



Circular surface depression on Roi Baudoin Ice Shelf, Dronning Maud Land, East Antarctica - characteristics and possible origin

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We present airborne geophysical data of a ring structure observed in the 2014/15 field season on Roi Baudoin Ice Shelf, East Antarctica. Different processes regarding the origin of this structure were already discussed in the media. The feature resembles well-known dolines frequently observed on Antarctic Peninsula ice shelves, but also looks like a reminiscent from subglacial lake drainage as recently observed in several locations in Greenland. Several equally sized and smaller features can be observed in the vicinity.

Currently, the feature is located on the ice shelf and advects with ice flow. Using our observations and records of a nearby weather station we discuss whether it was formed on the ice shelf itself or upstream of the grounding line where ice was grounded, and whether processes underneath the ice (e.g. subglacial lakes or ice-shelf basal melt), processes at the surface (like ponding melt water), or other processes could be responsible for its origin.