

# The dynamic drift of mega-icebergs in the Ross Sea

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Current estimates suggest that a few giant-tabular icebergs account for roughly half of the fresh water flux due to icebergs into the Southern Ocean. Since mega-icebergs drift over a period of several decades and inject their meltwater elsewhere they represent a kind of teleconnection between parent iceshelf and the rest of the Southern Ocean. Locally they modify sea ice conditions, coastal ecosystems and create logistical challenges for Antarctic field operations. Despite their many documented impacts, their drift pattern is still not well understood. We present in situ observations from our autonomous AWS/GPS stations over the last 6 years and our prognostic numerical model of iceberg drift. Our observations clearly show that mega-icebergs once set in motion frequently interact with the parent iceshelf through highly energetic collisions, which in turn might lead to a weakening of the parent iceshelf and initiate a subsequent calving response. Implications for paleo-studies of ice-rafted debris and meltwater flux into the Southern Ocean will be discussed.