

New Stratigraphy Profile of Classic Nihewan Basin Beds, Hebei, Northern China

Authors : Arya Farjand

Abstract : The Nihewan Basin is a critical region in order to understand the Plio-Pleistocene paleoenvironment and its fauna in Northern China. The rich fossiliferous, fluvial-lacustrine sediments around the Nihewan Village hosted the specimens known as the Classic Nihewan Fauna. The primary excavations in the early 1920-30s produced more than 2000 specimens housed in Tianjin and Paris Museum. Nevertheless, the exact locality of excavations, fossil beds, and the reliable ages remained ambiguous until recent paleomagnetic studies and extensive work in conjunction sites. In this study, for the first time, we successfully relocated some of the original excavation sites. We reexamined more than 1500 specimens held in Tianjin Museum and cited their locality numbers and properties. During the field-season of 2017-2019, we visited the Xiashagou Valley. By reading the descriptions of the original site, utilization of satellite pictures, and comparing them with the current geomorphology of the area, we ensured the exact location of 26 of these sites and 17 fossil layers. Furthermore, by applying the latest technologies, such as GPS, Compass, digital barometers, laser measurer, and Abney level, we ensured the accuracy of the measurement. We surveyed 133-meter thickness of the deposits. Ultimately by applying the available Paleomagnetic data for this section, we estimated the ages of different horizons. The combination of our new data and previously published researches present a unique age control for the Classic Nihewan Fauna. These findings prove the hypothesis in which the Classic Nihewan Fauna belongs to different horizons, ranging from before Reunion up to after Olduvai earth geomagnetic field excursion (2.2-1.7 Mya).

Keywords : classic Nihewan basin fauna, Olduvai excursion, Pleistocene, stratigraphy

Conference Title : ICSSGS 2020 : International Conference on Sedimentology, Stratigraphy and Geological Sciences

Conference Location : Copenhagen, Denmark

Conference Dates : June 11-12, 2020