14th IPC and 10th IOPC

23rd to 28th of October, Salvador, Brazil

At the XIV IPC / X IOPC, NECLIME was represented by two session SS 07 "Evolution of biodiversity hotspots, a NECLIME symposium" – convened by Su Tao and Torsten Utescher and SS10 "Mountains uplift and its impact on biodiversity" - convened by Zhou Zhekun and Huang Yongjiang. The evolutionary history of biodiversity hotspots, especially of those located in East Asia (Yunnan in particular) is recently in the focus of NECLIME (cf. also Sino-German Symposium, Dresden). Research on this topic is crucial to understand the evolution of biodiversity in the Past, and under the current global climate change.

Two more suggested NECLIME sessions did not come about due to insufficient submissions. We would like to encourage the conveners to propose their symposia again for the forthcoming EPPC.

Session outlines

SS7 – Evolution of biodiversity hotspots.

Organizers: Tao Su & Torsten Utescher

The evolutionary history of biodiversity hotspots in the world is very important to understand the evolution of biodiversity under the current global climate change. During the recent years, many palaeobotanical studies have been carried out in order to explore trends in species richness of biodiversity hotspots in the geological past. Moreover, palaeoenvironmental reconstructions have provided pivotal evidence for correlations between the diversification of biota and changes of abiotic factors in these regions. In this topical session we invite contributions on biodiversity hotspots, their first appearance and evolutionary history, including palaeoenvironmental changes and mechanisms behind. Intended contributions preferentially involve palaeobiology including molecular phylogeny, palaeoecology, palaeoclimatology, as well as modeling. This topical session is a contribution to NECLIME (Neogene Climate Evolution in Eurasia).

Contribution

Su Tao et al.. The palaeoelevation and palaeoclimate during the latest Eocene in eastern Tibet: evidence from plant fossil record

Sun Bainian et al., Some angiosperm fossils from the Oligocene in South China and their geological significance

Jia Lin-Bo and Zhao Zhekun, Miocene Maguan flora and its climate, implications for the evolution of South China biodiversity hotspot

Xu Cong-Li et al., Pliocene environmental evolution of the Hengduan Mountains (biodiversity hotspots), SW China: evidence from geochemical data

Wang Wei-Ming, Palynological evidences for evolutionary history of biodiversity hotspots in Yunnan, SW China

Xie Sanping et al., Late Miocene occurrence of the genus Oleandra (Oleandraceae s.s.) from SW China and implications for its evolutionary history

SS10 – Mountains uplift and its impact on biodiversity.

Organizers: Zhou Zhekun & Huang Yongjiang

Studying mountains uplift and its impact on past and today's biodiversity is a primary task for both geology and biology. Several huge mountains and vast areas have risen to 3,000 to 4,000 (-7,000) meters above sea level in the Cenozoic era, of them being the renowned Himalaya and Tibetan Plateau in Asia, the Andes Mountains and the Rocky Mountains in Americas, Alps in Europe. The uplifts of these mountains and plateaus have dramatically changed the neighboring climates and environments, e.g., complex topography, temperature decline, drought strengthening, monsoon climate upsetting which would have a profound impact on the biodiversity changes. For example, the rise of the Himalayas and related tectonic movements have caused mountain creations in its surrounding areas. Temperature declined as altitude increased, and as a result many thermophilic plant elements were forced to retreat. Moreover, the vast Tibetan Plateau led to the formation and development of the East Asian Monsoon which had controlled the climate of East Asia no later than

the early Miocene. The amplified seasonality of precipitation associated to the monsoon intensification is considered to be the key factor that caused the extinction of several taxa such as *Cedrus*, *Metasequoia* and *Sequoia* in southwestern China, presumably by preventing their seeds from germination in the drying spring. This uplift and its effect on regional climate fundamentally changed the Amazonian landscape by reconfiguring drainage patterns and creating a vast influx of sediments into the basin. On this "Andean" substrate, a region-wide edaphic mosaic developed that became extremely rich in species, particularly in Western Amazonia. This symposium brings together geology, paleobotany, botany, biodiversity, conservation and global change research and will have broad audiences encompassing both paleontology and modern biology and attract contributions from researchers from both fields.

Contributions

Zhou Zhekun, Uplifting mountain and increasing seasonality, *Quercus schottkyana* replaces the Q. *delavayi* complex as the dominant tree species in evergreen broadleaf forests

Momohara Arata, Process of Plio-Pleistocene plant extinction in Japan influenced by mountain uplift, sea level and climate changes

Xing Yaowu and Richard Ree, An integrative assessment of plant diversification and biogeographic processes in the Eastern Himalayan biodiversity hotspot

Huang Jian and Zhao Zhekun, Middle Miocene climatic optimum flora from Yunnan, Southwest China

Huang Yongjiang et al., Palaeoenvironmental change and its impact on plant diversity: evidence from Yunnan, south-western China