this ridge, five seamounts and two oceanic islands were surveyed during the EPIC Cruise (MR18-06-03) by JAMSTEC's R/V Mirai to assess the communities and describe the benthic habitats and megafauna. At each site, the benthic community (from ~900 to 200-400 m) was surveyed by a towed camera and environmental data were collected. Benthic habitat and community characterization based on analysis of the videos and environmental data are underway. Subsequent analyses of the relationships between environmental data and the habitat and communities will follow. Here we report, preliminary geographic and bathymetric ranges for select taxa, habitat characterizations, and environmental data distributions. Funding provided by JAMSTEC, Fondecyt 1181153, and MN ESMOI.

- ### Megafauna communities from abyssal sites along the Gloria Fracture Zone (NE Atlantic)
  Teresa C. Ferreira, Christian Hensen, Pedro Terrinha, Mark Schmidt, Thomas Müller, Kasia Sroczynska, Sofia P. Ramalho, Helena Adão

Fracture zones are areas of poorly known abyssal landscapes and benthic faunal communities. During the R/V Meteor M162 cruise several imagery surveys were performed using a TV-CTD guided camera system along four main areas of the Gloria fault system, between the Terceira ridge and the Madeira Tore Rise. Based on these records, we were able to characterize - for the first time - the megafaunal composition, their abundance and diversity along the sub-basin of the Gloria fault at depths between 3500 and 4500m. Quantitative annotations of the observed fauna, as well as evidence of animal traces on the seafloor were explored in relation to topography, substrate type, and geochemical data acquired during surveys. Preliminary observations revealed a total of 121 morphospecies, of which Holothuroidea is the most diverse group, with 12 morphospecies. Deepest transects carried out along the main trace of Gloria Fault system showed the highest similarity among dives, predominantly characterised by soft sediment areas with Elpidiidae holothurians frequently observed. In contrast, the survey carried out at the Terceira ridge showed more diverse communities, which is likely due to a larger variability in substrate and topography. Specifically, soft-sediment sections showed a higher proportion of holothurians, ophiuroids and acorn worms, while unique Anthozoan and Porifera morphospecies were observed in areas with presence of hard substrates. The findings of this study provide unique knowledge of abyssal fauna associated with the Gloria Fault System, including areas inside of national jurisdiction and of relevance for management and conservation actions.

- ### Deep Forests – Assessing the relative vulnerability of South African potential VME indicator taxa
  Mari-Lise Franken, Kerry Sink, Lara Atkinson, Natasha Karenyi

Vulnerable Marine Ecosystems (VMEs) are considered hotspots of biodiversity and ecosystem functioning but are sensitive to demersal fishing impacts. VMEs are characterised by five criteria defined by the Food and Agricultural Organization guidelines for management of deep-sea fisheries. Efforts to designate South African VMEs have lagged due to inadequate data and taxonomic expertise. VMEs are commonly identified based on the occurrence of indicator taxa. Although tailored lists of VME indicator taxa have been developed elsewhere, South African efforts have relied on international lists and expert judgment to date, lacking any robust and repeatable method. This study aimed to systematically assess potential South African VME indicator taxa in terms of their alignment to the recognised criteria for VMEs and map their distribution. An existing scoring matrix was adapted and applied to 22 potential indicator taxa, using the species level where possible. Drawing from literature, taxa were scored for uniqueness and rarity, functional significance, fragility, life history and structural complexity criteria on a scale of $1 - 5$. An integrated VME indicator score was calculated for each of the taxa using the quadratic mean of all criteria. Individual VME indicator scores ranged from 2.14 (Astrocladus euryale) to 4.56 (Solenosmilia c.f. variabilis and Goniocorella dumosa) with reef building corals having the highest scores across the five categories. Tabulating relative measures across multiple criteria provided an indication of the position for each indicator taxa on the continuum from more resilient taxa through to the most vulnerable. Indicator taxa of eight potential VME habitat types were mapped drawing from available museum records, research trawl invertebrate bycatch data and visual survey records. This study serves as a useful guideline to formalise the list of indicator taxa for monitoring and mapping of VMEs within national jurisdiction to support research and management efforts of South Africa's fragile deep forests.

- ### Acquisition of symbiotic partners: modalities and consequences on establishment, distribution and ecology of vent species
  Marion Guéganton, Lucile Durand, Johanne Aubé, Valérie Cueff-Gauchard, Marie-Anne Cambon-Bonavita, Florence Pradillon

In deep-sea hydrothermal ecosystems where light does not penetrate, the food web is sustained by chemoautotrophic microbial production. Symbioses between animals and microbial communities are there a commonality. This is the case of the emblematic shrimps Rimicaris exoculata and R. chacei on the Mid-Atlantic Ridge (MAR). These two species co-occur in active vent areas, but exhibit widely different population densities, distribution patterns at small scale, and diet, as well as differences in post-settlement morphological modifications leading to the adult stage. Despite these contrasting biological traits, both species harbour similar -in terms of composition- bacterial communities in their cephalothoracic cavity and digestive tract at the adult stage. Bacterial proliferation through juvenile growth, after settlement and until the fully metamorphosed adult, may,at least partly, explain the ecological differences observed between these two species. The acquisition of the symbiotic partners in juveniles may thus be an important mechanism of their recruitment dynamics, and may explain their colonisation patterns.

The objective of my study is to better characterize symbiont acquisition in R. exoculata and R. chacei throughout their life cycle, focusing here on their post-settlement stages collected during the HERMINE (2017) and BICOSE 2 (2018) cruises at TAG and Snake Pit vent fields.

I used both metabarcode sequencing and FISH (Fluorescent in situ hybridization) imaging approaches to characterize microbial communities at each investigated life stage of each species at each site. In this presentation, I will focus mainly on the FISH results that illustrate well the changes in the