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Crustal loading tilt in the recording of an interferometrical water level tilt meter in Lohja, Finland

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In the vicinity of ocean coast line crustal tilt caused by surface mass load may exceed the level of earth tide tilt. Therefore tilt meter recordings can be used efficiently for testing ocean loading models with dynamical crustal response. Loading tilt deformations of the earth are recorded with an interferometrical water level tilt meter of the Finnish Geodetic Institute in the geodynamical laboratory, Lohja in southern Finland. The laboratory locates about 30 km north from the coast line of the Gulf of Finland of the Baltic Sea. Tilt resolution of the 50.4m long fluid level, interferometric tilt meter is 0.1 nanoradian. Non-tidal loading tilt signal of the Baltic Sea mass variation may reach upto 100 nanoradians and combined ocean and Baltic Sea tidal load signals upto 20 nanoradians in certain tidal wave groups in north-south direction in Lohja. Loading tilt models for Lohja laboratory and recorded signals there are compared and presented. Ocean loading model tilt signals in the northern Finland are discussed.