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## Bottom water warming caused by the East Greenland Current's secondary circulation

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Since the mid-70s the Greenland Sea Bottom Water is warming by around 0.1 K per decade. This is certainly related to the absence of deep convective mixing which cools and freshens the bottom water. But the absence of the cooling mechanism does not explain the comparatively strong heating, which cannot be explained alone by diapycnal mixing. A numerical ocean model with a horizontal resolution of 5 km and with a bottom-following high vertical resolution of 10 m was used to simulate the circulation along East Greenland's continental slope. The simulation shows that bottom friction within the baroclinic flow leads to weak vertical and cross-slope directed currents, which form several cells of secondary circulation, located on top of the other. One of these cells, between 2700 m and 3200 m depth, causes upwelling of cold bottom water at the slope and downwelling of warmer water into the basin's interior. The vertical advection of heat associated with this cell is strong enough to explain the observed warming.