



## **Using tiltmeters for early warning of tsunamis generated by huge submarine landslides**

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Submarine landslides can induce destructive tsunamis. Here we suggest an effective tool for early warning of tsunamis generated by huge underwater landslides. The method is based on the fact that a displacement of several hundred cube kilometers of sediment produces a permanent and detectable deformation of earth's lithosphere. We mathematically model the ground tilting imposed by a landslide at virtual inclinometer stations. The numerical inversion of these tiltmeter recordings yields landslide parameters like mass and location in real time. We exemplify our method by a possible landslide west of Spitsbergen. Virtual inclinometers, positioned at three distinct locations at Spitsbergen, show tilts up to 2000 nrad. According to tsunami propagation models, the implementation of this warning system would result in more than one hour warning time for northern Norway and two hours for Iceland and southern Norway.