2021

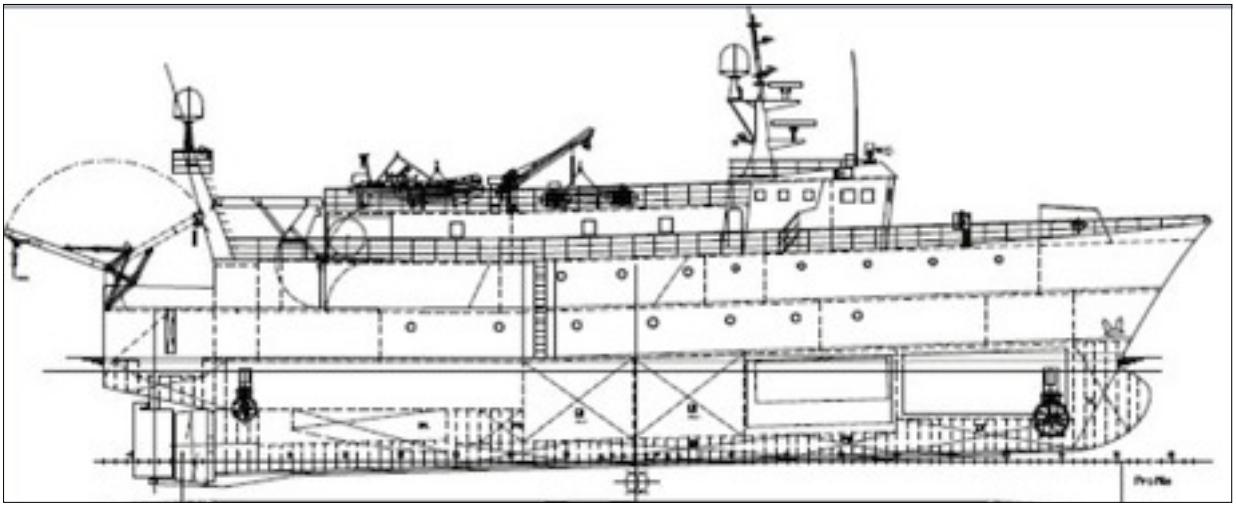
EQUIPMENTS

ISO 14001 2015

ISO 45001 2018

MV Neptune

The MV Neptune has been specifically designed as a multi-purpose oceanography, geophysical, geotechnical, geochemical, environmental and ROV DP support vessel.
MV Neptune was originally designed for cold weather localities and is certified with Class 1A Ice Rating.



Directional wave recording buoy

AXYS Technologies 3-METRE y WatchKeeper

Oceanographic Buoys for measurements of:

· Directional Wave

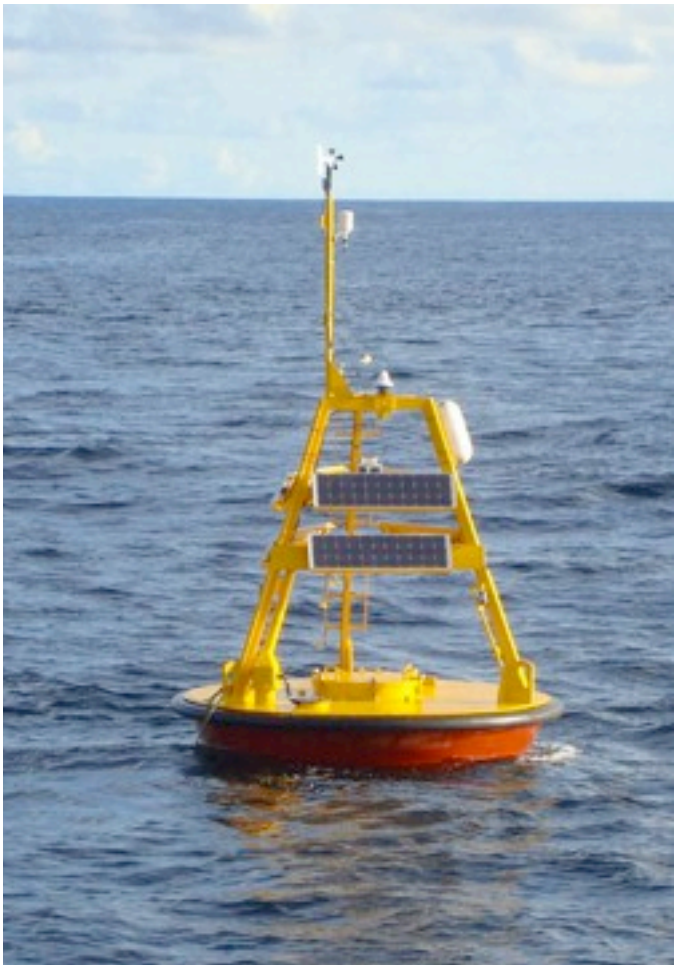
· Wind direction and velocity

· Water Temperature

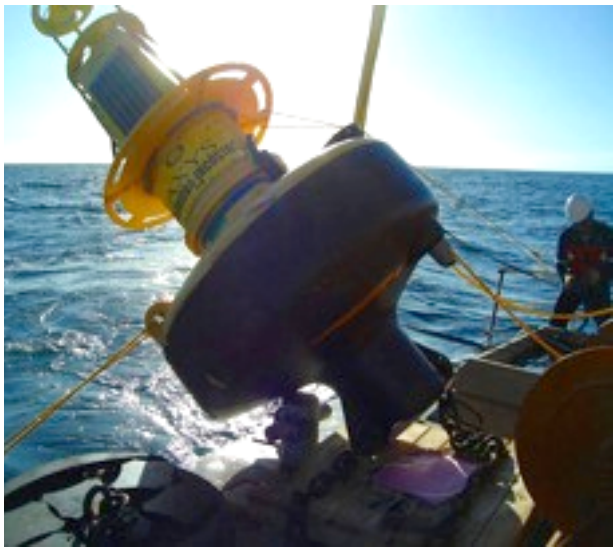
· Environmental temperature and relative humidity

· Barometric Pressure

. Satellite data telemetry



WATCHKEEPER



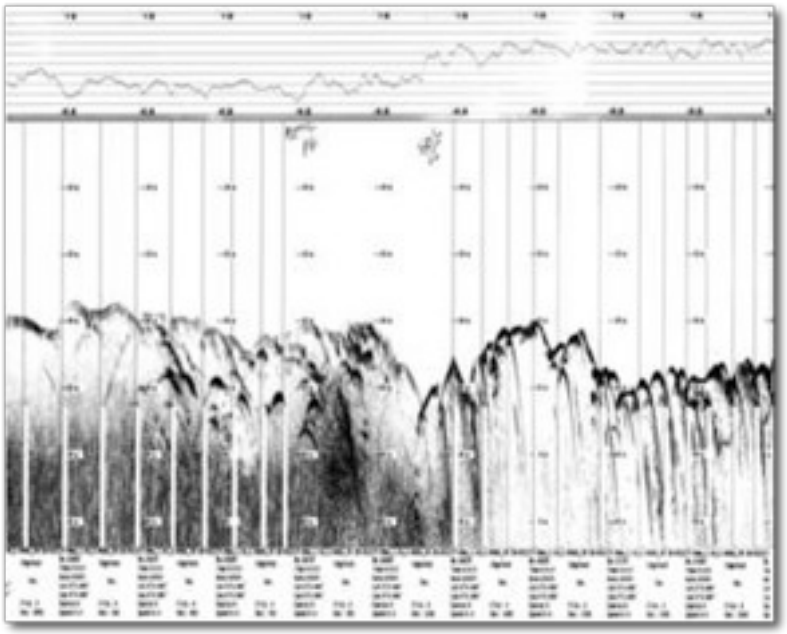
AXYS Technologies 3-METRE

2021

Equipments
Oceanographic & Hidrographic

- Digital Current Meters
- Acoustic Doppler Current Profilers (ADCP)
- Tide Gauge Registers
- 24/33/200 kHz Echosounders
- 2/7KHz Sub Bottom Profiler
- 6, 12 and 30 channels Differential GPS/Glonass
- Salinómeters, thermometers and CTD sounders
- Water and Sediments Samplers
- Digital Anemometers
- GNSS
- HYPACK System
- Wave Spectral Analysis
- Tide Armonic Analysis
- Currents as a function of Tide Mathematics
- AutoCAD Field Data Processing

Chirp Registry

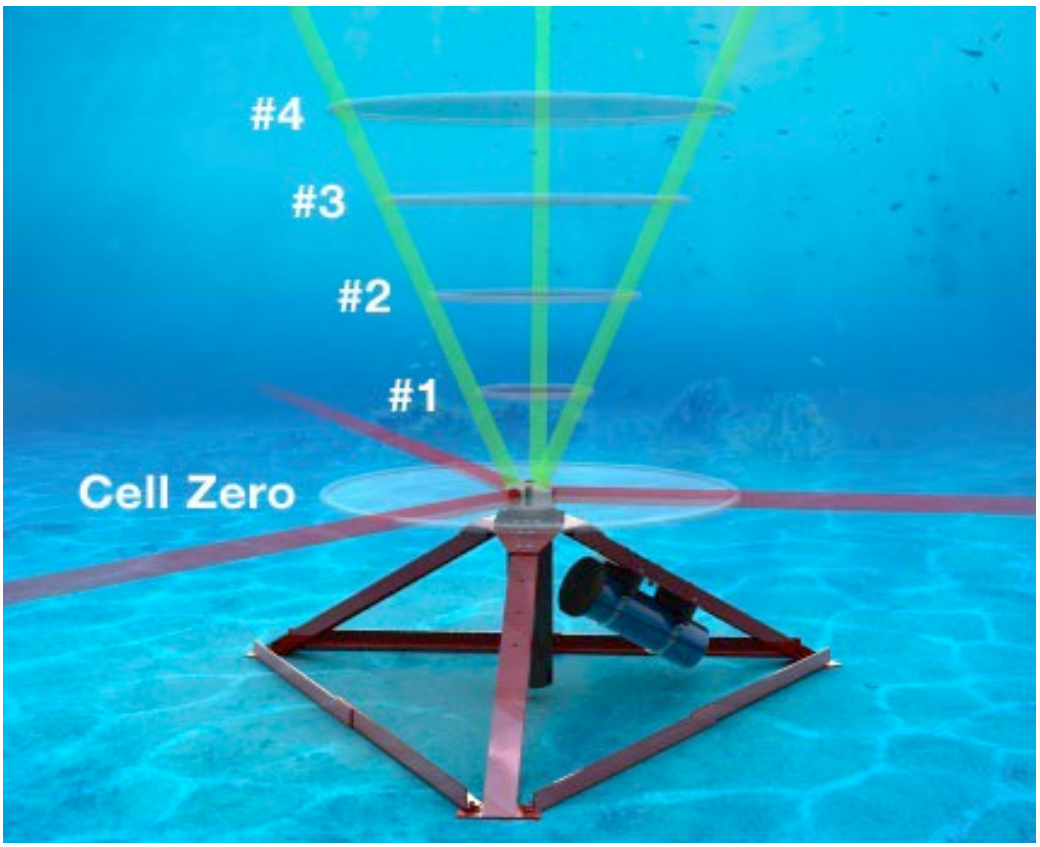


Sonda ctd mini de Valeport

Nortek Aquadopp Current Profiler

The Aquadopp® profiler measures the current profile in water using acoustic Doppler technology. It is designed for a wide range of applications and can be deployed on the bottom, on a mooring rig, buoy or on any other fixed structure.

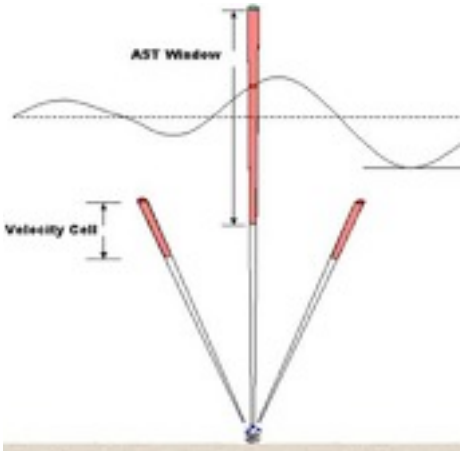
It is a complete system and includes all parts required for a self contained deployment with data stored to an internal data logger. The Aquadopp profiler is a small and lightweight profiler for use over profiling range from of 1 to 100m.



Nortek AWAC AST Current Profiler

The AWAC is designed as a coastal monitoring system. It is small, rugged, and suitable for multi-year operation in tough environments. The mechanical design is all plastic and titanium to avoid corrosion. The AWAC is available in three transmit frequencies (1000/600/400kHz) which allow for different deployment depths.

The sensor is usually mounted in a frame on the bottom, where it is protected from complications at the surface such as harsh weather, vandalism, and ship traffic. While safely located at the bottom, it is operated in online or in stand-alone mode. In stand-alone mode, the raw data are stored to the internal data logger and power comes from an external battery pack. A variety of options are available with maximum deployment lengths of 12 months with hourly wave data when using lithium batteries. Online systems have a variety of possible communication configurations. The most common are long, offshore cables (max. 5 km) or acoustic modems. Online systems can be delivered with backup batteries, protected cables, shore side interface units, and online software.



The AWACs extraordinary wave performance has largely to do with the Acoustic Surface Tracking (AST). The AST is based on echo ranging to the surface with the vertically oriented transducer. The beauty of this method of measuring waves is that it circumvents the depth limitations imposed by bottom mounted pressure and velocity measurements. Long waves (swell) and storm waves are rarely difficult to measure, however waves generated by local winds are challenging without AST. Moreover, the AST also gives you the ability to derive wave parameters based on times series analyses. This means that the AWAC can directly measure wave parameters such as Hmax, H1/10, Tmean, etc. which other bottom mounted systems simply cannot.

Nortek Continental Current Profiler

The Continental is a current profiler designed to give you that extra range. The 190 kHz model, which can measure current profiles up to 250 meters. They are designed for deployment in a variety of ways, including seabed mounting on a mooring line, under a buoy or attached to a fixed structure.

A common deployment method for the Continental 3D is on the seabed where the instruments are mounted facing upwards, profiling the current from the instrument to the surface. The Continental can be configured for seasonal sampling. This means that the measurement interval can vary over the deployment period, which helps optimize the amount of useful data that is collected The Continental is used in both online projects and stand-alone applications. In buoy-mounted application, the data can be collected in real time and transmitted to a shore station using radio or satellite communication.

Other Complementary equipments:

- Digital Tide Gauge Valeport 740
- YSI Salinometers
- Digital Anemometer Young
- Meteorological Instruments
- Sediment Samplers Van Essen
- Gravity Corer sampler

Gravity Corer

Gravity corer with piston 83 mm in diameter and six (06) meters long. It has a mass of 600 kg and can contain inside a PVC tube where the sample will be contained after taking it from the sea floor. It has a removable tip that facilitates penetration into the ground and a stainless steel retainer designed to cut the sample and keep it inside the plastic sampling tube during recovery when the sampler is raised with the winch, guaranteeing a minimum sample loss during his ascension to deck.

Operating Depth	400 m
Max. Load	6 m
Sample Length	6 m
Sample Diameter	83 mm
Weight	500 kg
Deployment Method	Winch with hydrauliic central

2021

Equipments
High- Resolution Geophysics

- Towed Arrays
- Air Guns
- Compressors
- Registry System
- Processing
- Interpretation

Exploration Electronics Survey Equipment

Towed Arrays

Hydrophone Arrangements (Streamers)
Sercel SEAL up to 180 channels
DigiCourse levelers
Electric and hydraulic winches

Air Guns

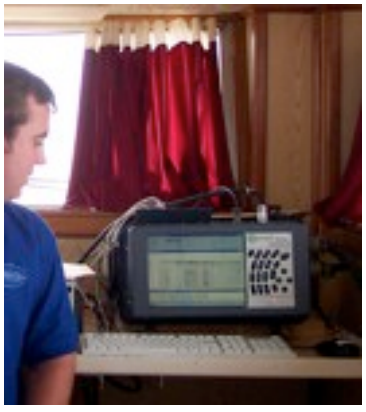
Sercel G and GI from 30 to 840 cubic inches
Air and water guns SSI G. Draft guns TI

Compressors

Comp Air Reavell series 5000
Hamworthy series 70 mm

Registry System

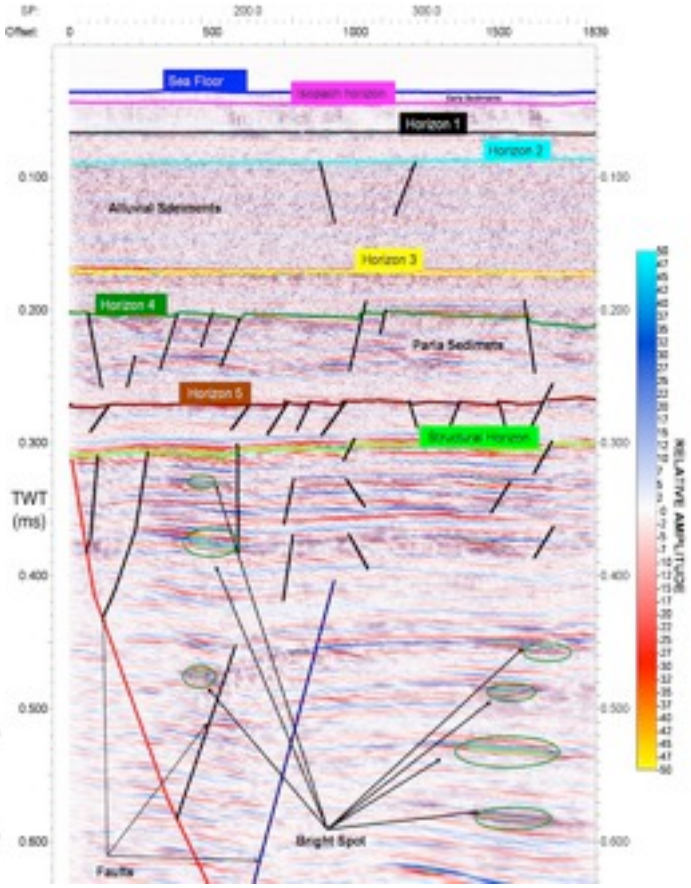
Sercel SEAL 408XL
Geometrics Strata Visor and Geodes OYO DAS 1

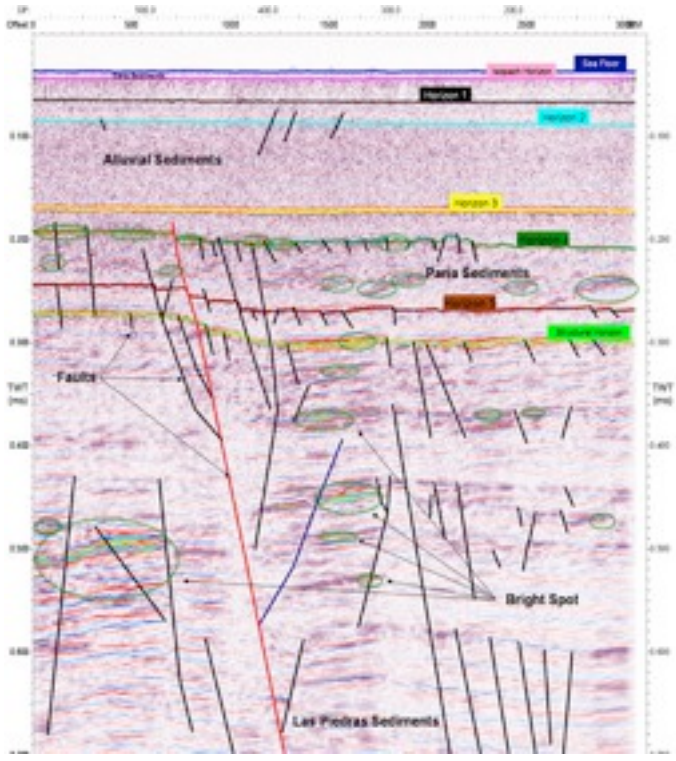


Geophysical Survey System. Exploration Electronics HR2D

Incostas, with the support of Exploration Electronics of England, provides services for High- Resolution Seismic Studies, offering multichannel systems for the acquisition and data processing.

The graphics show recent studies of High-Resolution 2D Seismic in the Gulf of Paria, yielding high quality data, with penetrations of up to 1 second.





The system used consists of a compact 10 cubic inches air gun, a 200 m hydrophone streamer, 36 channels and a GeoMetrics StratavisorNX digital recorder. All data were processed using the Focus 5 software from Paradigm

SeaSPY Marine Magnetometer

The Magnetometer SeaSPY Marine Magnetics is a equipment with an accuracy 0.1nT, the highest accuracy on the market. It's a team built to a very high resistance able to work both in conjunction with side scan sonar, as deployed alone.

Its low power consumption makes it ideal for operation in small boats. The operating principle is based on the Overhauser effect, allowing you to acquire data in either direction and need not be calibrated to the direction of the magnetic field in the area.

Its interface is very simple and allows it to be easily integrated with a sidescan sonar of any trademark.

Principle of operation: Overhauser Effect.

Range: 18,000 nT to 120,000 nT

Sensor sensitivity: 0,01 nT @ 10 samples by second

GeoMetrics G-881 High-Resolution Cesium Marine Magnetometer

The GeoMetrics G-881 system has been specially designed for the detection and location of ferrous objects of any size.

In this devise the high-resolution equipment that uses Cesium vapor technology has been integrated and offers all the advantages for conducting surveys in shallow waters. Its sensitivity is of 0,02 nT @ 10 samples per second.

The system has an interface to be connected to the GeoAcoustics Deep Tow 2000 system, allowing integrated capture of incoming data from the Side Scan Sonar, the GeoChirp Sub-Bottom Profiler and the Magnetometer.

Operation Principle: Divided auto-oscillating beam of Cesium vapor (Cs133)

Operation Range: 20,000 nT to 100,000 nT

Sensibility: 0,02 nT @ 10 samples per second

2021

Equipments
Bottom Geophysical

Integrated Shallow Geophysics System

GeoAcoustics Deep Tow 2000 System. Integrated system for marine bottom geophysical data collection

The modular integration of the system allows the acquisition of data through the combination of the signals coming from the Double Frequency Side Scan Sonar, Chirp or Sub-Bottom Profiler, Magnetometer, Towfish tracking system, orientation sensor and depth determination system.

The telemetry unit system carries power, signal and control over the towfish and its components.

All the information is multiplexed though a single coaxial cable.

The storage, processing and control of the data is made through the Geopro 4 system, which also allows the follow up in real time. The Geopro 4 also has the capacity to generate mosaics of the marine bottom.

GeoAcoustics Deep Tow 2000 System. Technical Specifications

Telemetry System	90-250 VAC, 50-60Hz, 500 W
Power	350 VDC ± 3 VDC
Power output to towfish	220-236 kHz (up)
Frequencies of the link	430-446 kHz (down)
Maximum cable length	10 Km of 11 mm armored coaxial cable
Cable	Rochester A302799 or equivalent
GeoChirp II	
Maximum Power Output	2 kW RMS
Pulses Width	16 o 32 ms (programmable)
Chirp Sweep	Programmable
Penetration	Up to 50 m, depending on the sediment
Frequency Range	1 kHz to 12 kHz
Control	RS-232
Repetition Rate	8 per second with pulses of 16 ms
Transducers of Transmission	4 per second with pulses of 32 ms
Hydrophones	4 model 138D (2000 m) Standard Chirp hydrophone tail
Side Scan Sonar	
Dynamic Range	Adjustable over 60dB range TVG: -20 a +20dB AGC: -34 dB
Mode	operation at 100 kHz and 410 kHz
Output Power	3.0 kW and 2.5 kW ± 20%
Longitude of Pulse	167 ms and 88 ms ± 1%
Repetition Rate	20 pulses per second maximum

3k Hz – 7kHz Geophysical Sub-Bottom Profiler system from GeoAcoustics GeoPulse (High resolution, 10-30 meters of de penetration), used for the location and measurement of buried pipelines, dredging projects and Geotechnics complement.

GeoAcoustics GeoPulse Boomer & Sparker de 200kHz - 2kHz (Up to 125 meters of penetration), used to complement the geotechnics.

Side Scan Sonar

The GeoAcoustics Dual Frequency Side Scan Sonar system is the ideal tool for seabed feature mapping, offering high quality results in a simple and reliable package. It offers switch selectable dual frequency operation (114 / 410 kHz), which when combined with multiplexed data transmission enables a low-drag coaxial cable to be used. The modular design makes it ideal for combining it with GeoAcoustics GeoChirp and GeoPulse sub-bottom profilers. The versatility, ease of operation and reliability has made it a popular choice for navies and commercial survey companies alike.

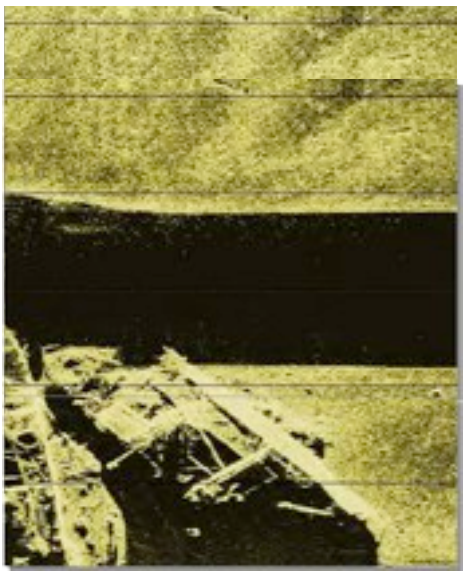
System Components

The standard system employs a lightweight towed body (Model 159D), which is easily deployed by one person. The fish houses a multiplexer (Model SS982), allowing data transmission over long cables, as well as the two dual frequency transducers (model 196D port and starboard). The transceiver unit (model SS981) outputs a signal compatible with all major acquisition systems.

The deck unit allows the operator a simple means to select operation parameters such as operating frequency, Gain, Time Varying Gain (TVG) and Automatic Gain Control (AGC), with duplicated controls for the port and starboard channel.

Features:

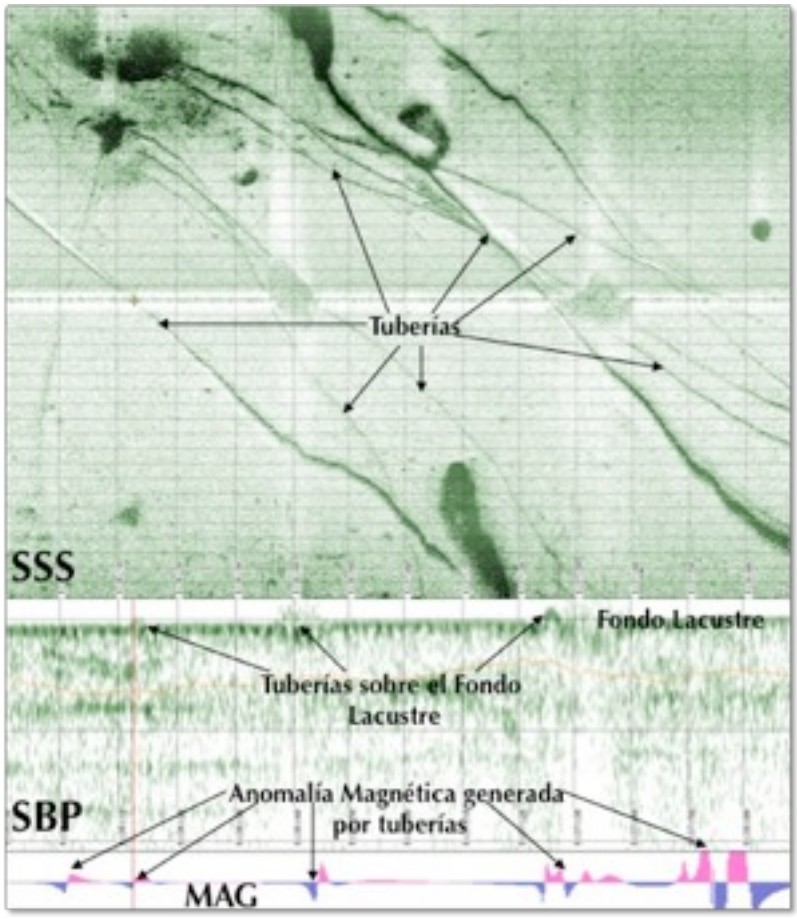
- 1000 m depth rating
- Switch selectable dual frequency (114/410 kHz)
- High bandwidth and resolution
- Multiplexed data transmission over long cables
- Easy to operate
- High reliability (MBTF > 10,000 hours)
- High efficiency / low power
- Simple maintenance



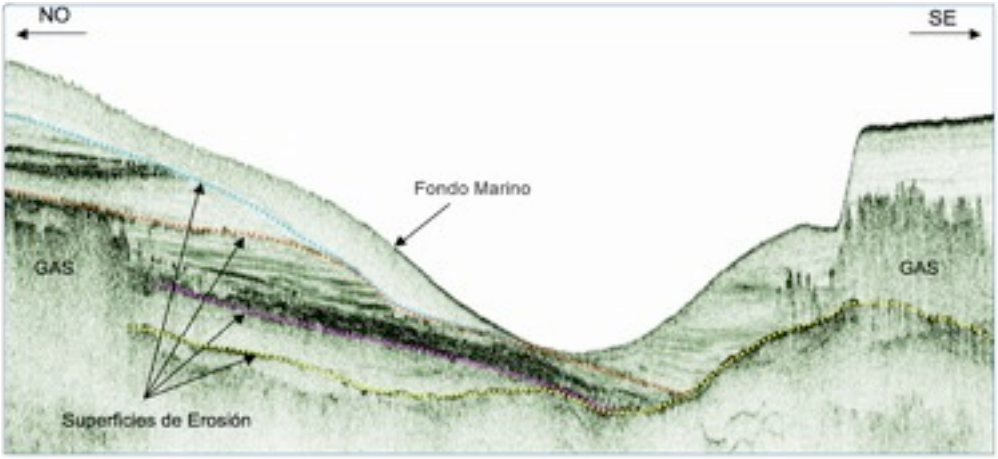
Innomar's SES-2000 compact Parametric Sub-Bottom Profiler for Shallow Water

- Very compact design for inshore applications on small boats
- Power supply mains (110–240V) or DC (battery 12V/24V)
- User-friendly system control and data acquisition software with real-time processing and echo print visualisation (SESWIN)
- High spatial resolution due to narrow sound beam, high ping rate and high bandwidth,
- Very narrow acoustic beam ⟶ high horizontal resolution
- No side lobes for the LF beam
- High bandwidth
- User selectable sound pulse characteristics (Ricker, CW)
- Data heave corrected (depending on heave sensor data),
- HF (approx. 100kHz) echo sounder function for exact water depth determination
- Hull or pole mounted transducer ⟶ no towed items,
- Slave display of echo print and system parameters via Ethernet for QC / supervision
- Wide range of auxiliary sensors from different manufacturers (GPS, RPH) supported
- Synchronisation with other simultaneously operated acoustic systems possible to reduce acoustic interferences (trigger in/output),
- Data acquisition (envelope and full waveform) with automatic backup on a central data server if required.
- Data export to SEG-Y, XTF, ASCII,
- Optional ISE post-processing software with GIS module

Pipeline Detection



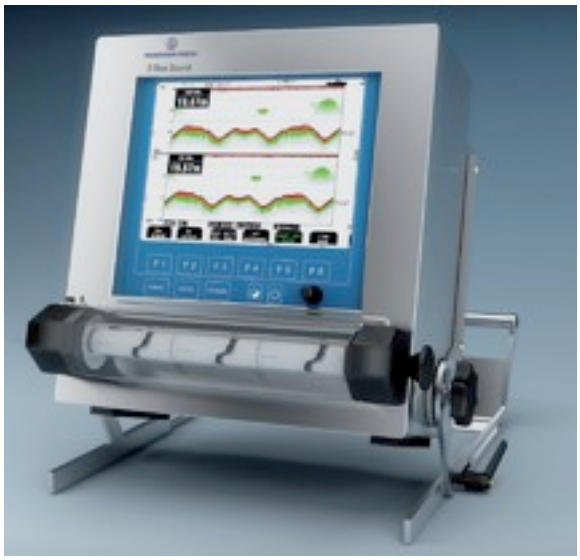
Shallow gas Detection



2021

Equipments
Bathymetry & Topographic

Equipment and system for Bathymetry and Topographic data survey



Odom Hydrotrac 33/200kHz. Echosounder

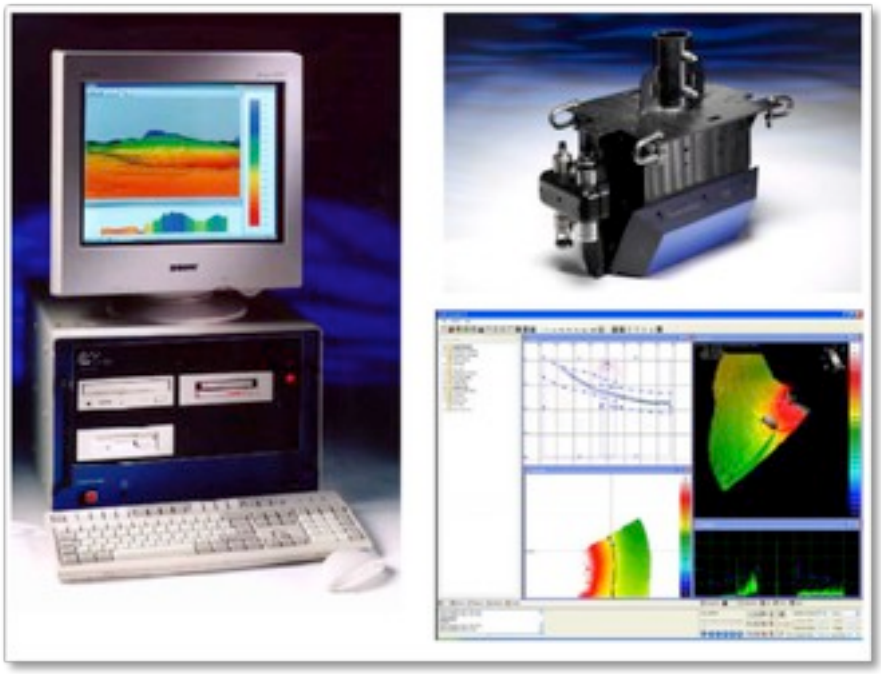
Marimatech E-Sea Sound MP35 33/200kHz Echosounder

Other Equipments:

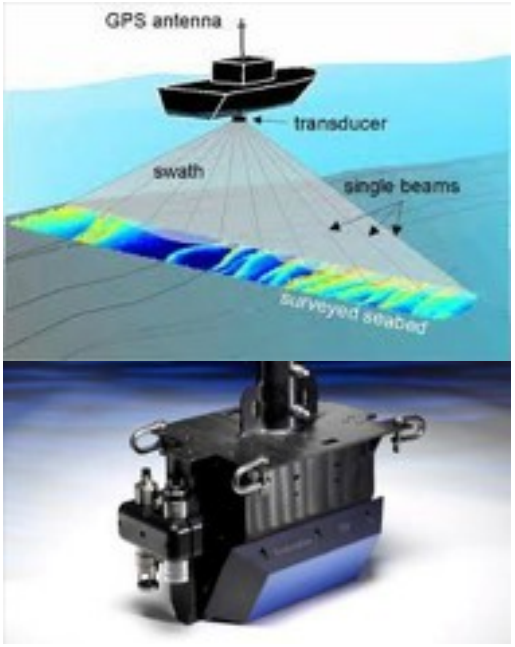
- Echosounder Garmin GPSMAP 235 50 - 200kHz.
- Laser Technology Impulse + Map Star. Rangefinder
- RTK L1+L2+Glonass GNSS devises
- Theodolites
- Fluxgate KVH C-100 electronic compass.
- Office and field informatics equipment - Garmin G.P.S.
- Oceanographic Software Hypack 8.1 – Diving equipment.

GeoSwath+ Multibeam Echosounder

GeoSwath Plus offers very efficient simultaneous swath bathymetry and side scan seabed mapping with accuracies that have been shown to exceed the IHO Standards for Hydrographic Surveys. The applied phase measuring bathymetric sonar technology provides data coverage of up to 12 times the water depth, giving unsurpassed survey efficiency in shallow water environments.



Features:



- Ultra high resolution swath bathymetry
- IHO SP-44, special order
- Co-registered geo-referenced side scan
- Operation Frequency: 125kHz
- Up to 12 times water depth coverage
- 240º view angle
- Interfaces to all customary peripheral sensors
- Interfaces to all customary software packages
- Dual transducer set-up with versatile mounting options
- Full software solution included: data acquisition, processing, presentation

Topo-Bathymetric Surveys

Applications

- Port planning and marine structures
- Navigation
- Coastal structures planning
- Hydrodynamic studies
- Water quality studies
- Basic and Detailed Engineering of port and marine structures

Equipments

- Echosounders of 24, 33 y 200 kHz
- Complete equipment of classic topography, laser distance meter, etc.
- Positioning by Satellite Differential RTK Javad Legacy L1+L2 + Glonass
- DGPS positioners

Software

- Hypack Software Hypack for computerized topo-bathymetric survey execution with high precision as well for horizontal as for vertical.

Topographic Equipment

- Wild level, Model N2-A, Automatic
- Wild Level, Model N2, reversible Bubble
- Theodolite Wild T2 (1")
- Wild Distance Meter, Model DI-20
- TOPCON Total Base Station (distance meter Theodolite), Model GTS-226, Inter data collector, 1" lecture
- GPS Novatel, Flexpak-SSI-5HZN Model
- GPS Topcon Legacy E Model
- GPS Topcon Legacy Model
- Radio MODEM Differential
- Belden Power Cables M8205
- Trimble connection cables for the GPS antenna
- OMNI Total Base Station Model ZTS
- GPS Topcon, Legacy H GD Model
- Pacific crests cable connection, model 24AWG/8
- DCA 0537 power cable
- Trimble, GPS antenna micro centered, ground plane type
- Trimble double frequency rover GPS with option to RTK Trinmark II

All equipment has their accessories as: tripods, rods, prisms, and handbags

OMNI TOTAL STATION MODEL ZTS

TOPCON TOTAL STATION MODEL GTS-226

Bathymetric, topographic and geophysical data processing

- HYPACK for Windows, software for navigation, Surrey and process of hydrographic Works
- AutoCAD 2011
- COGO – Coordinate Geometry
- AdCADD Civil/Survey DTM - Digital
- Terrain Modeling
- Vectors Works 8.1
- Statistical Package for Social Sciences (SPSS)
- Simulation Language for Alternative Modeling (SLAM)
- SMS
- ACES – Automated Coastal Engineering Systems
- GENESIS: Generalized model for simulation shoreline change
- Software for bathymetrical and Topographic information processing developed by INCOSTAS
- Software for visualization and analysis of geophysical signals
- Wave prediction Software developed by INCOSTAS
- Windows XP, Windows 2003 y Mac OS X 10.5, Work stations, equipped with Microsoft Office, Project, Visual Basic, etc.
- Compaq, Apple, Toshiba, Lenovo field portable computers
- Software for spectral and statistical analysis of tides
- GROW of OCEANWEATHER INC. Mathematical Model. GHOST & MAP of TECNOCEAN. STWARE and ADCIRC

2021

Equipments
Positioning & Navigation aids

Differential satellite positioning and navigation aids

SOFTWARE “HYPACK” PARA NAVEGACIÓN Y POSICIONAMIENTO

Applications

- Positioning of bathymetries, oceanographic Surrey and geophysical Studies
- Navigation lines pre-plotting
- Piloting aids for vessels in navigation channel with restrictions
- Geodetic surveys
- Boring equipment Positioning

Equipo DGPS Novatel

Equipments

L1+L2+ Glonass DGPS

Pacific Crest modems

Software

Hypack Software for navigation, monitoring, processing and differential positioning aids in real time.

Hemisphere GPS R120 DGPS

Rely on consistent sub-meter performance with standard SBAS differential and Hemisphere GPS' exclusive COAST™ technology that maintains accuracy during temporary loss of differential signal. The R100 offers many differential correction options for various environments and worldwide coverage. The simple user interface and extensive software features make the R100 the ideal solution for professional mapping, guidance and navigation applications.

Features

- Feature-packed sub-60 cm DGPS Positioning Differential options including SBAS (WAAS, EGNOS, etc.), Radio Beacon, OmniSTAR®
- Exclusive e-Dif® option where other differential correction signals are not practical
- COAST technology maintains accurate solutions for 40 minutes or more after loss of differential signal
- Fast update rates of up to 20 times per second provide the best guidance and machine control
- Compatible with our exclusive L-Dif™and RTK technologies, for applications requiring higher accuracy
- Uses a standard USB port for communication with PC
- The status lights and menu system make the R100 Series easy to monitor and configure

Hemisphere Crescent VS101 Heading GPS

Precise applications demand the heading and positioning performance of the VS101™ GPS compass. Ideal for professional machine control and navigation applications, the VS101 delivers reliable accuracy at significantly less cost than competitors' products or traditional methods. The Crescent® Vector™ II technology brings a series of new features to the VS101 including heave, pitch and roll output, and more robust performance.

The VS101 receiver, with its display and user interface, can be conveniently installed near the operator. The two antennas are mounted separately and with a user-determined separation to meet the desired accuracy. The VS101 uses SBAS (WAAS, EGNOS, MSAS, etc.) for differential GPS positioning.

Features

- Affordable solution delivers 2D GPS heading accuracy better than 0.1 degree rms
- Differential positioning accuracy of less than 60 cm, 95% of the time
- Integrated gyro and tilt sensors deliver fast start-up times and provide heading updates during temporary loss of GPS
- Fast heading and positioning output rates up to 20 Hz
- SBAS compatible (WAAS, EGNOS, MSAS etc.), and optional external differential input
- COAST™ technology maintains differentially corrected positioning for 40 minutes or more after loss of differential signal
- The status lights and menu system make the VS101 series easy to monitor and configure

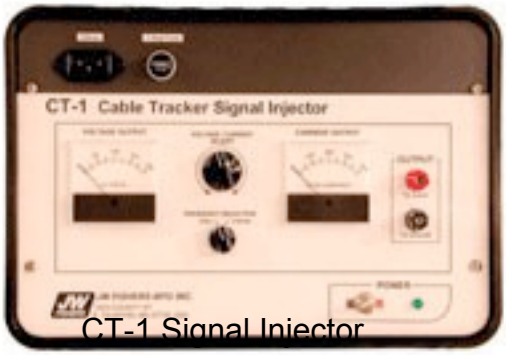
CT-1 Cable Tracker System JW FISHERS

JWFishers Cable Tracker 1(CT-1) System was specifically designed to locate and track buried power and communications cables. The system will locate cables buried on land or underwater.

The Cable Tracker 1 system consists of the Signal Injector control box and the Cable Tracker Probe. The Signal Injector is attached to an exposed part of the cable on land and the detection probe is used to continue the electromagnetic field generated along the cable length.

The working frequencies are 25.50, 60 y 1024 Hz.

Six internal AA rechargeable batteries power the Probe allowing it to operate for 12 continuous hours.



CT-1 Signal Injector

Cabletracker Probe