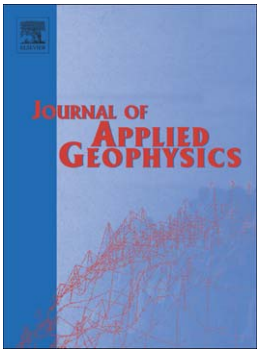

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Paleoenvironmental reconstruction of the radial sand ridge field in the South Yellow Sea (east China) since 45 ka using the sediment magnetic properties and granulometry

Longsheng Wang[1,2], Shouyun Hu[1*], Ge Yu[1], Mingming Ma[1,2], Mengna Liao[1,2]

1 State key laboratory of Lake Science and Environment, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing 210008, China

2 University of Chinese Academy of Sciences, Beijing 100049, China

Abstract: Sediments of radial sand ridge field are commonly represented by a set of flood plain, paleosol, and tidal sand facies. In this paper, measurements of magnetic properties and particle size were obtained from Core Y2 from the radial sand ridge field in the South Yellow Sea. The results show that each facies has specific magnetic minerals and particle size distributions. In the flood plain, sand and coarse silt are the main grain sizes, magnetite and subordinate hematite comprise the magnetic minerals. The clay and fine silt are the main grain-size distributions of paleosol, the magnetic minerals are dominated by hematite, and the soft-magnetic mineral content is very low. In the tidal sand ridge, sand is the predominant grain-size distribution, and magnetite dominates the bulk magnetic properties, with small amounts of hematite. The strong relationships between χ and the >63-μm fraction suggest that magnetite is enriched in the coarse sand fraction. Based on the combined mineral-magnetic, particle size and loss-on-ignition data, the low χ value of paleosol mainly resulted from the decrease in the magnetic mineral inputs and post-depositional dissolution of the magnetic minerals. The results show that the magnetic minerals were controlled by changes in the climate and hydrodynamic environment. This study not only provides a basis for a radial sand ridge field paleoenvironmental reconstruction by integrating detailed logs of

* Corresponding author: hu_shouyun@hotmail.com