Detection of the Special Gravity Signals in Sub-tidal Band by Using a Wavelet Technique

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Abstract

Based on the 5-year length of tidal gravity observations recorded with a superconducting gravimeter at Wuhan International Tidal Gravity Reference Station, the special gravity signals associated with the possible Earth's solid inner core translational oscillations in sub-tidal bands are studied by using for the first time a wavelet transformation technique. The analysis is conducted on tidal gravity residuals after removing the synthetic tidal gravity signals and air pressure perturbation from original observations, demonstrating that there exist gravity oscillation signals at 4~6 h bands with amplitude at the ngal (10^{-12}g) level. However, it is found that the frequency and amplitude of such kind of oscillation signals change with time, and the analysis shows that these oscillation signals are provoked probably by some non-continuous source with very low amplitude.

BIBLIOGRAPHY

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