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Rapid Fluctuations of surface velocity along the Western margin of the Greenland ice sheet deduced by GPS measurements.

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GPS measurements were carried out in the ablation zone along the K-transect at 67ûN north. For this purpose low cost GPS instruments were developed for use on ablation stakes in remote areas. Hourly measurements of 8 sites over one year show coherent changes in the velocity over distances of 50 km. Summer velocities are up to 50% higher than the mean winter velocity. Superimposed on the gradual increase of the velocity over the summer season, we observe peaks in the velocity which are about 300% of the winter velocities, which is much higher and faster than earlier measurements suggested. These peaks last typically several days and are without any time delay related to increased melt rate. Over the winter period fluctuations vanish, but they remain visible, but are less coherent over the transect. The results point to a very strong interaction between ablation rate and velocity.