BELQUA Annual workshop

Friday 22 February 2019

Ockeghem Room, the Royal Academies for Science and the Arts of Belgium (RASAB), Brussels

9.30u - 10.00u	**Coffee and welcome**
10.00u - 10.20u	**Zhipeng Wu**, Qiuzhen Yin, Andre Berger, Zhengtang Guo. Different response of the Northern and Southern Hemisphere climates to obliquity and precession
10.20u - 10.40u	**Feng Shi**, Qiuzhen Yin, Irina Nikolova, André Berger, Gilles Ramstein, Zhengtang Guo. Impacts of extremely asymmetrical polar ice sheets on the East Asian summer monsoon during the MIS-13 interglacial
10.40u - 11.00u	**Hao Lu**, Qiuzhen Yin, Jia Jia, Dunsheng Xia, Fuyuan Gao. Possible link of an exceptionally strong East Asian summer monsoon to a La Niña-like condition during the interglacial MIS-13
11.00u – 11.20u	**Guoqiao Xiao**, Liting Li, Hui Gao, Qiuzhen Yin, Xiangjun Liu,Gaowen Dai. Periodic desertification of the Northeastern Tibetan Plateau and its implication for the provenance of the Chinese Loess Plateau.
11.20u – 11.40u	**Ward Swinnen**, Eline Maurer, Teun Daniels, Nils Broothaerts, Gert Verstraeten. Geomorphic controls on long-term floodplain sediment and organic carbon storage.
11.40u – 12.00u	**Katleen Wils**, Maarten Van Daele, Galderic Lastras, Catherine Kissel, Kris Vanneste, Sabine Schmidt, Frank Lamy, Giuseppe Siani. A story of crustal and megathrust earthquakes in Aysén Fjord (Chilean Patagonia) during the Holocene.
12.00u - 14.00u	**Lunch break**. Coffee and refreshments will be provided
14.00u - 14.50u	**Keynote lecture by Professor Vincent Gaffney 'Not drowning but waving! Doggerland and the Lost Frontiers Project'**
14.50u – 15.10u	**David García-Moreno**, Maikel De Clercq, Agostina Vertino, Wim Versteeg, Thomas Vandorpe, Tine Missiaen. Characterization of enigmatic groove-and-ridge landforms incised across the Dover Strait
15.10u – 15.30u	**Maikel De Clercq**, García-Moreno D, Missiaen T, Fitch S, Fraser A, Busschers F, Hijma M, Peeters H, van Heteren S, Gaffney V, De Batist, M. Deep History: Revealing the palaeolandscape of the southern North Sea

Periodic desertification of the Northeastern Tibetan Plateau and its implication for the provenance of the Chinese Loess Plateau

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Tracing the loess provenance of the Chinese Loess Plateau is fundamental for revealing palaeo-atmospheric circulation patterns and environmental evolution of arid lands in the central Asia. However, there is still no consensus regarding which deserts in central Asia are the dominant sources of Chinese loess and whether the dust provenance has shifted significantly in glacial-interglacial cycles. Loess and aeolian sand deposits are widespread on the Northeastern Tibetan Plateau, which are ideally located in the transitional area between the central Asia deserts and Chinese Loess Plateau. Therefore, their origin and dispersal pattern are important for understanding the wind regimes and dust provenance of Chinese Loess Plateau. Here we present preliminary study of chronological, sedimentological and detrital-zircon U-Pb age results from the aeolian deposits on the Northeastern Tibetan Plateau, and compared them with the detrital-zircon ages of loess and paleosol samples from the western Chinese Loess Plateau. Our results indicate that (1) the Northeastern Tibetan Plateau was occupied by vast sand desert during the last glacial period, and it changed to loess deposits since the early Holocene, suggesting the northeastern Tibetan plateau experienced dramatic environment variations during the last glacial-interglacial cycle. (2) The detrital-zircon age results show that both the aeolian sands and loess deposits from the Northeastern Tibetan Plateau exhibit two major age populations in the ranges of 360-560 Ma and 1100-3000 Ma, which are similar to the local bedrocks, indicating that they mainly derived from the local bedrocks. (3) The detrital-zircon age distribution of the aeolian deposits from the Northeastern Tibetan Plateau is very similar to the loess samples (glacial deposits) from the western Chinese Loess Plateau, but it is significantly different from the paleosol samples (interglacial deposits), suggesting the Northeastern Tibetan Plateau serves as one of the major source areas for the Chinese Loess Plateau during the glacial period.

Our results imply that dramatic variations of glacial-interglacial climate during the late Quaternary may have periodically caused the Northeastern Tibetan plateau to become a desert environment serving as a major source area for the Chinese Loess Plateau during glacial intervals. The discovery of this source area improves our understanding of the provenance of the Chinese Loess Plateau, and provides new evidence supporting the view that the provenance of the Chinese Loess plateau is spatially and temporally variable.