

Scripps Institution of Oceanography

Deep Submergence Work Vehicles





MPL CONTROL VEHICLE (CV)

2 Horizontal Hydraulic Thrusters
(~100 lbf max thrust)

Sonars: 12 kHz LBL Navigation
23.5 kHz Altimeter
325 kHz Sector Scanning

Video: B&W Low-Light Camera
250 W Low Voltage Lights (4)

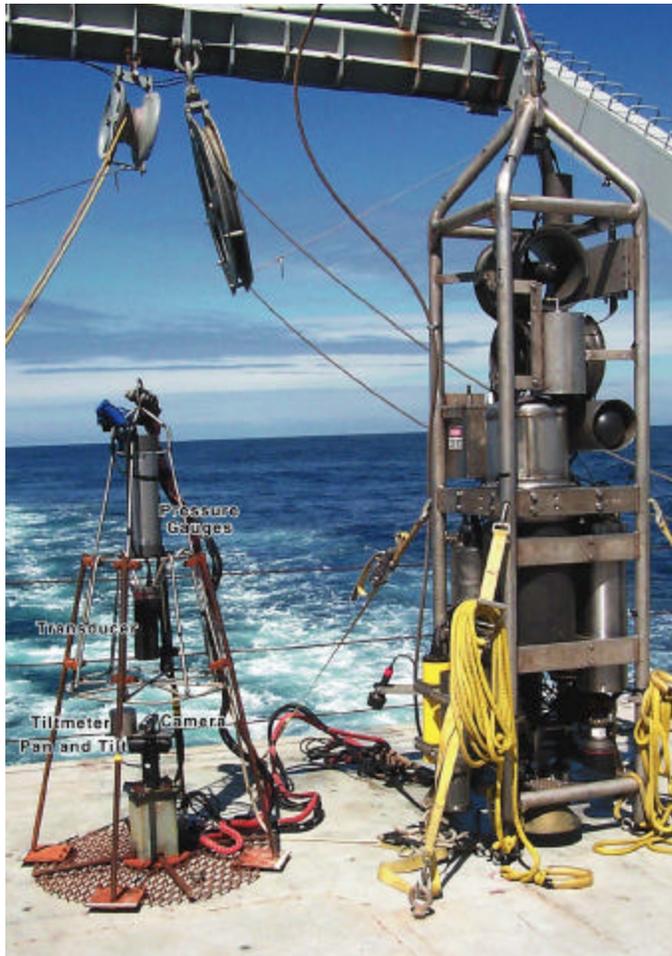
Power: 1800 V at ship
110 V & 220 V @ 60 Hz at CV
Nominal 10 kVA at CV

Compass, Pressure Gauge
Height -- 3.5 m Footprint -- 0.4 M²
Weight -- 500 kg (water), 1000 kg (air)

- Heavy lift capability of 1300 kg at 5000 m with sub-meter control on package placement

- Contact: Richard Zimmerman rzimmerman@ucsd.edu (858-534-6593)

Control vehicle operated in support of seafloor geodesy research off Peru in December of 2003 and off Hawaii in August/September, 2004. At both sites CV was used to replace seafloor transponders and conduct precision vertical deformation surveys. Both activities utilized the CV capability to place instruments on the sea floor with sub-meter control - a capability used in the past to log ODP CORKED holes using a one meter diameter re-entry guide cone.



Transponder depths are measured using an underwater video theodolite in association with precision pressure gauges in the auxiliary package shown in the figure .

CV 's next operation is scheduled for May, 2005 to install fiber optic strain meters on the Goleta slide area in the Santa Barbara Channel. Thrusters have been procured in a plan for eventual replacement of the hydraulic lateral propulsion with electric units. Details of the Peru and Hawaii operations will be presented at this meeting:

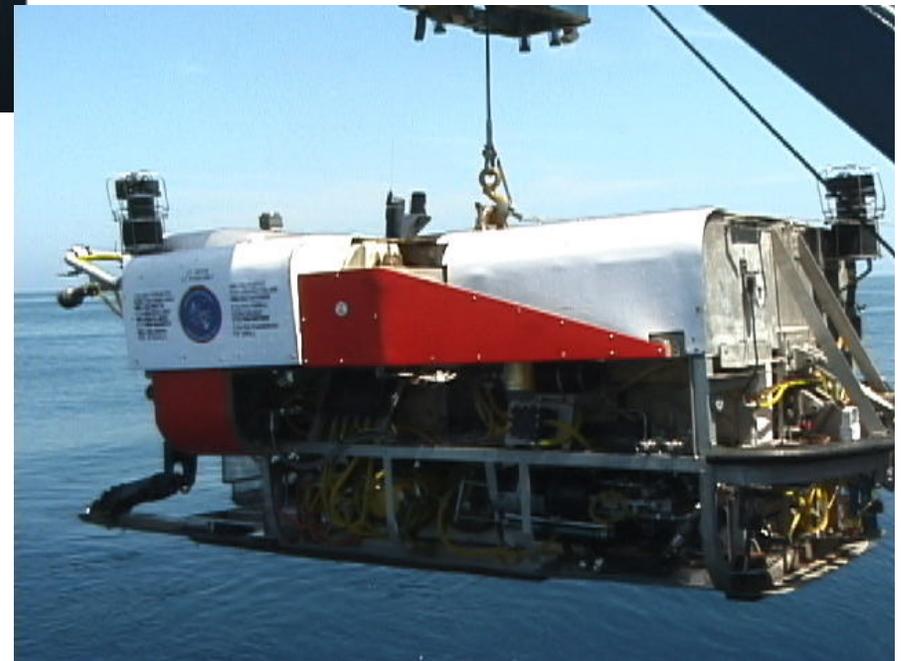
K. L. Gagnon G21A-0138 Tuesday am; K. A. Phillips G51A-0053 Friday am

ATV



ATV was transferred from Navy to SIO in 2000. It is a heavy duty work vehicle (200+ lbs payload) capable of working to 6100 m depth. As shown in the photograph it has a pair of manipulators, video cameras, lights and sonar systems.

Its support system includes a Dynacon traction winch and slack tensioner to handle the 7 km power and fiber optic cable. Navy also provided an unused spare 7 km cable. The 20 ft. control van houses the controls, displays, and stations for the pilot and co-pilot.





In 2003 ONR provided funding to activate the vehicle and take it to sea for an initial test operation. This was carried out successfully using R/V Roger Revelle. The installation was as shown in the prior figures. Limited ship time was available thus the operation was carried out in 1100 m of water off San Diego with three dives in two days.

The various systems were exercised, 35 kg of rock samples were collected, an acoustic transponder was recovered and real time video was streamed over the Internet via RoadNet. Subsequently, necessary maintenance work has been done. We are reviewing the costs of replacing ATV's manipulators and evaluating potential sources of funding for further upgrades. Contact Mark Zumberge (mzumberge@ucsd.edu) to discuss ATV use.

