

Site visit Wednesday 24 July 2019

We completed our post-drainage site visit on 24 July, roughly one week after completion of the lake drainage. We surveyed the basin with the drone, measured ice melt at the melt wires, and also installed a new melt wire up on Suicide Glacier. This new melt wire at 950 m a.s.l. complements the temperature sensor deployed next to Suicide Glacier and allows for a more robust melt model calibration.

The water level in the basin was at 383 m a.s.l., which is 3 m lower than the water level measured during last year's post-drainage visit. Last year, we visited the basin four days after drainage completion (on 23 July 2018), as opposed to seven days this year. Over these seven days, the water level kept dropping very slowly.

DEM differencing of the pre-drainage and post-drainage DEM suggests a volume loss of 0.034 km^3 , which is slightly more than last year (0.032 km^3). The pre-drainage DEM was taken on 8 July 2019 (early into overflow), so the above volume estimate includes the water volume lost through overflow. It also includes the water lost after the main drainage event. Overall, these numbers suggest that the water loss during this year's combined event (overflow and subglacial drainage) must have been similar to last year's event. It will be interesting to compare the numbers to the Mendenhall discharge curves.

The new ice cliff (where the ice tongue broke off the main glacier earlier this year) lies about 100 m further towards Mendenhall Glacier than the cliff last year, indicating that the basin has grown laterally. This lateral growth has partly counteracted the volume reduction caused by the thinning ice dam.

The pre-drainage overflow left an incised spillway along the glacier boundary, up to about 4 m deep (photos below, note person for scale in one of the photos). The ice-cored moraine next to the spillway is actively adjusting to the new topography, with lots of moving debris.

Some drone footage from the visit (download for best playing performance):

<https://drive.google.com/open?id=1umuCbfr8BRm54d9OZb6jZmsNffPdra9O>









