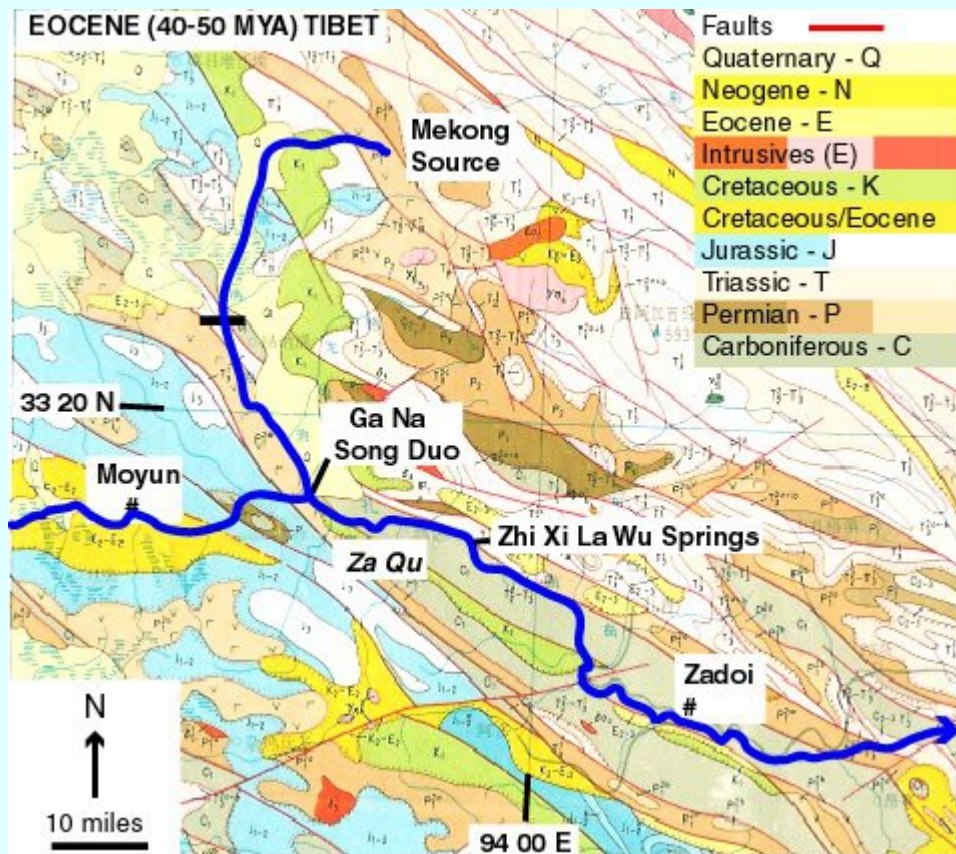


Geology and Geography of the Mekong Headwaters Area, Qinghai

Geologic Map of the Mekong Headwaters Area



Map produced by the Chinese Ministry of Geology and Mineral Resources
Original scale 1:1,000,000

The Mekong in its headwaters region in southern Qinghai is called the Za Qu. The headwaters are located in the northeastern part of the Eocene block of Tibet, just south of the Jinsha Suture. It is characterized by Paleozoic and Mesozoic sedimentary rocks with NW trending folds and strike-slip faults. Subsequent dip-slip faulting and glaciation has produced a mature basin and range topography with 3,000 to 5,000 feet of relief. The average elevation is about 16,000 feet, typical of the Tibetan Plateau. With few exceptions, the river beds are filled with glacial gravels and rapids are due to constriction or to land slides, not bedrock obstacles. Along the eastern margin of the headwaters area the Chinese have identified numerous structurally controlled mineral deposits.

Canyons along the river are dominated by northwest trending ranges of massive Carboniferous, Permian, Triassic and Jurassic limestones such as those near the Zhi Xi La Wu Monastery (see photo below). These rocks are cavernous, often ironstained, and ridges sometimes exhibit spectacular cols and arrets. They are interbedded with clastic sediments, including volcanic debris, and represent the southern margin of the Asian continent prior to and during subduction of oceanic crust that preceded the collision of India with Asia.



Photo by Mark Gamble

Extensive Quaternary and minor Neogene colluvium in valleys covers Triassic to Eocene shales, slates, conglomerates and volcanic sediments. Eocene rocks were derived from the initial uplift of the Himalayas as the India began to collide with Asia. The picture below illustrates a typical exposure of Jurassic volcanic sediments.



Photo by Scott Sanderson

The area is sparsely populated, yet overgrazing by yaks and sheep is beginning to cause damage to the tundra. As a result, the Chinese government has created a nature preserve in the Mekong, Yangtze and Yellow rivers headwaters. Tibetan herders are being moved out of the core areas, population growth is restricted in a surrounding zone, and the effects of grazing are being monitored over a larger region to determine if further restrictions for protection of the watershed are necessary.

The true source of the Mekong has only recently been identified, and is still the subject of some controversy.