

EGU22-1801

<https://doi.org/10.5194/egusphere-egu22-1801>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Quantifying subglacial soft bed sedimentary processes

Jane Hart¹, Kirk Martinez³, Nathaniel Baurley¹, and Benjamin Robson²

¹University of Southampton, Geography, Southampton, United Kingdom of Great Britain – England, Scotland, Wales
(jhart@soton.ac.uk)

²Department of Earth Science, University of Bergen, 5007 Bergen, Norway

³University of Southampton, Electronics and Computer Science

An understanding of subglacial processes are a vital component of ice-sheet models for sea level rise prediction as the use of different sliding laws can result in very different outcomes. In particular, the West Antarctic ice streams, are potentially unstable, and are underlain by soft (unconsolidated) beds, which have rarely been studied. Innovative *in situ* wireless subglacial experiments and web connected RTK GPS data from Iceland have shown that stick-slick motion can occur at different time scales throughout the whole year, and this allowed the quantification of different sedimentary processes. We investigate the results from four soft bedded glaciers. We compare the similarities and differences; and in particular describe the relationship with subglacial hydrological processes and temperature rise. We discuss the implications for ice sheet models and reconstructions of Quaternary sedimentary processes.