PALEOMAGNETIC STUDIES OF PRECAMBRIAN ROCKS OF SRI LANKA

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Precambrian metamorphic and plutonic rocks from Sri Lanka were studied paleomagnetically. These rocks belong to the Highland Series, Southwest Group and Vijayan Series, the former two are characterized by the earlier granulite facies and later superposing amphibolite facies metamorphisms and the latter by the dominant amphibolite facies metamorphism.

The natural remnant magnetization (NRM) was measured by SQUID magnetometer, then stepwise AF demagnetization up to 15mT was performed to all samples for identification of existence of the stable NRM component. 37 very stable and 48 relatively stable NRM components were found out of the total 122 measurements. The samples having the very stable NRM component were thermally demagnetized up to 580°C with an interval of 50°C and were measured for thermomagnetic properties up to 700°C under the vacuum condition of 10^{-5} torr. Most of rock samples, having 500 — 580°C of main NRM blocking temperature and being considered to include magnetite as the main magnetic grains, have NRM of steep inclinations. Rock samples, having 300 — 400°C of the blocking temperature and being considered to include Fe-Ti oxide as the main magnetic grain, have NRM of low inclinations.

Directions of the NRM component of all rock samples belonging to the Highland Series and Southwest Group do not differ significantly and are scattered widely through both hemispheres. However, rock samples which are affected by the later amphiobolite facies metamorphism give cluster at high inclinations and those in arenas give a distribution at middle to steep inclinations with ca N-S declinations. All rock samples (only 11 measurements) belonging to the Vijayan Series, on the contrary, give a cluster at low inclinations. with various declinations, definitely differing from those of the Highland Series and Southwest Group rocks

Relationship of the NRM directions of each rock groups with metamo phic and tectonic histories, and location and attitude of Sri Lanka in Gondwanaland will be discussed.