

## The 2010 draining episode of an ice-dammed lake in West Greenland: Further evidence for accelerated melting?

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Furuya and Wahr (2005, GRL) detected unloading deformation signals around Lake Tiningnilik in West Greenland, an ice-dammed lake located ~40 km to the south of Jakobshavn Isbrae. We associated the signal with a draining episode of the ice-dammed lake in 1993 and 2003, and explained the rate and pattern of the signal, assuming 7.5 meter/year increase in water level over an elastic body.

Previous field-based observation indicate that the draining episode takes place every 10 years (Braithwaite and Thomsen, 1984; Bogglid, personal communication, 2004), and thus we thought the next draining would happen around 2013. However, it turns out that the latest event occurred in 2010, which is 3 years earlier. Recent studies based on InSAR and GRACE indicate an accelerating loss of ice at Greenland. Our very localized observation may be a further evidence for the recent accelerated melting in Greenland.

We also detected accelerated flow velocities in the nearby glacier. The acceleration was probably caused by the sudden increase of subglacial water flow from the ice-dammed lake.

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