

EARTH OBSERVATION SYMPOSIUM (B1)
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TWO DECADES OF ELECTROSTATIC ACCELEROMETERS FOR SPACE GEODESY: PAST OR
FUTURE?

Abstract

After the success of the last three missions, CHAMP, GRACE and GOCE, devoted to accurately measure the Earth's gravity field, the electrostatic accelerometer experience return from 22 years of in-orbit behaviour cumulated by nine instruments, allows us to perform an assessment of the design and technologies used for such a payload. These missions highlight also the interest of a large scientific community for both the continuity in the data recording and the improvement of the measurement accuracy. The low frequency domain is especially concerned because it corresponds to the first terms of the geoid's spherical harmonics development where the performances are mainly driven by the accelerometers noise level. The improvements foreseen in view of the next generation of gravity missions will be detailed and discussed. Finally, a general view of the complementarities with cold atoms instruments or even optical clocks breakthrough techniques will be presented.