Geophysical Research Abstracts
Vol. 21, EGU2019-7920, 2019
EGU General Assembly 2019


# Timing of the Yellow River influencing the Chinese marginal sea

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The Yellow River (or Huanghe), with its highest sediment load in the world, provides a key link between continental erosion and sediment accumulation in the western Pacific Ocean. However, the exact age of its influence on the marginal sea is highly controversial and uncertain. Here we present high-resolution records of clay minerals and lanthanum to samarium (La/Sm) ratio spanning the past ∼1 million years (Myr) from the Bohai and Yellow Seas, the potential sedimentary sinks of the Yellow River. Our results show a climate-driven shift in provenance from small, proximal mountain rivers-dominance to the Yellow River-dominance at ∼880 ka, a time period consistent with the Mid-Pleistocene orbital shift from 41-kyr to 100-kyr cyclicity. We compare the age of this provenance shift with the available age data for Yellow River headwater integration into the marginal seas and suggest that the persistent influence of the Yellow River on the Chinese marginal seas must have occurred at least ∼880 ka ago. This new finding is the first offshore evidence on the drainage history of Yellow River within an accurate chronology framework.