Sea level rise projections for coastal New Jersey

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Table 1. Projections of global mean sea level change from NRC (2012).

	Thermal expansion cm	Glaciers and ice caps cm	Greenland cm	Antarctica cm	Total cm
2050 best	**10**	**6**	**6**	**7**	**28**
2050 low	4	5	4	3	18
2050 high	19	7	10	13	48
2100 best	**24**	**14**	**20**	**24**	**83**
2100 low	10	13	15	8	51
2100 high	46	19	34	46	140

Table 2. Components of regionalized projections of sea level change in New Jersey.

	Thermal expansion cm	Dynamic cm	Glaciers and ice caps cm	Greenland cm	Antarctica cm	Subsidence cm	Total cm
2050 best	**10**	**10**	**5**	**3**	**9**	**8**	**44**
2050 low	4	8	5	2	4	5	33
2050 high	19	11	7	5	17	11	56
2100 best	**24**	**20**	**13**	**10**	**30**	**15**	**112**
2100 low	10	15	12	7	10	9	87
2100 high	46	21	17	17	58	21	141

	land ice static equilibrium scale factor:	90%	50%	125%

Table 3. Total sea level rise projections for New Jersey.

	Total cm	Total inches	Total feet
2050 best	**44**	**17**	**1.4**
2050 low	33	13	1.1
2050 high	56	22	1.9
2100 best	**112**	**44**	**3.7**
2100 low	87	34	2.8
2100 high	141	56	4.6

All values with respect to a year 2000 baseline.

Global numbers from NRC (2012)
Subsidence range of 0.9-2.1 mm/y calculated from Atlantic City, Lewes, Sandy Hook and Battery tide gauges (Miller et al., 2009, Fig. 1) and Church & White (2008) estimate of twentieth-century sea level rise.
Steric equilibrium fingerprints from Mitrovica et al. (2001) and Mitrovica et al. (2009)
Dynamic effects from Yin et al. (2009)

Uncertainties for thermal expansion and dynamics are treated as scenario dependent, and added together.
Uncertainties on the low end for ice sheets are treated as independent, and the root sum of their squares are used.
Uncertainties on the high end for ice sheets are as for the ice sheets, plus the addition of a covarying term to account for the dynamical imbalance.
This is the same procedure as used in the global estimates of NRC (2012).
Subsidence range represents the variability in subsidence rates between Atlantic City and the Battery.

References

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