

On the sea level rising rate since 1993

Ying Feng[†]; Xian Yao Chen; Norden Huang; Zhao Hua Wu; Fangli Qiao

[†] First Institute of Oceanography, SOA, China, People's Republic of

Leading author: fengying@fio.org.cn

Although the global mean sea level kept rising since 1900, the sea level rising rate has slowed down dramatically since 1998. Using the novel method the empirical mode decomposition (EMD), we analyze the satellite sea level data derived from TOPEX/Poseidon and Jason-1, and all of the tide gauge observations during 1993-2009. We found that the nonlinear sea level rising speed has decreased from the rate 3.5 mm/year in 1993 to 2.3 mm/year in 2009, which is consistent with the nonlinear warming rate of the global upper 700 m ocean heat content during the same period. This sea-level rising rate is lower than the expected minimum mean linear rate 2.8 mm/year during 1990s. If global mean sea level keeps rising with this rate, the projected sea level would rise no more than $3.6\text{cm} \pm 0.92\text{cm}$ in the next two decades.