

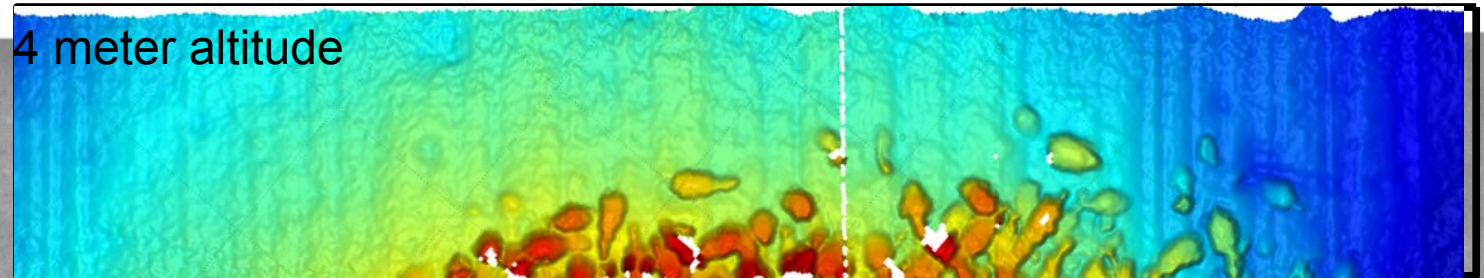
High Resolution 2D and 3D Acoustic Imaging Technologies for Autonomous Systems



Lee Thompson

January, 2010

Agean Sea 2009: Chris Roman/Bob Ballard BlueView MB2250 Results



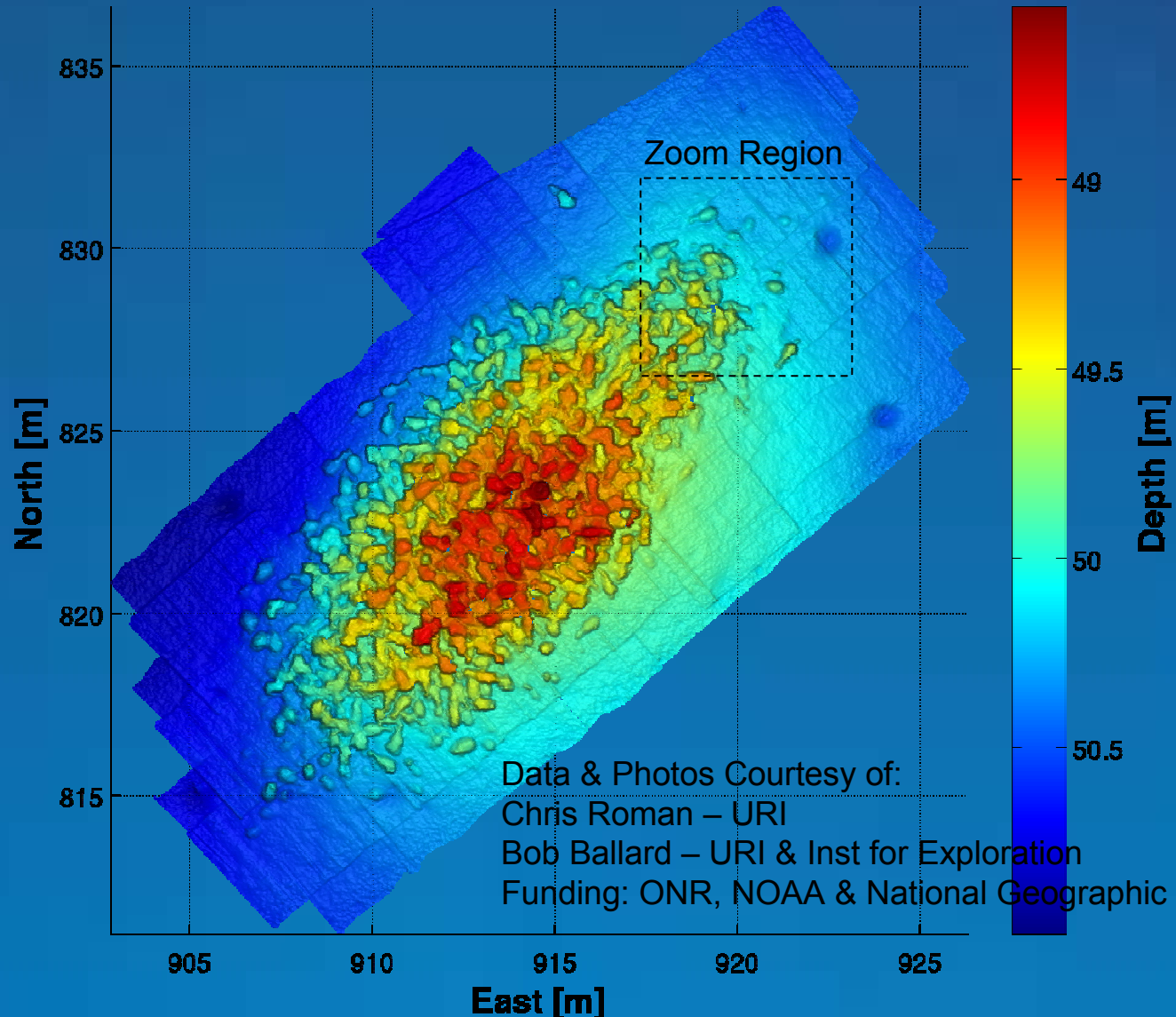
Data & Photos Courtesy of:
Chris Roman – URI
Bob Ballard – URI & Inst for Exploration
Funding: ONR, NOAA & National Geographic

Agean Sea 2009: Chris Roman/Bob Ballard

BlueView MB2250 Results



- MB2250-45
- ROV-based survey
- 4 m altitude
- Closed Loop Surveys
- Data processed using Simultaneous Mapping and Localization (SLAM) automated map refinement to dead reckoning
- Results very relevant to Mine ID

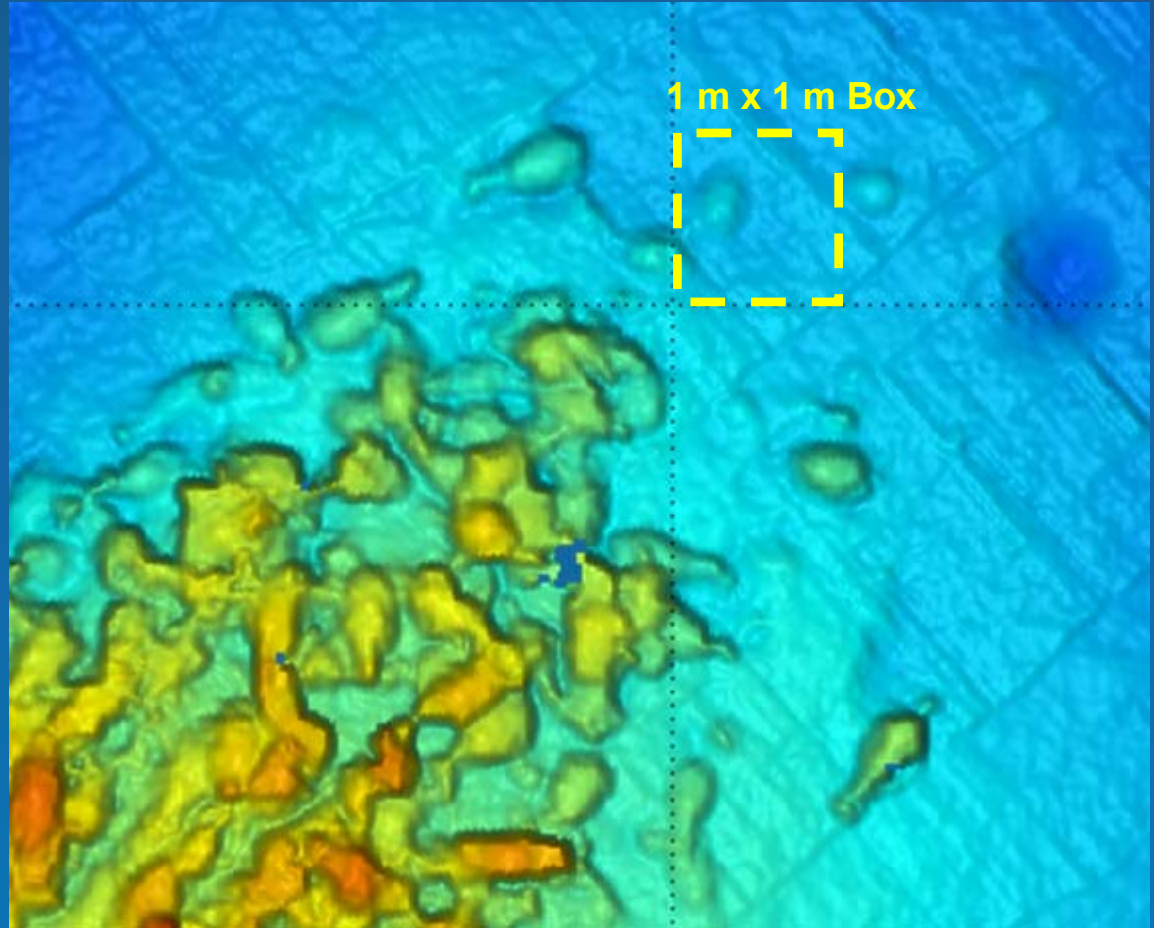


Agean Sea 2009: Chris Roman/Bob Ballard

BlueView MB2250 Results



- Very fine level detail on small objects
- Note detail on fluted ends on urns

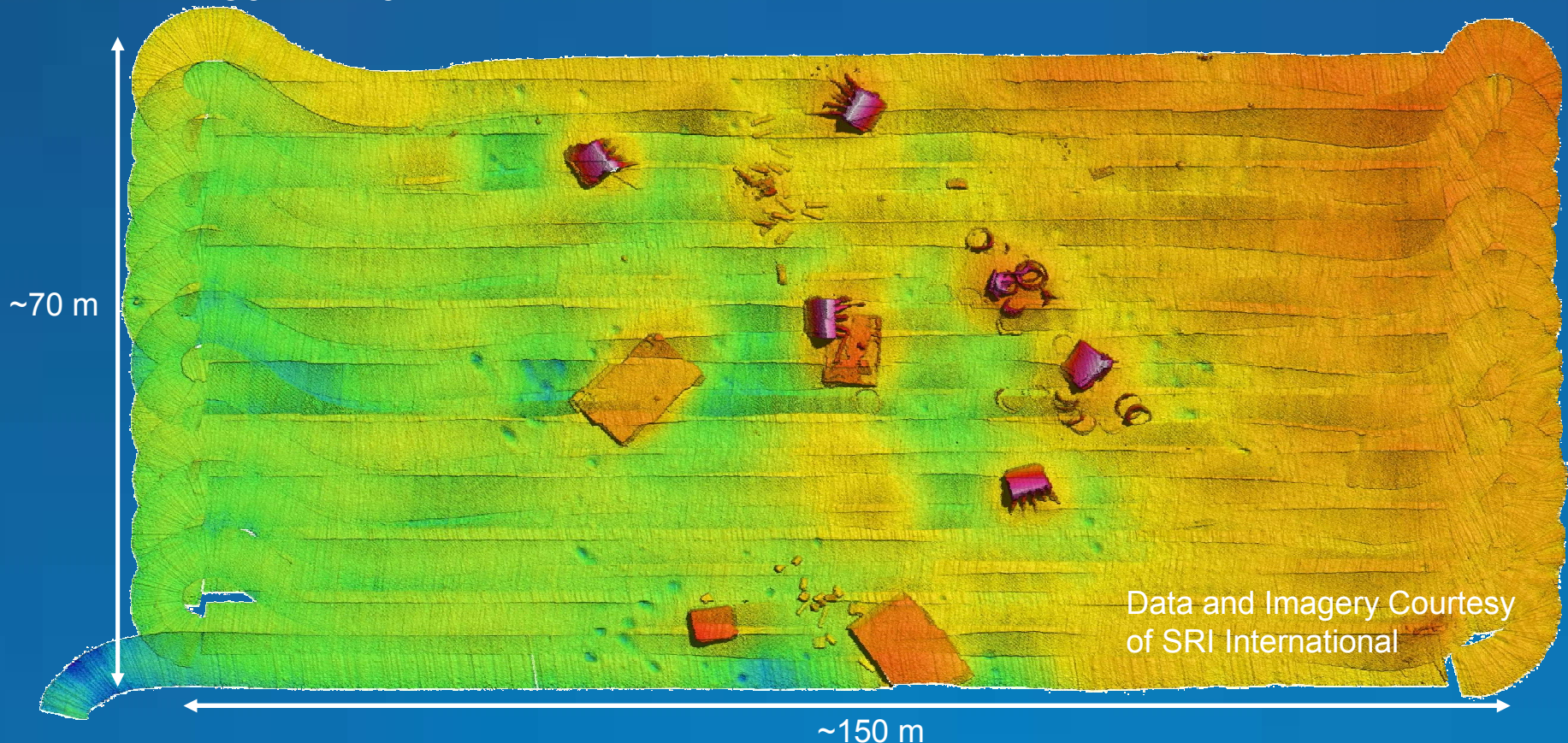


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MicroBathy from Small UUV

MB1350-45 UUV Survey Example

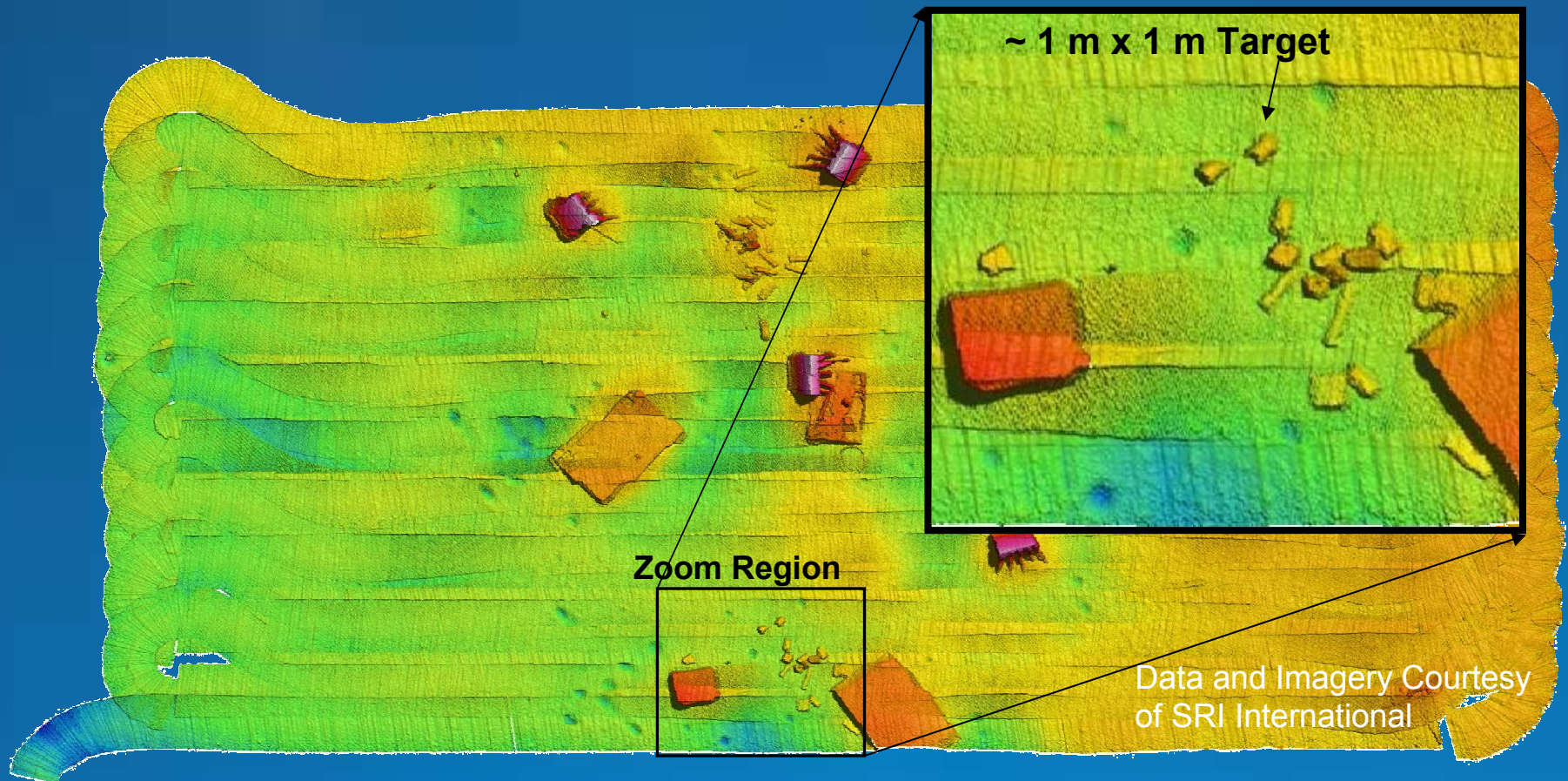
- Bridge debris
- Collected from Bluefin 12 at 3-4 kts
- 6-7 m Altitude
- ~150 m x 70m



MicroBathy from Small UUV

MB1350-45 UUV Survey Example

- 100% area coverage
- Detailed 3D imagery on small (1m x 1m) targets



BV5000 3D Scanner System



- BV5000 3D Scanner
 - Tripod, ROV, AUV
 - 1.35 or 2.25 MHz
 - Laser like imagery underwater
 - Seamless integration with terrestrial laser scanner software and data – (e.g. Leica Cyclone)
 - Survey tools
 - Complete dry and wet datasets
 - Re-registration tools
 - Modeling tools

