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BigRAID

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The British Antarctic Survey (BAS) has developed a larger diameter (~285mm) version of the record-breaking Rapid Access Isotope Drill (RAID) known as BigRAID. The increase in size brings new design challenges but also new opportunities. The drill is described alongside the modifications to the RAID design, data from increased diameter drilling and the pre-deployment testing regime.

BigRAID is intended to rapidly drill dry holes to depths of 350m, which will be used as boreholes for detectors in the Radio Neutrino Observatory – Greenland (RNO-G) at Summit, starting summer 2021. Other uses include rapid and efficient pilot hole drilling of the firn layer, which will be exploited for hot water drilling in the upcoming attempt to sample subglacial Lake CECs in West Antarctica. The vast array of holes required by RNO-G requires automation of the drilling system. New automation features and developments are outlined.

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