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GEOCHEMISTRY OF THE SUSPENDED SEDIMENTS OF CIRCUM-HIMALAYAN RIVERS AND WEATHERING BUDGETS OVER THE LAST 50 Myrs.

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The geochemistry of the Ganges and Brahmaputra system has received a particular attention over the last decade for addressing the role of Himalayan uplift on the global carbon cycle and more generally on the geochemical cycles at the surface of the Earth. However, our knowledge of the large river systems draining the Himalaya and Tibet Plateau is still very poor.

In this study, we will present data for the largest rivers of East Asia, including the Huanghe, Changjiang, Zhujiang, Honghe, Mekong, Salween, Irrawady, Ganges and Brahmaputra. We will focus here on the geochemistry of the suspended load analyzed for both major, trace elements and Sr isotopic ratios. Except the Irrawady, all rivers show slight chemical variations and all contains significant calcite. Leaching experiments allowed us to remove the carbonate fraction and to characterize the silicate fraction, derived from the chemical weathering of rocks. The radiogenic character of the Gange and Brahmaputra rivers is not found in the sediments of the other Himalayan rivers, rather close to the mean upper continental value. Using an estimate of the bedrock composition, river sediment chemistry is used to calculate the amount of cations and Sr liberated by silicate chemical weathering.

We propose to use this method to reconstruct the history of chemical weathering fluxes over the Cenozoic. For that purpose, the total volume of marine sediments accumu-

lated in 18 offshore sedimentary basins since the beginning of the Cenozoic is used as an history of the mechanical erosion fluxes. This, and the geochemistry of modern rivers enable us to deduce the history of cations and Sr fluxes to the sea derived from the chemical weathering of rocks during that period of time. The impact of these fluxes on the composition of the ocean, and on the evolution of the atmosphere will be presented.