On the paleocurrent of the Miocene Goto Group in Fukue Island, Nagasaki Prefecture

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The Goto Islands are located about 60 km west of Kyushu and consist of five major islands and more than 200 islands around them. This region is located at the western edge at the Sea of Japan expansion period (around 15Ma) and occupies an important position to record tectonics that shift from land arcs to island arcs at the edge of the continental edge of East Asia. In the Goto Islands, The Goto Group (Ueda, 1961) consisting of Miocene sedimentary rocks is distributed throughout. Rhyolites (Matsui and Kawata, 1986) and granites (Kawata et al., 1994) are intruding into it. In addition, the entire structure and detailed stratigraphy of the Goto Group has been clarified (Yamamoto, 2006MS; Hasegawa 2008MS; Yasunaga et al., 2005MS). In particular, the Goto Group exposed to Fukue Island consists of the Tachiya layer consisting of tuff breccia, the Okuura formation (Kawada, 1994) consisting of alternation of sandstone and mudstone, the toraku formation consisting of alternation of sandstone and mudstone, and hotokezaki formation consisting of sandstone, which is rich in charcoal products and develops a large cross bedding from the bottom. The Okuura Formation is further divided into three parts: lower, middle and upper. The lower part consists of alternation of fine to medium sandstone and dark gray shale to siltstone. The middle part consists of alternation of about 20 m thick medium-grained sandstone and 1-2 m thick mudstone. The upper part coarsens from the lower part into alternation of fine-grained white sandstone and black sandstone, alternation of medium-grained sandstone and mudstone, and medium-grained sandstone. In this study, we focused on the thick sandstone layer in the Goto Group, determined the paleocurrent mainly in the cross bedding and investigated the changes in each stratigraphy and regional flow from the time of the formation of the Goto group.
In this study, a total of 158 paleocurrent data were obtained in Fukue Island, including the Okuura formation (60 pieces), the Toraku formation (94 pieces), and the Hotokezaki formation (4 pieces). It was found that the paleocurrent obtained for each stratigraphy changed from the lower, northeast to south, and then again to the north, and changed to indicate various flows at the top level. In addition, it was found that paleocurrent showed the different direction flow even in the same layer level as by region, and it was remarkable especially in the upper part of the Okuura formation and the toraku formation. In the future, I will collect data at the bottom and middle part of the Goto Group, which has a small number of data. In addition, I conduct surveys on islands other than FukueIsland and collect data from a wide area.

Keywords: Miocene rocks, paleocurrent

