

# SUBASTIAN

*Schmidt Ocean Institute's*  
Remotely Operated Vehicle (ROV)





# INTRODUCTION

- Jason Williams, P.Eng, Lead Mechanical Engineer
- Schmidt Ocean Institute
  - Not for Profit Organization
  - Goal to advance global marine research
  - Provide state of the art operational, technological and information support
  - Pioneering Ocean science and technology projects
- ROV Subastian
  - 4500m depth rating
  - Development started in 2015
  - Integrated onto R/V Falkor in summer of 2016
  - Sea Acceptance Trials off Guam





# 1<sup>ST</sup> SCIENCE MISSION - 2016

## SEARCHING FOR LIFE IN THE MARIANA BACK-ARC

### ➤ Full depth operations

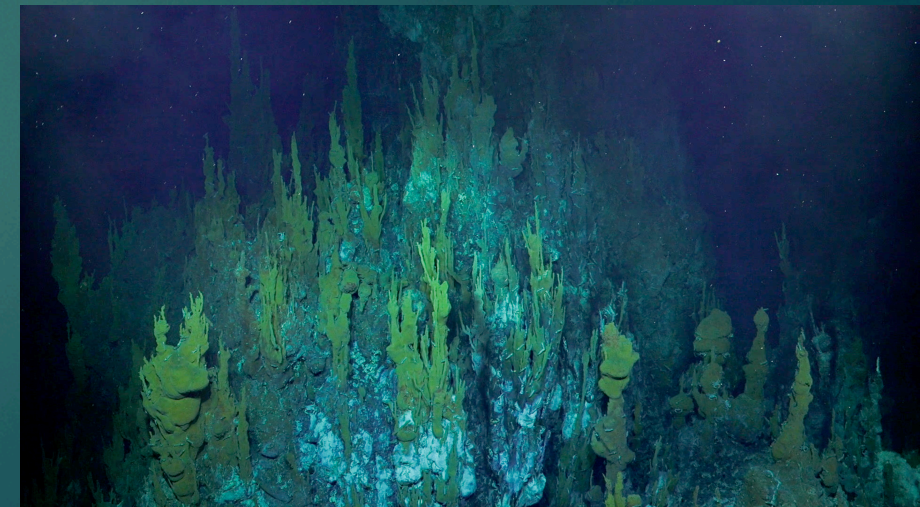
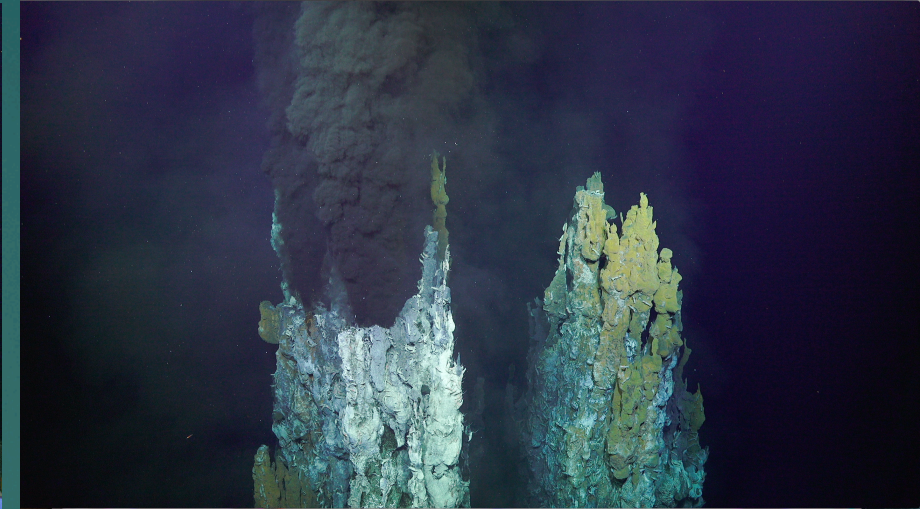
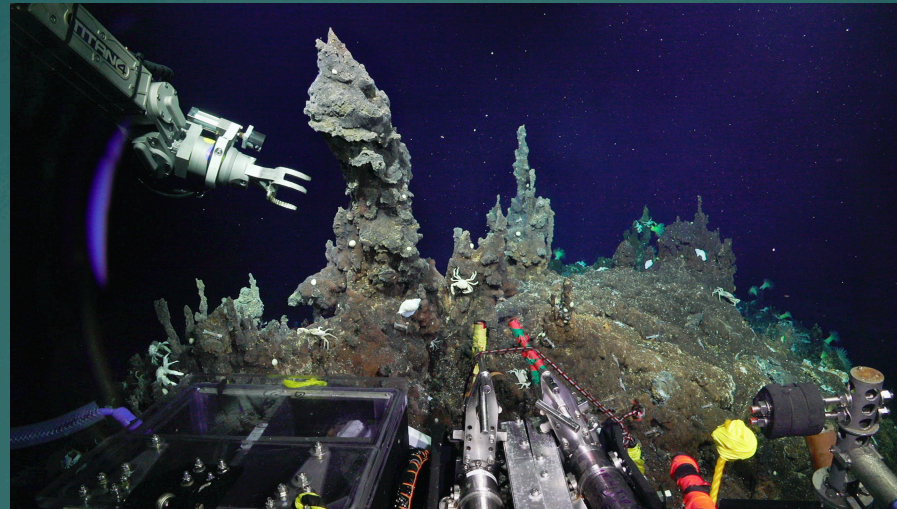
- 14 dives, weather limited

### ➤ Environmental Challenges

- Heavy seas
- Hydrothermal vents
- Long cliff wall transits
- Erupting Volcano

### ➤ Large array of tooling:

- Water samplers
- Suction Sampler
- Temp Probe
- Bio-Boxes
- Gas tights
- Mapper
- Microbiology cans
- Scoops
- Robo-critters
- Rock Boxes
- Mini-Temp Recorders
- Push cores





# 2017 REBUILD AND UPGRADES

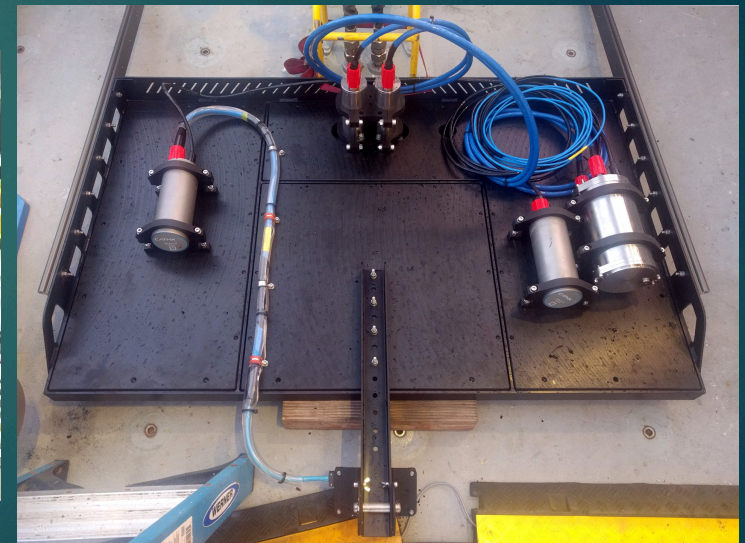
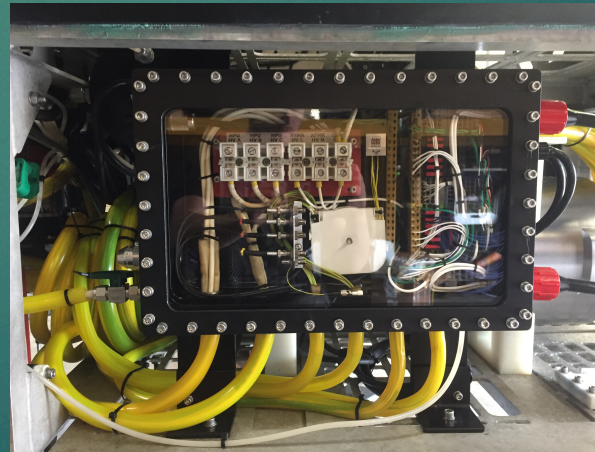
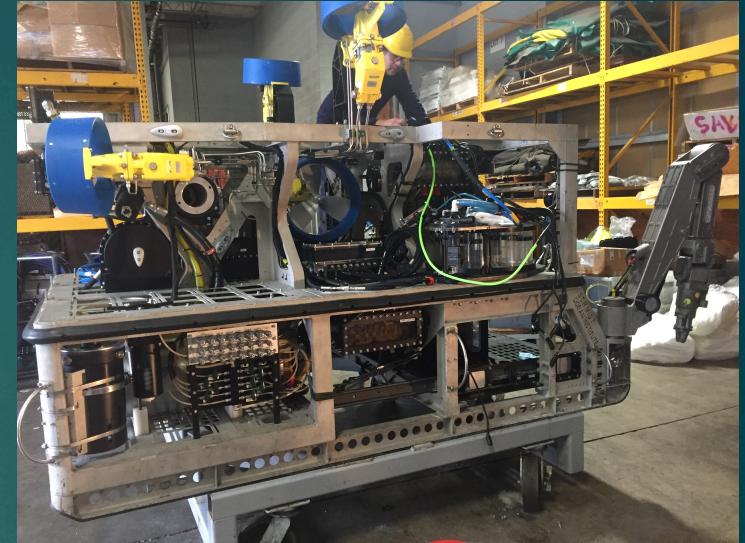
## ➤ Rebuild and Inspections

- Structural inspection of frame
- Corrosion

## ➤ Upgrades

- HD Cameras from Fibre to FlexLink system
- New Termination, Transformer and camera junction boxes
- New Digital Stills Camera
- Photomosaicing system

## ➤ Sea Trials

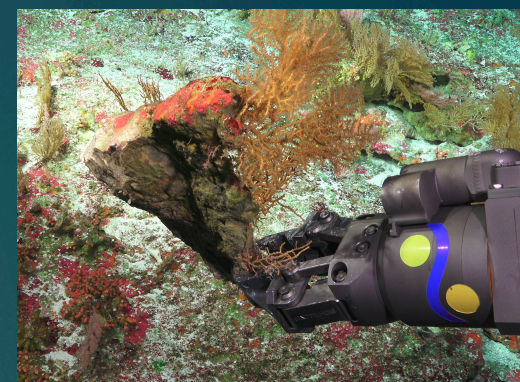




# 2017 SCIENCE MISSIONS

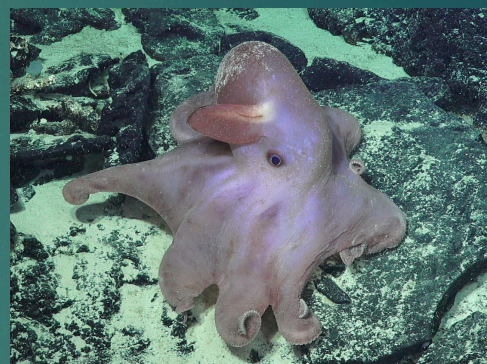
## ➤ Unravelling Ancient Sea Level Secrets

- Hawaii and Palmyra Atoll
- 100-200m operational depths
- Over 2 knot currents



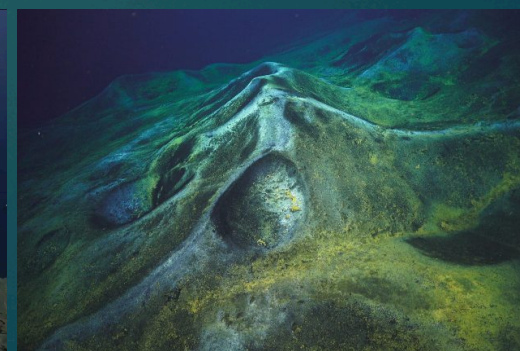
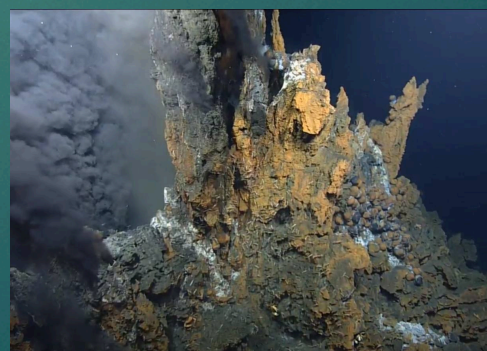
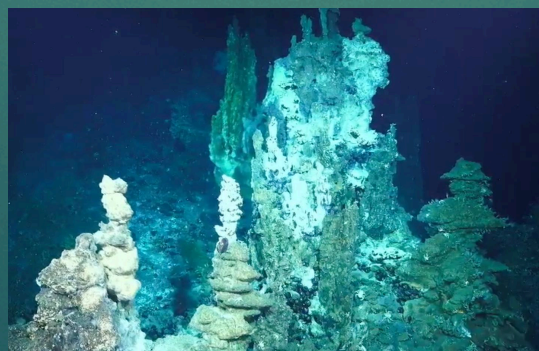
## ➤ Discovering Deep Sea Corals of the Phoenix Island

- 1st deep water biological survey of deepest UNESCO World Heritage Site on Earth



## ➤ Undewater Fire: Studying Submarine Volcanoes of Tonga

- One of earths most dense and diverse active volcanic provinces



➤ OVER 100 TOTAL DIVES TO DATE FOR SUBASTIAN

Annual DeSSC Community Meeting  
December 10, 2017



# 2018 SCHEDULE

## ➤ Rebuild and Upgrades

- Slide out/Swing arms
- Science tooling upgrades
- 4500m deth rated Lander

## ➤ 2018 Science Mission Examples

- White Shark Café,  
Northeastern Pacific Ocean,  
white shark habitats
- Hunting Bubbles:  
Understanding Rising Plumes  
of Seafloor Methane
- Finding the Missing Link –  
Characterizing venting and  
seepage along the California  
Coast

## ➤ [www.schmidtocean.org](http://www.schmidtocean.org)

- Livestreaming ROV Dives





**THANK YOU!**  
**[www.schmidtocean.org](http://www.schmidtocean.org)**

