

## The 8th International Ice Drill Symposium



Contribution ID: 58

Type: Poster

### Enhancement of the BEAMISH hot water drill for clean subglacial access operations

*Tuesday 1 October 2019 17:56 (4 minutes)*

The success of the British Antarctic Survey (BAS) BEAMISH project in 2018-19 demonstrated the viability of the BEAMISH hot water drill (HWD) system in creating access holes through over 2150m of the Rutford Ice Stream. The proven ability to gain access to subglacial environments at depths exceeding 2 km opens the way to accessing subglacial lake targets. The identification of such a target by Centro de Estudios Científicos (CECs), Chile, has led to collaboration with BAS to access Subglacial Lake CECs, in central West Antarctica. The isolated nature of this lake requires a 'clean' drilling process to minimise contamination and disturbance of the subglacial environment during access, requiring modification of the BEAMISH HWD to meet these challenges. Drawing on previous work carried out for the unsuccessful Subglacial Lake Ellsworth (SLE) project, the modular nature of the BEAMISH HWD allows the integration of the pumping, filtering and water treatment systems developed for SLE. Following the same stewardship protocols developed for that project will allow the new drill to access Lake CECs cleanly. The lake lies beneath approximately 2650 m of ice requiring a new main drilling hose and an associated increase in water pumping and heating power, whilst the 2000 m altitude of the Lake CECs site requires the use of new diesel generators.

**Primary authors:** MAKINSON, Keith (British Antarctic Survey); ANKER, Paul (British Antarctic Survey)

**Presenter:** ANKER, Paul (British Antarctic Survey)

**Session Classification:** Session 4