Observation of the Earth's free oscillations with a superconducting gravimeter at Ny-Alesund, Spitsbergen, Norway

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Observation with a superconducting gravimeter (SG) at Ny-Alesund, Spitsbergen, Norway (79N, 12E) has recently started with the support of the Ocean Hemisphere Project. We analyzed records from September 20 to November 11 to obtain power spectra for earthquake and quiet periods. For comparison we also analyzed records of STS-1 seismometer at the IRIS KBS station, which locates about 1 km from the SG station. The averaged power spectrum for quiet periods shows that the average noise level at frequencies above 2 mHz is about 10^-17 m^2/s^3. This is five-time larger than that of STS-1, and is comparable to or slightly higher than that at Syowa Station, Antarctica. At frequencies below 2 mHz the noise level of SG is apparently lower than that of STS-1.