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Are carbon driven models to predict global temperature change and sea level rise still actual?

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ABSTRACT

Without any experimental evidence that sea levels are accelerating and temperature gradients are rising following the anthropogenic carbon dioxide emission, there is no reason we should trust predictions of sea level rises of metres by 2100 following the anthropogenic carbon dioxide emission. © 2014 Trade Science Inc. - INDIA

TEMPERATURE, SEA LEVELS AND THE CARBON EMISSION

During this century, the first where the ocean temperatures have been properly and extensively measured, there has been no sign of warming. A better analysis of the reconstructed global land and sea temperatures, a parameter biased upwards by many anthropogenic factors not linked to the carbon emission, has shown that the global land and sea temperatures have been fluctuating with a quasi-60 years periodicity, and the actual warming that could be attributed to the carbon emission has been downgraded from small to negligible depending on the valuation of the biases in the temperature reconstructions. Sea levels from tide gauges, as soon as their oscillations including the quasi 60 years periodicity are taken into account, are rising without any sign of acceleration since the start of the records. Nevertheless, many authors, as for example Guan, Chang and Aral^[3] continue to propose models where temperature and sea levels only obey to the carbon emission.

According to Guan, Chang and Aral^[3], no matter what has been measured, greenhouse gas emissions are

still the dominant cause of global warming and they still cause sea level rise which poses a significant threat to the sustainable development of coastal regions around the world.

In their study the authors develop a carbon driven systems model to predict global temperature change and sea level rise. The model uses the radiative forcing function as an external input to represent the impact of greenhouse gas emissions on the dynamic system.

It is claimed that the dynamic system is calibrated using historical data on global temperature and sea level, with an “*independent*” emission scenario, which results in a 2 °C increase of temperature by 2100 used to validate the model.

The model is then applied to the 6 CO₂ emission scenarios generated by the Intergovernmental Panel on Climate Change (IPCC) to predict global temperature increases between 1.6 and 5.0 °C by 2100 and that sea level will rise between 60.3 and 98.4 cm relative to the 1990 level.

The paper is built on a representation of temperatures and sea levels evolutions that is everything except what is shown by thermometers and tide gauges.

It is implicitly admitted also by the IPCC that the

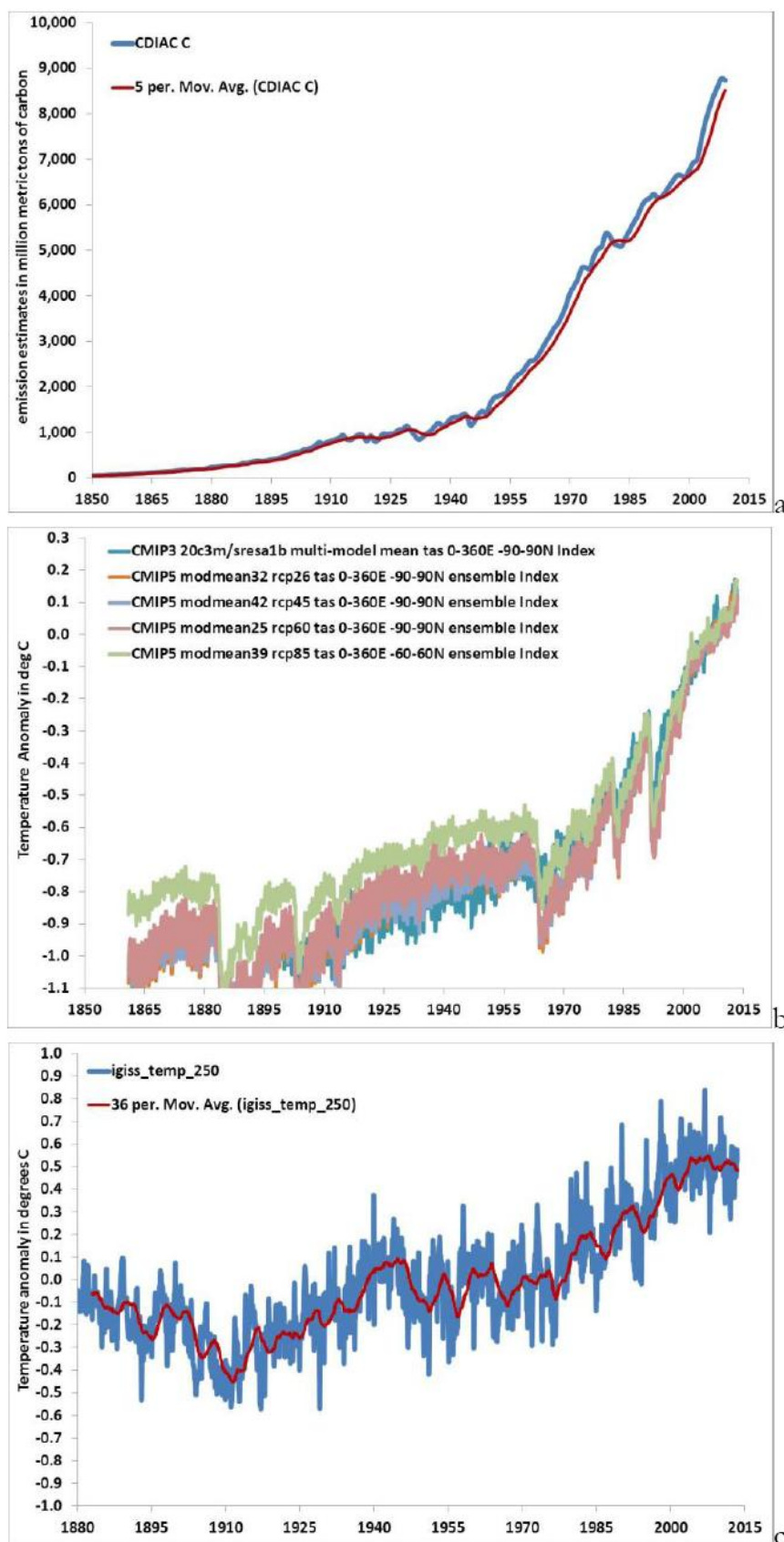


Figure 1 : CDIA C carbon emission (data from CDIA C, 2013)^[2], CMIP3&5 temperature predictions (from KMNI, 2013)^[4] and GISS global temperature reconstruction^[5]

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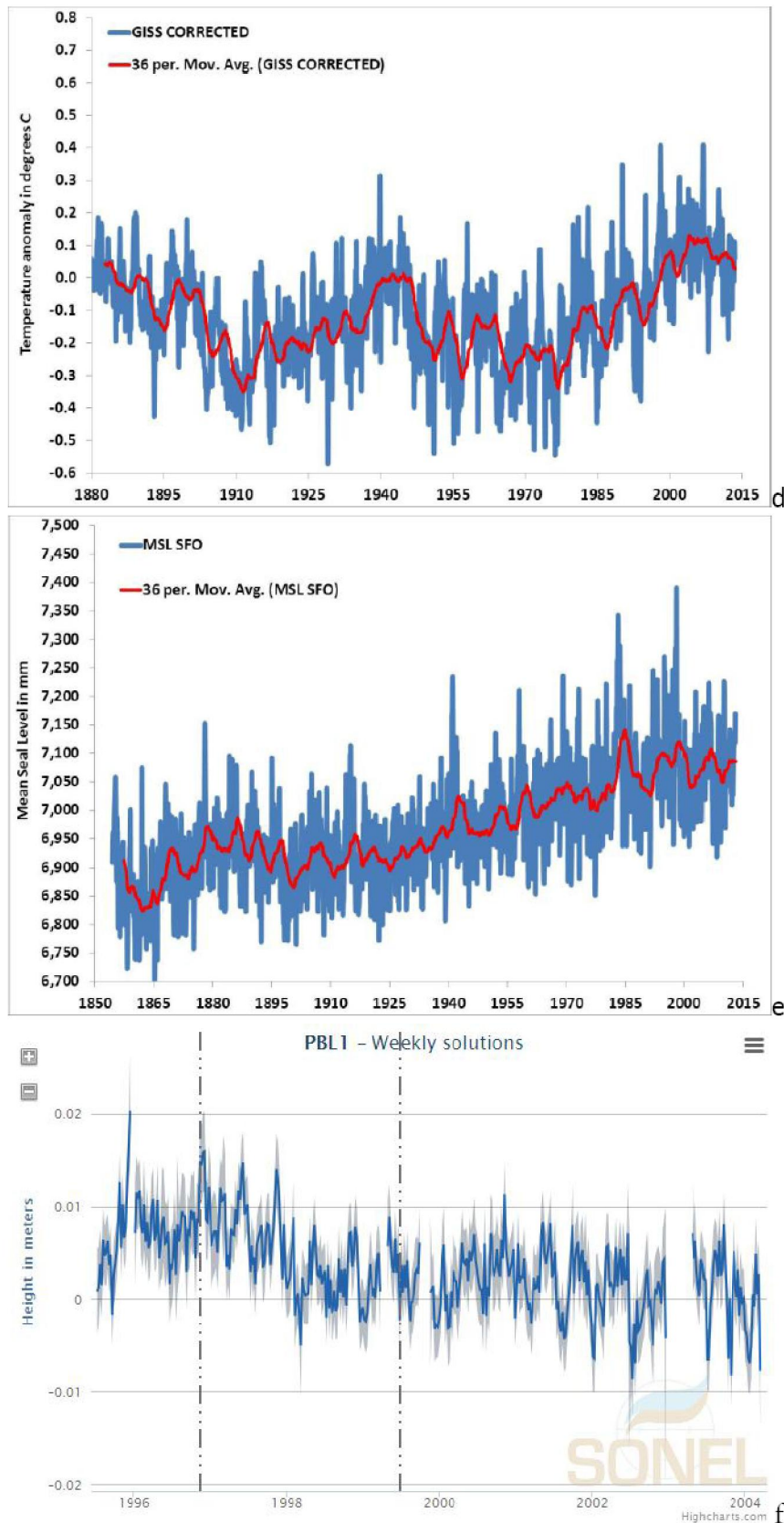


Figure 2 : GISS reconstruction corrected for contamination and other anthropogenic factors as described in Parker, 2013d, relative sea level measured in San Francisco (data from PSMML, 2013)^[13] and GPS signal of nearby station showing subsidy^[17]

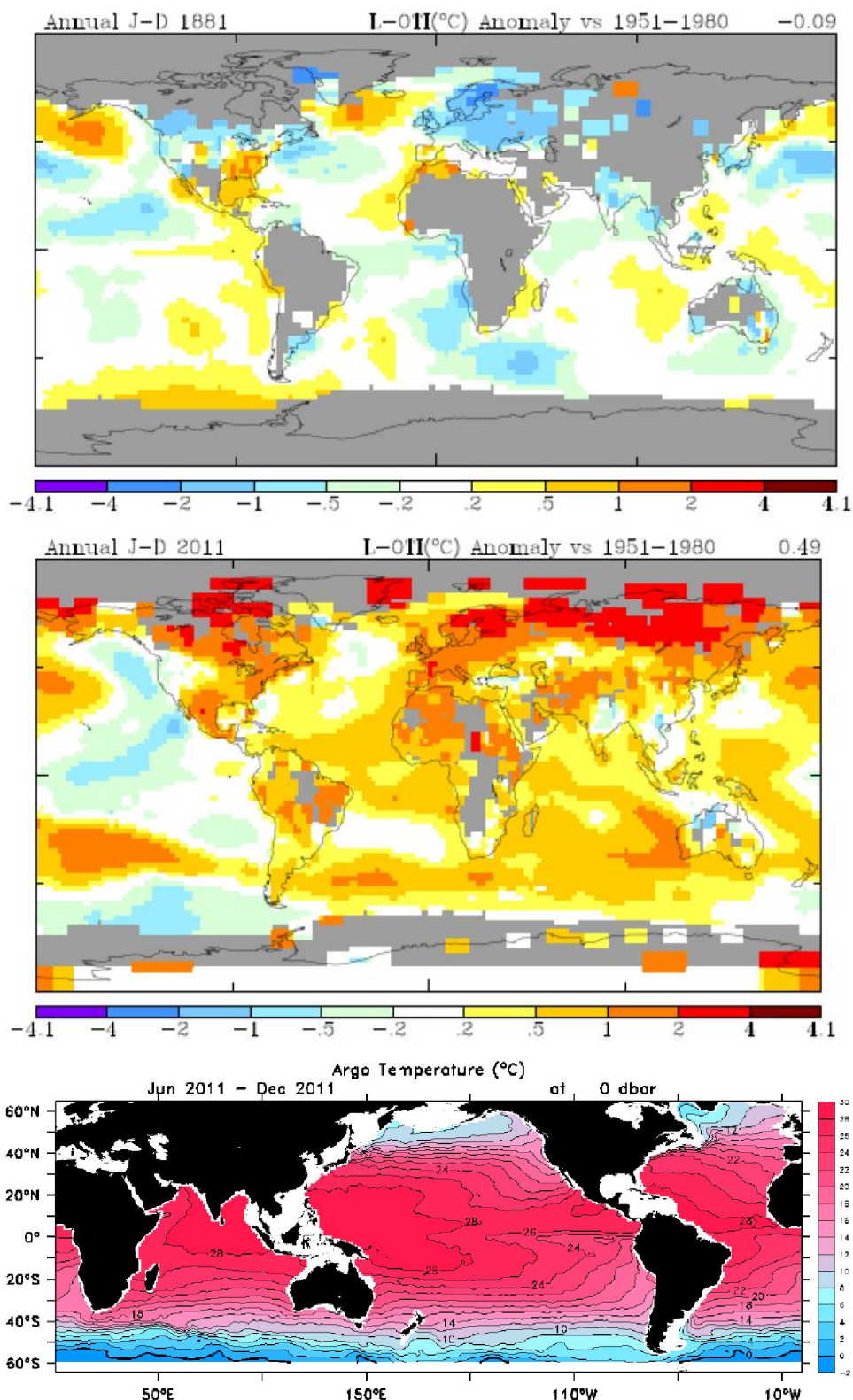


Figure 3 : GISS temperature reconstruction for 1881 and 2011^[5] and truly measured sea surface temperatures from the ARGO project^[1]

temperatures are rising much less than the CMIP model predictions, where actually the temperatures have not risen at all both in the upwards biased land and the

more reliable ocean components all over this century, incidentally the first one where the ocean temperatures are actually measured through the ARGO project. And

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looking more carefully to the temperature reconstructions as GISS, despite the upwards bias by contamination and other anthropogenic effects not related to the carbon, the temperatures have been more oscillating than exponentially rising over the past century^[6-9,14-16].

CMIP3 and CMIP5 have failed badly and quickly because they overrate the influence of the composition of the atmosphere and neglect the overwhelming natural oscillations as the quasi-60 years very clear also in the upwards biased temperature reconstruction as GISS^[5]. Without correcting for the “contamination” and “upwards bias” effects^[9] the GISS data, it is clear that the temperatures have been rising pretty much the same 1910 to 1940 and 1970 to 2000, and have been almost flat 1940 to 1970 as they are flat since 2000, oscillating about a 0.7°C/century slope linear trend line. The lack of any warming since 2000 contrasts the huge warmings computed by CMIP3 and CMIP5, that in addition to the failure 2000 to present also fail to represent the past 1910 to 1970. Including the “contamination” and “upwards bias” effects, the amount of warming over the last 100 years is further reduced.

As previously noted, not only temperatures, but also sea levels oscillate with a quasi-60 year periodicity^[6-8,10-12]. The relative sea levels, i.e. the measure of the oscillating sea levels vs. the lands that are also moving for subsidy or isostasy, should not rise but accelerate proportionally to the temperature gradient if there is a thermal expansion effect and similar dependence on the temperature gradient should apply for the melting of glaciers.

Figure 1 presents the CDIAC carbon emission (data from CDIAC, 2013)^[2], the CMIP3&5 temperature predictions^[4] and the GISS global temperature reconstruction^[5]. The model predictions badly correlate the monotonically increasing carbon emission and the mostly oscillating temperatures except than over the latest upwards phase of the quasi-60 years oscillation of temperatures during the years 1970 - 2000.

The GISS reconstruction is biased by contamination and other anthropogenic factors that globally produce a warming of the oceans very likely much larger than the legitimate. Comparison of GISS temperatures and true measurements free of any quality issue in selected remote locations where heat island effects are negligible show that past temperatures are often under-

estimated and present temperatures often overestimated for a global magnification of warming^[9].

Figure 2 presents the GISS reconstruction corrected for contamination and other anthropogenic factors as described in Parker, 2013d, plus the relative sea level measured in San Francisco (data from PSMSL, 2013)^[13] and the GPS signal of a nearby station showing subsidy^[17]. The San Francisco tide gauge is only one example of the many long term high quality tide gauges acceleration free (but oscillating with up to quasi 60 years periodicities detected) of the world^[6,7,10-12,18].

The correction of the GISS temperatures introduced so far is limited to a few locations and the temperature time history of Figure 2 is by no mean a truly accurate and satisfactory reconstruction of the global temperature of land and oceans over the last 130 years. However, nor the original GISS reconstruction^[5], nor other long term global temperature reconstructions are truly accurate and satisfactory.

Figure 3 shows the GISS temperature reconstruction for 1881 and 2011^[5] and the truly measured sea surface temperatures from the ARGO project^[1]. Before the ARGO project^[1] probing the oceans with 3,600 buoys 0 to 2000 m depth unfortunately only since the 2000s, the most part of the ocean temperatures are only guessed. Same on land for the past, where for example in 1880 only 1 thermometer was recording in Alice Spring the temperatures for the most part of Australia far from Sydney and Melbourne, despite the GISS reconstruction shows other results for Australia, PNG, Indonesia, the seas south of Tasmania and the Indian Ocean front of Perth of doubtful origin.

CONCLUSION

The global temperature gradients produced by the anthropogenic carbon dioxide emission are possibly much closer to the values of Figure 2.d than to the values of Figure 1.c.

The global temperatures are mostly oscillating, as oscillating are the sea levels. The longest periodicity detected in the instrumental records is quasi-60 years.

The CMIP models have badly failed validation and cannot be trusted.

The science of global warming would be more solid if based on true measurements of climate parameters

as temperatures and sea levels and not only on predictions and reconstructions in not well posed problems.

Temperatures have been very likely warming because of the anthropogenic carbon dioxide emission much less than the 0.7 C of Figure 1.d over the last century, possibly very close to the negligible changes of Figure 1.e, and sea levels have not been accelerating at all, as clear in Figure 1.f, that is representative of all the others long term high quality tide gauges of the world.

Why the sea levels should raise of metres by 2100 following by magic the anthropogenic carbon dioxide emission is a mystery.

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