

**PROJECTFICHE (C62)****BILAT CHINA (Call' 010) PROJECTFICHE "CRETAC"****The Cretaceous Greenhouse World and its impact on terrestrial ecosystems in NE Asia**

Starting date: 01/04/2012

Ending date: 31/03/2014

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[cj@jlu.edu.cn](mailto:cj@jlu.edu.cn)**FRAMEWORK AND SIGNIFICANCE OF THE PROJECT**

Climatic ("Cretaceous Greenhouse World") and palaeogeographic changes during the Cretaceous in NE China and their impact on the evolution of terrestrial ecosystems will be investigated. Disentangling these interactions requires the study of three geological units: the Jehol Group in Liaoning Province (~ - 140 to - 110 My ago), the Quantou Formation in Jilin Province (~ - 110 to - 90 My ago), and the Yuliangze Formation in Heilongjiang Province (~ -70 to - 65 My ago). These three formations have already yielded exceptionally abundant and diversified palaeofloras and palaeofaunas, cover an important part of the Cretaceous, and are located not far from the Beringian land bridge between Asia and America.

**SPECIFIC TASKS**

1. New excavations in Cretaceous fossil localities from NE China, particularly in the Quantou Formation of Jilin Province and in the Heilongjiang Formation of Heilongjiang Province
2. Reconstructing the evolution of palaeotemperatures during the Cretaceous through the investigation of high resolution stable isotope and trace element profiles using mass spectrometric techniques.
3. Reconstructing the evolution of climate during the Late Cretaceous through the study of the morphological characteristics of angiosperm leaves.
4. Dating and reconstructing the palaeoenvironment of the Cretaceous formations in NE China: palynological analyses and radiometric analyses of basaltic intrusions
5. Evolution of the vegetations in NE China during the Cretaceous, through the study of pollen and macroflora assemblages collected in the investigated formations.
6. Evolution of the biodiversity of vertebrate faunas in NE China during the Cretaceous. It will be very instructive to observe whether the important and rapid increase of temperature and CO<sub>2</sub> concentration that occurred during this period had a strong influence on the biodiversity of vertebrate faunas in NE Asia. The migratory flows of the vertebrate groups, resulting from the global warming and the opening of the Beringian land bridge during the mid-Cretaceous must also be reconstructed.
7. Luminescence of vertebrate fossilized tissues: new perspectives for studying soft tissues of "feathered dinosaurs" from the Yixian Formation of Liaoning Province.