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THE LATE PROTEROZOIC TERRANE TECTONICS AND COLLISION OROGENIC BELT IN THE NORTH JIANGXI, EASTERN CHINA

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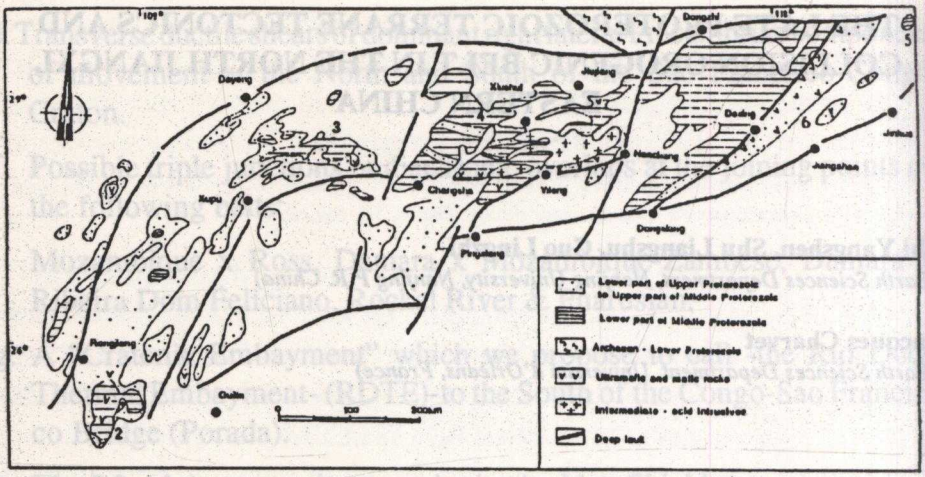
Plate tectonics theory is a great revolution in the geological field. The explanation in terms of terrane tectonics is the most recent development in the plate tectonics theory. The study of terrane tectonics has been regarded as a front in the research on the continental lithospheric tectonic evolution in Eastern China and its neighbour areas, the North Jiangxi in the central part of the Jiangnan belt is a key distrinct.

To understand the tectonic settings and the evolution of the Jiangnan, specially the North Jiangxi, the authors carried out an analysis in detail of the terrane tectonics and the collision orogeny by applying some new techniques and methods, for example, tectono-sedimentology, petrotectonic assemblages, structural kinematics, geodynamics, geochemistry, paleomagnetism, isotopic age determination, paleostress, etc. The thesis shows a lot of the original field materials: geological and structural sections, sketch maps, geological records, statistic measure data and orientation samples, etc. Some experiment data and phenomenon, which are obtained by using the advanced instruments and the determined methods, are used as evidence to analyse and to infer the geodynamic process in the studied area.

The thesis displays the scientific results as follows:

1. Discovered and proved that the Northeast Jiangxi fault was a Late Proterozoic collision-suture zone between the Huaiyu terrane and the Jiuling terrane; the collision orogenic model in the central part of the Jiangnan belt is a process of "the initial collision by terranes- the face to face flake thrust- the strike-slip accretion"; this model can be compared with one of the Europe Variscan belt.



Fif. 1: Pre-Sinian structural map of Jiangnan region, south China
Symbols: 1. North Guangzi arer, 2. Southeast Guizhou area, 3. North Hunan are, 4. Juling area, 5. Zhejing area, 6. Huaiyu area.

2. Discovered an important relict of the Late Proterozoic HP-LT metamorphic event - glaucophane schists and obtained a glaucophane isotopic age: 866+/14 Ma (K-Ar method, the average for two samples). These discoveries are the first time in the whole Jiangnan belt.

3. Discovered and proved the two sinistral ductile shear zones that related with the process of the collision - amalgamation between terranes, that is, the Nanchang-Wanzai zone and the Northeast Jiangzi zone.

4. Solved the following six basic geological and structural problems: 1) The identification of two distinct Late Proterozoic tectonostratigraphic terranes -the Huaiyu terrane with oceanic affinity. 2) Reconstruction of the plate settings and evolutionary history of the two terranes. 3) The kinematic and geodynamic analysis of terrane boundaries. 4) Polystage deformed structures and superimposed structures. 5) Terrane collage-collision orogeny and tectonic evolution. 6) A comparison between the North Jiangxi belt and the Europe belt.