RV Geo

Overview

The RV Geo, owned and operated by the Geological Survey of Ireland, is a 7.4m Redbay Stormfoce RIB which has been configured for very shallow water survey operations as part of the INFOMAR program.

In 2012, the RV Geo was re-fitted with a cabin extension and a generator to increase her survey capability. The vessel is equipped with an aluminium frame attached above the bow, which is manually lowered into the water as a means to deploy the transducers.

Figures (L to R): RV Geo in Killary Harbour, with cabin extension visible and the transducers deployed in the water (the aluminium frame has been lowered manually by the crew) ; RV Geo with transducers positioned out of the water – the point where the frame presses against the hull when the assembly is lowered into the water was made more robust, and fenders were attached either side of the frame to protect it; RV Geo's new generator situated in the engine bay. The generator powers the survey equipment and so the vessel's mapping operations are no longer reliant on batteries.

Specifications

Name:	RV Geo
Registered:	n/a
Call Sign:	RIB_EIDK6 (Echo India Delta Kilo Six)
MMSI Number:	250002761
License:	Marine Survey Office P6 License for 3 passengers
Max passenger and crew:	4

Technical Specifications

Builder	Redbay
Model	Stormforce RIB
Year	2007
Construction	Glass-reinforced plastic (GRP)
Length (m)	7.4
Beam (m)	2.77
Draft (m)	1.3
Air Draft (m)	2.7 gear up; 2.1 gear down
Main Engines	Yamaha 250 HP
Auxillary	6 HP Yamaha outboard
Generator 1	Panda 8.0 kVa
Shorepower	No
Top Speed	35 knots
Cruising Speed	20 knots
Slow Speed	2 knots
Davit	Stainless Steel
Knuckle crane	none
Anchor Winch	none
Anchors	1 x Grapnel
Dive ladder	Yes

Permanent Vessel Systems

The RV Geo is equipped with a Raysmarine depth plotter and GPS chart plotter. It operates a dual watch DSC VHF radio with a backup VHF radio handset.

AIS	Class B
Radio	Icom M421 DSC VHF
Handheld VHF	ICOM model
Chartplotter	Raymarine C80
Echsounder	Raymarine DS600X Colour Depth Sounder
GPS	Raymarine C80 GPS Chartplotter and Receiver

Survey Systems

System	Type	Comment
Multibeam	Teledyne Reson Seabat T20-P	200 - 400 kHz

Positioning system	POS-MV INS Wavemaster V4	With PosPac GNSS software
Geodetic Control	Leica GS10	Shore based logging (PPK)
Sound Velocity sensor	AML SV 'smart probe'	R/T Mounted with Reson T20-Ptransducer
Sound Velocity Sensor	Valeport and AML probes	

POS-MV Unit

The R/V Geo uses an Applanix POS-MV system to provide pitch, heave, roll, timing, positioning and heading information to the survey equipment and software. The POS-MV topside unit is connected to an IMU (inertial motion reference unit) mounted near the multibeam echosounder and to a pair of GNSS antennae all of which, when combined provide accurate attitude, heading and positioning readings to all the hydrographic and geophysical software. A 1 PPS (pulse per second) time-sync signal is provided to the acquisition softwares to insure adequate time sinchronisation.

Once the vessel's POS-MV nav. files are post processed with RINEX data from onshore GNSS base stations, the horizontal accuracy is improved to the order of +/-5cm with similar values in the vertical plane. This allows for the calculation of GPS tide heights with the vessel itself essentially acting as a tide gauge.