



Crustal loading of Baltic Sea seiche oscillations disturbing geodetic earth tide observations - case study: interferometric tilt meter observations in Lohja Finland

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North-south oriented interferometric long base water level tilt meter is recording geodynamical tilt signals different kind e.g. crustal loading tilt caused by the Baltic Sea. Instrument is locating in the Tytyri mine, Lohja, southern Finland, in inland 30 km away from coastline of the Baltic Sea. Earth tide analyse of tilt observations shows deviating error estimates for phases in certain diurnal and semidiurnal wave groups of tidal potential model. Free oscillation waves (seiches) of the Baltic Sea have frequencies, which locate near or in diurnal and semidiurnal tidal frequency wave groups. The phases of free oscillations of the Baltic Sea do not fit in with the phases of tidal frequencies, because free oscillations exist random in time base and take place after Baltic Sea surface deformation caused by certain air pressure and wind conditions in that sea area. Oceanographers have identified upto 10 different modes of free oscillations in the Baltic Sea. Identification and modeling of the largest modes from the geodynamical tilt data are studied.