

WISSARDs and GLIDERs: Season Recap and Forecast

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The WISSARD (Whillans Ice Stream Subglacial Access Research Drilling) project successfully penetrated and sampled Subglacial Lake Whillans in January, 2013, using a new hot water drill system utilizing full clean-access protocols. In situ measurements, water sampling, and sediment coring were successfully performed, as well as remote sensing and geophysical surveying.

The lake, a catchment area on the downstream portion of the ice stream, is shallow (~1.5m deep) and is characterized by a surprisingly diverse and abundant microbial community. The sediments are muddy diamicton with sedimentary and micropaleontological evidence of extensive shear strain, consistent with highly deformed till, similar to materials previously recovered from beneath the Upstream B (Whillans) and C (Kamb) camps. Micropaleontologic evidence indicates dominantly Miocene marine source rocks, with older and younger (Pliocene and Quaternary) contributions.

The 2013-14 field season will include access and sampling at the grounding zone, where the sub-ice shelf marine cavity interfaces with grounded ice, ca. 50 km from Lake Whillans.

Proposed work for future seasons include exploration of the sub-ice shelf cavity, with an anticipated greater influence of sub-ice shelf ocean circulation.