



EM-raying the ocean or climate change impact on tidal electromagnetic signals

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We present an electrometer/magnetometer based method to detect climate induced trends in the oceans. The method utilizes ocean tides. Ocean tides generate electromagnetic signals which are strictly periodic and therefore well separable in terrestrial and spaceborne magnetometer observations. We simulate the change of the tidal electromagnetic signals under different climate scenarios.

Frequency, phase, sea surface elevation and path of tidal waves proofed to be very robust under climate change. However, the tidal electromagnetic amplitudes are sensitive to the sea water conductivity of the entire water column. Conductivity itself is a function of the local sea water salinity and temperature, properties that do change considerably in space and time.

We compare the impact of global warming and glacial melting on the electromagnetic signals of the major tides. We present the expected amplitude change distributions at sea level and at satellite height.