

Preliminary Remote-sensing Assessment of Pleistocene Cataclysmic Floods in Central Asia. Goro Komatsu, Sharon K. Clute, and Victor R. Baker, Lunar and Planetary Laboratory, Tucson, AZ 85721

Recently identified Pleistocene flood features in Eurasian Continent [1][2][3][4] indicate that planetary-scale movement of water has been a major agent in shaping the landscape of our planet. Their careful examination requires regional mapping based on satellite remote sensing, and detailed mapping based on field work. We have been utilizing various remote sensing data in order to identify the flood-related features and make preliminary estimates of the scales of the floods. Study of such terrestrial cataclysmic floods provides important understanding of planetary-scale hydrological processes which pertain to life issue on Mars.

The Central Asian spillway system is a vast array of flood-related features connecting paleolake basins [2]. Table 1 summarizes spillways currently being studied. Each spillway is almost as large as the well-known cataclysmic Pleistocene flood features of the Channeled Scabland in Washington State. Figure 1 shows a geomorphic map of Manych Spillway, produced based on LANDSAT MSS data. We have recognized many erosional features, including deeply scoured areas and scabland. We are currently examining high-resolution radar images such as JERS-1 and ERS-1, 2 to further study the spatial relationships of flood-related features.

[1] Baker, V.R., G. Benito, and A.N. Rudoy, *Science*, 259, 348-350, 1993. [2] Komatsu, G., and V.R. Baker, LPSC 27, 685-686, 1996. [3] Komatsu, G., and V.R. Baker, EGS 21, C792, 1996. [4] Komatsu, G., V. Baker, G. Ori, and A. Baliva, DPS 28, 1059, 1996.

Table 1. Central Asian spillways

Turgai Spillway [western Siberian Basin - Aral Sea]

Distance 600-700 km Width ?

Uzboi Spillway [Aral Sea - Caspian Sea]

Distance 700-800 km Width ?

Manych Spillway [Caspian Sea - Black Sea]

Distance 600-700 km Width > 50 km

Cataclysmic Floods in Central Asia: Komatsu et al.

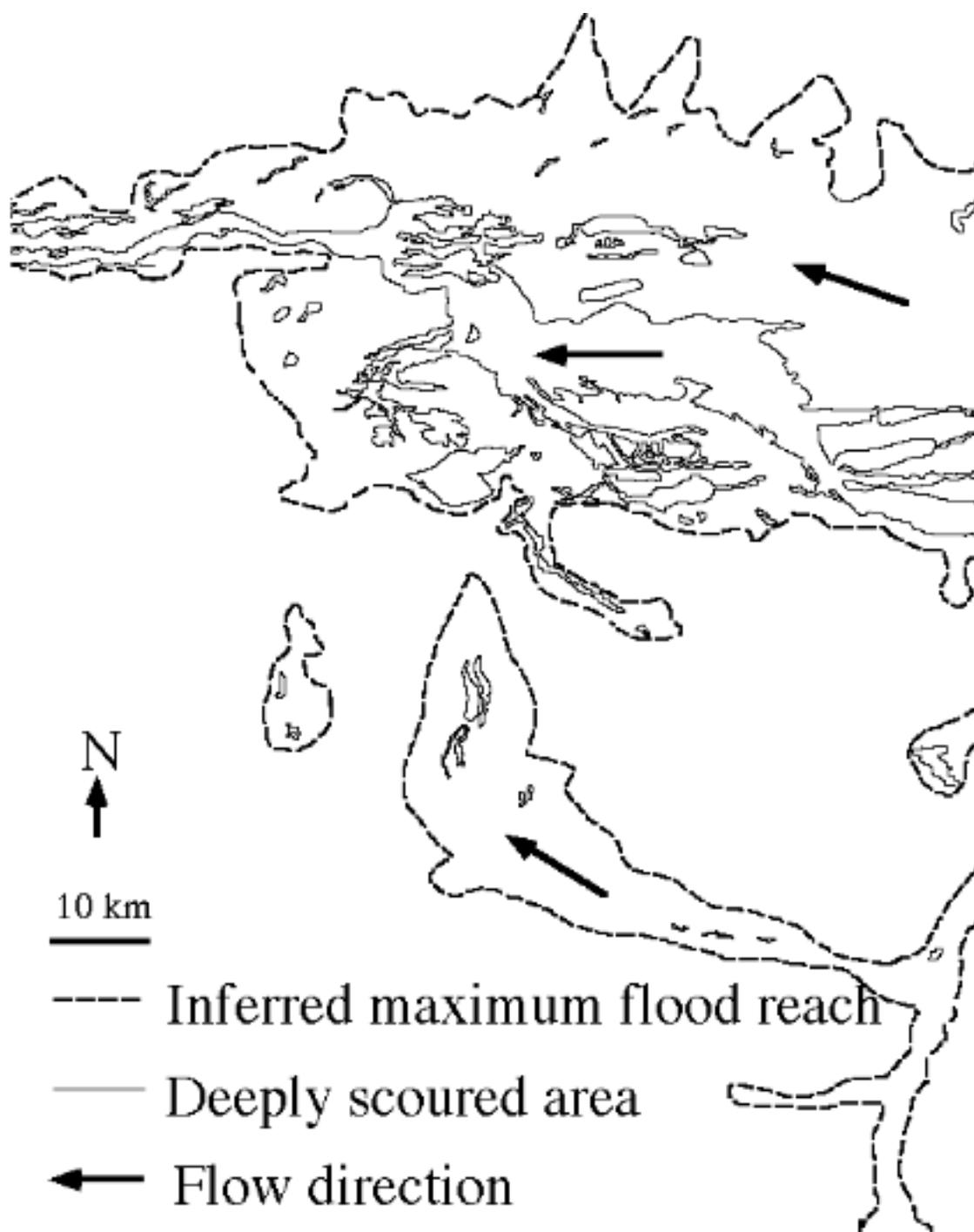


Figure 1. Geomorphological map of a part of Manych Spillway connecting Caspian Sea and Black Sea.