

Portable Systems Group

- Seismics
 - Airguns and Air Compressors
- Portable Laboratory equipment
 - Lab Containers (20 foot ISO)
 - Fume Hoods/ Laminar Flow Hoods
 - Millipore water purifiers
 - Gas generators
- Coring



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Seismic - Hamworthy Compressors

Generate Seismic Compressed air.

operating pressure = 200 bar (~2900 psi)

20' ISO Containerised compressors:

- a) 1 which houses two 4TH190W70 compressors. Each generates 290 or 145 m³/hr (high or low speed).
- b) 4 which house a 4TH565W100. Each generates 663 or 442 m³/hr (high or low).

RRS Discovery also has 4TH565W100 fitted.



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Seismic - Airgun



Bolt 1500 LL (Long Life)

Changeable chamber sizes between 80 and 1000 cubic inch.



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Seismic – Airgun Beam deployment/recovery



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Seismic - Extending crane over stern



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Seismic - Deploying airgun tow buoy



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Seismic - Paying out to final position



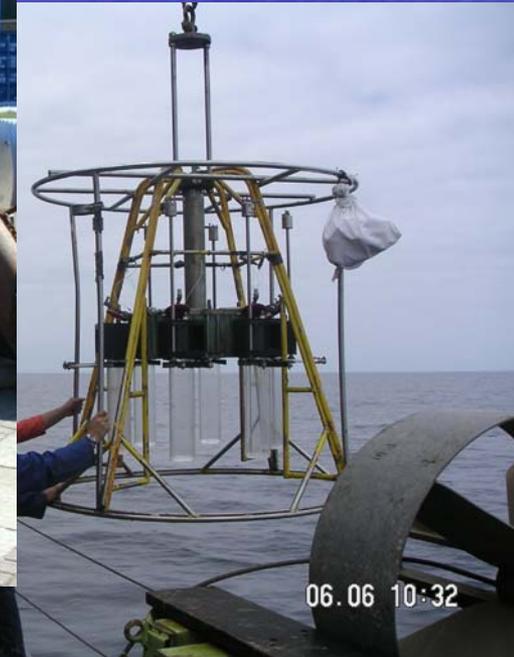
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Coring



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Portable Systems Group Structure



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Deep Platforms Group

- Autosub
 - Long range, autonomous underwater vehicle. Can carry a variety of sensors.
 - Autosub 3000/6000. Development for deeper use.
- TOBI
 - 6000m rated, towed 30kHz sidescan sonar system
 - Swath bathymetry, profiler sonars, magnetometer and CTD instruments.
- BRIDGET
 - 6000m rated, towed vehicle. Water sampling rosette with 1.7litre bottles, CTD instruments and space for additional instruments.
- SHRIMP
 - 6000m, Fibre Optic Tow Cable Operation. Power from pressure-balanced secondary batteries, with supplementary power supplied via the towing cable.
 - Two video cameras (for long and short range) and High quality still camera
 - 400W lights for the video cameras and a 1200J flash for the still camera.
- ISIS – ROV



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ISIS ROV



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Isis ROV: specification

- Length: 2.7m Width: 1.5m
Height: 2.0m Weight: ~3.4T
- Max. working depth: 6500m
- Max electric power 18kW at 6500m (~18kW lost in cable).
- Cable voltage: 3000V
(10km of 3 fiber 3 core triple armoured x 17.3mm dia)
- Autopilot functions include:
 - Auto depth (to +/- 1m)
 - Auto altitude (to +/- 1m)
 - Auto heading (to < +/- 1°)
- Hydraulic power unit 3.7kW (5HP) for manipulators, trays etc. (7 l/min + 5 l/min, total 12 l/min @ 2000psi) Variable Speed
- Power management between thrust, lights, hydraulics and user instruments to maximise use of power at depth.
- Two electric pan and tilt units for pilot and science cameras.
- Two red lasers mounted 10cm apart for picture scaling.
- Quartz pressure transducer for depth with precision of <0.1%.
- Acoustic altimeter to give height off the sea bed when within 200m.
- Multi-channel serial, Ethernet and video communications over optical fibre.
- Payload approx 90kg

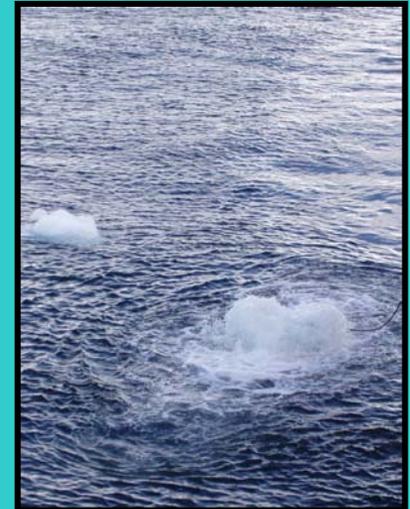
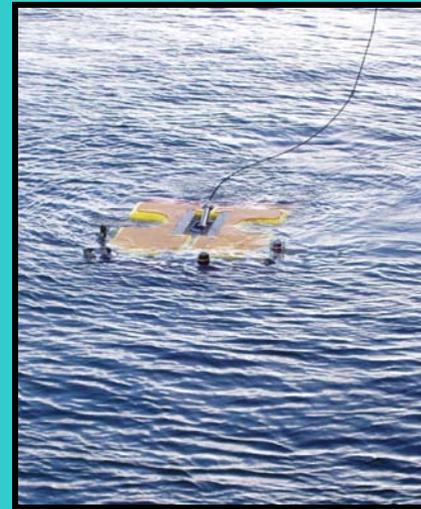


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Launching ROV Isis



Clockwise: Isis is lifted from the ship's deck; hangs over the side but latched to the gantry; lowered on its cable into the sea; floating free; attaching floats to the cable; diving using its thrusters!

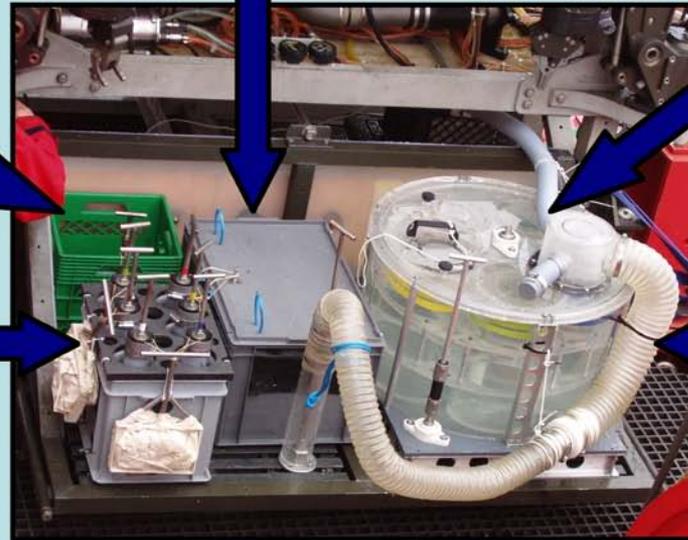
ROV Sampling equipment

'Geo box' for stones or rock samples.

'Biobox' for containing animals collected by the manipulators

Five separate chambers for samples collected by the 'Slurp Gun'

Six push corers, either 30cm or 50cm long, in storage box. The manipulators grab the 'T' handles. Gravel bags hang off the box.



'Slurp Gun' hose, in stowed position. Lifted by the manipulator when in action

Isis has a large front retractable tray to contain the sampling equipment. Smaller trays at the sides can swivel to the front to carry additional samples.



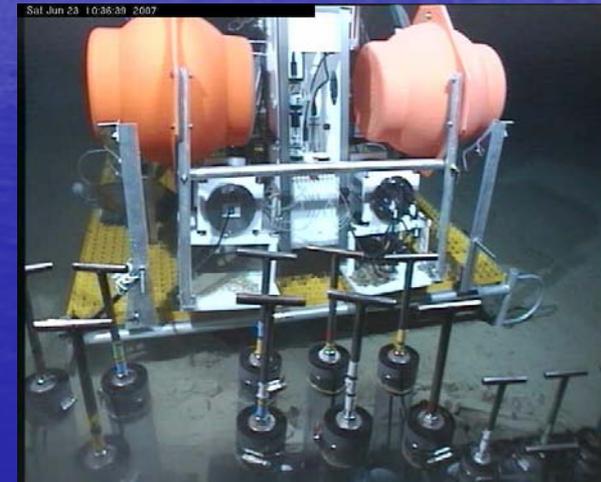
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ROV Sampling

- Elevators 90-140 kg payload
- Push Cores



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ISIS control centre

ISIS control van where initial system checks are being carried out prior to decent with the ROV at 50m water depth. The top displays are the ROV camera displays with engineering and navigation displays below. The manipulator arm control unit can be seen to the left of the ROV pilot.



Deep Platforms Group Structure



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