

ADVANCEMENTS IN DRILL SYSTEM ELECTRONICS

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Ice drills have historically used “dumb” electronics systems where it is up to the operator to decide how to drive the drill, sometimes on the basis of minimal feedback data. While such systems can offer highly robust solutions which have performed steadily for decades, they sacrifice the operational efficiency possible with a partially automated “smart” system. This presentation will cover the basic ingredients for a smart system, some of the ways that the U.S. National Science Foundation (NSF) Ice Drilling Program (IDP) has addressed challenges along the way (including: the benefits of a simple scheduler for modular software design, our strategy to efficiently maintain safety, ways to keep the operator in control with partial automation), and details of how IDP plans to retrofit existing deep drill systems with the latest control scheme.

Primary author: STEFANINI, Umberto (University of Wisconsin-Madison, U.S. National Science Foundation Ice Drilling Program)

Co-author: JOHNSON, Jay (University of Wisconsin-Madison, U.S. National Science Foundation Ice Drilling Program)

Presenter: STEFANINI, Umberto (University of Wisconsin-Madison, U.S. National Science Foundation Ice Drilling Program)

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