

URUMQI GLACIER NO. 1, 1962–2006, CHINA

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Urumqi Glacier No.1, located in the eastern Tianshan, at the core area of central Asia, is considered to be the best-monitored glacier in China. Observations of the glacier were initiated in 1959, implemented by the Tianshan Glaciological Station, Chinese Academy of Sciences (CAS) (Li et al. 2003). The photograph shown in this map was taken by Li Zhongqin in 2007, indicating that Urumqi Glacier No.1 is a northeast-facing valley glacier with two branches, East Branch and West Branch, which were separated in 1993.

The map shows the changes in Urumqi Glacier No.1 from 1962 to 2006. The glacier boundary and contours of 1962 and 2006 are determined by ground survey using plane table and a total station, respectively; elevation errors are estimated to be ± 0.1 m after accounting for the instruments' settings and the network of total station benchmarks. Contour lines on the glacier are at 25 m intervals, with the area retreated displayed in yellow. The map is presented in a Universal Transverse Mercator (UTM) coordinate system referenced to the World Geodetic System of 1984 (WGS84).

Since the 1950s, independent campaigns measuring ice thickness have been carried out systematically three times on the glacier (Li et al. 2012; Wang et al. 2011). The ice thickness shown in this map was obtained in 2006 by the pulse EKKO 100A enhancement radar system, made by Sensors and Software Inc., Mississauga, Canada, which had a reported uncertainty of less than 2% (Sun et al. 2003). Two longitudinal profiles and sixteen transversal profiles were established (one longitudinal profile and eight transversal profiles in the East Branch; others in the West Branch). In all cases a velocity of $169 \text{ m } \mu\text{s}^{-1}$ (Kovacs et al. 1995) was used. The interpolation algorithm was then used to determine the ice thickness distribution.