Predicting the timing of jökulhlaups from Merzbacher Lake

F. Ng (1) and S. Liu (2)

(1) Department of Geography, University of Sheffield, Sheffield, UK (f.ng@sheffield.ac.uk), (2) Cold and Arid Regions Environmental and Engineering Research Institute, Chinese Academy of Sciences, Lanzhou, China

Successful prediction of when an ice-dammed lake will drain is a holy grail in jökulhlaup research. Located in the central Tian Shan, Merzbacher Lake has yielded subglacial floods almost every year in the last five decades, providing an exceptional record that could be studied for the irregular timing of its outbursts. Here we use a mathematical model that contains a variable flood-initiation threshold to study the predictability of these floods. For example, we attempt to use the model tuned to respect known flood dates until 2005 to predict the most recent flood dates in 2006, 2007, and 2008. Through this and other experiments, we discuss how far such modelling is from being able to give usable forecasts, the related issue of flood-peak prediction, and insights on the response of flood recurrence to climate change.