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The geomorphology of debris-covered Ponkar Glacier, Nepal

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Understanding the evolution of debris-covered glaciers in High Mountain Asia is important for making informed projections of climate change impacts and associated water security and hazard-related issues. Here we describe the geomorphology of Ponkar Glacier, a debris-covered glacier in Nepal using high-resolution images from 2017 and 2019 based on Unmanned Aerial Vehicle (UAV) flights collected over the glacier and surrounding area in the field. These are used to describe the overall glacier morphology and its ice-surface geomorphology. The key features of the glacier and its ice-surface morphology are described, including size and extent of tributary glaciers; changes in % of debris cover, lakes, ponds, ice cliffs, crevasses, and vegetation. Geomorphological mapping is used to describe the proglacial geomorphology, outwash plains and proglacial streams, the development of new ice-marginal ponds and changes in vegetation. We use these data to make inferences about the processes of moraine formation in this area.