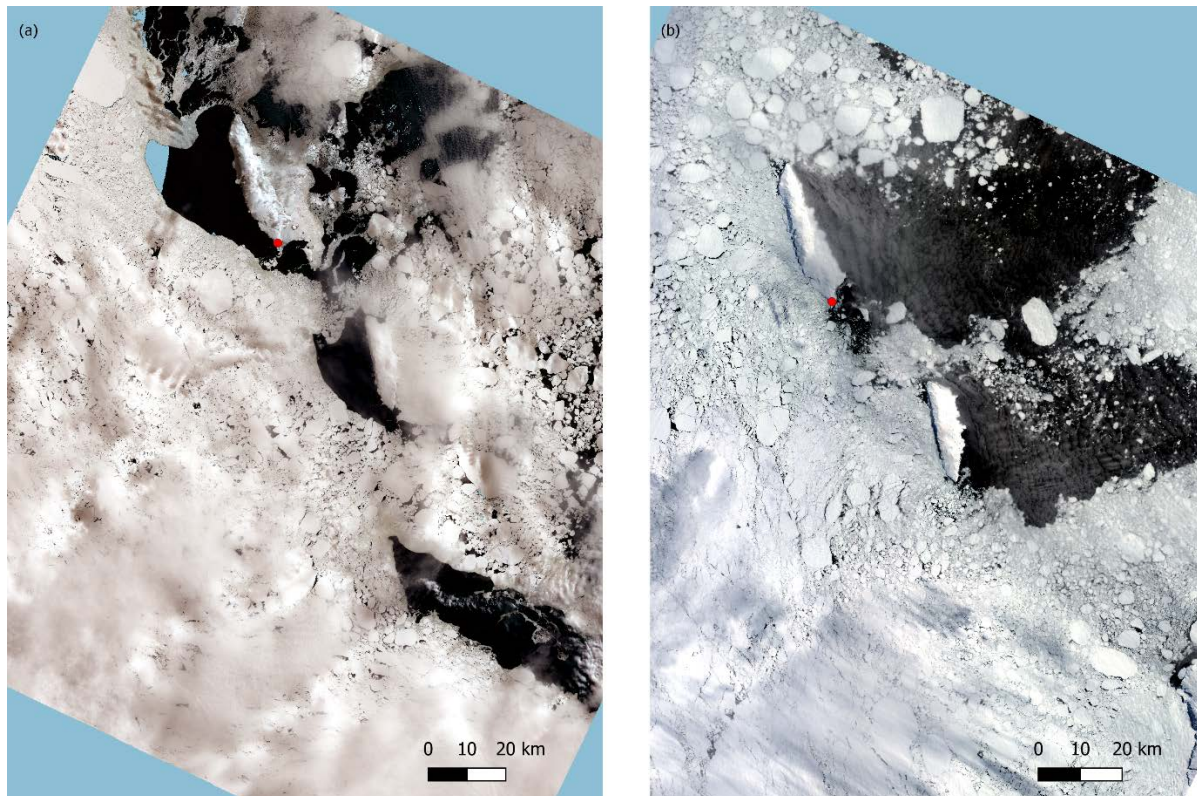


## The Balleny Islands Polynya

Only few information are available regarding the existence of the deep-ocean polynya near the Balleny Islands [1–3]. It is considered an annually reoccurrence, especially during spring and summer. Its position and extent have not been characterized, but the Landsat 8 images of Young Island below show open water either west (Figure S1a) or east of the islands (Figure S1b). We therefore suggest that the polynya generally opens up leeward and that its position depends on the atmospheric circulation at the time. Based on the position of the Balleny Islands at the rim of the westerly wind belt, we expect westerly winds to dominate, leading to the polynya opening up east of the islands most of the time.



**Figure S1.** Landsat-8 RGB image acquired on (a) 23/10/2019 shows open water prevailing west of the Balleny Islands, and (b) 09/12/2013 open water east of the islands; red marker: Young Island drilling site; blue background: ocean; data available from the U.S. Geological Survey.

## References

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