



NDSF 2017 Vehicle Operations Summary

Alvin Operations



- **80 operating days**
- **4 cruises (1 underway)**
Guaymas Basin, Costa Rica, East Pacific Rise
- **45 dives**
- **334 hrs submerged**
- **Longest dive: 9.0 hrs**
- **Average dive: 7.5 hrs**
- **Average bottom time: 5.0 hrs**
- **Average depth: 2,270 m**





NDSF 2017 Vehicle Operations Summary **Alvin Highlights**



- **Continuing successful dive operations in Pacific operations areas**
- **AT37-10 *Alvin* Engineering Series, March 2017**
 - Completed 4 dives along transit between Chile and Costa Rica
- **Use of 4K camera during AT37-11, Luther EPR cruise, April 2017**
 - Luis Lamar (AIVL photographer) participated in cruise with the *Alvin* Group as a camera tech and to obtain video and still imagery
- **AT37-14 *Alvin* Engineering Series, June 2017**
 - 4,500m engineering dive planned at Cayman Trough
 - SUBDEVRON 5 participation



NDSF 2017 Vehicle Operations Summary ***Alvin* Highlights**



- **New *Alvin* Expedition Leader – Todd Litke**
 - Retired US Navy DSV pilot with 28 years experience in operations, team management and maintenance of deep submergence systems
 - Currently on board R/V *Atlantis* for first cruise with the group
 - Quickly qualifying on various operational positions and beginning *Alvin* piloting training
- **MATE intern, Daniel O’Grady, on Cordes & transit**



NDSF 2017 Vehicle Operations Summary

Alvin Highlights



- Retired *Alvin* titanium sphere and sail loaned to Ronald Reagan Library & Museum
 - Part of RMS *Titanic* history display through end of 2017

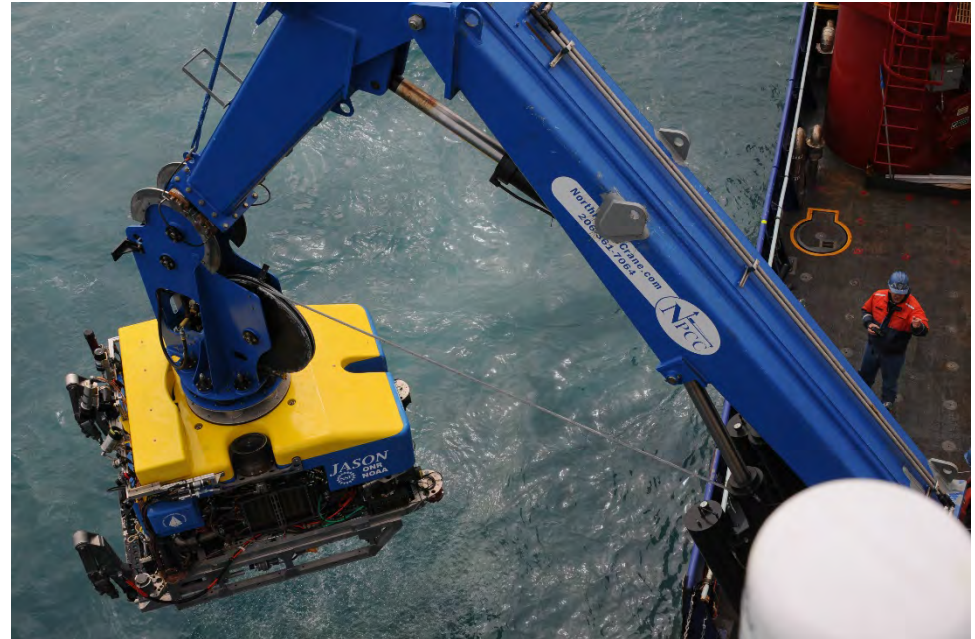


NDSF 2017 Vehicle Operations Summary

Jason Operations



- **73 operating days**
- **3 cruises**
Catalina Basin, Pito Deep, Chilean Subduction Zone
- **17 dives, 480 total hrs**
- **On bottom: 421 hrs**
- **Longest: 69 hrs**
- **Average: 25 hrs**
- **5,275 m max depth**
- **Vessels used:** *Sally Ride, Atlantis*





NDSF 2017 Vehicle Operations Summary

Jason Highlights

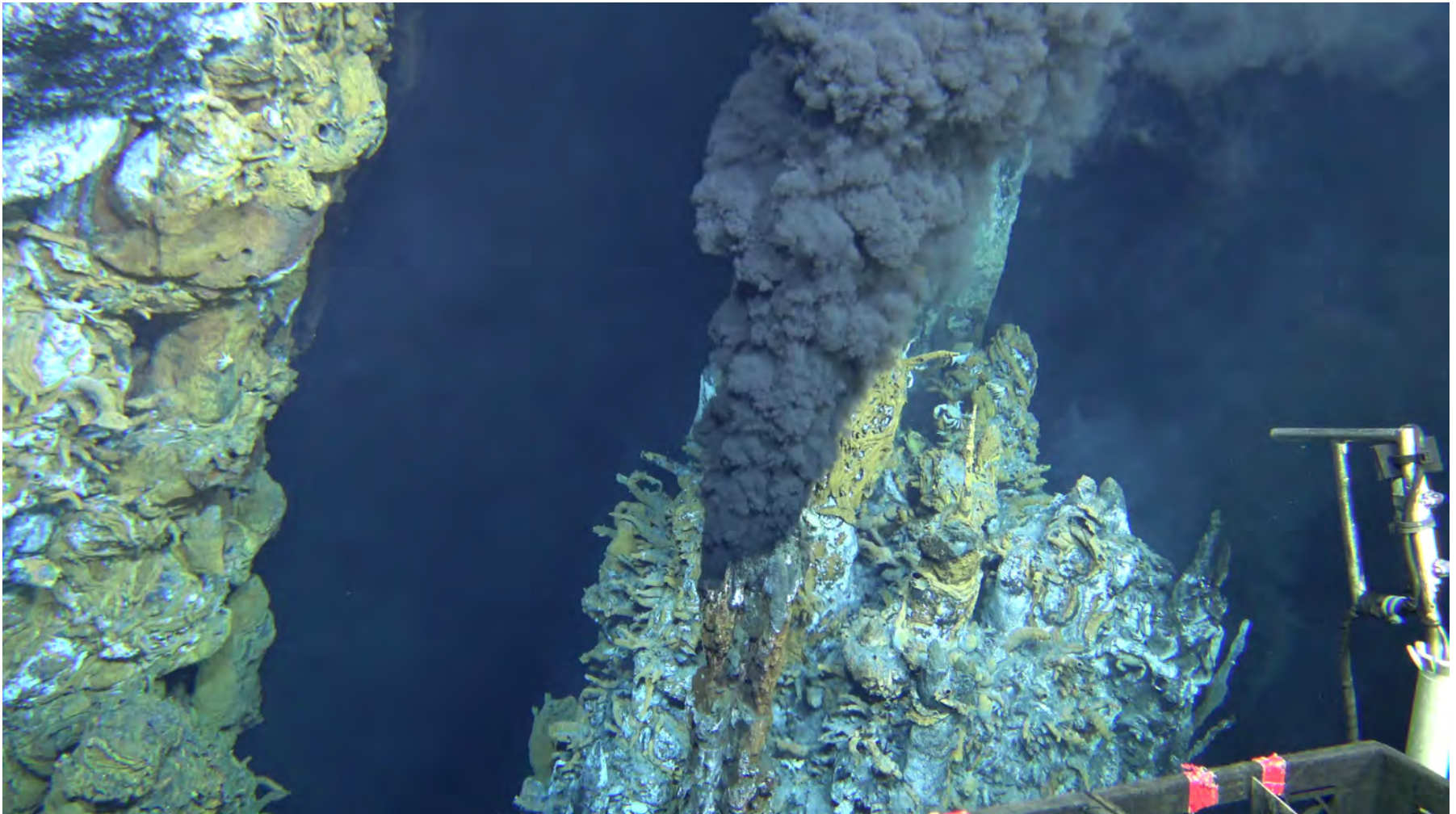


- **Two-body ops on *Atlantis*, first *Medea* in 1+ years**
- **Cheadle, Pito Deep with *Sentry***
 - *Sentry* & *Jason* ops with reduced staff
 - Magnetics & rock sampling on extreme terrain
- **McGuire, Chile**
 - Deploy acoustic ranging system for seafloor geodesy
 - **Zero *Jason* failures**
- **Camera upgrade to 4K**
 - Ultimate goal to provide both stills and video with one camera
 - Tested Sub-C on Cheadle
 - Good images, poor interface
 - Testing WHOI/AIVL 4K on upcoming cruise



NDSF 2017 Vehicle Operations Summary

Jason Highlights



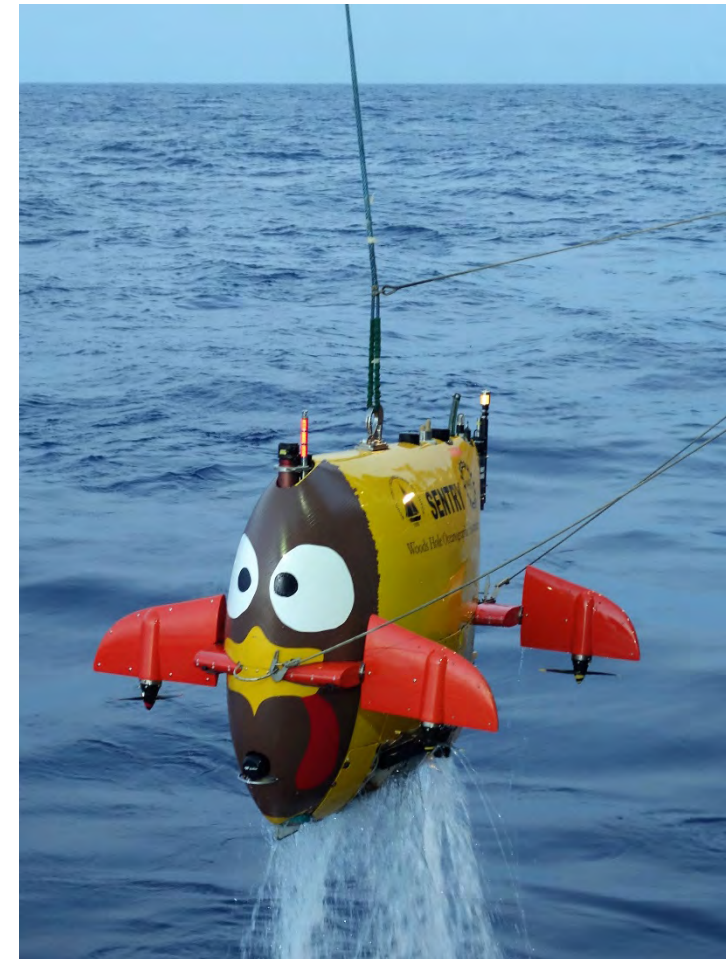


NDSF 2017 Vehicle Operations Summary

Sentry Operations



- **103 operating days**
- **3 cruises (1 underway)**
East Pacific Rise, Guaymas Basin, Pito Deep
- **36 dives, 552 hrs in water**
- **Total survey time: 460 hrs**
- **Average dive time: 15.8 hr**
- **1,320 km of survey**
- **Vessel used: *Atlantis***





NDSF 2017 Vehicle Operations Summary



Sentry Highlights

- **2016**
 - 98% of dives yielded at least some useful science
 - 82% had all key systems functional for at least 75% of the plan and 64% were perfect
- **Operated in very challenging canyons for photos and extremely challenging PITO deep for mapping**
 - Minimal failures due to bottom impact
- **Massive documentation effort**
 - Nearly 600 pages of a *Sentry* wiki
 - Fully revision-controlled drawings is significantly improving access to information for new staff and speeding cross training
- **Started major software overhaul**
 - c. 1999+ code evolved from J2 and c. 2008 from *Nereus* is being upgraded to modern techniques
 - Will enable much more flexibility for science and maintain supportability