THE RELATION BETWEEN THE GEOTEMPERATURE DISTRIBUTION AND THE GEOTECTONICS IN CHINA

JIN, X., Dept. of Geophysics, Changchun College of Geology.
Changchun, Jilin, China.

Geotemperature distribution in China is considered to be controlled by its geostructural framework and its positions in the global tectonics.

It is well known that almost all high temperature geothermal regions correspond with modern faulting activities, modern volcanical activities and recent magmatic movement, i.e. they are located on the edges of the lithospheric plates.

Geothermal anomaly in China is one part of the global geothermal zone. It is affected by the motions of Eurasian plate, Indian plate, Pacific plate and Philippine sea plate. Such characteristics could be described by Fig.1.

Two important geological documents in Asian continent during Cenozonic are specially considered: one is the collision between the Indian plate and Eurasian plate, and the other is the collision between the Eurasian plate and Pacific plate. The former resulted in the geothermal anomalies in South-Western China, and the latter resulted in the anomalies in Eastern and South-Eastern China.

By the relation between geothermal anomaly and fault system, anomalous geothermal zones in China can be separated into following several groups(See Fig.2):

The high temperature zones:

1. Tibet-Yunnan high temperature zone
2. Taiwan high temperature zone

The intermediate and low temperature zones:

1. The south-eastern coast geothermal zone
2. Chinling geothermal zone
3. Shichuan-Yunnan geothermal zone
4. Tancheng-Lujiang geothermal zone
5. Daxinganling-Taihangshan-Wulingshan geothermal zone

High heat flow zones:

1. Huabei region
2. South sea region

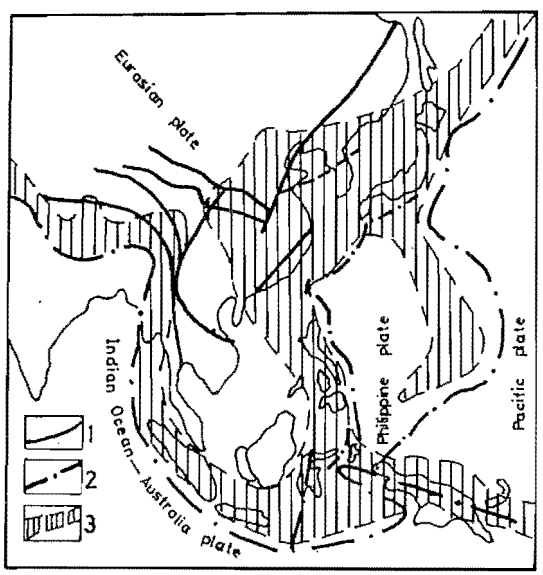

Fig.1 The relation between global geothermal zones and the plate tectonic position
1. Fault, 2. Edge of lithosphere plate,
3. Geothermal zone

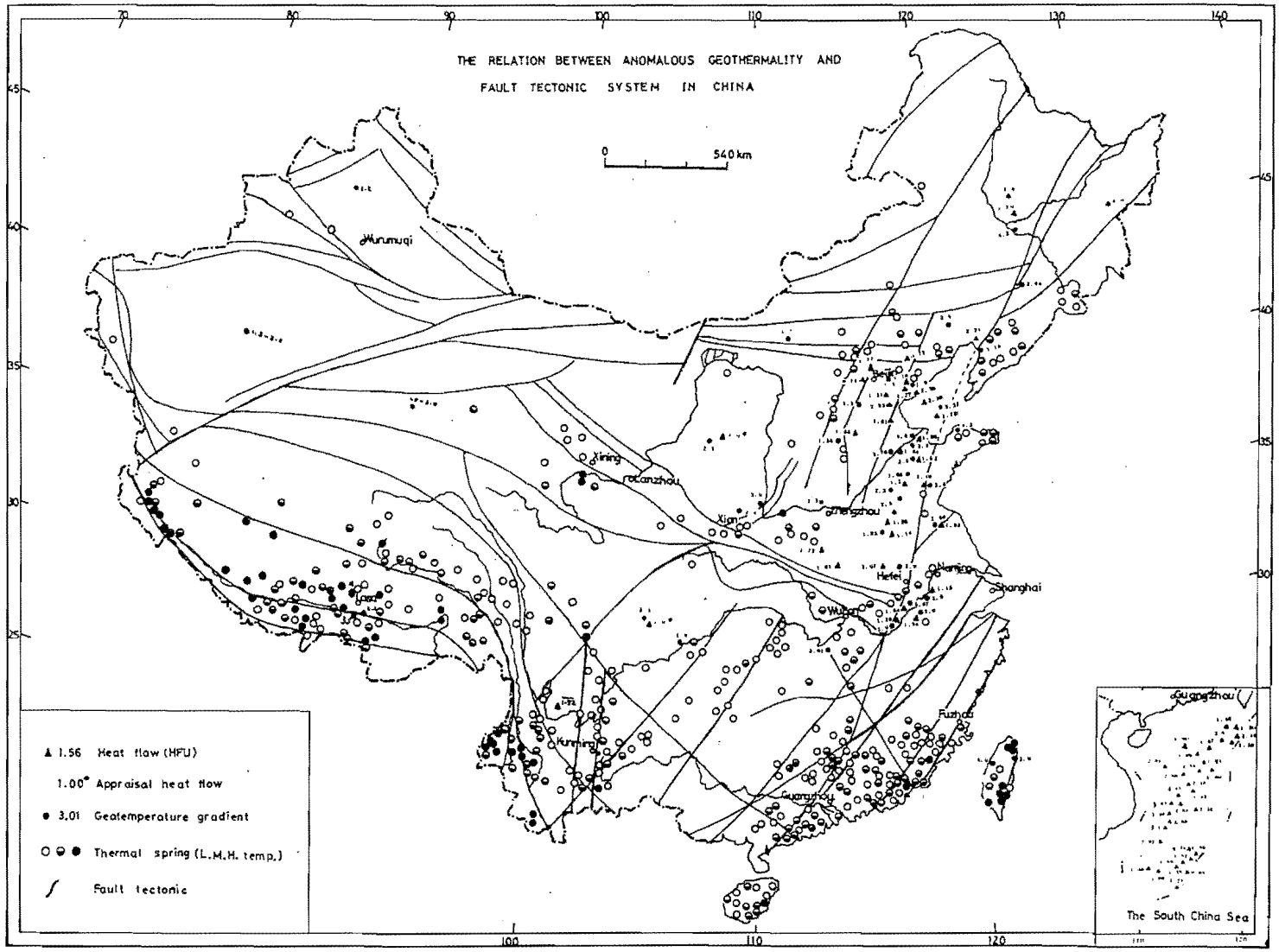
THE RELATION BETWEEN ANOMALOUS GEOTHERMALITY AND
FAULT TECTONIC SYSTEM IN CHINA
0
540 km
Urumuqi
Xining
Lanzhou
Zhengzhou
Hefei
Nanning
Shanghai
Wuhan
Kunming
Guangzhou
Fuzhou
▲ 1.56 Heat flow (HFU)
1.00* Appraisal heat flow
● 3.01 Geotemperature gradient
○ ◒ ● Thermal spring (L.M.H. temp.)
Fault tectonic
The South China Sea

Fig.2