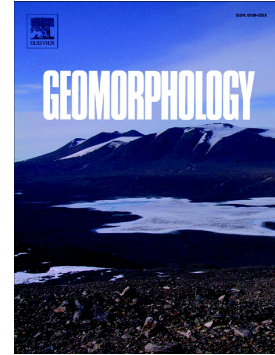


Accepted Manuscript

Seasonal drainage of supraglacial lakes on debris-covered glaciers
in the Tien Shan Mountains, Central Asia

Chiyuki Narama, Mirlan Daiyrov, Takeo Tadono, Minako
Yamamoto, Andreas Kääb, Reira Morita, Ukita Jinro



PII: S0169-555X(16)30633-X
DOI: doi: [10.1016/j.geomorph.2017.03.002](https://doi.org/10.1016/j.geomorph.2017.03.002)
Reference: GEOMOR 5947
To appear in: *Geomorphology*
Received date: 19 July 2016
Revised date: 2 March 2017
Accepted date: 3 March 2017

Please cite this article as: Chiyuki Narama, Mirlan Daiyrov, Takeo Tadono, Minako Yamamoto, Andreas Kääb, Reira Morita, Ukita Jinro , Seasonal drainage of supraglacial lakes on debris-covered glaciers in the Tien Shan Mountains, Central Asia. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Geomor(2017), doi: [10.1016/j.geomorph.2017.03.002](https://doi.org/10.1016/j.geomorph.2017.03.002)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Seasonal drainage of supraglacial lakes on debris-covered glaciers in the Tien Shan Mountains, Central Asia

Chiyuki Narama* 1)

Mirlan Daiyrov 1, 2)

Takeo Tadono 3)

Minako Yamamoto 1)

Andreas Kääh 4)

Reira Morita 1, 5)

Ukita Jinro 1)

1) Department of Environmental Science, Niigata University, Niigata, Japan

2) Central-Asian Institute for Applied Geosciences (CAIAG), Bishkek, Kyrgyzstan

3) Japan Aerospace Exploration Agency (JAXA), Tsukuba, Japan

4) Department of Geoscience, University of Oslo, Norway

5) Esri Japan Co., Tokyo, Japan

Corresponding author* Tel.:+81-25-262-5160; E-mail: narama@env.sc.niigata-u.ac.jp

Abstract

Using field surveys in 2013, 2014, and 2016 plus satellite data analysis from 1999 to 2015, we analyze the seasonal drainage cycle of supraglacial lakes on seven debris-covered glaciers in central Tien Shan. This cycle is characterized by the number of lakes and by their water level. The cycle on the Southern Inylchek Glacier starts to increase in the beginning of April, reaches a maximum in May–June, and decreases sharply in June–July. The increase in April to June is because of inflow of meltwater from snow and ice, and the later decrease is caused by a greater connectivity to the englacial drainage network. For the Southern Inylchek Glacier, 94% of the supraglacial lakes that exist and appear during 2013–2015 drain for three years, indicating that most lakes could connect to englacial drainage network for three years. Concerning water levels, lakes in close proximity with the same base-level tend to synchronize their seasonal water levels through englacial channels. Although the maximum water levels of the observed lakes are the same from 2014 through 2016, their dates of maximum water level vary between mid-May and mid-June. During this period, the lifetime and size of the supraglacial lakes is controlled by the timing of their connectivity to the englacial drainage network.

Download English Version:

<https://daneshyari.com/en/article/5781071>

Download Persian Version:

<https://daneshyari.com/article/5781071>

[Daneshyari.com](https://daneshyari.com)