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“IT WAS VERY EXCITING IN THOSE DAYS.
WE WERE EXPLORERS.”

Marie-Tharp [1920-2006], Oceanographer

Monday, 22nd May 2017, 12:00 p.m. (12:00h)

GEOMAR Lecture Hall West (R.54) | Düsternbrooker Weg 20, 24105 Kiel

Seafloor mapping- the key to discovery, characterization, and extending local groundtruth for regional understanding of oceanic core complexes

Seafloor mapping is not only an historical achievement- it continues to provide crucial view of features such as oceanic core complexes, whose discovery led to new insights on oceanic crustal structure and deep sea ecosystems.

Atlantis Massif, an oceanic core complex on the young flank of the Mid-Atlantic Ridge, was recognized to be structurally distinct from classic seafloor architecture on the basis of swath sonar mapping and sparse rock sampling. The hypothesis that this rugged bathymetric high was uplifted by long-lived faulting was subsequently tested by a series of higher resolution mapping and sampling investigations, that also led to discovery of the Lost City hydrothermal vent field near the peak of the massif. Subseafloor constraints via seismic imaging and ocean drilling were key to rejecting aspects of the original hypothesis and updating the model for this core complex's structure and development. Even in light of the rich dataset obtained over 20 years time, the seafloor morphology remains a key means of interpreting the structure of this core complex and linking local groundtruths (seafloor and borehole samples) to lateral variation in crustal lithology and hydrologic pathways. A review of work at Atlantis Massif will illuminate this persistent value of the site's seafloor map while portraying current understanding of the core complex evolution and implications for the associated habitat.