



Common oscillations in Global Earth Temperature, Sea Level, and Earth rotation

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Singular Spectrum Analysis (SSA) of Global Mean Sea Level (GMSL) and Global Average Earth Temperature (HadCRUT4) data after global warming trends subtraction revealed presence of quasi-periodic components with periods of 60, 20 and 10 years in both time series. 60-year component of sea level is anticorrelated with long-periodic changes in temperature, while 10 and 20-year components are correlated.

Simultaneous presence of 60-year component in secular Earth rotation rate changes rises a question of interrelations between Earth rotation and Climate.

Quasi-20-year changes in GMSL and HadCRUT4 have maxima and minima well corresponding to the amplitude changes of recently reconstructed Chandler wobble excitation, which could be caused by the 18.6-year cycle of the Moon orbital nodes regression.

The cause of 10-year oscillations in climate characteristics is enigmatic. It could be related to El Nino variability, Volcanoes, or Solar activity, but correlation with each of those processes found to be small.