

IGCP 679: Cretaceous Earth dynamics and Climate in Asia

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The IGCP project 679 “Linkage of Cretaceous Solid Earth Dynamics, Greenhouse Climate, and Response of Ecosystems on Land and in the Oceans in Asia” (2019-2023) was approved and supported by the International Geoscience Programme in February, 2019.

Its aim is to promote geoscience communication among the Asian countries, including some countries outside Asia, in various fields including sedimentology, tectonics, paleontology, geochemistry, paleogeography, paleoclimatology and dating among others. This project focuses on the Cretaceous, considered as the most recent, warmest period in the Phanerozoic Era, and characterized by more elevated atmospheric CO₂ levels and significantly higher global sea levels than today. The proposed project will be based on Earth system science to reveal the Cretaceous 'Greenhouse' Earth's oceanic and terrestrial climates and environmental conditions and their evolution. The expected outcome of this project is an in-depth understanding of the existing characteristics of rapid climate and environmental changes and global warming. Processes and mechanisms of the rapid change in climate and environment under greenhouse conditions during the Cretaceous will be explored, as well as the evolutionary responses of biodiversity on land and in the oceans of the Asian continent. Three main topics are addressed: (1) high-resolution Cretaceous geological records of sea and land facies in Asia; (2) paleoclimate and paleoenvironment; (3) the nature of linkages between major geological events and rapid climate and environmental changes, so as to understand biodiversity evolution under greenhouse climate conditions.

These results will provide scientific evidence for human response to contemporary global warming trends.

Mots-Clés : Cretaceous, Asia, Land, Ocean, Earth System, Paleoenvironment, Biodiversity

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