



The 24 July 2008 outburst flood of Zyndan glacier lake, Ysyk-Köl region, Kyrgyzstan

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On 24 July 2008, a glacial lake outburst flood (GLOF) occurred in the Zyndan River, the Ysyk-Köl region, Kyrgyzstan. The flood killed three people and many livestock (horse, sheep, fish), and caused heavy damage destroying a bridge, road, two homes, and crops of agriculture fields. We researched the damage after two days of the GLOF. Using kinematic GPS we measured the decrease of the glacier lake area, and the according drop of the water level through the outburst. Glacier lake area of about 0.03 km² reduced after the collapse, more than 400,000 m³ of water were discharged. While the initial flood discharge was relatively small, it increased substantially and was carrying large boulders after 30 minutes. When spreading further downstream, the dirty waters trapped eight people on islands between the stream branches. The flood discharge continued to rise until midnight and began to decrease again around 3 AM the next morning. The lake at 3771 m asl is located in front of the west Zyndan glacier at the head of the Zyndan River basin. The glacier lake had developed rapidly due to glacier shrinkage caused by recent atmospheric warming. Reasons for the outburst included melting of dead ice inside the moraine that dammed the lake. The villages downstream escaped heavy damage, because the main flood changed its direction, away from the water reservoir along the village and towards another river.