

## **Exploring the Indian Ocean seafloor: New vents and inactive sulfide fields in the German claim area**

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The International Seabed Authority (ISA) offers international contractors the opportunity to claim and explore for so-called polymetallic sulfides in international waters (“the Area”), based on the International Law of the Sea. Germany (BGR) signed an exploration contract in May 2015 for polymetallic sulphides in the Indian Ocean. Germany’s activities in that region started with scientific research cruises in the 1980s and 1990s. A four-years phase of prospecting for potential target areas preceded the preparation of the exploration license. The first exploration cruise to the claim area in the region of the Rodrigues Triple Junction occurred along the southern Central and the northern Southeast Indian Ridge. Based on the exploration work, a total of four polymetallic sulphide areas, partly associated with active hydrothermal venting and extensive inactive sites was identified and studied in greater detail. Two sites, called ALPHA and EGS, cover an area of more than 1200 x 600 m (ALPHA) and 1200 x 200 m (EGS). Both areas include three and one active, well-defined chimney complexes (“field”), respectively, but are largely represented by inactive edifices and widespread sulphide crusts, to a large extent partly covered by pelagic sediments and basaltic talus material, with intermittent sulphide crusts and blocks. According to video tracks, the areas are continuous. A third site (“Kairei”) consists of an active vent field and an inactive site, both separated by a local fault scarp. The size of the entire site is 550 x 220 m, the minimal thickness of continuous mineralization can be determined to 18 – 20 m. The fourth vent site (“PELAGIA”) occurs close to the graben axis, is in its waning stage of activity and has an approximate size of 240 x 150 m. Beside the identified sulphide sites, seven hydrothermal plumes were identified in the water column of four exploration clusters so far. Additionally, more than 20 areas of seawater/rock interaction were located according to magnetic measurements. The early stage of exploration activities in the German exploration claim for polymetallic sulphides prevents a meaningful resource assessment. The findings, however, suggest a promising potential for intensely mineralized areas in the claim area.