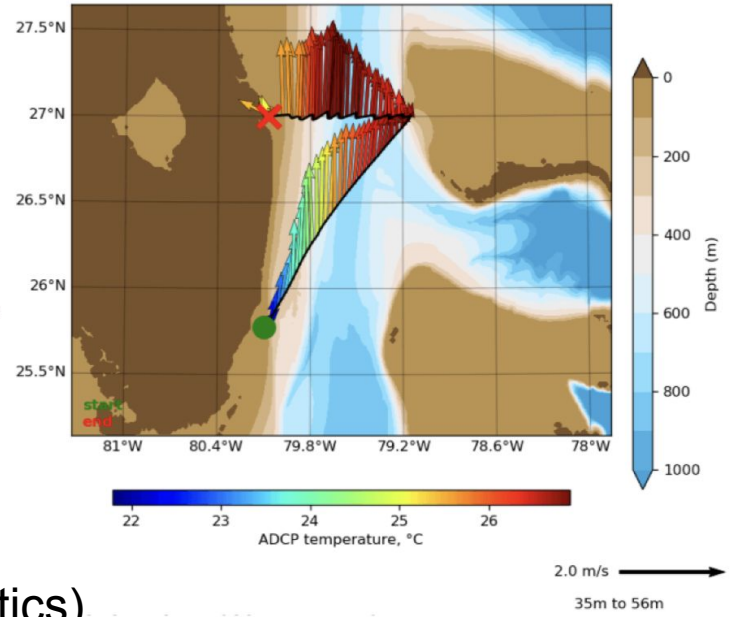
RVTEC 2024, Univ New Hampshire
UHDAS update

Jules Hummon, UHDAS

the **U**niversity of **H**awaii **D**ata **A**cquisition **S**ystem (...for ADCPs)

- **At Sea:**
  - **Data acquisition**
  - **Automated processing** → ocean velocities



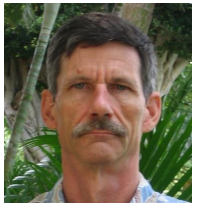


- **Display** (website: science, operations, diagnostics)

the **U**niversity of **H**awaii **D**ata **A**cquisition **S**ystem (...for ADCPs)

Our team:

- installs, maintains and develops software to acquire ADCP and ancillary sensor data;
- develops, maintains, and supports CODAS post-processing software for science-ready data (free, open source, documented) for 40 years!
- daily monitoring of ADCP and ancillary sensor quality; troubleshooting






Contact: uhdas@hawaii.edu
Documentation: UHDAS+CODAS

Ships we support

- **17 UNOLS ships**: Atlantic Explorer, Neil Armstrong, Atlantis, Blue Heron, Endeavor, Hugh Sharp, Kilo Moana, Langseth, Pelican, R.Revelle, Sally Ride, Savannah, Sikuliaq, R.G.Sproul, Rachel Carson, T.G.Thompson, F.G.Walton Smith;
(coming soon: Taani, Narragansett Dawn, Gilbert R. Mason)
- **2 polar ships**: Healy, N.B.Palmer
- **12 NOAA ships**: Okeanos Explorer, F.Hassler, G.Gunter, H.Bigelow, N.Foster, Pisces, R.Brown, R.Lasker, Sette, B.Shimada, Dyson, T.Jefferson
- **9 International research ships:**
Falkor (too), Pt Sur, Investigator, Princess Ingrid Alexandra, Kronprins Haakon, G.O.Sars, Johan Hjort, Discovery, James Cook
- **4 Volunteer Observing Ship (VOS)**:
Oleander, Bulk Xaymaca, RCCL Adventure of the Seas, RCCL Celebrity Flora

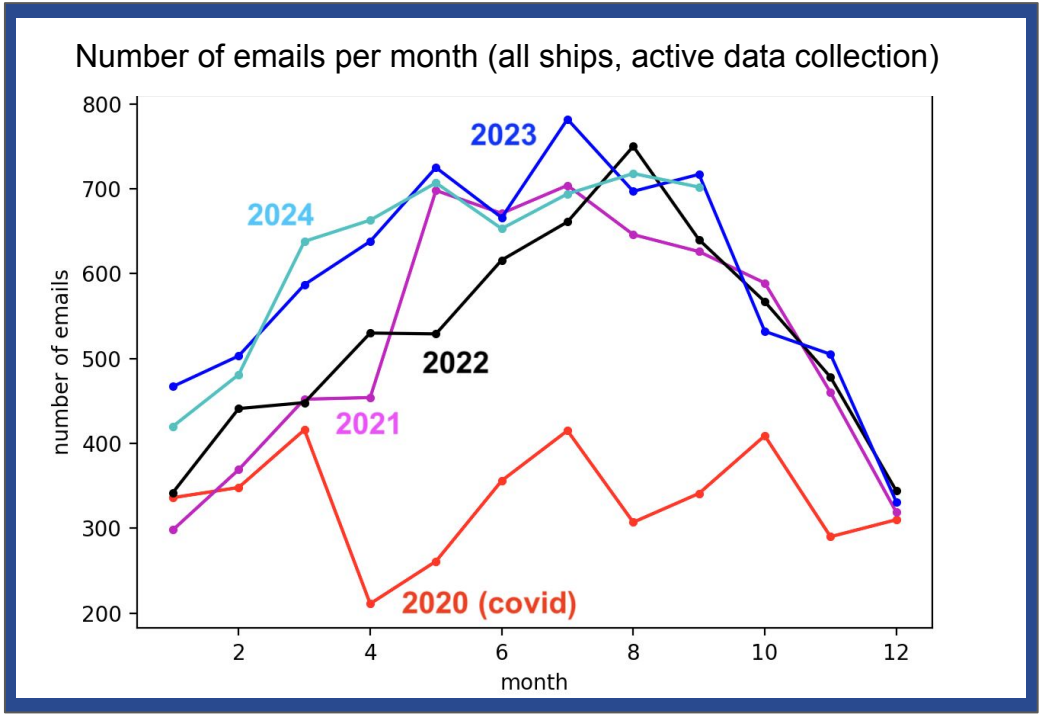
UHDAS statistics since the last RVTEC (all ships)

- Total number of remote login "service calls" to make a change: **263**
  - calibration change
  - instrument change
  - build/install (operating system)
  - upgrade (UHDAS code)

- Number of active data collection UHDAS emails read: **7348**

- All UNOLS UHDAS computers are now running Xubuntu 22.04
  - getting close to testing 24.04

- Improving our Cybersecurity stance (implementing STIGs for NOAA)



UNOLS ADCP Pool (Scripps manages, UHDAS consults)

Concept: build up a collection of repaired instruments

- When appropriate, during dry dock,
  - send current ADCPs back to the pool
  - Scripps will send them to RDI to be refurbished
  - get refurbished+tested ADCP from the Pool

2024 Examples

- Pelican wh300 (Pool loaner: one beam is weak)
- Sikuliaq
  - Their os75 died
  - repaired os75 from the ADCP Pool was used
    - bad beamformer board
      - generic board from RDI
- Endeavor
  - os75 temperature spiked, death is imminent
  - repaired os75 from the ADCP Pool being shipped

UNOLS 2024 ADCP problems and Pool Usage

Pelican:

wh300-original (taken out): individual beam biases; bad DSP board

wh300-loaner from UNOLS Pool (on ship): bad beam 1, weak other 3 beams

Rachel Carson:

wh300: weak beam 4

Atlantic Explorer:

new SV300 flooded when deployed (hole in chassis)

Savannah:

wh1200 is flooded

wh300: installed on the ship

Sikuliaq:

os75 was replaced with a UNOLS Pool os75 (beamformer board failed after a few hours)

os150 (on ship): two weak beams, awaiting cable replacement and drydock

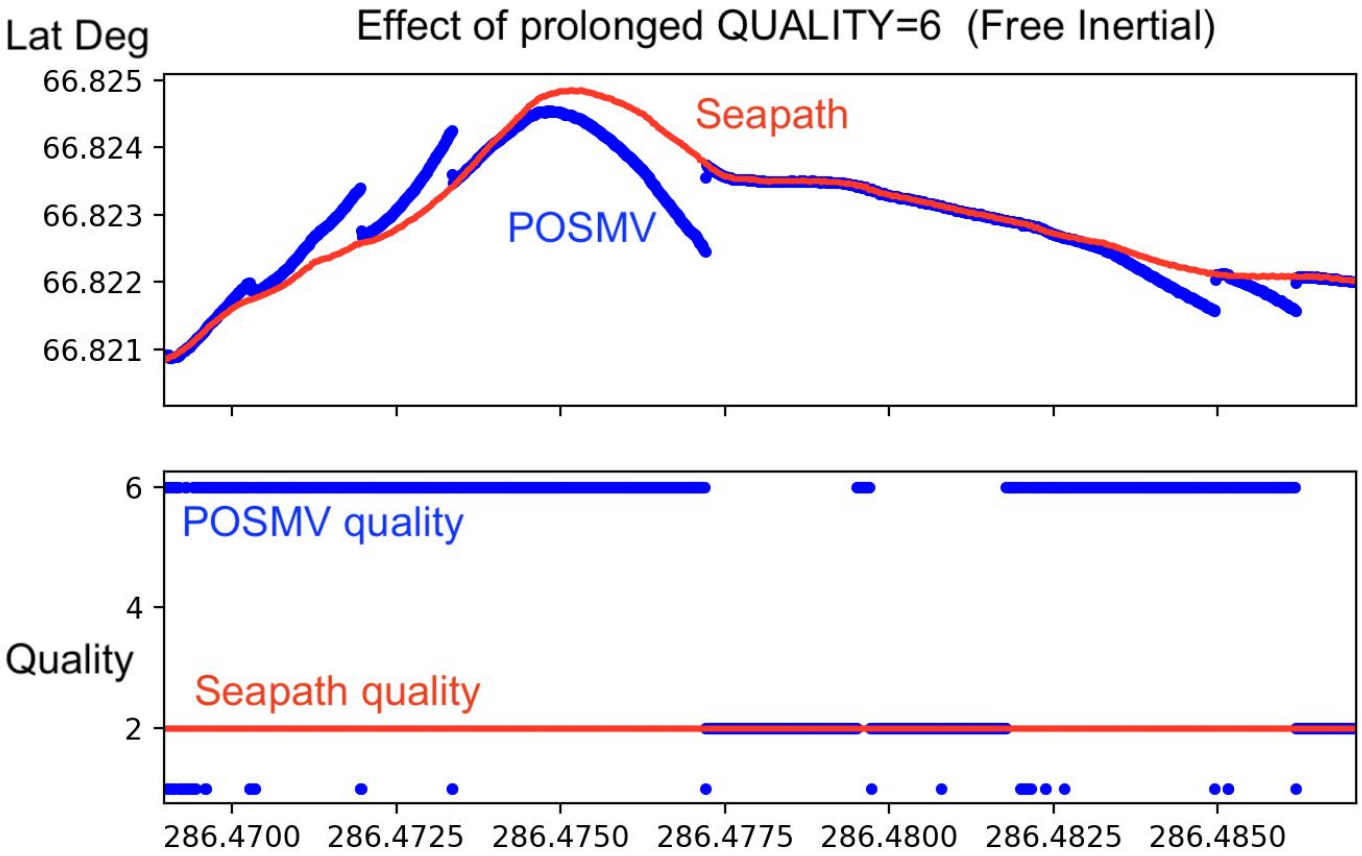
New Instruments

- Pinnacle (loaner returned to RDI, waiting for diagnosis and repair)
- Kongsberg EC150
    - can run in velocity mode OR bioacoustic mode
    - UHDAS can run this instrument in velocity mode by
        - communicating via API with EK80 computer
        - EK80 sends back a ZeroMQ datagram
    - new EK80 software coming soon
    - Sally Ride has one - probably time to do some testing

Accurate Heading (0.1deg)

- ABXTWO is End of Life;
    - Trimble says BX992 is the replacement
        - only 2 antennas
        - less accuracy than ABXTWO
    - Will evaluate on R. Brown (compare to POSMV)
- Other Options:
    - POSMV
    - Seapath
    - Hydrins, Phins,
    - MGC (on Ride, Revelle, Sikuliaq; evaluate)

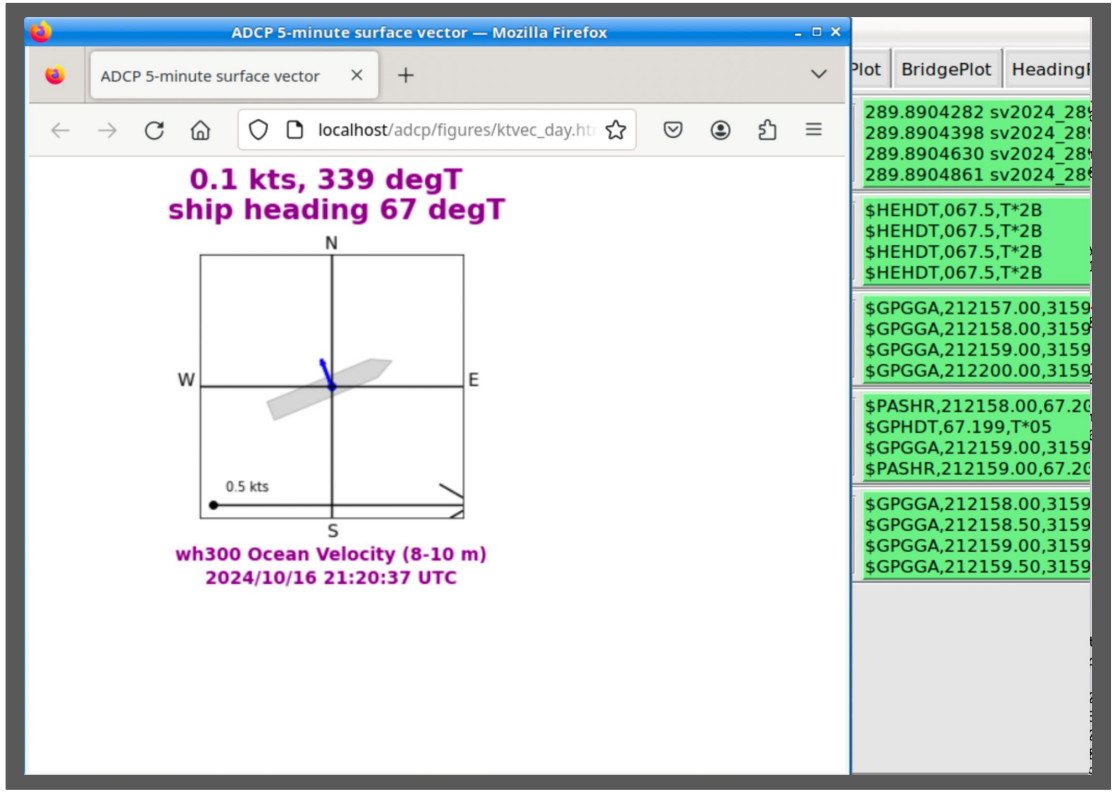
Position: "Free Inertial" (dead reckoning) means positions are likely to drift.



Best Practices: new/highlight

- secure logging by clicking "stop recording" (so we know it's deliberate)
- Make the following VISIBLE on the Desktop:
  - UHDAS GUI (Monitor Tab)
  - web site (figures)

Minimal example



Best Practices link