THEME 2: NEW WAYS TO STUDY SUBMARINE CANYONS: INTEGRATED PROGRAMS, NEW TECHNOLOGIES + COORDINATED MONITORING EFFORTS

Obtaining an integrated, multiresolution picture of a single submarine canyon system

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This presentation will give an overview of the most recent efforts to obtain a holistic understanding of Whittard Canyon, Celtic Margin, NE Atlantic. Whittard Canyon is a large, dendritic, shelf-incising canyon, currently located ca. 200nm from the closest shoreline. During glacial times, when sea level was much lower, the canyon frequently funnelled large catastrophic sediment flows to the deep sea. In recent times, this activity is much reduced, but this does not mean that the canyon is inactive. Integrating all existing knowledge about the canyon from different disciplines (geology, sedimentology, geomorphology, oceanography, ecology and benthic biology; Amaro et al., subm.), we will review the processes currently affecting canyon formation and sediment transport, and discuss their effects on the benthic communities.

The second part of this presentation will demonstrate how a combination of the latest developments in marine robotic technology can be used to obtain a complete, multiscale, 3-dimensional image of a submarine canyon and its benthic habitats. Expedition CODEMAP2015 made use of the Autosub6000 AUV, Isis ROV and a Seaglider to apply a nested mapping scheme in Whittard Canyon, including detailed side-ways mapping of vertical and overhanging canyon walls and continuous measurements of the water column structure.