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Global increasing of mean sea level and erroneous treatment of a role of thermal factors

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Satellite methods of studies of the ocean surface - methods of altimetry - have been obtained intensive development in the last decades (since 1993). However, altimetry studies with the help of special satellites such as TOPEX-Poseidon not only have not cleared up understanding of the phenomenon of increase of sea level (SLR), but have even more confused and without that a complex question on the reasons of increase of sea level. Appeared, that classical determinations of average velocity of increase of sea level on coastal observations (1.4-1.7 mm / yr) approximately for 0.8-1.0 mm / yr it is less, rather than by modern satellite determinations of satellites TOPEX - Poseidon etc. (2.5 - 2.8 mm / yr). On the basis of the data of altimetry observations of TOPEX-Poseidon and Jason for the period 1993-2003 for geocentric velocity of increase of sea level (of global ocean) the value 2.8+/-0.4 mm / yr [1] has been obtained. In the given report the full answer is actually is given to a question put by leading experts on research of the sea level: “The TOPEX/Poseidon and Jason satellite altimeter missions provided a 12 year record of sea level change, which show increase of global mean sea level of 2.8+/-0.4 mm/yr, with considerable geographic variation. An important question for climate studies is to determine the cause of this change – specifically how much of the change is due to steric (heating) versus eustatic (runoff, melting ice, etc.) contribution?” [1].
There is, a big value of average velocity of increase of the sea level on the satellite data, it is possible to explain only by kinematical effect in data of observations. The motion of the satellite "is concerned" to the centre of mass of our planet, and its position is determined by a geocentric radius - vector. Therefore northern drift of the centre of mass in the Earth body [2] as though results in reduction of distances from the satellite up to the sea surface in the southern hemisphere and to their reduction in the northern hemisphere. At averaging of measurements over all ocean surface (mainly located in a southern hemisphere where it occupies about 80 % of the areas) there will be an effect of apparent additional increase of the sea level. Therefore this ("apparent") velocity of increase of the sea level accepts the greater value (about 2.4 mm / year) in comparison with coastal determinations of this velocity that is rather close to the data of satellite observations. The additional effect in increase of the sea level is brought by deformation of the ocean bottom. The both mentioned phenomena: the secular drift of the center of mass of the Earth and the secular expansion of southern hemisphere of the Earth have been predicted by author [2], [3] and have obtained confirmations by space geodesy methods. The offered explanation has the extremely - important value for studying a possible role of thermal and climatic factors which can not apply any more for a big component attributed to it in change of the sea level. The account of fictitious component of this velocity results practically in real value of variation of the average sea level about 1.3-1.6 mm / yr, that completely coordinate positions of researchers of ocean by coastal and altimetry (satellite) methods. Moreover, the given work opens a direct opportunity for an explanation of increase of the sea level as result of deformation of the ocean bottom. This deformation is a major factor of change of the average sea level. Water superseded in a southern hemisphere gives the significant contribution to observably value of velocity of sea level rise up to 0.8-1.2 mm / yr [3, 4].
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