

Appendix A

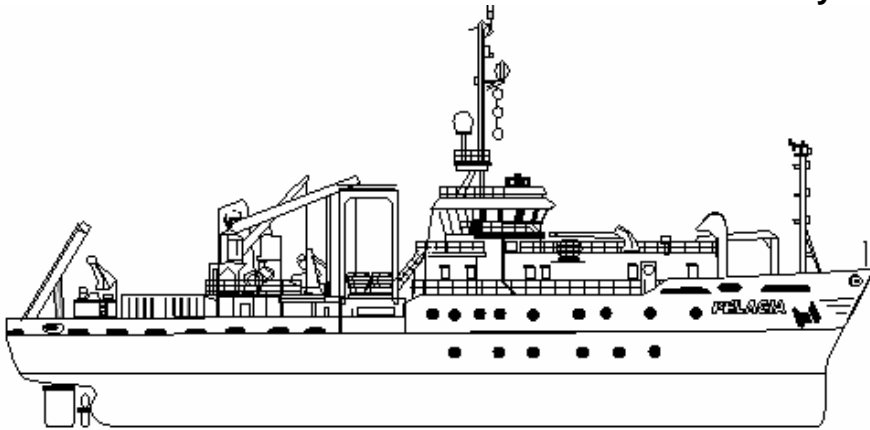
Research Vessel PELAGIA

NIOZ Royal Netherlands Institute for Sea Research

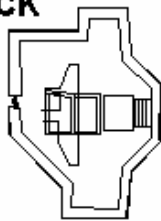
Technical Specifications



RV PELAGIA G/A Plan and deck lay-out



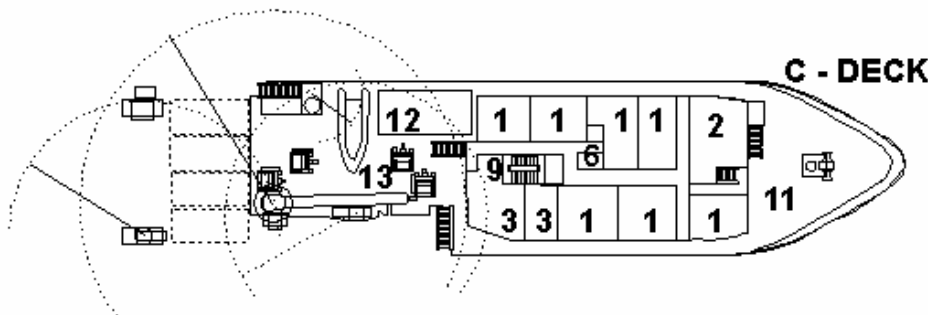
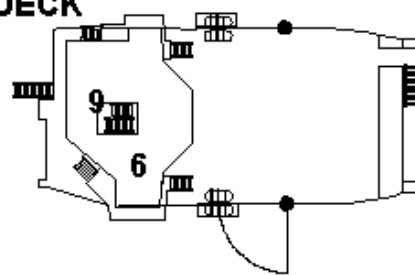
TOPDECK



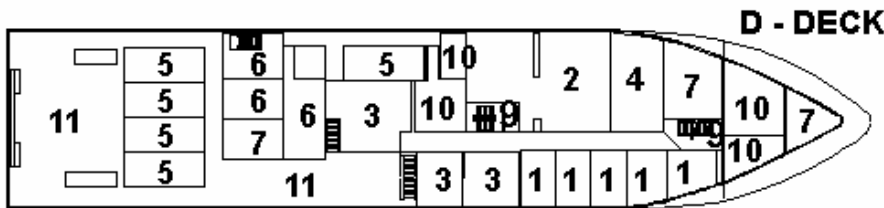
BRIDGE



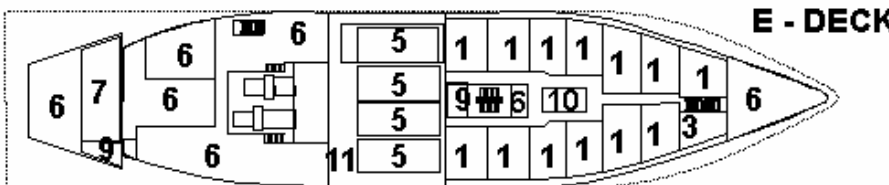
B - DECK



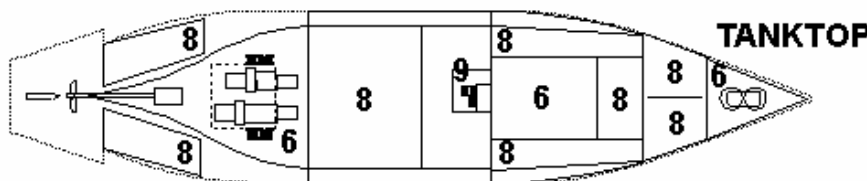
C - DECK



D - DECK



E - DECK



TANKTOP

- | | |
|----|----------------------------|
| 1 | Single cabins |
| 2 | Mess/lounge
Meetingroom |
| 3 | Laboratories |
| 4 | Galley |
| 5 | Containers |
| 6 | Technical
spaces |
| 7 | Stores |
| 8 | Tanks |
| 9 | Staircase |
| 10 | Public space |
| 11 | Workspace |
| 12 | Hatch |
| 13 | Winch deck |

SHIPDATA INDEX

Page 4	Owner Registration & Classification Ship / Shore Communication Particulars
Page 5	Tank Capacities Accommodation Safety Equipment Main Diesel engines - Alternator Drive Propulsion Alternators Main Electric Motor Propeller Bow thruster Electric Supplies 50 Hz
Page 6	Harbour -/- Emergency Set Special systems Navigation Systems Nautical Instruments Laboratories – Deck space – Workshops Additional facilities to enable (special) expeditions
Page 7	Gasses (to laboratories and lab- containers) Data Communication System Scientific Equipment Permanently Installed Scientific Equipment Semi-permanent Data Acquisition and Processing System Side - A - Frame
Page 8	Side-Winches (hydraulically driven) CTD Winch Side Winch Auxiliary Winch Hydrographic Winch Additional: Deep-Sea Winch Stern - A - Frame Stern-Winches (hydraulic)
Page 9	Towing Winch Stern Winch Auxiliary Winch Capstan (anchor winch) Capstan Outrigger Cranes: Container Crane Container Hoist Folding Cranes M.O.B. Crane Life raft Cranes

SHIPDATA*

OWNER

Owner: Royal Netherlands Institute for Sea Research
 Acronym: NIOZ
 Part of: Netherlands Organization for Scientific Research (NWO)
 Address: Landsdiep 4, 1797 SZ, 't Horntje, Texel, the Netherlands
 Postal address: P.O. Box 59, NL-1790 AB Den Burg, the Netherlands
 Phone: (+31) (0)222 369 300 (reception)
 Fax: (+31) (0)222 319 674
 URL: www.nioz.nl

REGISTRATION & CLASSIFICATION

Port of registration: Texel, the Netherlands
 Classification: Bureau Veritas, Certified Sea Areas: A1, A2 and A3
 IMO nr: 9001461

SHIP / SHORE COMMUNICATION

Call Sign: PGRO
 Internet data and telecommunication: Seatel 4010, 40 inch dish, 8W Buc and quad LNB
 Internet tel. nr.**: (+31)(0)10-71 30 742 (bridge)
 Satellite tel., Fax, TV & data comm.: Mini Fleet 33
 Satcom. Phone nr.**: +870.763964127
 Satcom. Fax nr: +870.764091188
 Data communication: Satcom C
 GSM nr***: +31(0)6-51338399
 Radio transceivers: Sailor MF/HF/VHF

PARTICULARS

Length over all: 66.05m
 Beam: 12.80m
 Draft: 4.20m
 Freeboard: 2.60m
 Gross tonnage: 1615 tons
 Nett tonnage: 484 tons
 Displacement: 1671 tons
 Deadweight: 525 tons
 Cruising speed / Maximum speed: 9kn / 11kn
 Fuel consumption at cruising speed: ~4.5 m³ per day

**: Please note that these specifications may change without prior notice, although great care was taken to present the correct numbers. Further information can be obtained from the head of the department of Ship's Management & Logistics Mr. T. (Thomas) de Greef, E-mail: thomas.de.greef@nioz.nl ; T: +31(0)222 369 375.*

***The (+31(0)10 numbers of the Seatel 4010 provide an almost world-wide connection at comparatively low cost. However, when the circumstances justify the choice of the best connection at considerably higher costs, the +870 Satcom satellite telephone number should be used. The GSM number works only in harbors or in the immediate vicinity of the coast.*

TANK CAPACITIES

Fuel oil:	200m ³
Fresh water:	80m ³
Clean seawater:	23m ³
Ballast water:	210m ³
Anti rolling tanks:	2 x 45m ³
Gray water:	1 x 32m ³ + 1 x 10.8m ³
Lubricating oil:	7.5m ³
Hydraulic oil:	3m ³
Used oil:	4.5m ³
Sludge:	2.8m ³

ACCOMODATION

Cabins:	25 single berth + toilet / shower (Upon request, double berths can be made available in 9 cabins)
Crew:	11 crew
Scientists:	12 scientists + 2 NIOZ technical support staff
Mess room + lounge:	28m ² + 25m ²
Meeting room:	18m ²
Gymnasium:	in the hold
Laundry:	12m ²
Changing room:	16m ² + toilet and shower
Air conditioning:	suitable for the tropics

SAFETY EQUIPMENT

Man overboard boat:	1 x 6 persons
Life rafts:	4 x 25 pers. dinghy + 34 survival suits
Fire-alarm system:	Eltek (Honeywell)
Engine room:	CO ₂ fire extinguishing system

MAIN DIESEL ENGINES - ALTERNATOR DRIVE

Port:	Caterpillar 3508B DITA - 856 bkW @ 1500 Rpm
Starboard:	Caterpillar 35012B DITA - 1020 bkW @ 1500 Rpm

PROPULSION - ALTERNATORS

Port side:	1000kVA – Main diesel driven
Starboard:	1130kVA – Main diesel driven
Voltage:	3 x 660V

PROPULSION - ELECTRIC MOTOR

Power:	1000kW
Voltage:	3 x 660V
Revolutions, thyristor contr:	1000 - O - 1000rpm

PROPELLOR

Number:	1 - with fixed pitch
Revolutions:	230 - O - 230rpm

BOW THRUSTER

Type:	Omni-directional
Power - Thrust:	450kW - 4200kg thrust power
Voltage:	3 x 660V
Revolutions / drive:	O - 600rpm / electro motor

ELECTRIC SUPPLIES

Boardnet alternators:	2 * main diesel driven
Power:	275kVA each
Boardnet supply:	3 x 380V - 50Hz, max 125A
Laboratory supply:	via trafo 3 x 380V + zero - 50Hz, max 80KVA
Container laboratory supply:	via trafo 3 x 380V + zero - 50Hz, max 80KVA
Laboratory supply:	220V-single phase - 50Hz
Lab supply via UPS:	2 x 10kVa, 220V stabilised - 50Hz
Shore connection:	3 x 380V - 125A
Aft ship; sockets:	2 x 32A, 3 x 380V + zero - 50Hz

HARBOUR -/- EMERGENCY SET

Engine:	Cat 3406 DITA
Power:	288kVA
Voltage:	3 x 380V - 50Hz

SPECIAL SYSTEMS

RO water maker :	Capacity 5m ³ /day
Water Ballast Treatment system:	Hyde Marine Guardian 60 (60 m ³ /hr)
Airconditioned container hold	
Refrigerators and freezers for sample storage up to - 80°C for biochemical purposes	
CCTV system for observation of work deck	

NAVIGATION SYSTEMS

Auto pilot (adaptive):	C. Plath Navipilot type V HSC
Arpa radar:	Manta Digital 20" Desktop (10 kW X Band)
Arpa radar:	Manta Digital 20" Desktop (Sharp Eye S Band)
Ecdis:	Manta Digital 20" Desktop Dual Ecdis
SB Wing console:	20" Wing display, Ecdis with Radar overlay
Speedlog:	JRC JLN-205 Doppler log
Echosounder:	Skipper GDS-102 Dual frequency (50/200)
Deep sea echosounder:	Kongsberg/Simrad EA 600 System 12 kHz
Direction finder:	Furuno VHF Model FD525
GPS Beacon Receiver:	Linemaster
DGPS:	2x SIMRAD MX500 DGPS
Gyro compass:	C. Plath Navigat X MK2

NAUTICAL INSTRUMENTS

NAVTEX Receiver:	JRC NCR 333
Marine Weather Information Service:	MetManager (ChartCo)
Direction finder VHF:	Furuno
Ship Security Alert System SSAS:	Furuno Felcom 12 AIS Furuno FA-100

LABORATORIES -- DECKSPACE -- WORKSHOPS**Fixed laboratories**

Computer room:	8m ² on C-deck
Measuring room:	20m ² on C-deck
General wet lab:	30m ² on D-deck
Dry laboratory:	15m ² on D-deck
Wet chem. lab:	15m ² on D-deck

Additional facilities to enable (special) expeditions**Containerized laboratories:**

23 containerized Laboratories can be made available, see www.nioz.nl for available container facilities.

Total capacity:	3 + 1 (spare) - on D-deck aft ship
	1 - in hold on D-deck
	4 - in hold on tanktop

To facilitate transport and/or on board storage of equipment:
15 transport containers
4 flat racks

Workspace D-deck:	135m ² without containers
	75m ² with 4 containers

Deck workshop:	20m ² on D-deck
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Engine room workshop:	25m ² on E-deck
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GASSES to laboratories and lab containers:

Bottles with Nitrogen--Hydrogen--Oxygen--and 1 gas of choice can be connected to in a gas station on the aft deck where pressure will be reduced to approx 6 bar. Dry compressed air and propane are also available.

DATA COMMUNICATION SYSTEM

Network infrastructure: Gigabit Ethernet (UTP)

Internet: Via VSAT when in VSAT coverage area
Cabled internet available on bridge and in all cabins
Wifi available on bridge and in mess room

PC network software: Windows networking plus Active Directory, Outlook Web Access for email

Server: VMWare cluster with Windows 2008 and Linux servers for AD, fileserver, Exchange mail and data logging

Peripherals: 2 Kyocera FS-C5300DN KX color laser printers (Bridge and meeting room)

E-mail: If VSAT Connection is available, maximum message size is 5MB and mail is delivered with an interval of 10 minutes. If VSAT is not available, messages are received/sent once per hour via Fleet77 with a maximum message size of 100 Kbytes

SCIENTIFIC EQUIPMENT (permanently installed)

Acoustic positioning system (USBL): Kongsberg HiPAP 100, 12kHz, range 10km

Scientific echo sounder: Kongsberg EM302 Swath Multibeam with ping and chirp mode with Seapath GPS and motion sensors, 1° x 2°, 30kHz, swath 4200m at 5km water depth.

Echosounder 3.5 kHz: Orectech 3010 10kW Echo sounder 3.5 kHz and EK500 echo sounder

CTD / rosette sampler: Seabird

Aqua flow system: Seabird SBE21 plus clean seawater Membrane pump

Meteo system: KNMI (Koninklijk Nederlands Meteorologisch Instituut)

SCIENTIFIC EQUIPMENT (semi-permanent)

Acoustic Doppler Current Profiler: R & D Hull mounted

Boxcores: Various types

Pistoncore: Up to 24m at 8000m depth

Vibrocore: Up to 6m at 100m depth

Fishing nets: Various types

DATA ACQUISITION and PROCESSING SYSTEM

Manufacturer: Ifremer (France)

Type: TECHSAS, CASINO+ and SDIV+

Position from: Simrad GPS and Seapath GPS

Course from: Gyro compass and Seapath GPS

Depth from: Skipper, Kongsberg EA600 and multibeam center depth

Wind speed from: KNMI instruments

Wind direction: KNMI instruments

Air temperature from: KNMI instruments

Relative humidity: KNMI instruments

Barometric pressure: KNMI instruments

Solar radiation from: KNMI instruments

Surface seawater from: Seabird SBE21

Fluorescence from: Seabird SBE21

Temperature from: Seabird SBE21

Salinity: Seabird SBE21

Turbidity from: Seabird SBE21

SIDE - A - FRAME: on C-deck starboard

Swl: 10 tons

Reach-outb/inboard: 3m / 3m

Height above deck: 8m

Frame width: 3m

Control: bridge + on site (remote)

SIDE-WINCHES (hydraulically driven):

CTD WINCH: on C - deck starboard
 Max pull: 5 tons
 Rochester wire/type: 1-H-285A (1 conductor)
 Wire size: 0.288" = 7.32mm
 Wire length: 8300m
 Workload: 18.5 KN (4150lbf)
 Breaking strength (min): 46.3 KN (10400lbf)
 Slip ring - Rekofa: SM16-500 4 poles
 Wave compensation: spring compensator
 Control: bridge + on site (remote)

SIDE WINCH: on C - deck starboard
 Max pull: 10 tons
 Wire: steel 3 x 36 Seale-Filler +twk
 Wire size/length/strength: 14mm / 3000m / 131kN
 Control: bridge + on site (remote)

AUXILIARY WINCH: in side-frame

Max pull: 5 tons
 Wire: steel 6 x 36
 Wire size / length: 14mm / 100m
 Control: bridge + on site (remote)

HYDROGRAPHIC WINCH:

Max pull: 200kg
 Wire: stainless steel
 Wire size / length: 6mm / 500m
 Control: D-deck mid-ship starboard, valve

Additional Deep Sea Winch:

With Opto Electrical Mechanical (OEM) Aramid cable on a 20-foot container frame Dedicated hydraulic and electric power supply in a 10-foot container
 Make: Kley France
 Ships Power supply needed: 3 phase / 380V / 230Amp. (fused:160Amp.)
 Max. pull winch: 9 tons
 Brake force: 20 tons
 Max. speed: 120m/min (2m/sec)
 Wire: Super Aramid
 Wire size / length: 20mm / 9,400m
 Max work load wire: 4 tons
 Cable conductors: 6 x 0,36mm² copper
 Cable Optic Fibers: 4 single mode submarine grade optic fibers
 Control: Remote (Radiographic PLC controlled).

Other facilities: Additional winches: 3 with a container base frame

STERN A-FRAME

Swl: 10 tons
 Reach-outboard/inboard: 3m / 5.5m
 Height above deck: 8m working height
 Frame width: 6.5 / 8m - total width 12m
 Control: bridge and cabin aft deck, + remote

STERN-WINCHES (hydraulic drive)

TOWING WINCH: on C-deck aft.
 Max pull: 5 tons
 Wire size: To be selected, bare drum
 Wire length: Up till 1200 m possible
 Slip ring - Rekofa: SM16-500 12 poles
 Control: bridge and cabin aft deck, + remote

STERN WINCH: on C - deck aft

Max pull: 10 tons
 Wire: steel, 3 x 36 Seale-Filler +twk
 Wire size / length: 14mm / 4000m / 131kN
 Control: bridge and cabin aft deck + remote

AUXILIARY WINCH:	2* in stern frame
Max pull:	5 tons
Wire:	steel, 6 x 36
Wire size / length:	14mm / 100m
Control:	cabin aft deck + on site (remote)
CAPSTAN (Anchor winch):	Electrically driven, 1 on C-deck fwd.
Max pull:	5 tons
Control :	Local
Anchors:	2 x type Pool-TW a 1080 kg
Chain:	2 x 220 m
CAPSTAN:	Hydraulically driven, 2 x on D-deck aft. ship
Max pull:	5 tons
Control :	D-deck aft
OUTRIGGER:	2 pc a 6 m
Location:	port + starboard side of stern frame
CRANES	
CONTAINER-CRANE:	on C-deck starboard (hydraulically driven)
Lifting capacity - swl:	10 / 7.5 tons
Reach min - max:	2.1 - 15.5m
Slewing angle:	360° continuous
CONTAINER HOIST:	in container hold amidships (electrically driven)
Lifting capacity - swl:	2 x 2 x 2500kg
Reach:	travelling through hold
Control:	on site (remote)
FOLDING CRANES:	1 on SB C-deck / 1 on SB D-deck aft
Lifting capacity - swl:	2.5 tons / 3.6 tons
Reach min - max:	0.6 - 9.9m / 0.6 – 10.75m
Slewing angle:	360° continuous / 360° continuous
Control:	on site (remote) /on site (remote)
Hydraulic system:	200bar central system / independent 300 bar
Power Pack	
M.O.B. CRANE:	
Lifting capacity - swl:	1100kg
Reach - fixed:	3.40m
hoisting speed:	18m/min
Control:	Remote lowering / electric hydraulic hoist
LIFE RAFT CRANES:	On C–deck fwd- 1 x port and 1 x starboard
Lifting capacity - swl:	2.1 tons
Reach - max:	4.35 m
Lowering speed:	30 - 40m/min
Control:	Remote-lowering-hand hoist