Oceanic excitation hypothesis for continuous oscillations of the Earth

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We have examined frequency dependency and the seasonal variation of the atmospheric pressure and deep ocean bottom pressure recordings more than a year long.The the power spectrum at the deep ocean bottom is larger than that ofthe atmosphere by one or two order of magnitude.The ground spectrum shape of quiet seismic stations and the spectrum of thedeep ocean bottom share common characteristic spectrum structures.The structural resemblance between the ocean bottom pressure and the ground motion, as well as the larger power, indicates that the pressure at the ocean bottommight be responsible for the continuous oscillations of the Earth.We have found that the seasonal variation of atmospheric pressure correlateswith the local mean wind speed and pressure power at the ocean bottom.

Because of the meridional imbalance of solar influx, the energy transportfrom the equatorial area to the polar regions causes a planetary-scalewind system. The large wind energy in DC component is efficientlyconverted into higher normal mode frequency by the wind and ocean waveinteraction over the sea.A strong sustained wind blows in the circum-Antarctic ocean in winterand we suggest this to be the potential excitation source in the summer timein the northern hemisphere.

If the Earth were an oceanless planet, the spectrum shape of thethe background ground noise would differ in its magnitude andits shape in the free oscillations band from the one we observe.