

Checkpoints for rate of sea level change in CA (SLR Guidance)

Daniel Debrunner [REDACTED]

Friday, January 10, 2014 1:56 PM

In the executive summary of Sea-Level Rise Policy Guidance [1] you say:

"Sea level at the San Francisco tidal gauge has risen 20 centimeters (8 inches) over the past century, and the National Research Council projected that sea level may rise by as much as 140-165 centimeters (55-65 inches) in California by 2100 (NRC, 2012)."

Looking at the San Francisco tidal gauge [2] I indeed see the rate has been 2mm/year (20cm/century) from 1897 until the current day.

The NRC projection requires a jump in the sea level rise rate of 16mm/year to 19mm/year. This is a **substantial change** from a steady rate of 2mm/year, namely an eight to nine increase in sea-level rise.

If you are proposing planning based upon the NRC projection, then will you have checkpoints at regular intervals to see if projection is valid? If for example, as it seems likely, sea-level rise continues at the steady rate of 2mm/year, then after 10 years a minimum increase of nine times is required, after twenty years eleven times. After how many years would you concede that the NRC projection is unlikely?

Thanks,
Dan.

[1] [http://www.coastal.ca.gov/climate/slr/guidance/CCC Draft SLR Guidance P R 10142013.pdf](http://www.coastal.ca.gov/climate/slr/guidance/CCC_Draft_SLR_Guidance_P_R_10142013.pdf)

[2] http://tidesandcurrents.noaa.gov/sltrends/sltrends_update.shtml?stnid=9414290

SLR Guidance Feedback - Please add graph of actual measurements with NRC projections.

Daniel Debrunner [REDACTED]

[Actions](#)

To:

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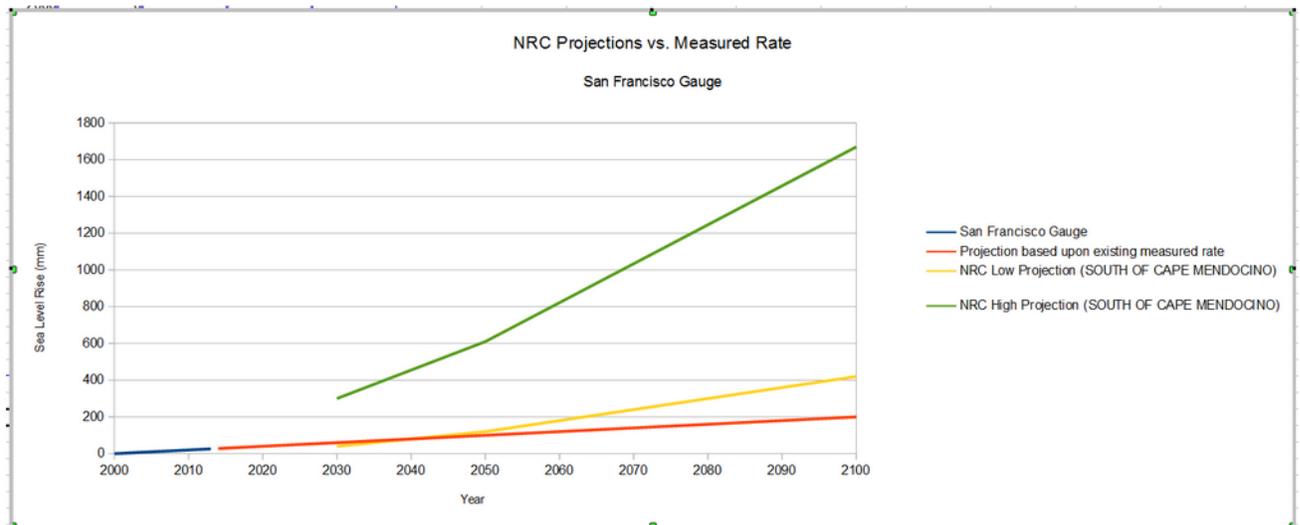
Friday, January 10, 2014 5:22 PM

To add context to Table 1 on page 5 add a graph similar to this one., showing how the NRC projections relate to actual measurements from tide gauges.

Basically, almost halfway through the first projection period (2000-2030), the actual measured rise is at the very low end of the NRC projection. And this is from a projection that was released in 2012, 4/10's into the period.

Dan.

[below is a screenshot of the graph included in the email]



SLR Guidance feedback: Low end of NRC projections

Daniel Debrunner [REDACTED]

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Friday, January 10, 2014 5:48 PM

Page 29 states:

"Again, given current greenhouse gas emission levels and projections of future ice sheet loss, the lowest sea-level rise projections likely under represent future sea-level rise".

However, actual measurements of SLR from tide gauges is actually at the low end of the projection for 2000-2030, regardless of the current greenhouse gas emission levels. (See graph I sent earlier). This fact needs to be included, maybe changing the text, as maybe it is likely that the lowest sea-level rise projections are representative. At least that's the way the actual data is showing.

Dan.

SLR Guidance Feedback - Functions not matching reality

Daniel Debrunner [REDACTED]

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Friday, January 10, 2014 6:51 PM

Page 124 has these functions:

South of Cape Mendocino

- Upper Range – Sea Level Change (cm) = $0.0093t^2 + 0.7457t$ (Equation B-3)
- Lower Range Sea Level Change (cm) = $0.0038t^2 + 0.039t$ (Equation B-4)

Where "t" is the number of years after 2000

Using the upper range function for the years 2001-2013 give figures that are 3.8 to 4.3 times too high for San Francisco, with the error **increasing** as time increases.

Given that the error is increasing as time increases, how can anyone have any confidence in this function?

Dan.

SLR Guidance - Questions on acceleration of rise in 22nd century

Daniel Debrunner [REDACTED]

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Friday, January 10, 2014 7:11 PM

Page 125 says:

"The NRC projections stop at 2100 and provide no guidance for extrapolation of the range of sea-level rise projections past that time."

and (the 38 footnote)

"2.6 – 7.5 meters of sea-level rise over the next 2,000 years"

Current SLR is 2mm/year

NCR projection is 16.7mm/year at the high end,

2.6 - 7.5 meters over the next 2,000 years is 1.3 to 3.7mm/year

Q1) How can you reconcile the peak estimate of 3.7mm/year with the the NRC projection of 16.7mm/year?

On page 17 it states:

"The [NRC] projections also only provide estimated sea-level rise ranges through 2100, although sea level will continue to rise at an accelerating rate beyond the end of the century."

Q2) On what is this assertion of "accelerating rate" beyond this century based? Any scientific reference? Especially since on page 125 it states the NRC provide "no guidance for extrapolation .. past 2100".

Q3) Note 38 on page 125 (see above) gives a peak SLR of 3.7mm/year, this is a reduction in rate compared to the NRC projections, so this contradicts the assertion accelerating rate, in fact it is a decreasing rate. Does this need to be corrected?

Dan.

SLR Guidance - Evidence of climate change/increasing global temperatures in California

Daniel Debrunner [REDACTED]

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Friday, January 10, 2014 7:28 PM

Page 3, the first two sentences of the Executive Summary state:

"Climate change is upon us, and almost every facet of California's natural and built environment is being affected. Increasing global temperatures are causing significant effects at global, regional, and local scales."

Can you provide to me and add to this document:

- a list of facets of California's natural and built environment that are being affected by climate change
- significant effects in California (regional/local scale) that are due to increasing global temperatures.

Please include the increase in agriculture due to increase CO2 in the atmosphere.

Dan.

SLR Guidance - Figure 8 is incorrect

Daniel Debrunner [REDACTED]

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Saturday, January 11, 2014 8:55 AM

Figure 8 on page 113 has incorrect maximums for NRC projections:

South of Mendocino shows above 2m but Table 1 (page 5) states 1.65m.

North of Mendocino shows above 1.5m but Table 1 (page 5) states 1.43m.

Please validate all the other values shown, in case similar errors have been made for the other projections.

Dan.

Reference for A.4.1?

Daniel Debrunner [REDACTED]

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Saturday, January 11, 2014 9:19 AM

Section A.4.1 (page 110) states:

"Because drivers of climate change and sea-level rise, such as radiative forcing, are known to be changing, this method is no longer considered appropriate or viable in climate science."

Provide a reference for this assertion.

Given that a extrapolation of historic trends seems to be outperforming all other projections in accuracy, it seems rash to dismiss this methodology. The climate model projections are using the climate models that are not modelling the climate accurately, almost all are running hotter than the planet. Thus why should they result in accurate SLR projections?

This document needs to include information about how the climate models are currently failing and that you are relying on projections based upon these models.

Even the IPCC is backing away from the climate models:

<http://wattsupwiththat.com/2014/01/09/the-ipcc-discards-its-models/>

Dan.

Section A.5.1 needs timescales

Daniel Debrunner [REDACTED]

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Saturday, January 11, 2014 9:24 AM

A.5.1 on page 115 gives various SLR from NOAA (e.g. 8 feet), but provides no timescale, thus the figure is meaningless. Please add a timescale.

Dan.