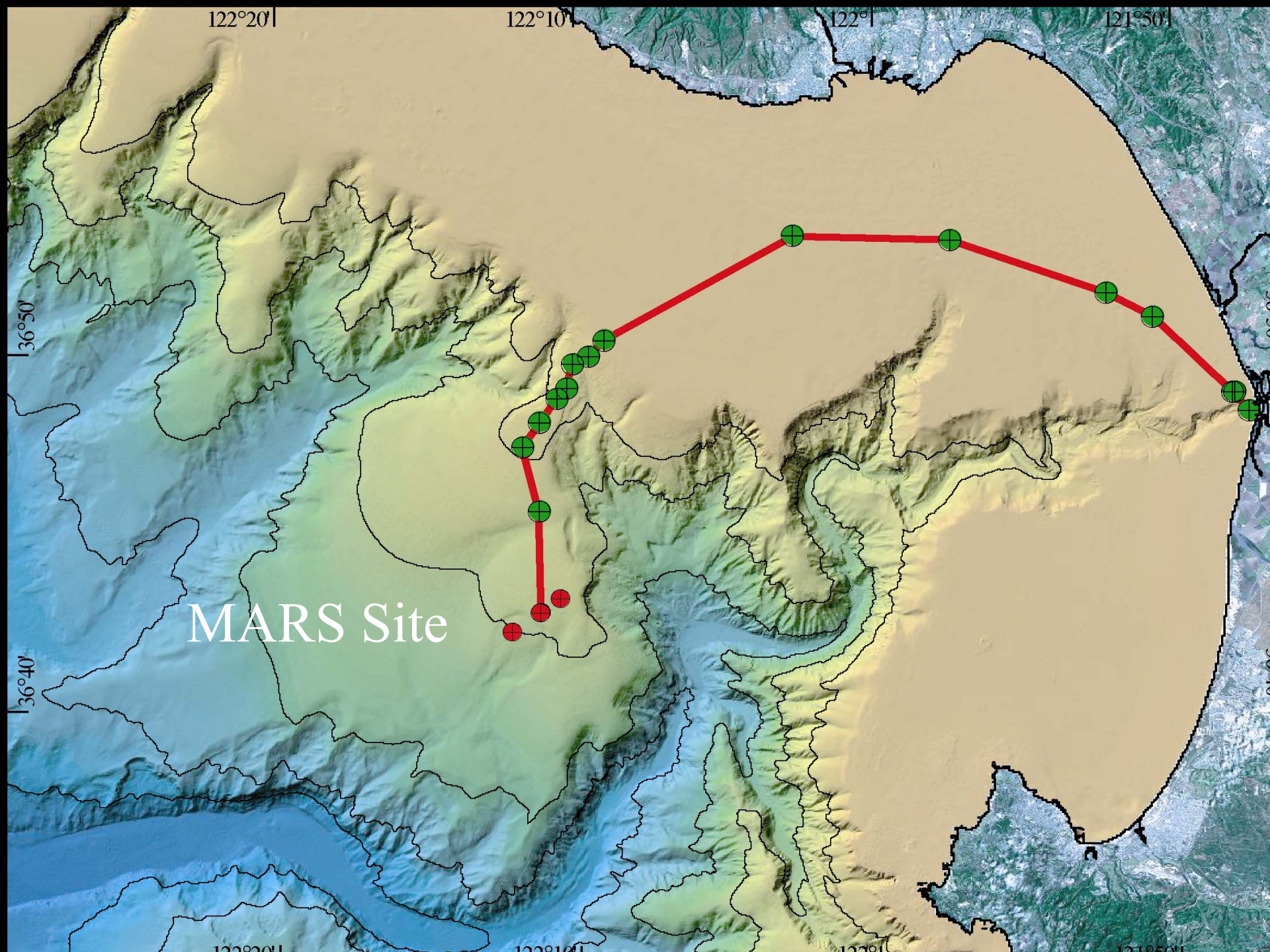


MARS

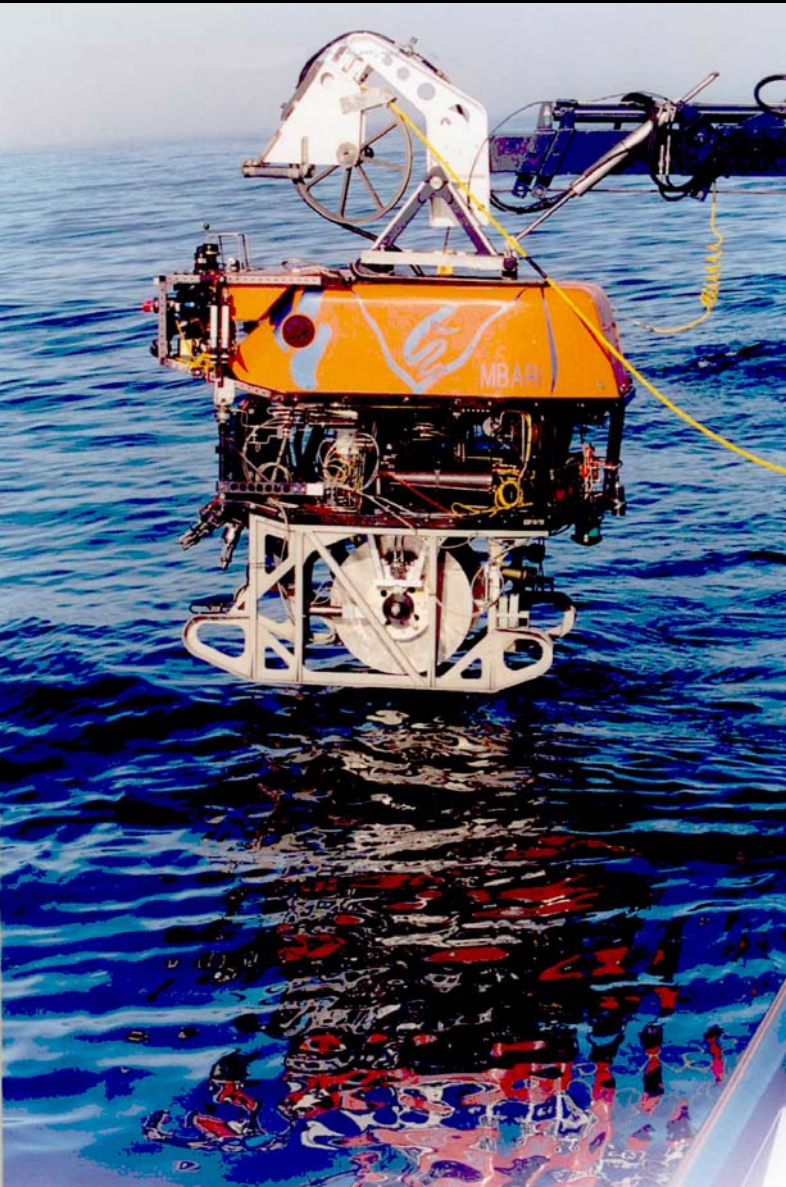
Marine Operations Support

Maintenance and ROV Operations

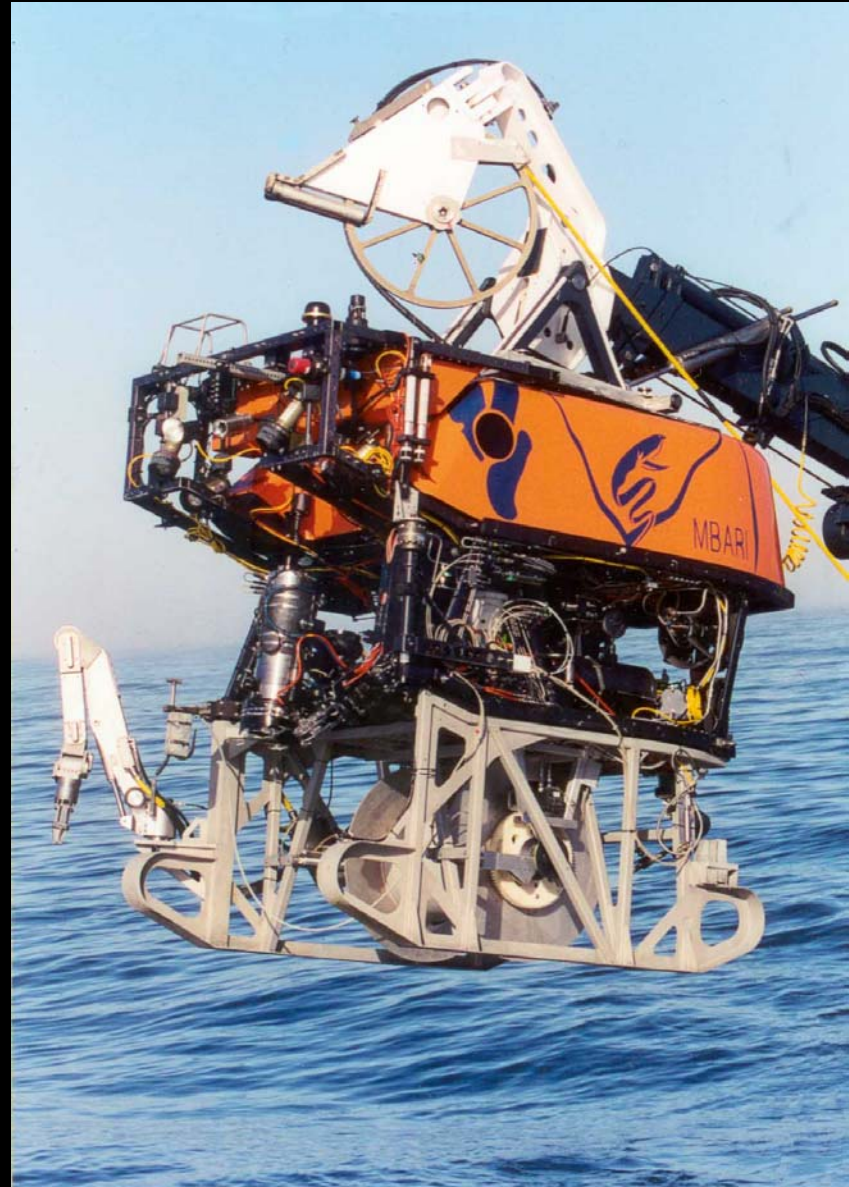
- A. Cable laying from the MARS node to science experiments
- B. Science instrument testing
- C. ROV deployment of science instrumentation
- D. Elevator deployments of science instrumentation
- E. Ship deployments of science instrumentation



The ROV *Ventana* with cable laying toolsled



4000
to
5000
meter
sections
of fiber
optic
cable
per run

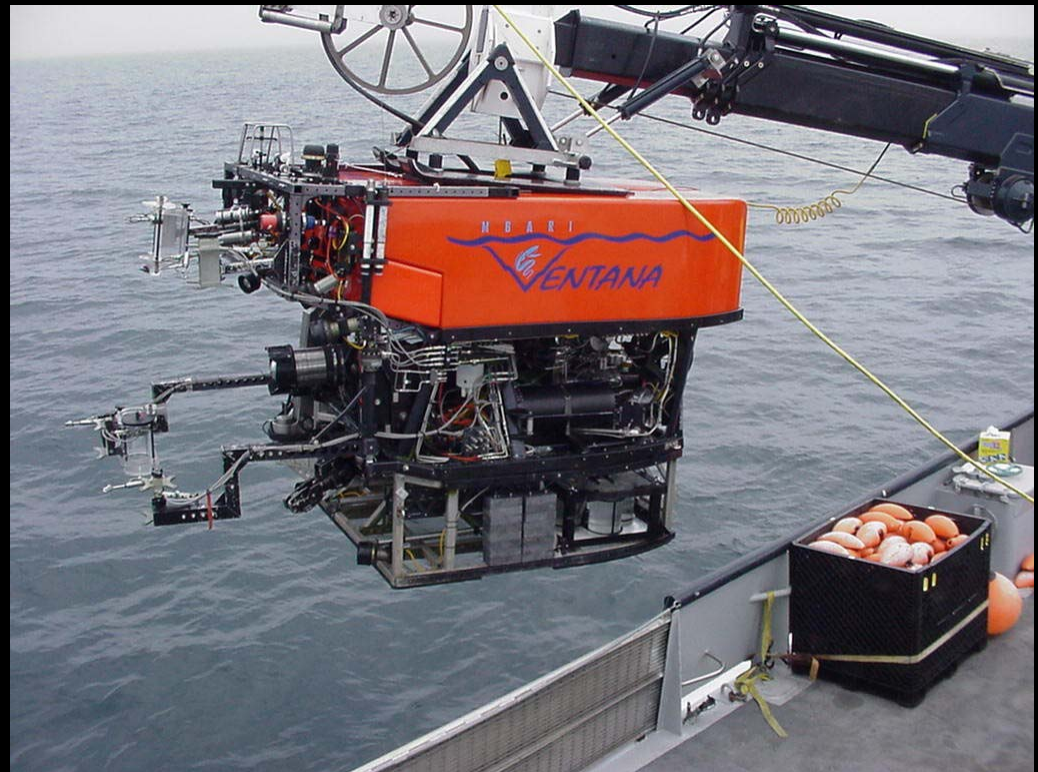


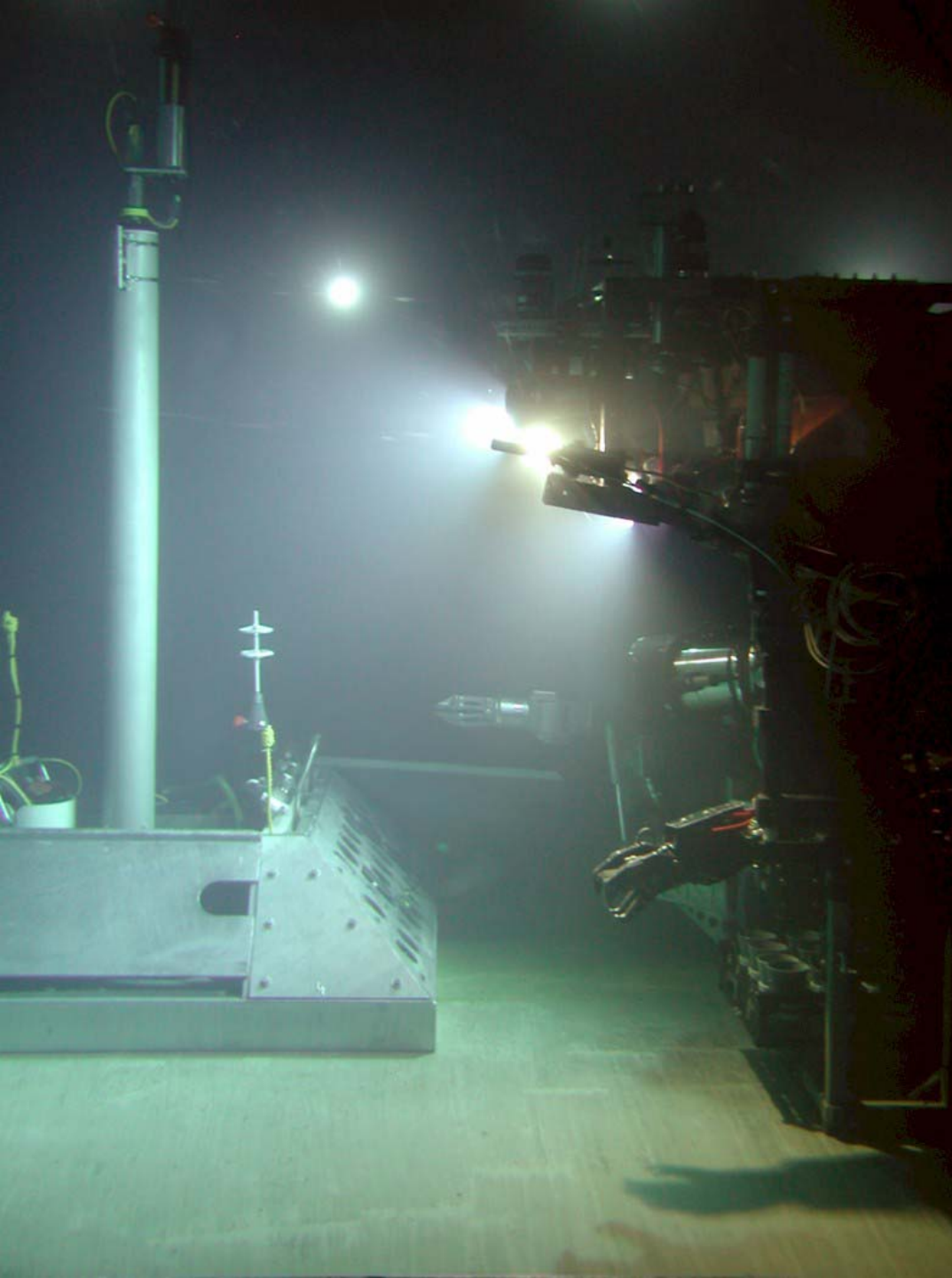
Science Instrument Testing – MBARI Test Tank



Ventana Specifications

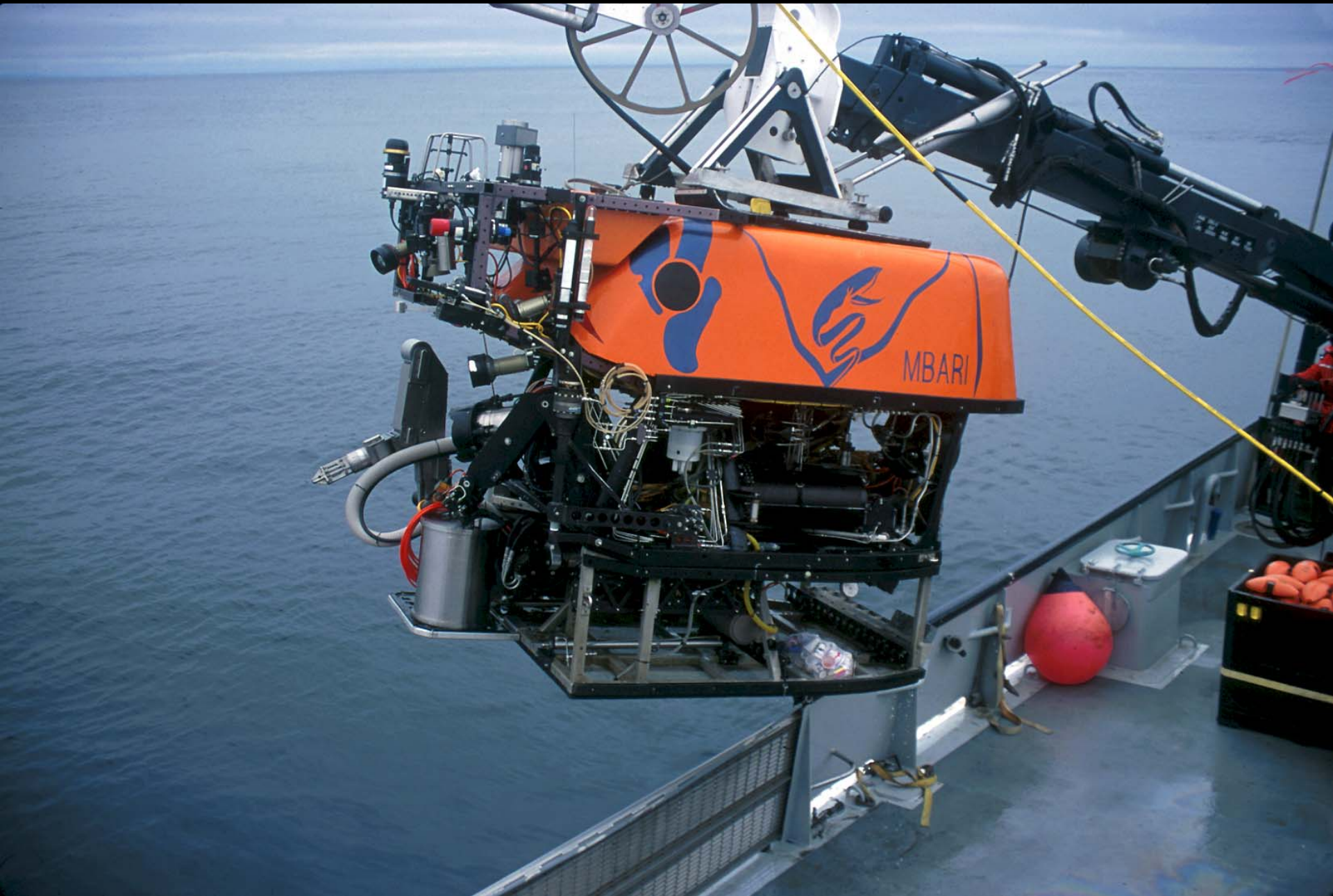
- Depth rating 1850 m
6100 ft
- Working tether 2100m
6900 ft
5 power connectors
10 fibers
- 40 hp Electro/ Hydraulic





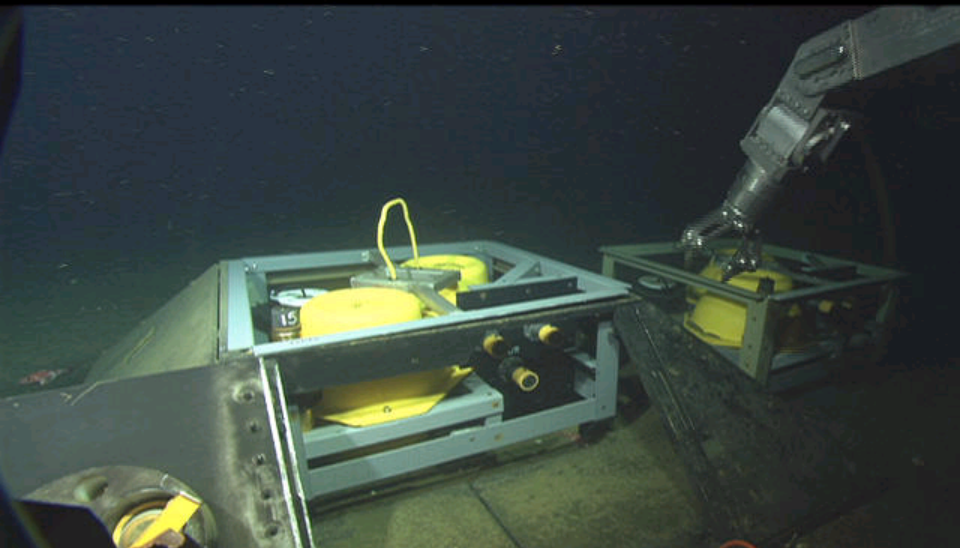
After science instrumentation has been bench tested for compliance to MARS power and telemetry protocols, we can test the best ways to emplace the instruments using the ROVs *Ventana* or *Tiburon* in the MBARI test tank.

ROV Deployment of Science Instrumentation



Copyright 2003 Monterey Bay Aquarium Research Institute
 Ventana/2003/083/00_25_47_26.rgb (MAIN)
 Mon Mar 24 19:55:19 2003 GMT (local +8) esecs=1048535719
 data-logger: identity-reference new, within bottom-mount

Dive# 2336
 Lat= 36.69051361
 Lon= -122.16567230



ROV deployment of science packages

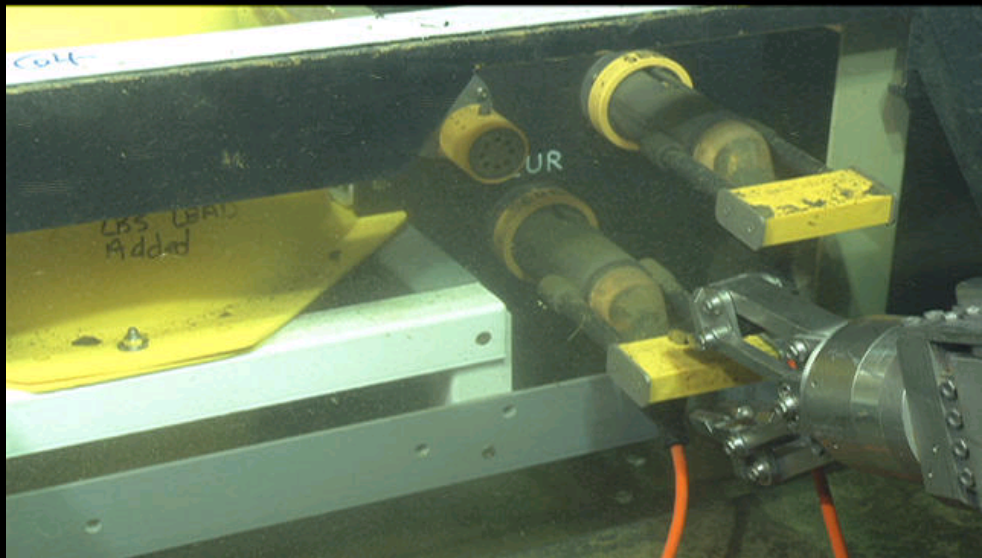
1. Size and shape do matter!
2. 100 lbs. to 250 lbs. in water weight.
3. Designed for ROV manipulation

Depth= 999.7 m Temp= 3.637 C Sal= 34.523 PSU Oxy= 0.21 ml/l Xmiss= 86.5%

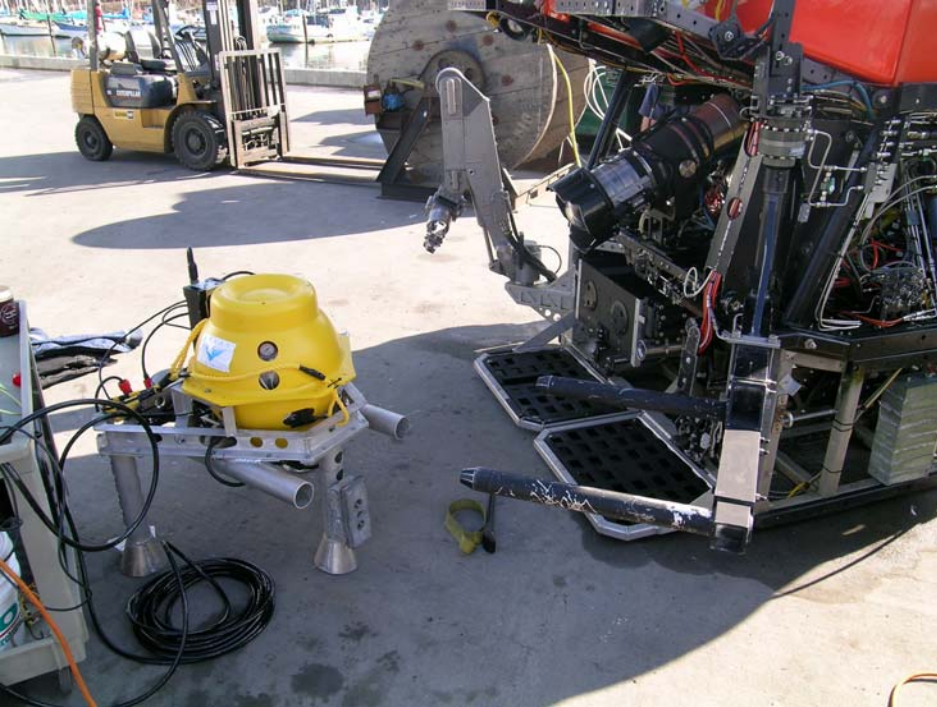
Copyright 2003 Monterey Bay Aquarium Research Institute
 Ventana/2003/083/00_19_38_07.rgb (MAIN)
 Mon Mar 24 19:49:08 2003 GMT (local +8) esecs=1048535348
 manipulator: disconnecting connector

Dive# 2336
 Lat= 36.69030380
 Lon= -122.16602325

The ROV Ventana installing ODI
 connectors to connect science
 instrumentation to a RIN (remote
 instrument node).



Depth= 999.8 m Temp= 3.632 C Sal= 34.523 PSU Oxy= 0.26 ml/l Xmiss= 86.5%



Swing-arm deployment system

Up to 200 lbs air weight

Science packages can be ROV deployed on the porch, using the swing-arm stabs or as tool-sleds themselves.



Elevator Deployments of Science Instrumentation



Ship Deployed Packages

MBARI ships can deploy loads up to 5000 lbs. in air weight.

