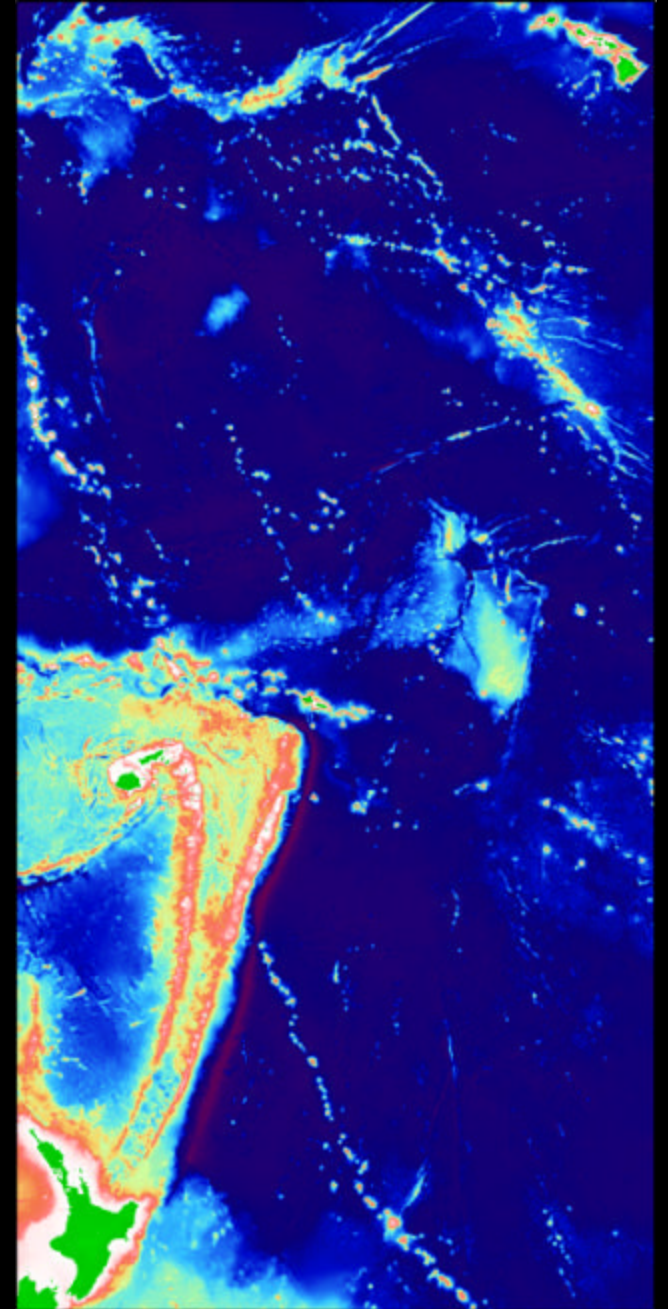


# Hawai'i Undersea Research Laboratory

NOAA's Undersea Research Center  
for Hawai'i & the Western Pacific at  
the University of Hawai'i



25 years of deep submergence science support



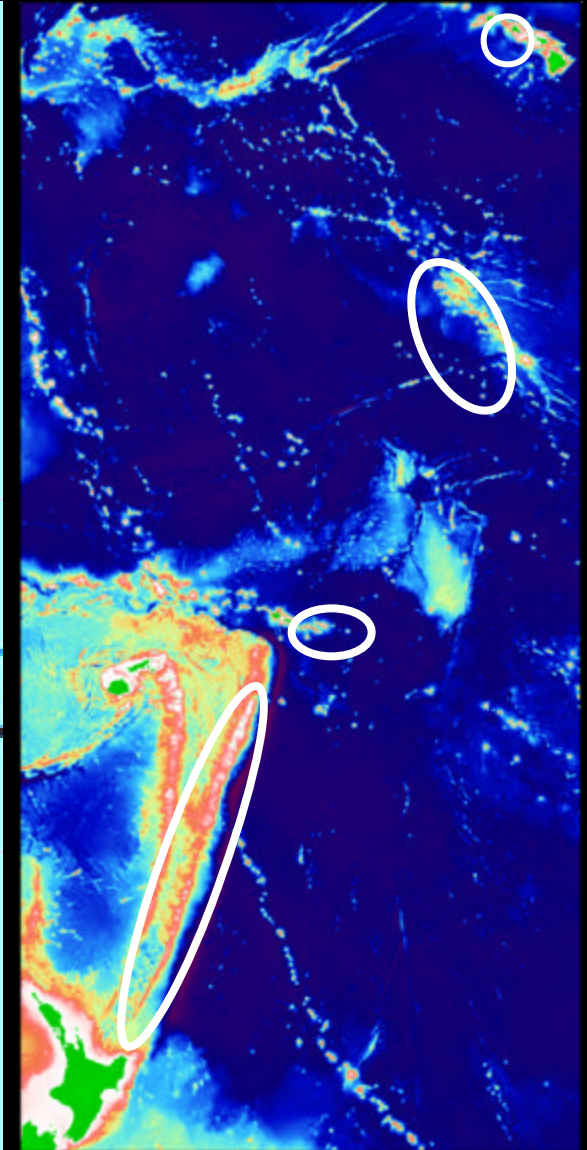
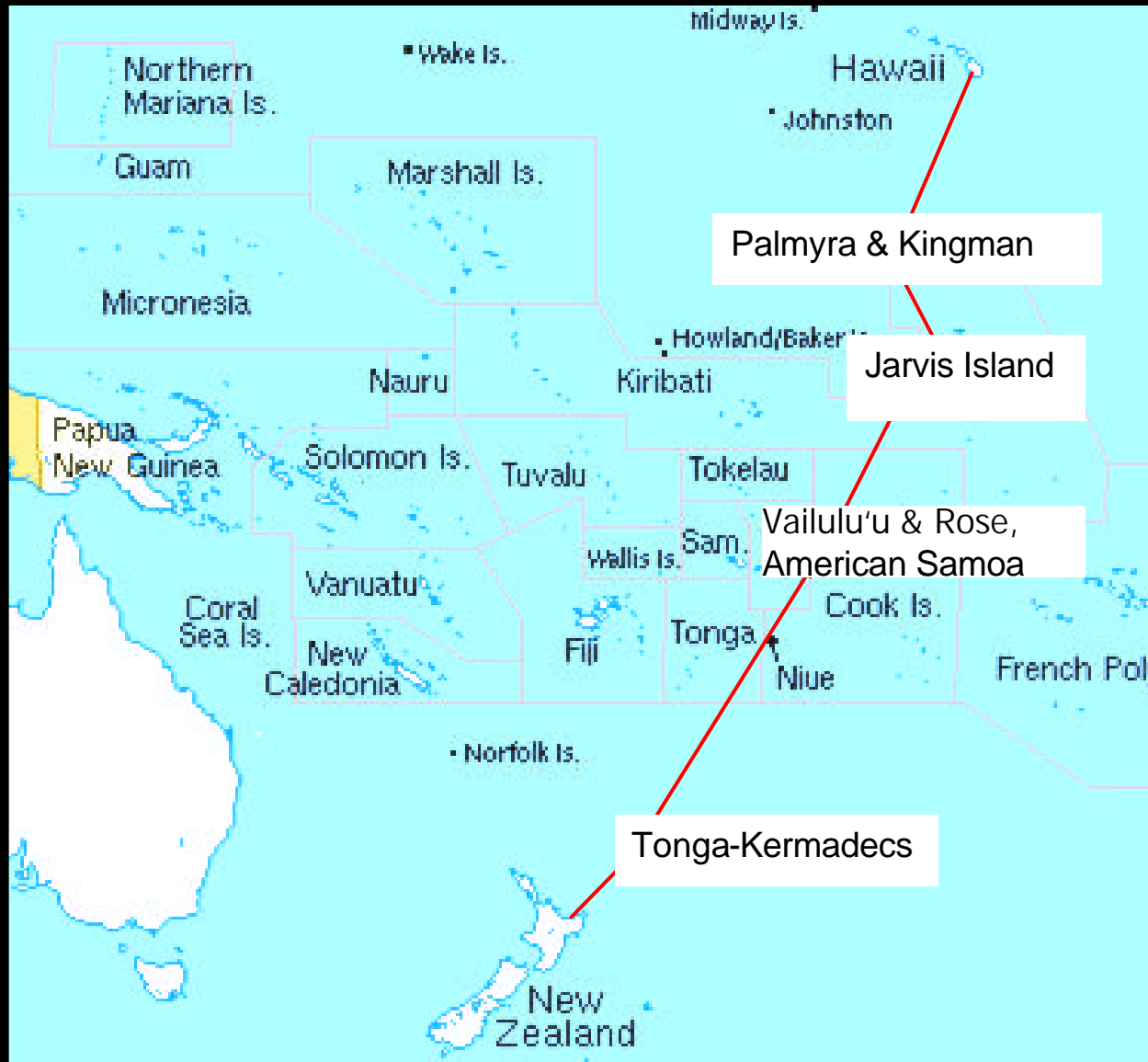
# 2005 Accomplishments

- HURL organized a consortium of partners & led a US/internationally funded cruise to New Zealand
- **Upgraded scientific capability of *Pisces IV & V* and ROV *RCV-150***
- 5-month expedition to the South Pacific including American Samoa, New Zealand, U.S. Line Islands



- **71 *Pisces* and 19 ROV dives (533 hrs u/w)**
- Set the stage for future major expeditions and site revisits through national and international partnerships
- **Survived NOAA budget cuts for a 26<sup>th</sup> year**

# HURL's 2005 Operational Areas



# Summary of HURL's Expedition to American Samoa, New Zealand, and the U.S. Line Islands from March-July 2005



- Cruise legs : 8
- Study sites: 21
- Distance traversed: ~14,500 nm
- Chief/co-chief scientists: 12
- Science team participants: 58
- Participating Institutions: 21
- *Pisces* science dives: 61 out of 56 (**109% success rate**)
- RCV-150 ROV dives: 17
- CTD rosette deployments: 6
- Instrument mooring recoveries: 7
- Multibeam surveys: 5 areas over multiple days for a total of 1270 km<sup>2</sup>

# NURP Funded Projects

PI	Location	Dives
Hubert Staudigel	Vailulu'u volcano (American Samoa)	4.5 Pisces, 2 ROV
Craig Young	Vailulu'u volcano (American Samoa)	4.5 Pisces, 2 ROV
Dawn Wright	Tutuila (American Samoa)	3 Pisces
Michael Graves Suzanne Finney	Rose Atoll (American Samoa)	1 Pisces
Robert Dunbar	U.S. Line Islands	5 Pisces, 1 ROV
Frank Parrish Bruce Mundy	U.S. Line Islands	6 Pisces

**Total Dives = 24 Pisces, 5 ROV**

[ALIA expedition on the EarthRef.org web site](http://EarthRef.org)

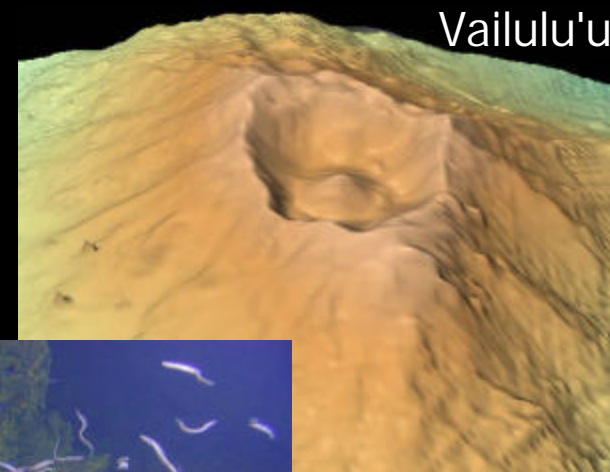
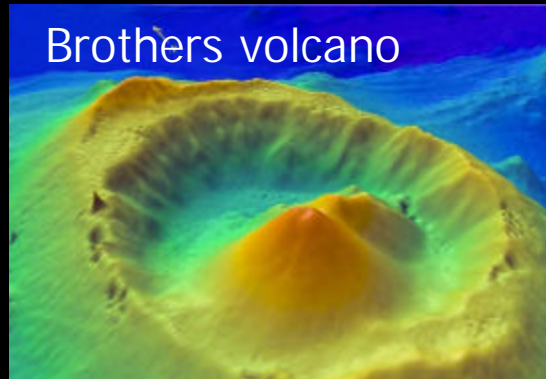


Photo by Rob Shallenberger/USFWS

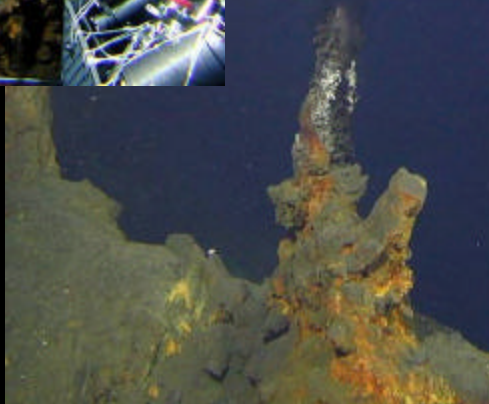
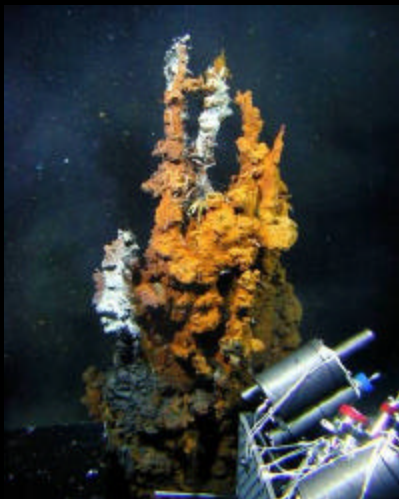
# Projects with Outside Funding, U.S. and International



Funding Partner	PI	Location	Dives
FWS	James Maragos	Rose Atoll (American Samoa)	1 Pisces
NOAA/OE, GNS/NIWA (NZ)	Robert Embley Gary Massoth	Kermadec Arc volcanoes	11 Pisces, 3 ROV
NOAA/OE, GNS/NIWA (NZ)	Robert Embley Alex Malahoff	Kermadec Arc volcanoes	6 Pisces
NIUST/Univ of Mississippi	Marc Slattery	Kermadec Arc volcanoes	6 Pisces
University Kiel, Germany	Peter Stoffers	Tonga-Kermadec Arc volcanoes	13 Pisces, 9 ROV

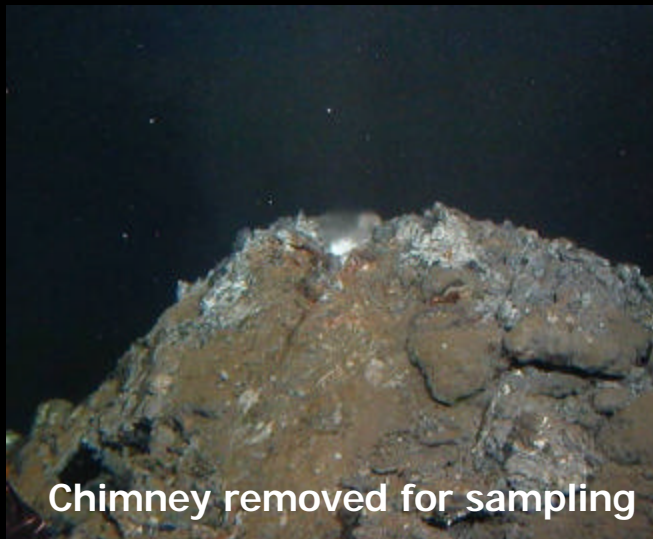
Total Dives = 37 Pisces, 12 ROV

[NZASRoF '05 expedition on the OceanExplorer web site](#)

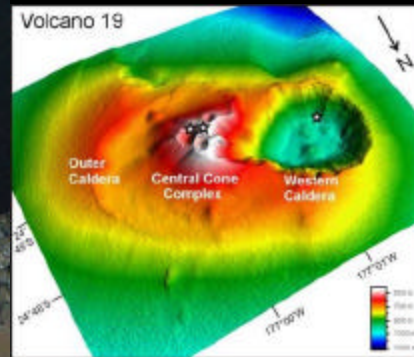


# Participating Institutions (>20)

- NOAA Pacific Marine Environment Laboratory
- Institute of Geological and Nuclear Sciences, National Institute of Water and Atmospheric Research (both of New Zealand)



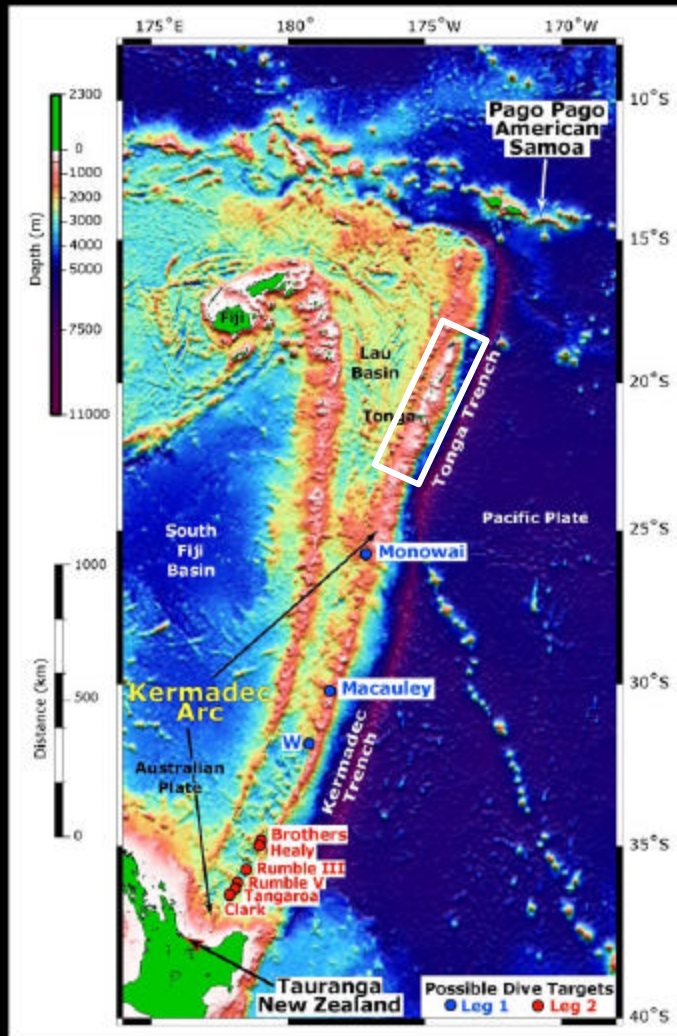
Chimney removed for sampling



Chimney growth after 19 hrs

- Univ. Kiel and other German institutions, Univ. Sydney, Univ. Ottawa, IFREMER, Ministry of Lands Survey & Natural Resources in Tonga
- Univ. Mississippi, Univ. Hawai'i, Woods Hole and Scripps Institutions of Oceanography, Univ. of Oregon, Oregon State Univ., Stanford Univ., UC/LLNL, MBARI
- NOAA Marine Fisheries Service, U.S. Fish and Wildlife Service, Dept of Marine & Wildlife in American Samoa

# Highlights



Map courtesy of NOAA PMEL VENTS program

- First dives on Vailulu'u hot spot volcano
- First dives on 11 seamount volcanoes in the Tonga-Kermadec Island Arc
- First deep habitat mapping around American Samoa
- First deep dives on 4 atolls in American Samoa and the U.S. Line Islands





# Dive statistics per dive for HURL's 2005 South Pacific series



## Number of *Pisces* dives

Scheduled 56

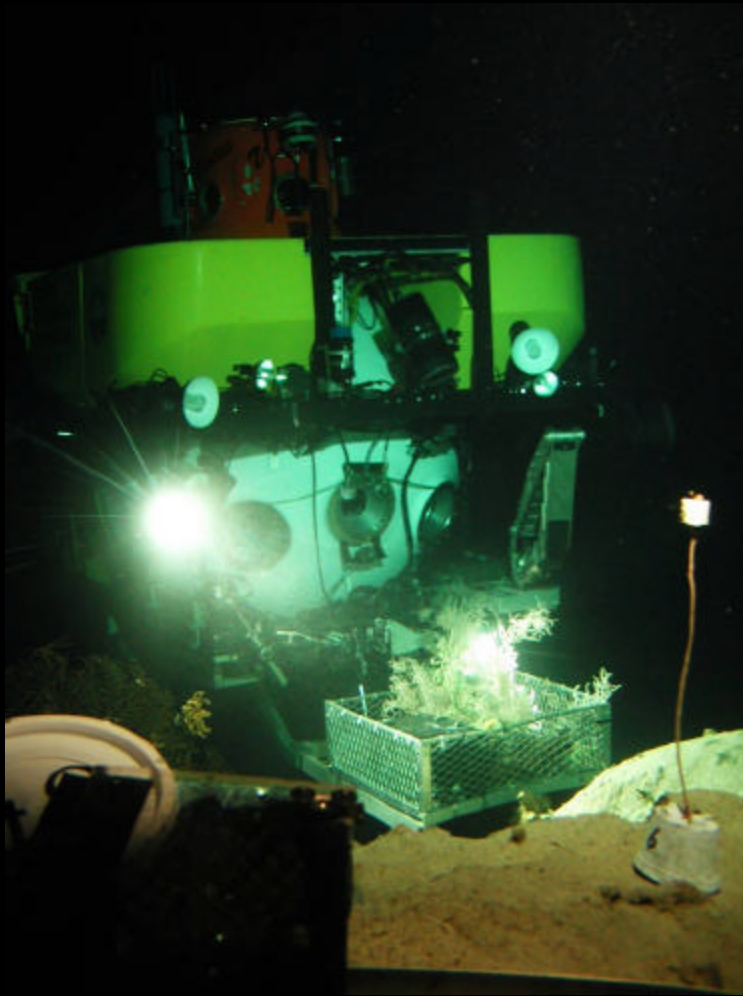
Completed 61

 **Success rate** **109%**

	<b>Time</b>	<b>St. Dev.</b>
Launch	8 min	1 min
<b>Time underwater</b>	<b>7.1 hr</b>	<b>1.52 hr</b>
Recovery	12 min	2 min
Maximum depth	891 m	431 m

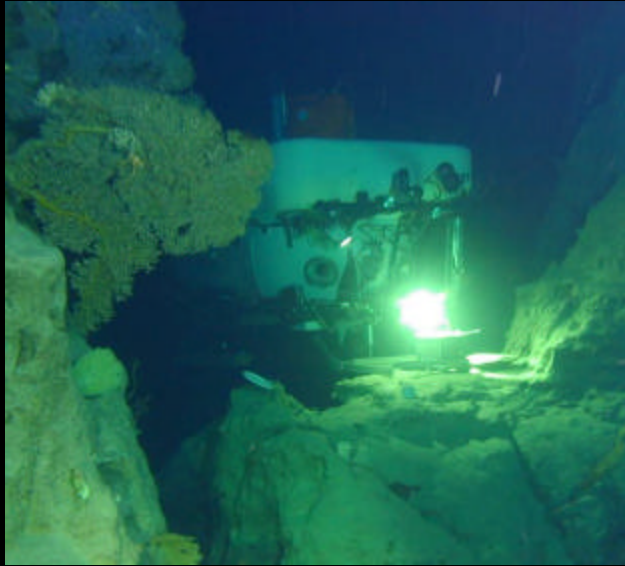
**Charter cost per dive day: <\$30,000 U.S.**

# HURL's plans for 2006



- Offer RFP in early '06 for dives in 2007
- Refit *Pisces IV* , add new hydraulic system
- Upgrade shipboard multibeam system
- Carry out 3 legs of science dives in the:
  - ✍ Main Hawaiian Islands
  - ✍ Northwestern HI Islands
  - ✍ Northern Line Islands

# Goals for the future



2007: Dive program pending RFP, refit *Pisces V* adding new flotation and manipulator, additional science gear

2008: Carry out another U.S. and international "consortium funded" major expedition to the Western Pacific, North American west coast and Alaska, or return to the South Pacific seamount volcanoes and atolls

## *During the next few years:*

Acquire a 3000-4000 m capable ROV

Continue gaining contract work with NOAA Ocean Exploration, Sanctuaries, NMFS, FWS

Make HURL's assets available to the wider community for science and engineering dives with the RIDGE 2000 ISS, IOOS, ORION, NEPTUNE, and other programs operating in the Pacific



[www.soest.hawaii.edu/HURL](http://www.soest.hawaii.edu/HURL)

# "Pisces goes Kiwi" sessions at AGU

## Seamount Hydrothermal Systems: Volcanology, Biology, Geochemistry, and Oceanography I & II

*Presiding: Hubert Staudigel, Peter Stoffers, Gary Massoth, Craig Young, Brad Tebo*

V44A, 10 talks, Thursday 4-6 pm

V51C, 24 posters, Friday morning

