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How fast is sea level rising?

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Present-day sea level rise is a major indicator of climate change. Since the early 1990s, sea level rose at a mean rate of ∼3.1mm/yr. However since about a decade, a slowdown of this rate -by about 30%, is recorded. It coincides with a plateau in Earth's mean surface temperature evolution, the latter referred to as 'recent pause in warming'. Here we present an analysis based on sea level data from the altimetry record of the last ∼20 years that separates interannual natural variability in sea level from the longer-term change likely related to anthropogenic global warming. The most prominent signature of the interannual variability in the global mean sea level is caused by El Niño-Southern Oscillation (ENSO), through its impact on the global water cycle. We find that when correcting for the interannual variability, the last decade slowdown of the global mean sea level disappears, leading to similar rate of sea level rise (of 3.3 +/- 0.4 mm/yr) during the first and second decade of the altimetry era. Our results confirm the need for quantifying and further removing from the climate records the short-term natural climate variability if one wants to extract the global warming signal.