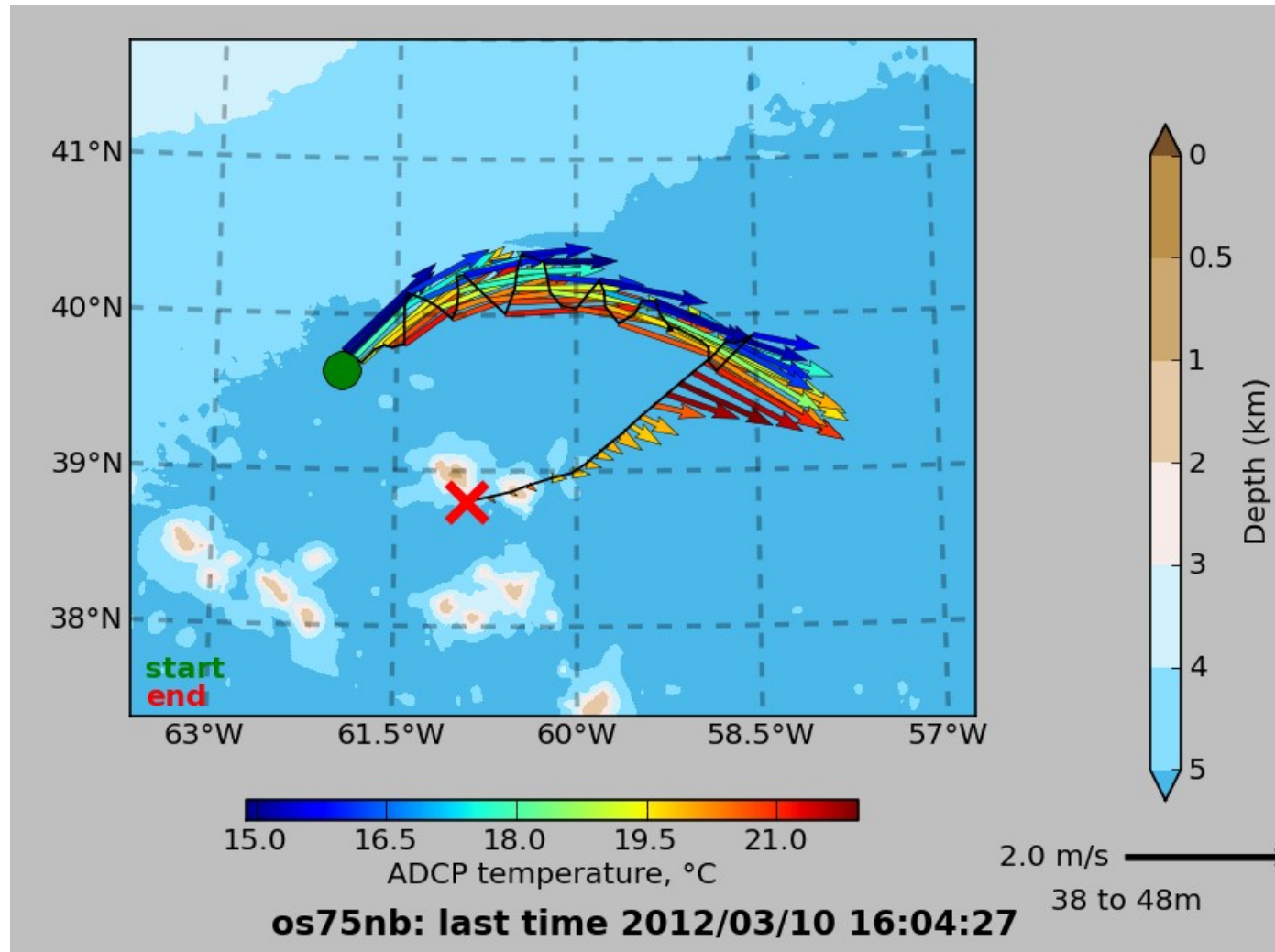
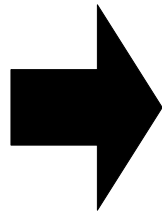


RVTEC Nov 2016 – UHDAS/ADCP

Time,
ADCP
Position
Attitude



primitive data

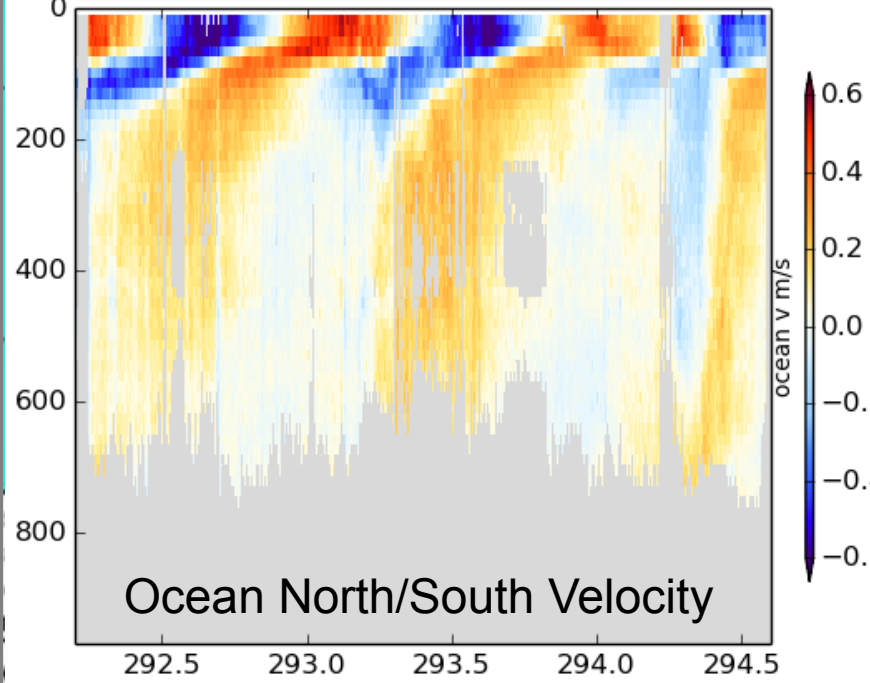
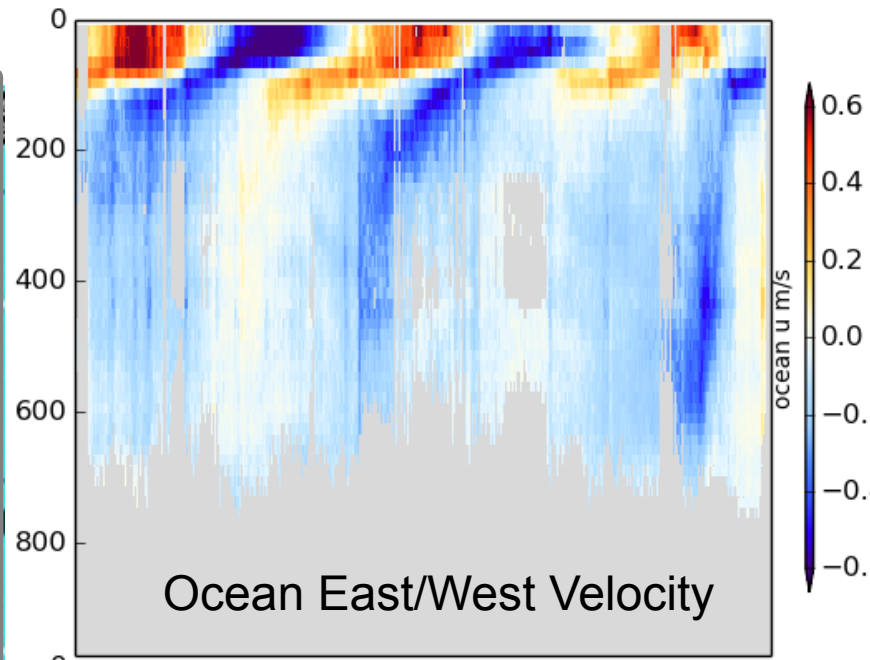
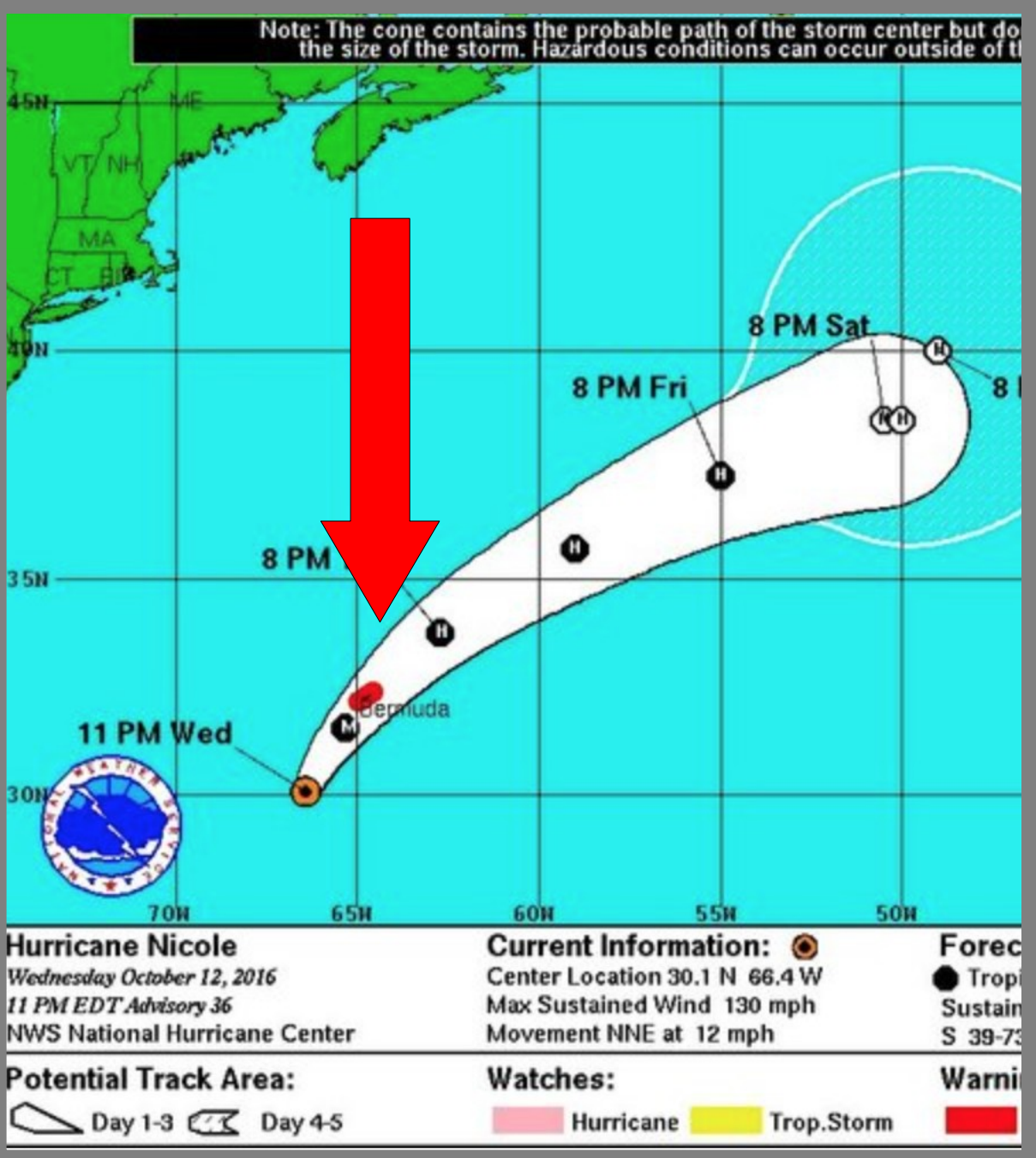
ocean velocities

UHDAS/ADCP

Review UHDAS Concept:

- Acquisition: reliable, robust, duplicate feeds
 - reliable heading, accurate heading
 - 1deg heading error at 10kts → 10cm/s cross-track error
- Monitoring and **remote troubleshooting**
- Processing
 - Balance real-time output and post-cruise recovery
 - Minimal effort to “touch up” (if all goes well)
 - Investigate subtle problems and reprocess if necessary
 - Portable code and **documentation**
- Central location for community knowledge (<http://uhdas.org>)
- Happy Scientists, Happy Techs

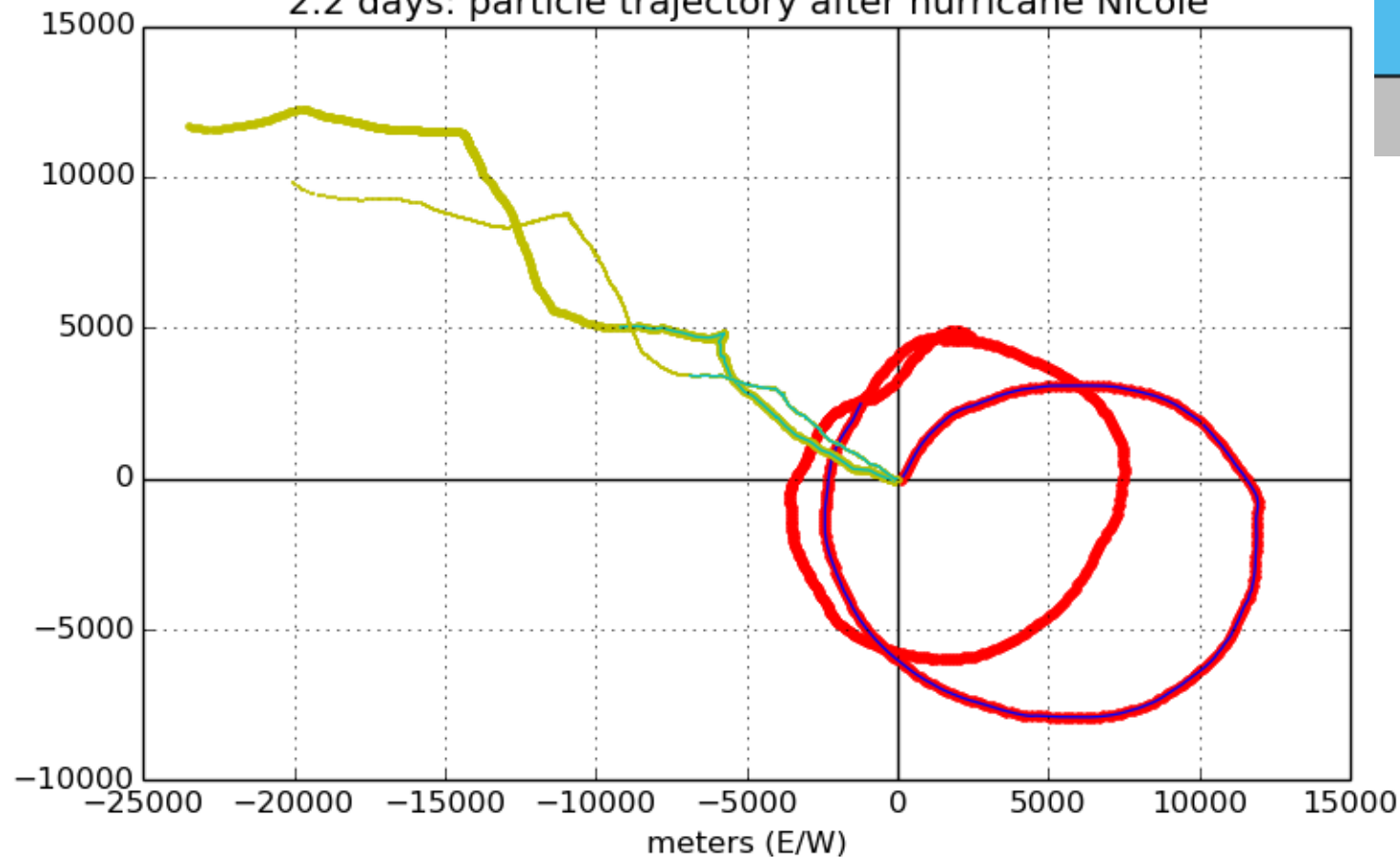
Hurricane Nicole + Bermuda



Hurricane Nicole: Atlantic Explorer



2.2 days: particle trajectory after hurricane Nicole



UHDAS Systems (2016)

- **16 UNOLS ships:** Atlantic Explorer, Neil Armstrong, Atlantis, Blue Heron, Endeavor, Hugh Sharp, Kilo Moana, Langseth, Oceanus, Pelican, R.Revelle, Sally Ride, Sikuliaq, R.G.Sproul, T.G.Thompson, F.G.Walton Smith
- **3 polar ships:** Healy, L.M.Gould, N.B.Palmer
- **8.0++ NOAA ships:** Bell Shimada, Hi`ialakai, Nancy Foster, Oscar M Sette, Ron Brown, Okeanos Explorer, Pisces, Gordon Gunter, Henry Bigelow, Ferdinand Hassler, Thomas Jefferson
- **3 “other” ships:** Ka`imikai O Kanaloa, Falkor, Pt Sur,
- **1 Volunteer Observing Ship:** Oleander
- **1 “cooperative” installation:** Tioga

link: installation status table

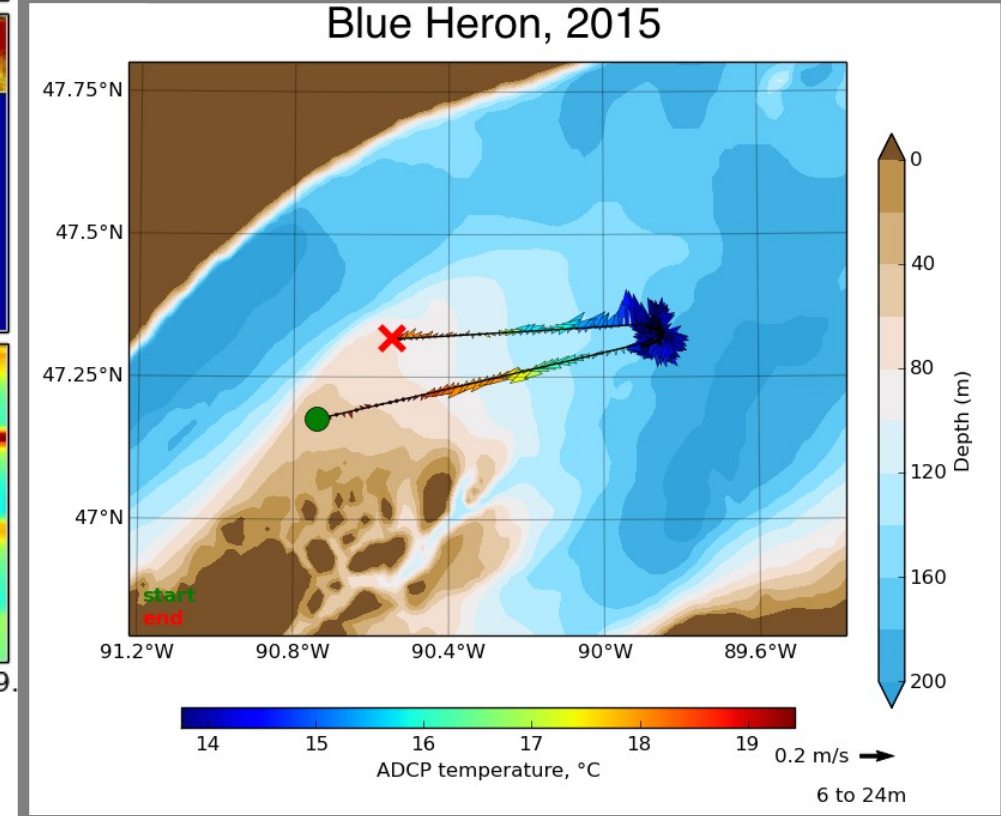
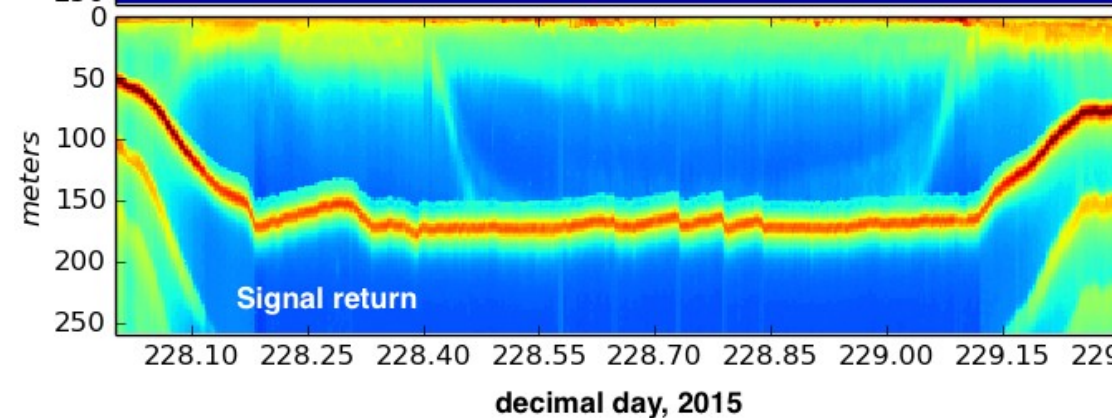
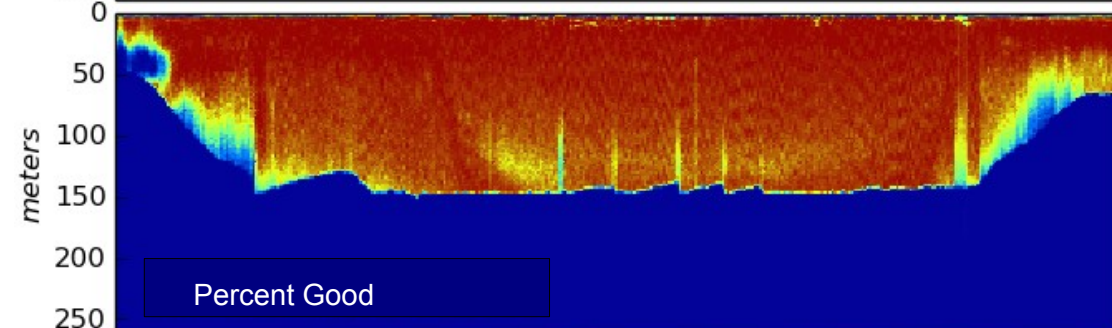
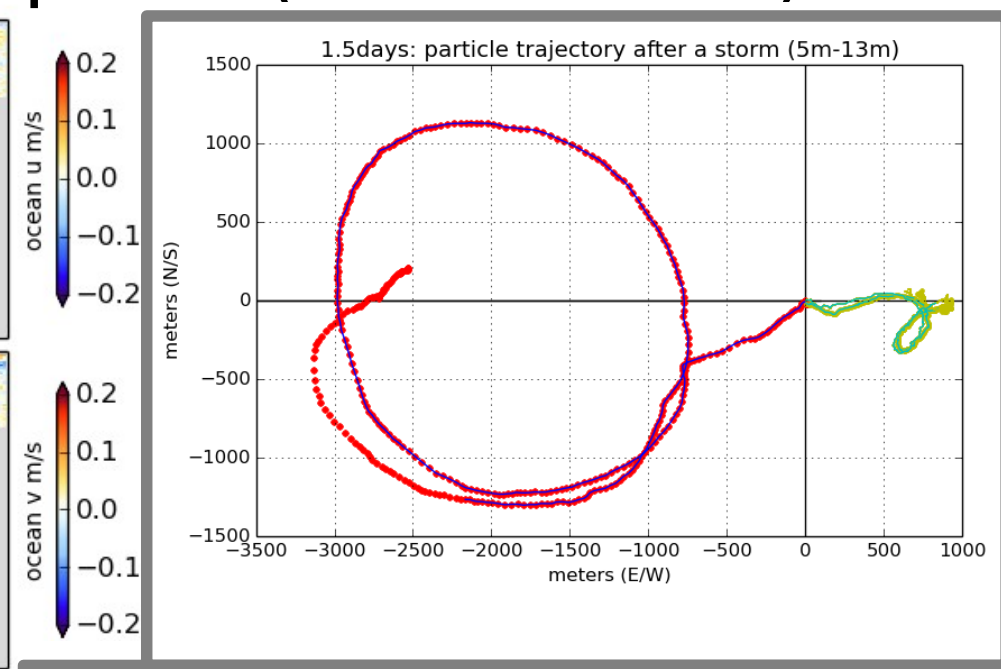
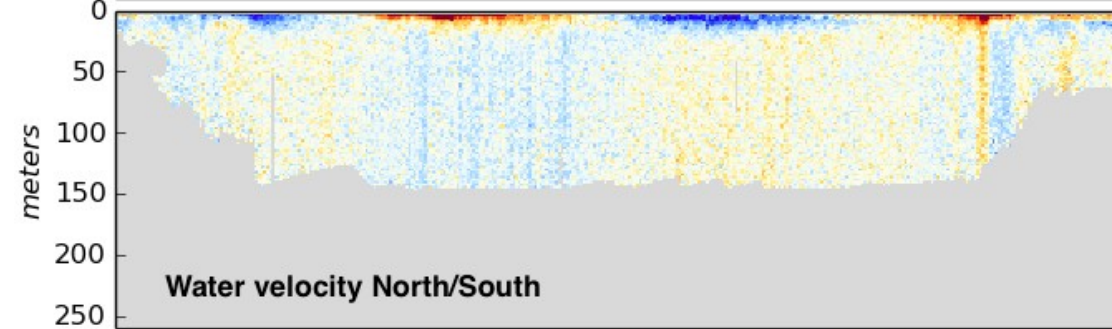
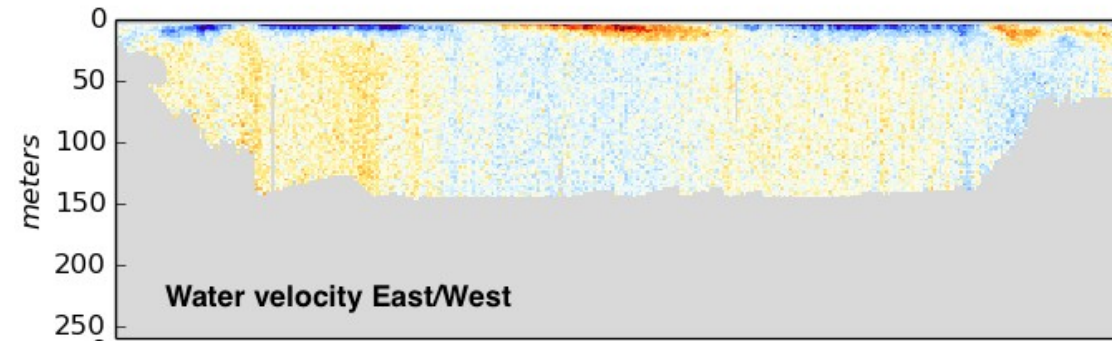
UHDAS: recap of 2016

- new installs, refreshed:
- meetings:
 - Environmental Data Management (Wa. DC)
 - Ocean Sciences 2016
 - R2R Advisory Panel
 - INMARTECH (Norway)
- New developments:
 - backscatter (now on panel plots at sea)
 - improvements to email reporting

UHDAS installations in 2016

- **Newly installed (new UHDAS ship):**
 - Hugh Sharp, Neil Armstrong (SAT), Blue Heron, Sally Ride (SAT)
 - Okeanos Explorer, Gordon Gunter, Pisces, Sette, (Hassler, Jefferson)
- **Refreshed in 2016:**
 - Atlantic Explorer, Ron Brown, Nancy Foster, Neil Armstrong, Oceanus, Healy, Kilo Moana, Revelle, LMGould,
- **In process**
 - **new:**
 - Investigator (Australia)
 - RCCL Adventure of the Seas (VOS)

Blue Heron: Lake Superior (after a storm)



Problems: ADCP instruments

<u>ship</u>	<u>instrument</u>	<u>repair</u>
• Endeavor	: OS75	Jan 2016
• Langseth	: OS75	Sept 2016
• Revelle	: OS75	Jan 2016
• Sikuliaq	: OS150	Dec 2015
• N. Foster	: OS150	Sept 2015 (*1)
• Sikuliaq	: OS75	Dec 2016 (*2)
• Pt Sur	: WH300	on loan (*3)
• Sette	: OS75	unknown
• Pisces	: OS150	Feb 2017?
• Palmer	: OS38	March 2017
• Falkor	: WH300, OS75	June 2017 (*2)

(*1) nail hole during dry dock

(*2) leaking endcap? temperature pegged at 92; system failed after 4–8 weeks

(*3) incorrect model for shipboard use, required special settings

Accurate Heading

- **POSMV:** (*quality plots*)
 - **excellent:** Falkor, Hi`ialakai, Kilo Moana, Nancy Foster, Okeanos Explorer, Thompson, Walton Smith, Gordon Gunter, Ron Brown, Blue Heron, Hi`ialakai
 - **poor:** Bell Shimada, Bigelow
 - **fixed:** Ron Brown, Healy
 - **out for repaired:** Falkor
- **Seapath:**
 - **excellent:** L.M.Gould, N.B.Palmer (2), Sikuliaq, Armstrong, Revelle, Ride, Falkor
 - **fixed (presently excellent):** Healy, Langseth
- **Phins:** Atlantis, Revelle, Ride
- **Ashtech:**
 - **ADU2/ADU5:** Endeavor, Healy, Oceanus, Sproul, Revelle
 - **ADU800:** Atlantic Explorer, Pelican, Pt Sur, Oleander, Adventure
- **Mahrs:** KOK

2017 improvements/projects

- new installations:
 - UNOLS: (Savannah? Barnes?)
 - NOAA ships (for those with transducers)
- directions for improvement:
 - work with R2R to improve QA tools
 - better tracking of serial metadata and history
- further software improvements
- start to leverage <http://uhdas.org>
- ADCP processing workshop (fall?)
- Question: RVTEC ADCP ‘troubleshooting session’?

Expected Challenges (2017)

- Acoustic Interference:
 - NOAA ships with EK60 mandate
 - Sally Ride, Neil Armstrong, Sikuliaq,
 - Kongsberg = Sonar Integrator (“Ksync”)
 - Large number of modern sonars
- next version of operating system (16.04)
 - operating system working with UHDAS
 - update documentation (CODAS install, demos)
- growth: larger group, more ships, more needs

Continuing Request:

Keep us in the loop regarding (**give us lots of warning**)

- New ADCP (requires configuration, calibration)
- Replaced/Reinstalled ADCP
- Changes in serial feeds
- New attitude devices (we like to evaluate them)
- changes in networking
 - route to ship
 - infrastructure on ship
- Science Special Needs (triggering, temporary instrument)

Protocol

- Always run “End Cruise” before archiving
 - UHDAS adds final metadata to directory
 - UHDAS builds a “reports” directory to help with QA
- If rsync (regular backup)
 - **ALWAYS** use complete cruise name

web site: <http://uhdas.org>
email uhdas@hawaii.edu

Final request

... as always:

Send your needy scientists to Jules

