Geophysical Research Abstracts
Vol. 19, EGU2017-1830, 2017
EGU General Assembly 2017

Active duration estimation of Subur Vallis, a Martian fluvial system

David Koronczay (1,2) and Akos Kereszturi (1)

(1) Research Centre for Astronomy and Earth Sciences, Hungarian Academy of Sciences, Hungary, (2) Eötvös University, Department of Geophysics and Space Science, Budapest, Hungary (david.koronczay@ttk.elte.hu)

We carried out age estimation and estimation of the active period of a typical, moderately sized fluvial system at Xanthe Terra. Morphology was determined using HRSC and CTX images. Crater size frequency distribution was used to determine the ages of the main terrain units. Based on the channel bed morphology, we used the Darcy-Weisbach resistance equation to estimate the average water flow velocity and discharge. In the next step, we used various sediment transport rate predictors from the literature, to determine the erosion rate, and consequently the likely timescale of the main erosional process creating the channel. We discuss the main sources of uncertainty of our results.