



This is the print version of the [Skeptical Science](http://sks.to/slr2010) article ["Sea level fell in 2010"](http://sks.to/slr2010), which can be found at <http://sks.to/slr2010>.

## Why did sea level fall in 2010?

### What The Science Says:

Sea level fluctuations during El Niño (rising) and La Niña (falling) are the result of large exchanges of water between land and ocean in the form of rain and snow. This averages out to zero over time. It does not affect long-term sea level rise, which comes from melting icesheets, glaciers, and thermal expansion.

### Climate Myth: Sea level fell in 2010

Large sea level fall in 2010 means IPCC sea level projections are wrong.

A number of climate not-so-skeptics have been exploiting global sea level data in their latest attempt to hide the incline. Skeptical Science readers will be very familiar with the tactics the "skeptics" use to make this argument:

1. Cherrypick a very small amount of data during which the short-term noise has dampened the long-term incline.
2. Ignore the long-term trend.
3. Refuse to examine the reasons behind the short-term change.

Climate "skeptics" have used this exact same strategy to hide the incline in global surface temperatures ([here](#) and [here](#) and [here](#)), lower troposphere temperatures ([here](#)), and ocean heat content ([here](#) and [here](#)). We've found that an effective way to reveal the deception of these arguments is with an animated GIF, comparing the long-term data with the short-term "skeptical" cherrypick. Figure 1 makes this comparison for the global mean sea level data during the satellite radar altimeter record (since 1993) [from the University of Colorado](#). The first frame shows the entire record, the second shows four periods of flat or declining mean sea level, and the third shows the most recent short-term decline.

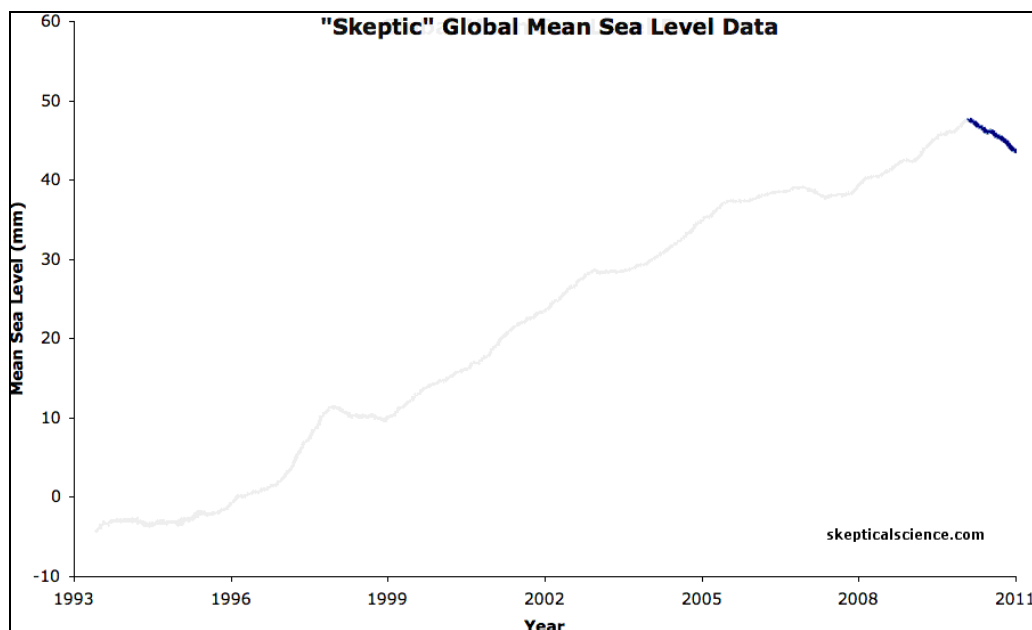


Figure 1: University of Colorado global mean sea level data with a 12-month running average, and short-term declines.

## Cause of Short-Term Decline

Figure 1 confirms that yes, global mean sea level has declined slightly over the past year or so, and even slightly more than previous recent short-term declines. But a true skeptic should ask what has caused this short-term decline, especially since it appears counter-intuitive. After all, [land-based ice continues to melt rapidly](#), and the [oceans continue to warm rapidly](#) (thermal expansion of ocean water contributes to sea level rise). So what has dampened the long-term sea level rise illustrated in Figure 1?

[As Skeptical Science has previously reported](#), climate scientists attribute the short-term decline to extreme flooding in 2010. This period also saw a strong La Niña cycle, which typically results in an increase of rain and snow falling over land, which corresponds with a fall in global sea level. 2009 to 2011 saw some epic deluges throughout the world; countries such as [Pakistan](#), [Sri Lanka](#), [Australia](#), the [Philippines](#), [Brazil](#), [Colombia](#) and the [United States](#) have been hammered with extreme flooding. Figure 2 illustrates where the water has gone.

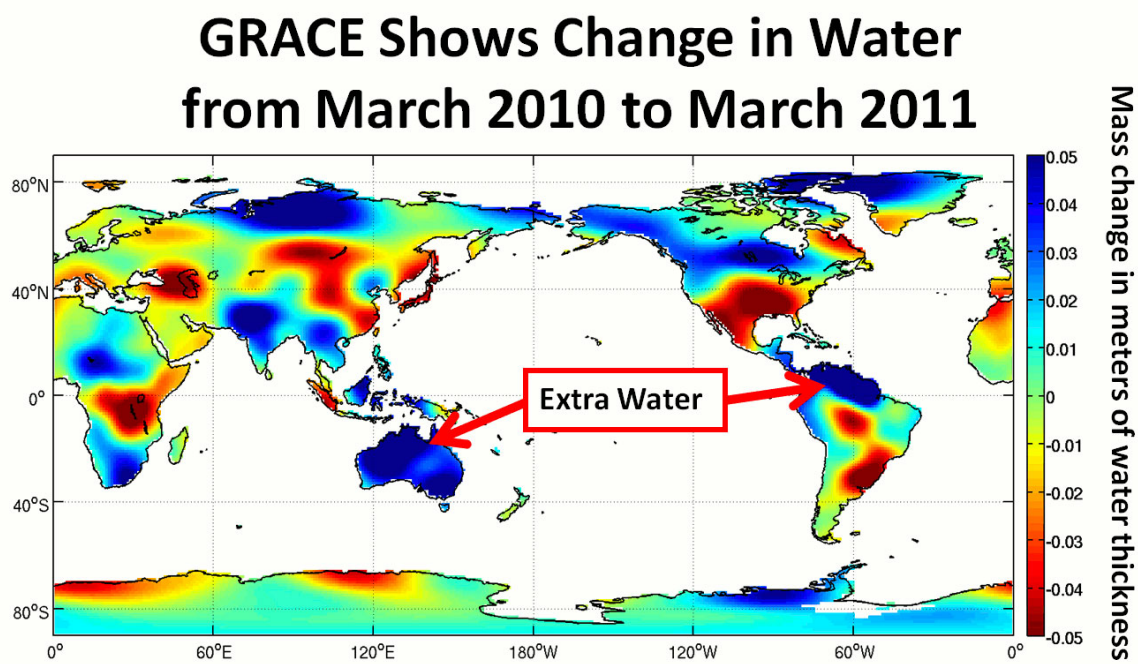


Figure 2: change in land-based global water storage in the period March 2010 to March 2011, as observed by [GRACE gravity satellites](#). Image from NASA JPL.

## Cherry-Flavored Water

In short, arguments that sea level rise has stopped are based on the same tired old "skeptical" tricks of cherry-picking short-term data and ignoring the long-term trend. We know that ocean warming and melting ice will cause sea level to rise over the long-term, and the only reason the sea level rise has temporarily slowed is that there was so much flooding in 2010 - hardly a result worth celebrating. As long as humans continue to warm the planet by increasing the amount of greenhouse gases in the atmosphere, we can expect the long-term sea level rise to continue.

Basic rebuttal written by dana1981

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## Update July 2015:

Here is the relevant lecture-video from [Denial101x - Making Sense of Climate Science Denial](#)





Skeptical Science explains the science of global warming and examines climate misinformation through the lens of peer-reviewed research. The website won the Australian Museum 2011 Eureka Prize for the Advancement of Climate Change Knowledge. Members of the Skeptical Science team have authored peer-reviewed papers, a [college textbook on climate change](#) and the book [Climate Change Denial: Heads in the Sand](#). Skeptical Science content has been used in university courses, textbooks, government reports on climate change, television documentaries and numerous books.



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