



An Early Miocene Birth to the Yangtze River

Hongbo Zheng (1), Peter Clift (2), Ping Wang (1), Ryuji Tada (3), Juntao Jia (4), Mengying He (5), and Fred Jourdan (6)

(1) School of Geography Science, Nanjing Normal University, Nanjing, China., (2) Louisiana State University, Geology and Geophysics, Baton Rouge, LA, United States (pclift@lsu.edu), (3) Department of Earth and Planetary Science, University of Tokyo, Japan, (4) China Petroleum University, Qingdao, China, (5) School of Earth Science and Engineering, Nanjing University, China, (6) Department of Applied Geology and JdL Centre, Curtin University, Perth, Australia

The development of fluvial systems in East Asia is closely linked to the evolving topography following India-Eurasia collision. Despite this, the age of the Yangtze River system has been strongly debated, with estimates ranging from 40–45 Ma, to a more recent initiation around 2 Ma. Here, we present new $^{40}\text{Ar}/^{39}\text{Ar}$ ages from basalts interbedded with fluvial sediments from the lower reaches of the Yangtze together with detrital zircon U/Pb ages from sand grains within these sediments. We show that a river containing sediments indistinguishable from the modern river was established before ~ 23 Ma. We argue that the connection through the Three Gorges must post-date 36.5 Ma because of evaporite and lacustrine sedimentation in the Jiangnan Basin before that time. We propose that the present Yangtze River system formed in response to regional extension throughout eastern China, synchronous with the start of strike-slip tectonism and surface uplift in eastern Tibet and fed by strengthened rains caused by the newly intensified summer monsoon.