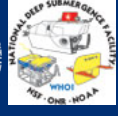




# *Sentry Upgrades* Personnel



We expect to have two complete seagoing crews by Nov 2013, although we will probably continue to mix and match rather than have set teams

- Greg Kurras – New Contractor

- Kaiser/Kurras cruise October 2012 (Kurras pre/post dives)
- 2-3 more cruises next year (possible future E/L)
- 15+ year geophysics and at-sea technical background

- Justin Fujii – Mechanical

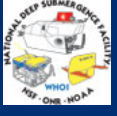
- Ready for a solo cruise

- Sean Kelley – Electrical

- Joining the *Sentry* team Jan 2, 2013. Will do ~4 cruises next year; still some *Alvin* involvement as needed



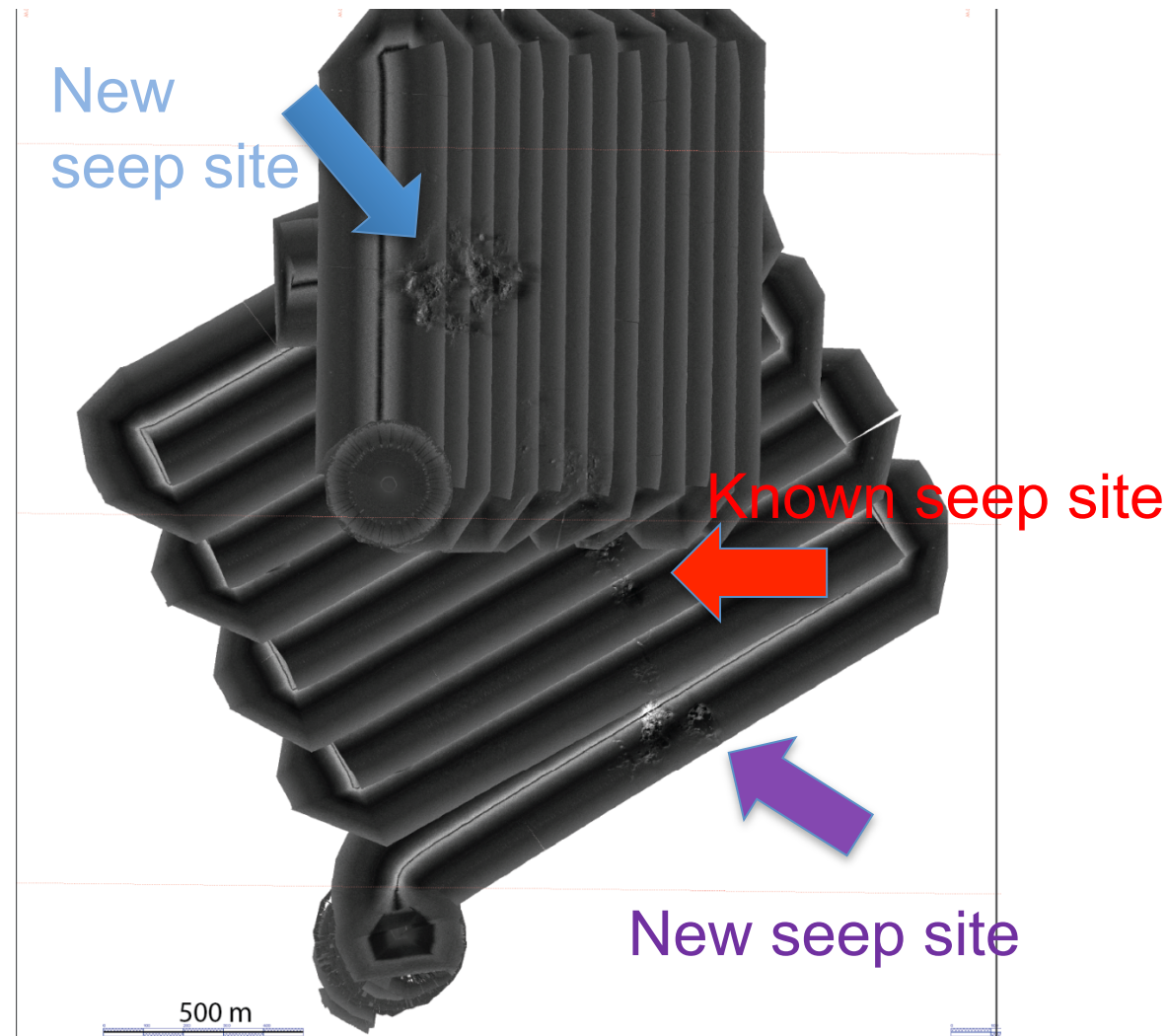
# Sentry Upgrades Recently Completed



- 6km upgrades successful:  
15 dives to > 6km since
- Sidescan & sub-bottom pipeline mature and in use
- New cradle in use for two cruises - significant improvement in safety for vehicle and people!!



- Electrical noise down significantly (eh/maggie)





# Sentry Upgrades Data and Data Space

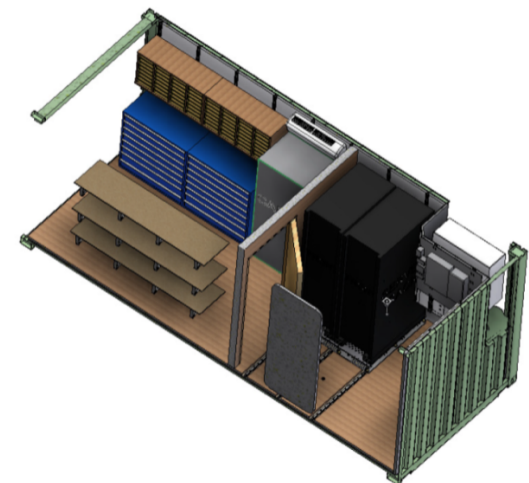
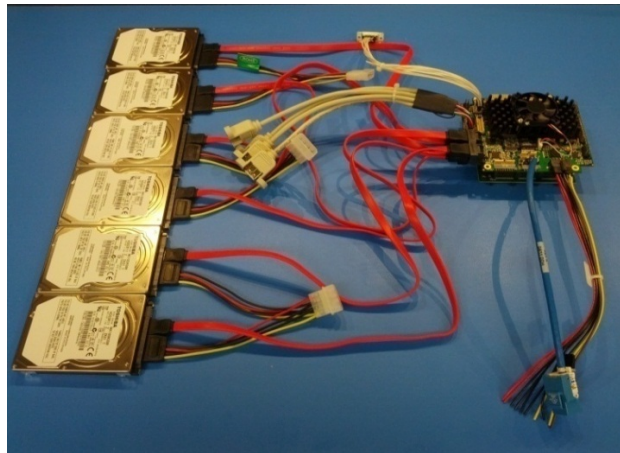
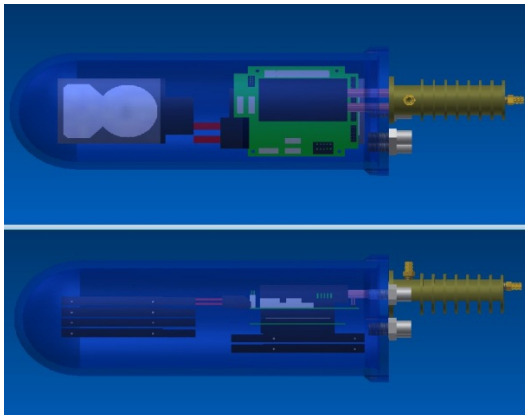


## Problem:

- Typical cruise produces 2TB of data
- 6.5TB cruise last summer
- Expect 20TB cruise within the next 12 months

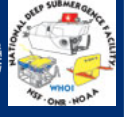
## Solution:

- Hot swappable data pods (6TB capacity)
- Maintains 2-day mobilization capability
- Improves turnaround time – 3 hrs with new batteries in 2014
- New rack mount server and storage system
- Computing room in *Sentry* van

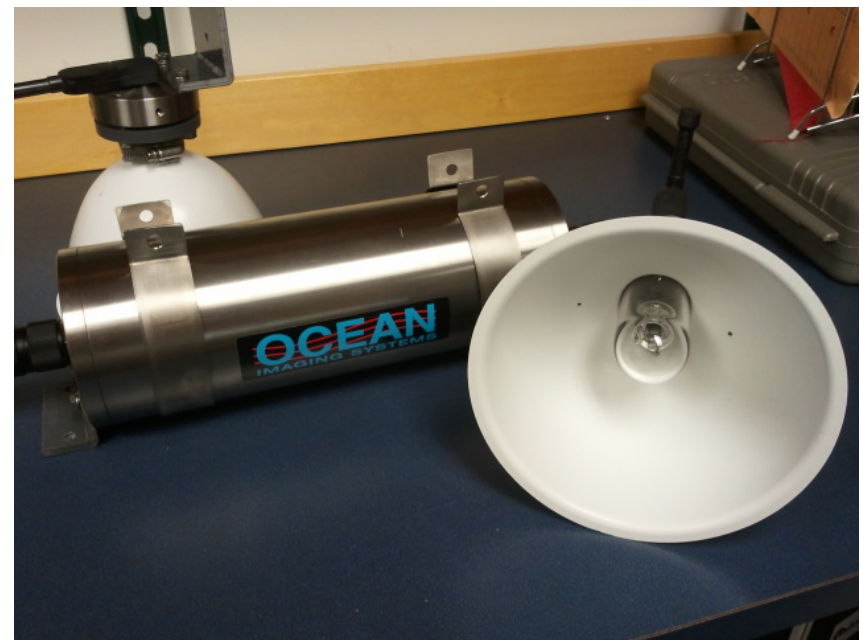




# Sentry Upgrades Imaging System

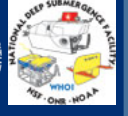


- New camera & lens tested
  - 10.7MP low light, machine vision
  - Insite working on housing and optical correction (online 2013?)
- New strobe installed
  - Doubled photo rate, 0.3 Hz
  - Used during two cruises

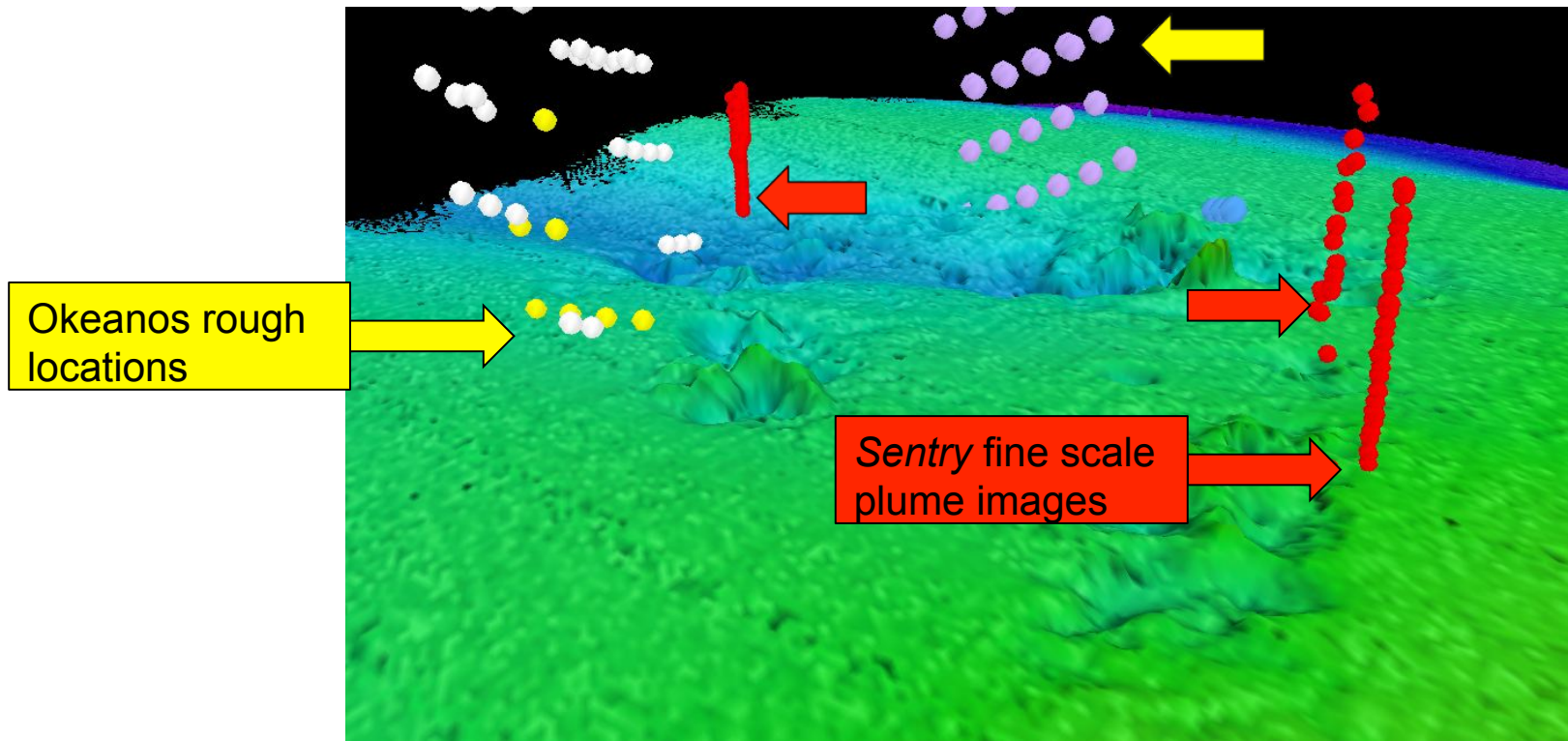




# Sentry Upgrades Multibeam



- Full component spares (except projector)
- Remote start and shutdown = longer missions, easier launch
- Smaller, lighter version being considered = longer missions, more payload, longer max range, plus old one becomes hot spare
- Starting to work on Reson backscatter product
- Nascent water column 3-D visualization product (thanks Meme Lobecker)





# Sentry Upgrades Software

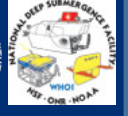


- Goals: ease workload, reduce errors, improve flexibility
- New graphical launch controller = faster, easier launch
- New mission controller (external funding) = more adaptive missions and new behaviors/capabilities
- Improved controller = more robust to faults plus better line following, better photomosaics
- Metadata logger - automatic logging of sensor metadata
- Telepresence - outreach, education, engineering flexibility, remote data processing, remote operations





## *Sentry Upgrades* **Miscellaneous**



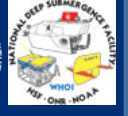
- New thruster prototype assembled
  - Flume testing soon
  - Believed to be much more efficient with greater top speed
- Anchoring
  - Two competing concepts with initial experiments ongoing
- Nose and wing foam
  - Adding 35 lbs of payload (spring 2013)
- AIS recovery beacon
- Replacement GPS/Iridium system







# Jason Upgrades Accomplished So Far

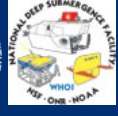


- LARS crane and docking head successfully integrated
- New active heave compensation winch arrives Feb 2013
- Improved *Medea* release
- Imaging
  - HD stills recording with Insite Mini Zeus
  - New strobes integrated
  - New LED lights (eliminated HMIs)
  - 3 pan and tilts (increased from 2)
  - New light bar



## *Jason Upgrades*

# Maintenance Underway



- Flotation removed for frame and flotation repairs
- Propulsion system
  - Overhaul motors and controller pods
- Rebuild wiring harness and pressure housing penetrators
- Kraft and Schilling manipulator eval and maintenance
- New CTD integrated and calibrated
- Depth sensor calibrated
- Cameras, USBL beacons, pan and tilts
  - To manufacturers for service
- Hydraulic pump replacement
- New oil handling system
- Website updates
- Pre-dive plan formalization - work in progress



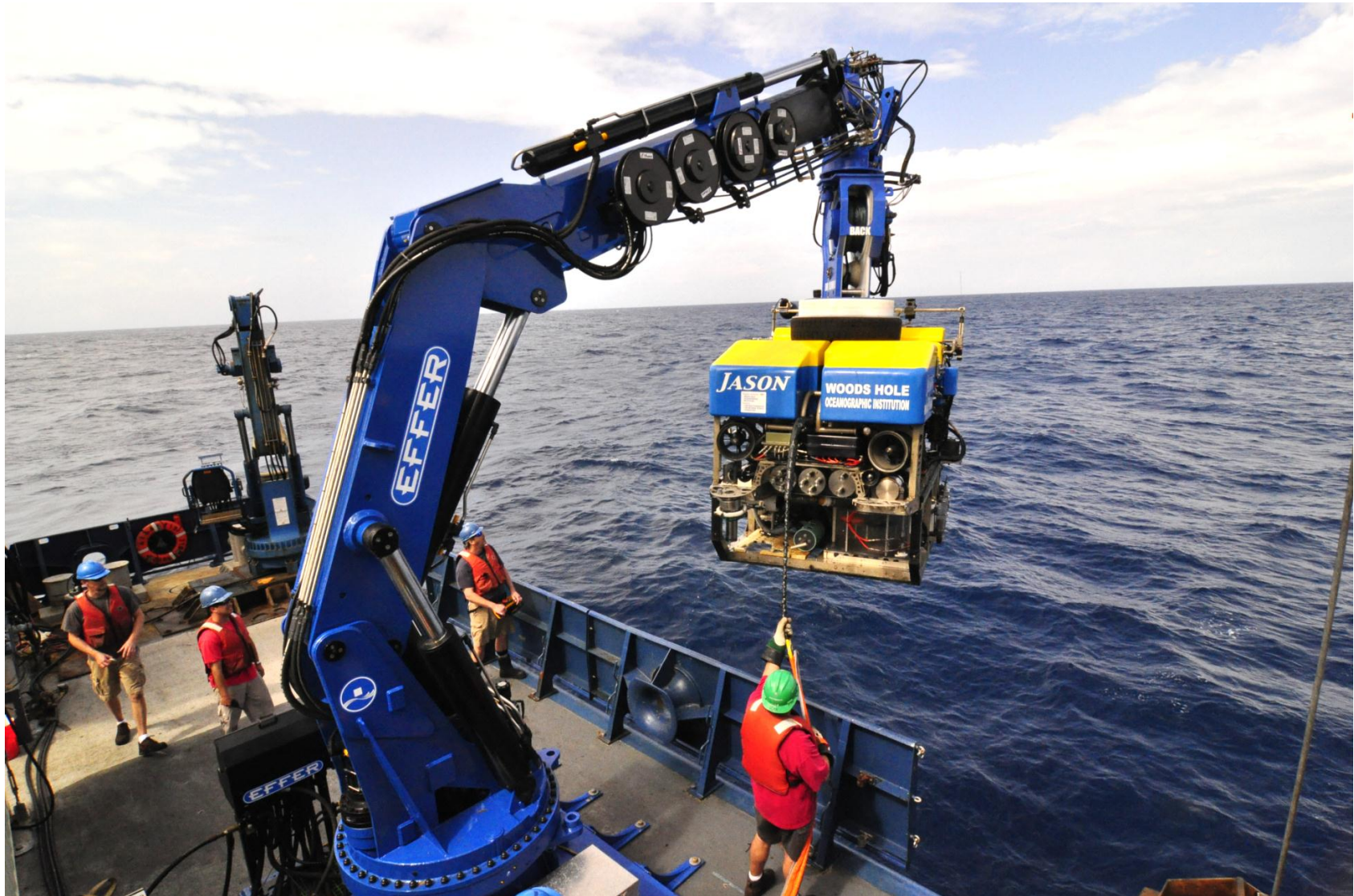
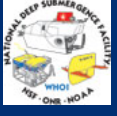
# *Jason Upgrades* **Future Jason Upgrades**



- Manipulator replacement for Kraft
  - When funds are available
- Improvements to the control van AC system
- Improved shipboard remote station
  - Incremental improvement for 2013
- Shoreside telepresence
  - Innerspace Center collaboration being considered
- All video and data in computer file form
  - Science party delivery by hard drive
  - Archive delivery by hard drive or tape (LTO)



# Jason Upgrades Jason & LARS Crane





# Jason Upgrades Control Vans

