

ROLE OF ACCRETION AND COLLISION TECTONIC PROCESS IN EVOLUTION OF NELLORE-KHAMMAM SCHIST BELT SE INDIA

1Hari Prasad .B., 1Okudaira .T., 1Yoshida .M and 2Divi .R.S. 1Department of Geosciences, Sugimoto, Sumiyoshi-ku, Osaka City University, Osaka 558-8585 Japan; 2Department of Geology, Faculty of Science Kuwait University, Kuwait.

The Nellore-Khammam Schist Belt forming in the South-Eastern part of India is well known as greenstone belt, and it is bounded by Proterozoic Eastern Ghats Granulite Belt on the east and East Dharwar Craton on the west. Because the Nellore-Khammam Schist Belt is located between two cratonic terrains, such as Dharwar and Eastern Ghats, their mode of occurrence implicitly suggests that formation of the Nellore-Khammam Schist Belt was related to the continent-continent collision tectonics. Evolutional process of the Nellore-Khammam Schist Belt has not been clear, although its evolutionary process is important to understand the collision tectonics between the East Dharwar Craton and Eastern Ghats Granulite Belt during Proterozoic time. Age of original deposition of the Nellore-Khammam sediment is also difficult to trace but, from the regional setting and available geochronologic data points out to Proterozoic metamorphism. Amphibolites which forms the significant part of the Nellore-Khammam Schist Belt is characterized by high-pressure type (1.1 ± 0.1 GPa and 750°C). Bulk-rock chemical characteristics for relatively immobile elements ratios (e.g. Zr-Y-Ti) of the amphibolites suggests two different tectonic setting. The coexisting of the different tectonic setting rocks in the schist belt can be explained by accretion of protolith of the high-pressure metamorphic amphibolites at trench. Consequently, the formation of the Nellore-Khammam Schist Belt may be at least two steps: 1) accretion of the rocks originated from different tectonic setting such as oceanic island arc and continental margin island arc and 2) subsequently high-pressure metamorphism and exhumation of the rocks caused by collision tectonics.