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Gavia Defence

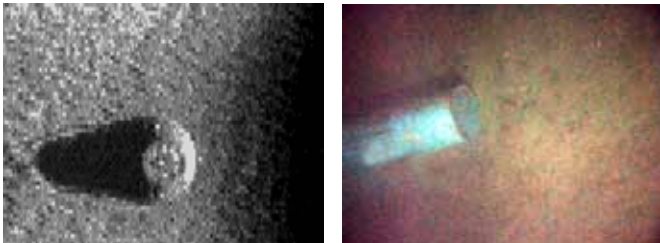


TYPICAL DEFENCE APPLICATIONS INCLUDE

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 left in manufacturers 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

Due to the modular construction of the Gavia, the system can conduct a variety of applications and additional capability is just a changeable module away.

Gavia modules can be purchased at later dates to increase capability as mission requirements dictate.



The Gavia Autonomous Underwater Vehicle (AUV) is a self contained, low logistics survey tool capable of delivering high quality data while operating from vessels of opportunity or from the shore, with the ability to carry a variety of sensors that are especially well suited for military and police applications.

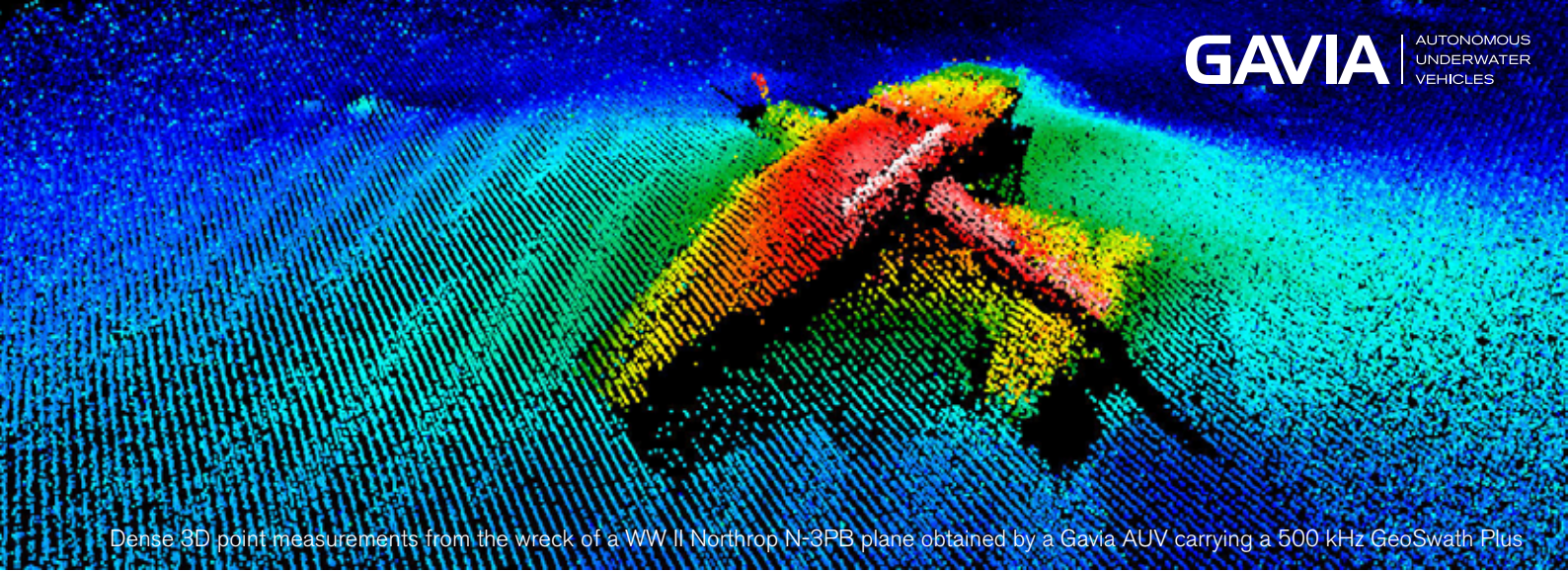
With field swappable modules, the Gavia is a powerful tool that can be configured to conduct varying types of missions as requirements change, where usability and ease of deployment is of the essence.

GAVIA DEFENCE FEATURES

- » The Gavia AUV is stored in small cases that are both Fed-Ex shippable and easily transportable in a van or pickup truck to operational site.
- » The Gavia can be operated by two people and does not require any specialized equipment for launch and recovery which is typically done from either the shore or small inflatables.
- » 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 SeeTrack from Seebyte.
- » Over the horizon communications through Iridium
- » A wide array of additional sensors is 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.



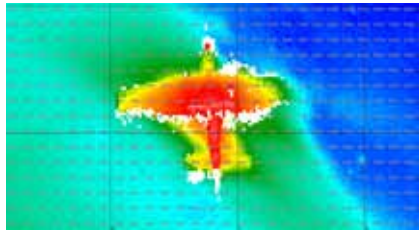
Dense 3D point measurements from the wreck of a WW II Northrop N-3PB plane obtained by a Gavia AUV carrying a 500 kHz GeoSwath Plus

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)

Image done by Black Laser Learning



GAVIA AUV SPECIFICATIONS

NAVIGATION

As standard GPS and Fluxgate Compass
 Optional DVL aided INS
 Optional DVL aided LBL

COMMUNICATION

Wireless LAN: IEEE 802.11g compliant
 Satellite communications: Full global coverage via Iridium link
 Acoustic Modem: For tracking and status updates

MEASUREMENTS

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 modules: 1.2 kW Lithium ion rechargeable cells per module
 Max speed: > 5.5 knots
 Endurance: Depending on speed and exact configuration. Typically around 7 hours with DVL INS and greater endurance 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.

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, Battery module(s), Sonar transponder module, custom Payload modules for user supplied instrumentation.

The Gavia AUV has been in development since 1997 when the Gavia program was started as a joint development with the University of Iceland. Hafmynd was incorporated in 1999. Since then, numerous Gavia vehicles have been sold to military, commercial and scientific users in Iceland, Australia, Denmark, Portugal, United Kingdom, Canada and the United States as of 2010.

