

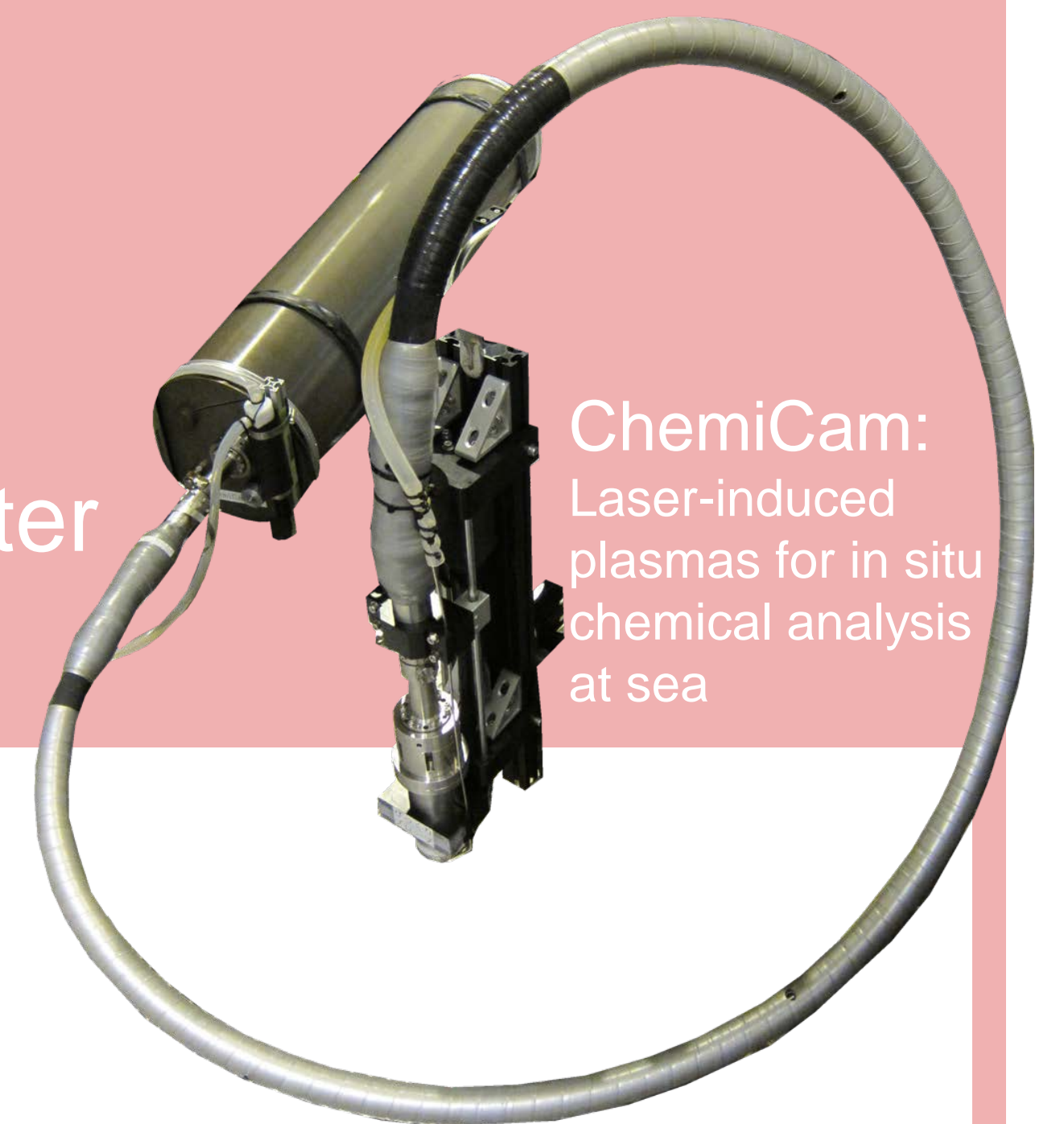


RESQ hose:
Measurement of seafloor
radioactivity off Fukushima

Thornton Lab

[Underwater photonics]

Underwater Technology Collaborative Research Center
<http://ocean.iis.u-tokyo.ac.jp>



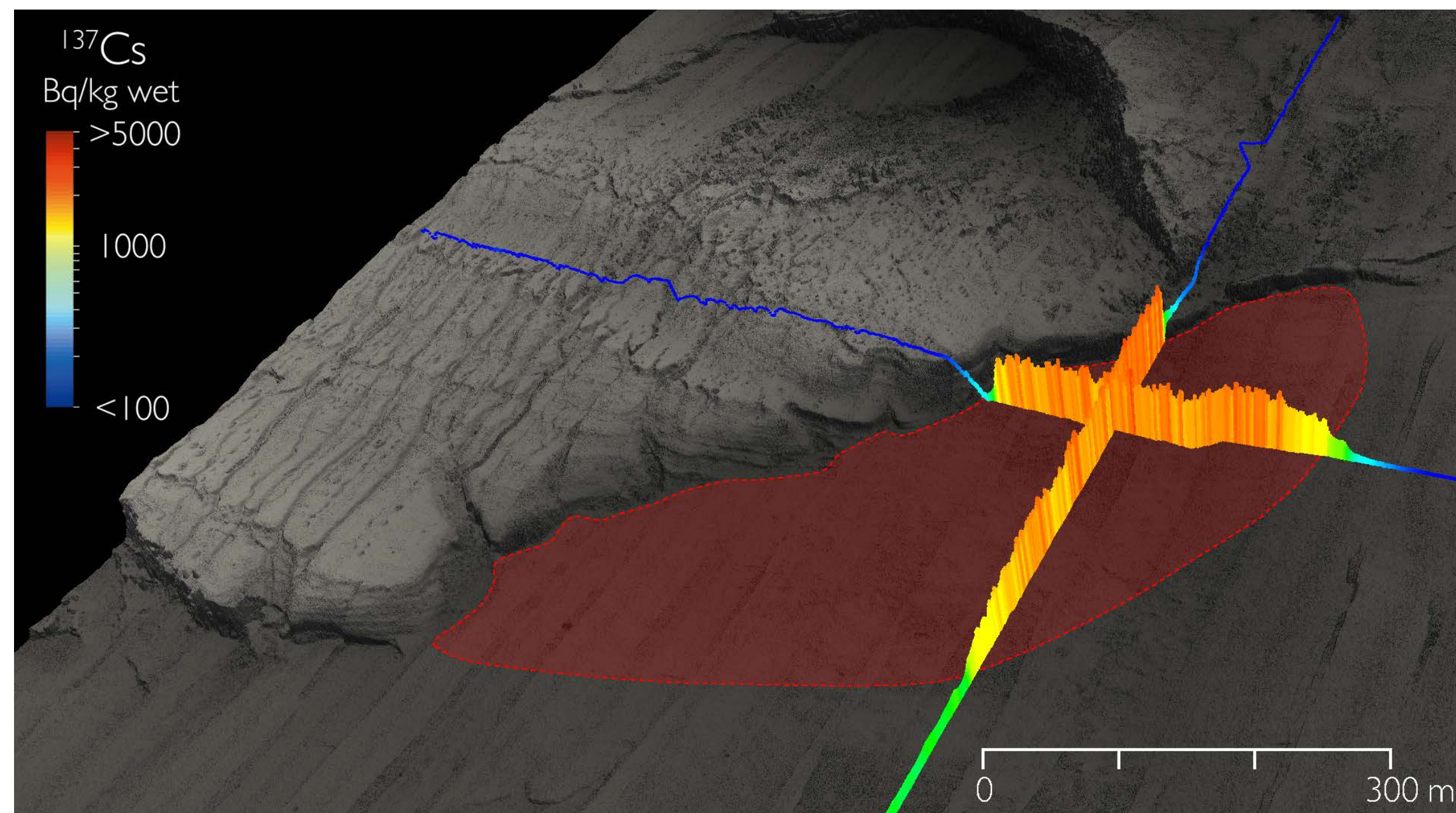
ChemiCam:
Laser-induced
plasmas for in situ
chemical analysis
at sea

Seeing our ocean through new eyes

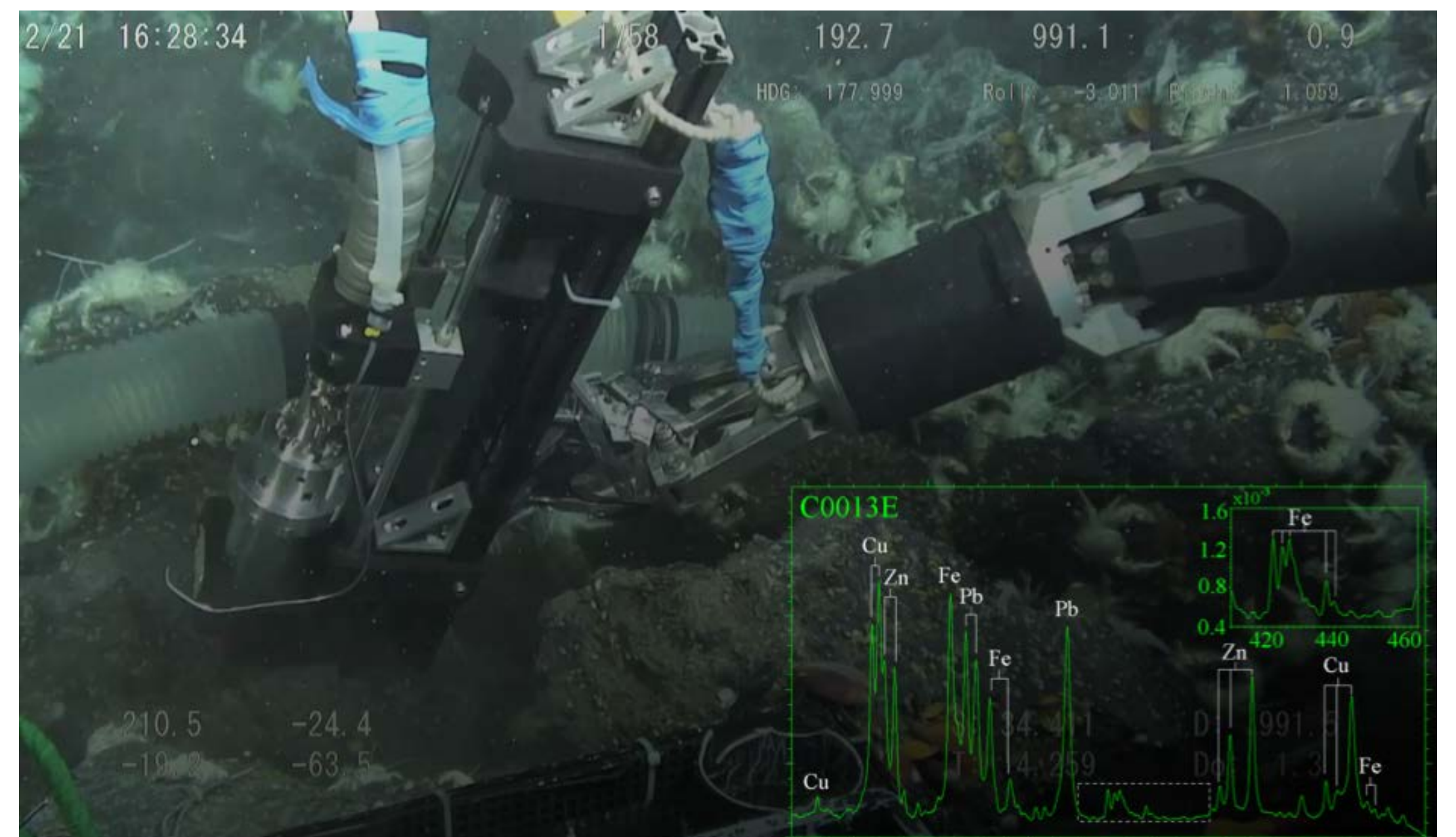
Not in seeking new landscapes but in having new eyes
~ Marcel Proust

Underwater sensing is the raw material of how we perceive the ocean. We aim to expand the toolset of techniques available for in situ measurement at sea by investigating the interactions of photons with matter in harsh underwater environments. Our application fields include:

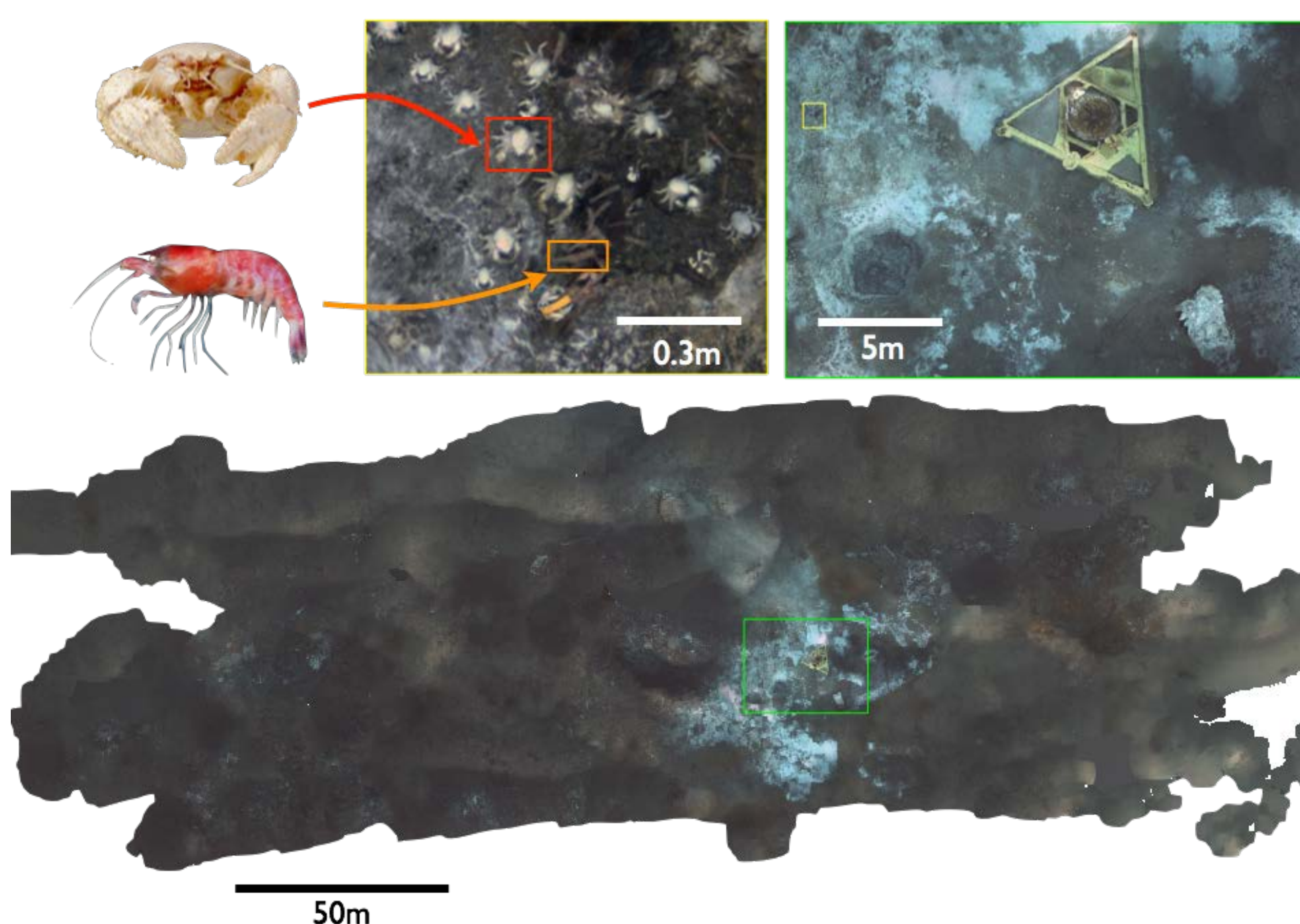
- ◆ Monitoring of seafloor radioactivity using in situ gamma-ray spectroscopy
- ◆ Laser spectroscopy for in situ chemical analysis of seafloor deposits
- ◆ Multi-resolution 3D visual reconstruction for wide-area benthic habitat mapping
- ◆ Acoustic and 3D visual mapping of the volumetric distribution of manganese crusts



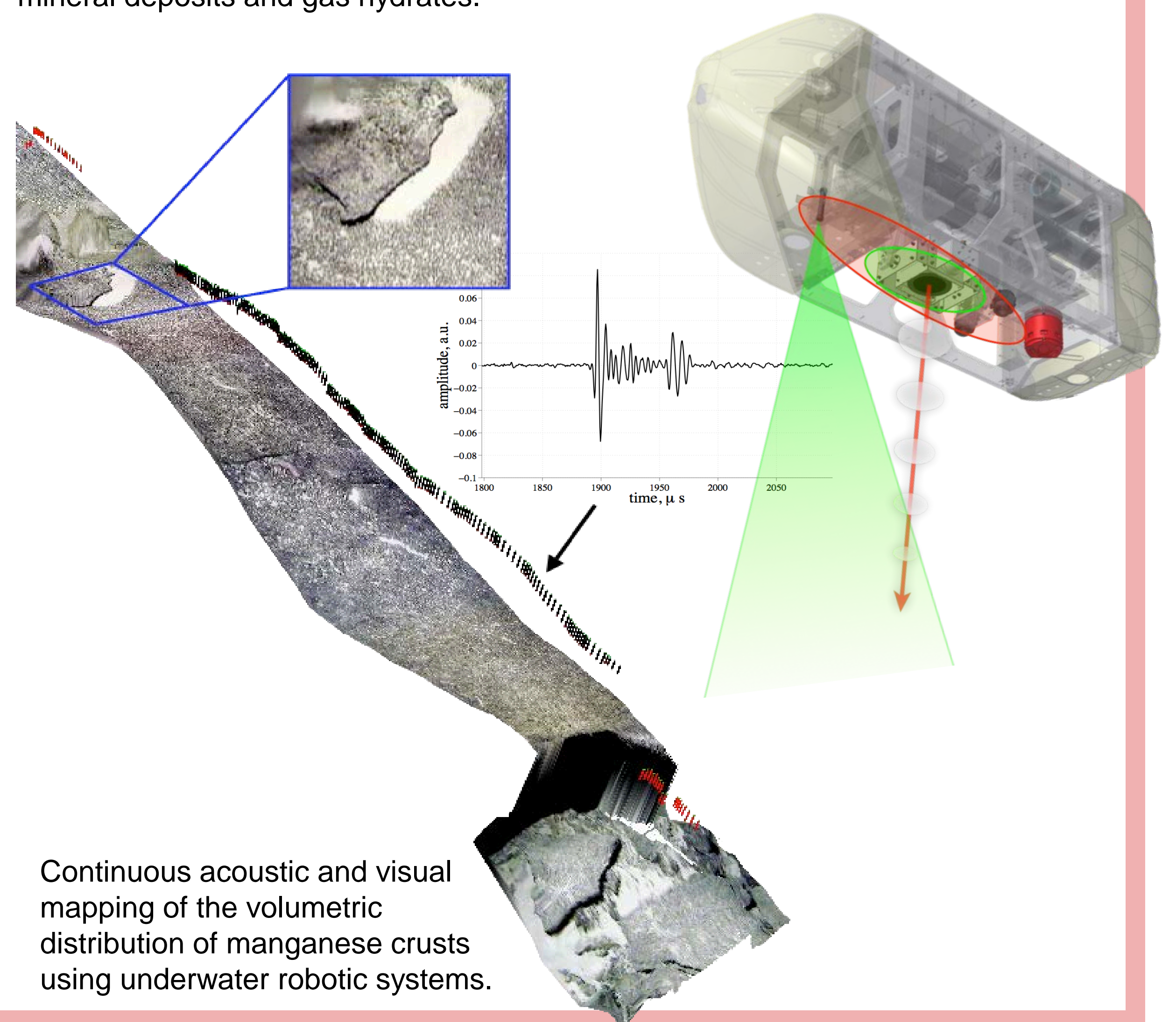
Over 3000km of continuous seafloor radioactivity measurements using a towed gamma-ray spectrometer.



Application of laser spectroscopy for in situ chemical analysis of deep-sea mineral deposits and gas hydrates.



3D reconstruction of the seafloor surrounding an artificial hydrothermal vent at a depth of >1000m. The detailed view shows Galatheid crabs and Alvinocaris shrimps that have colonized the area around the artificial vent.



Continuous acoustic and visual mapping of the volumetric distribution of manganese crusts using underwater robotic systems.