

## ECHO MAPPER AUV

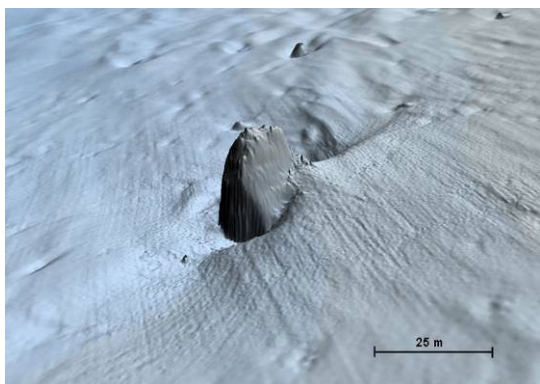
### Autonomous Underwater Vehicle (AUV)



The fully air transportable Echo Mapper Autonomous Underwater Vehicle (AUV) is one of the multiple AUV solutions offered by Fugro worldwide. Echo Mapper is a Bluefin 21 AUV and is operated by Fugro Seafloor Surveys, Inc., in Seattle.

AUVs are the ultimate choice of instrument platforms for deep sea surveys. By placing the survey instruments on board an Autonomous Underwater Vehicle (AUV), the geophysical measurements take place close to the seafloor, dramatically improving the resolution and accuracy of the acquired data.

In deep water this quiet vehicle is able to gather data with a very low signal-to-noise ratio and thus returns cleaner data with higher resolution. The AUV, in contrast to a ROV, operates without an umbilical and is therefore able to move faster and quieter. Your survey is completed sooner and the results are better.



The Echo Mapper AUV differentiates from other AUVs because it can be quickly air shipped and mobilized to a vessel of opportunity in remote survey locations.



### HOW IT OPERATES

After being launched, the AUV dives to its pre-set altitude, while tracked by the acoustic positioning system and the acoustic command link between the vessel and the AUV. The Inertial Navigation System (INS) on board the AUV is updated with absolute positions from an acoustic positioning system on board the vessel. Predefined project mission lines are run while the AUV acquires data on an internal hard disk. After recovery, the data are off-loaded and the batteries re-charged.

### GEOPHYSICAL INSTRUMENT

Multibeam Echo Sounder, side scan sonar and sub-bottom profiler are the three main geophysical instruments on board. These instruments are of the same type as normally operated from a survey vessel.

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## Autonomous Underwater Vehicle

### PHYSICAL DATA

Length 4.1 meters  
Weight (air) 525 kg  
Weight (water) Neutral  
Diameter 53 centimeters  
Battery Type Lithium Polymer

### ACOUSTIC NAVIGATION SYSTEM

Aided Inertial Navigation System  
Sonardyne Ranger USBL  
AEE Transponders  
Kearfott Inertial Motion Unit  
RDI Doppler Velocity Log

### ACOUSTIC COMMUNICATION

Command & Control (Low speed acoustic modem)

### SURFACE COMMUNICATION

UHF Radio Frequency Link  
DGPS Link  
Iridium satellite location

### ADDITIONAL SENSORS

Valeport Sound Velocity Profiler  
Paroscientific, Inc. Digiquartz Pressure Sensor



### EQUIPMENT

Air-transportable AUV equipment

### PAYLOAD SENSORS

#### SIDE SCAN SONAR (SSS)

Barge and debris field  
Type Edgetech Full Spectrum  
Frequency 120 kHz or 410 kHz



#### MULTIBEAM ECHO SOUNDER (MBE)

Boulders with scouring  
Type RESON SEABAT 7125  
Frequency 200 kHz

#### SUB-BOTTOM PROFILER (SBP)

of bathymetry above  
Type Edgetech Full Spectrum  
Frequency 2-16 kHz

