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Gavia Defence



The Gavia Autonomous Underwater Vehicle (AUV) is a self contained, two-man-portable, modular survey platform capable of delivering high quality data while operating from vessels of opportunity or from the shore. The Gavia AUV can carry a variety of sensors that are especially well suited for military and police applications.

With field-changeable modules, the Gavia AUV is a powerful tool that can be configured to conduct varying types of missions as requirements change, where usability and ease of deployment are of the essence.

DEFENCE APPLICATIONS

Mine Counter Measures (MCM), anti-submarine warfare (ASW) training, rapid environmental assessment (REA), surveillance, search and recovery, port security, specialized payloads and research.

HIGH QUALITY DATA OUTPUT

All data is kept in manufacturer's original format and readily exportable to a number of post processing packages.



Left: Side scan image of a mine like object captured at 900 kHz.

Right: Camera image of a mine like object captured during trials.



Reviewing data within minutes of vehicle recovery.

MODULAR CONSTRUCTION

The modular construction of the Gavia AUV allows the user to conduct a variety of missions with user changeable modules. Additional Gavia modules can be purchased at a later date to increase capability as mission requirements dictate.



GAVIA DEFENCE FEATURES

- » The Gavia AUV is packaged in small cases that are both FedEx shippable and easily transportable in a van or pickup truck to the operational site
- » The Gavia AUV can be operated by two operators and does not require any specialized equipment for launch and recover which is typically done from either the shore or small crafts/boats
- » Quick mobilization / demobilization. No installation or calibration of peripherals required
- » Small logistical footprint with no specialized equipment required to operate the system
- » Easy to use chart-based graphical user interface for mission planning, execution and review
- » Compatible with a variety of third party post processing packages including the SeeTrack Military from SeeByte
- » Over the horizon communications through Iridium satellite connection
- » A wide array of additional sensors available
- » All data time synchronized and stored in manufacturer's original format, all vehicle logs in an open format
- » Additional modules can be purchased as mission requirements evolve

SONAR TRAINING TARGET CONFIGURATION

- » The Sonar Transponder Module (STM), manufactured by Scanmatic AS, can be mounted on the Gavia AUV to transform the vehicle into a sonar training target (STT), simulating the echo responses and acoustic signatures of a range of underwater contacts for ASW training and practice
- » Control of the STM is fully integrated into the Gavia user interface and mission planning. Control is also possible during a mission using dedicated acoustic commands over an underwater telephone system (UWT/UQC)
- » Features: target size to 20 dB, frequency range 5 - 50 kHz, noise transmit 3 - 20 kHz, programmable target highlights and echo stretch, programmable target size, programmable Doppler

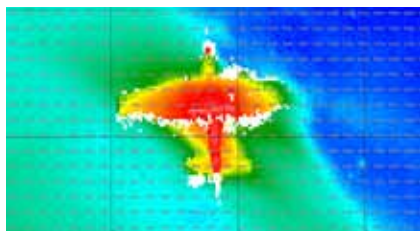
Dense 3D point measurements from the wreck of a WW II Northrop N-3PB plane obtained by a Gavia AUV carrying a 500 kHz GeoSwath Plus

Northrop Data Sets

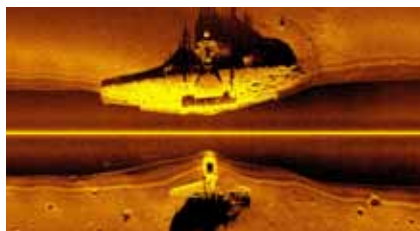
Crashed by Reykjavik Airport during WW2



Northrop N-3PB.



Binned GeoSwath MBES image of target.



1800 kHz Side Scan Sonar image of target



Detail of bottom hatch from the Gavia camera system.

Mine Counter Measures (MCM)



GAVIA DEFENCE SPECIFICATIONS

Length: From 1.8m for base vehicle (Typical MCM 2.6m)

Weight in air: From 49 kg for base vehicle (Typical MCM 62 kg)

Diameter: 200 mm

Depth rating: 500m or 1000m

Battery module: 1.2 kW lithium ion rechargeable cells per module

Max speed: > 5.5 knots

Endurance: Dependent on speed and exact configuration. Typically around 7 hours with DVL INS, greater when using acoustic positioning. Vehicle can be operated with two batteries for increased endurance (roughly doubled) or batteries can be field swapped for continuous operations

NAVIGATION

As standard GPS and Fluxgate Compass

Optional DVL aided Inertial Navigation System (INS)

Optional DVL aided Long Baseline (LBL)

COMMUNICATION

Wireless LAN: IEEE 802.11g compliant

Satellite communications: Full global coverage via Iridium link

Acoustic modem: For tracking and status updates

TYPICAL DEFENCE / POLICE CONFIGURATION

Gavia base vehicle (500m or 1000m depth rating)

DVL INS or LBL positioning

Side scan sonar

Camera

Sound velocity meter

Obstacle avoidance sonar

Typical options: swath bathymetry module, sub-bottom profiler, battery module(s), sonar training module, custom payload modules for user supplied instrumentation

The Gavia AUV began in 1997 as a joint development effort between the University of Iceland and Hafmynd ehf (now Teledyne Gavia).

Since then, numerous Gavia vehicles have been sold to military, commercial, and scientific users in Iceland, Australia, Denmark, Portugal, United Kingdom, Japan, Canada and the United States.

