



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	2014_PSIJ_15652
Title of the Manuscript:	Discussion of Time and Tide: analysis of sea level time series
Type of the Article	Commentary

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

To know the complete guideline for Peer Review process, reviewers are requested to visit this link:

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)



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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	In the discussion, you highlight a existence of a natural multi-decadal oscillation, and said it was clear to separate it from antropogenic carbon dioxide emission. How can one assume a monthly average does not have a strong annual cycle? It's okay to calculate a sea level trend without cutting off the strong signal of annual cycle? How could you calculate the mean sea level without filtering the annual cycle?	In sea levels there are many oscillations, with periodicities from hours to decades very well evidenced in the tide gauge records. The "traditional" analysis of sea levels (see the surveys by PSMSL, NOAA and other major players) is based on the linear fitting of the monthly average mean sea levels. The linear fitting of yearly average mean sea levels is less common but should not return average rates of rise that far. What is important is to linearly fit a time series having length much larger than the periodicity of the longest oscillation detected. Short tide gauge records should not be used to infer any trend.
Minor REVISION comments	In its review it's proposed a simple methods to analyze the supposed acceleration or deceleration of sea level. How can we estimate the uncertainties inherent to the observed data, such as the relocation or substitution of the tide gauge? What's your methodology to treat the gaps of this series?	The uncertainties of the estimation are generally significant and very difficult to be estimated. In the best cases, the tide gauge is periodically levelled versus a datum and every change of the instrument or relocation is carefully monitored to avoid biases. Unfortunately, the absolute tide gauge position is only known since very few years and only in very few locations with accuracy still far from the acceptable. However, at present there is no better measure of sea levels than the tide gauges. When everything has been done properly to avoid biases, there may still be the issue of missing data (gaps). Clearly,



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		the reliability of a sea level rise estimation reduces the more are the gaps. Somebody as PSMSL and NOAA only use the measured data with gaps. We use either same approach or we do use a fitting with a line and multiple sines to fill the gaps iteratively. As a non-linear fitting depends on the first guesses of the parameters involved, uncertainties are either way substantial. The total length of the record and the percentage of gaps are two parameters that should be stated close to the rate of rise estimation to give an idea of the reliability of the estimation.
<u>Optional/General</u> comments	Climate models are far away to estimate the long term of tidal oscillation simply because the observed data that feed them are full of uncertainties. And if we still don't have an whole understanding of energy balance of the oceans, how can we predict a global sea level rise based on steric contribution and a sparse and full of gaps tide gauge data?	That's right. Climate models are far away to estimate the long term of tidal oscillation simply because the observed data that feed them are full of uncertainties and we don't have a whole understanding of energy and mass balance of the oceans.