

GEOLOGICAL STRUCTURE AND VOLCANIC ACTIVITY OF THE BOUVET TRIPLE JUNCTION IN THE SOUTH ATLANTIC

PEYVE A. A., SKOLOTNEV S. G. Geological institute, Russian Academy of Sciences, Moscow, Russia

The Bouvet triple junction is a region, where three mid-oceanic ridges meet in a geologically complex area of the South Atlantic near the Bouvet island. Complex geological - geophysical data was collected there during two Russian-Italian expeditions (1994-1996). Three accretionary boundaries that converge in this area are anomalous. The easternmost segment of the American-Antarctic Ridge is N/S oriented, except for the NE/SW depression that is a oblique spreading center. The southernmost portion of the Mid-Atlantic Ridge with a swollen topography consists of overlapping spreading centers that bifurcates in two branches. The eastern branch forms the broad overlapping zone with the Spiess Ridge that reaching 320 m below sea level and propagates NW. The Bouvet triple junction is a place of intensive extensional (the African plate) and compressional (the South American and Antarctic plates) deformations and plum volcanism, centered at the Bouvet island, Spiess and Shona Ridges. In this region a contra structural progradation of the American-Antarctic and African-Antarctic Ridges assimilates structural elements of the Mid-Atlantic Ridge. Triple junction does not exist here as a point, but as a large area of structural reworking of the earth crust, accompanied by tectonic deformations. Chemical and isotopic characteristics of basalts, suggest that heterogeneous upper mantle below this region is affected by Bouvet-Spiess and Shona plumes.