

A project to drill a 10-kilometer-deep hole in China will provide the best view yet of the turbulent Cretaceous period (Jane Qiu, A trip to Dinosaur time, *Nature*, v. 467, 9th Sept., 2010, pp.150-151). The core samples taken from depths of more than 2 km into the Songliao Basin in northeastern China, may give clues to one of the strangest and most dynamic ages of Earth's history: the Cretaceous period. The cores studied so far, from depths of up to 2.5 km, have offered insight into the Cretaceous climate and its massive fluctuations in temperature, atmospheric carbon dioxide and lake levels. The team is now hoping to muster support for a push to the very bottom of the basin, a further 7.5 km down, where the rocks should date from before the start of the Cretaceous. It is extremely rare to find a palaeolake as large and long-lived as Songliao, the geological record is ineffectual, appears like an encyclopedia of the Cretaceous and we just don't have something like this any

where else on the planet says Stephan Graham one of the principal investigators of the project. The team analysed oxygen and carbon isotopes in fossil crustacean shells as a proxy for ancient temperature and carbon dioxide levels, finding that atmospheric CO₂ levels doubled and then halved over 3 million years in the Late Cretaceous. The temperature plunged by more than 7°C during a 10-million-year-period-possibly around the Cretaceous 'super greenhouse' when global temperatures were substantially higher than today.

It is assumed that the cores recovered from the Songliao basin may also shed fresh light on a contentious scientific debate: whether a large ice cap, half the size of the modern Antarctic ice cap, existed during a period as hot as the Cretaceous super greenhouse. The cores may answer pressing questions about the K/Pg extinction, which many researchers believe was caused by an asteroid or comet strike at Chicxulub on

Mexico's Yucatan Peninsula, and the climatic aftershock. Most of the samples corroborating the theory have come from marine sediments. A terrestrial record at Songliao could reveal how the asteroid strike affected life on land, at a huge distance from the impact. Sediment cores from Songliao will help to build a more complete picture of those extraordinary events says Christian Koeberl, another principal investigator of the Songliao project. The second phase of the drilling, an extra 7.5 km, is contingent on further funding. The investigators hope that this project will result in better understanding of the geological composition and sedimentation processes of the basin during Cretaceous period.

In India, we have also huge deposits of Cretaceous sediments in the Cauvery and other basins that may throw light on geological composition and sedimentation processes if we take a project like Songliao.