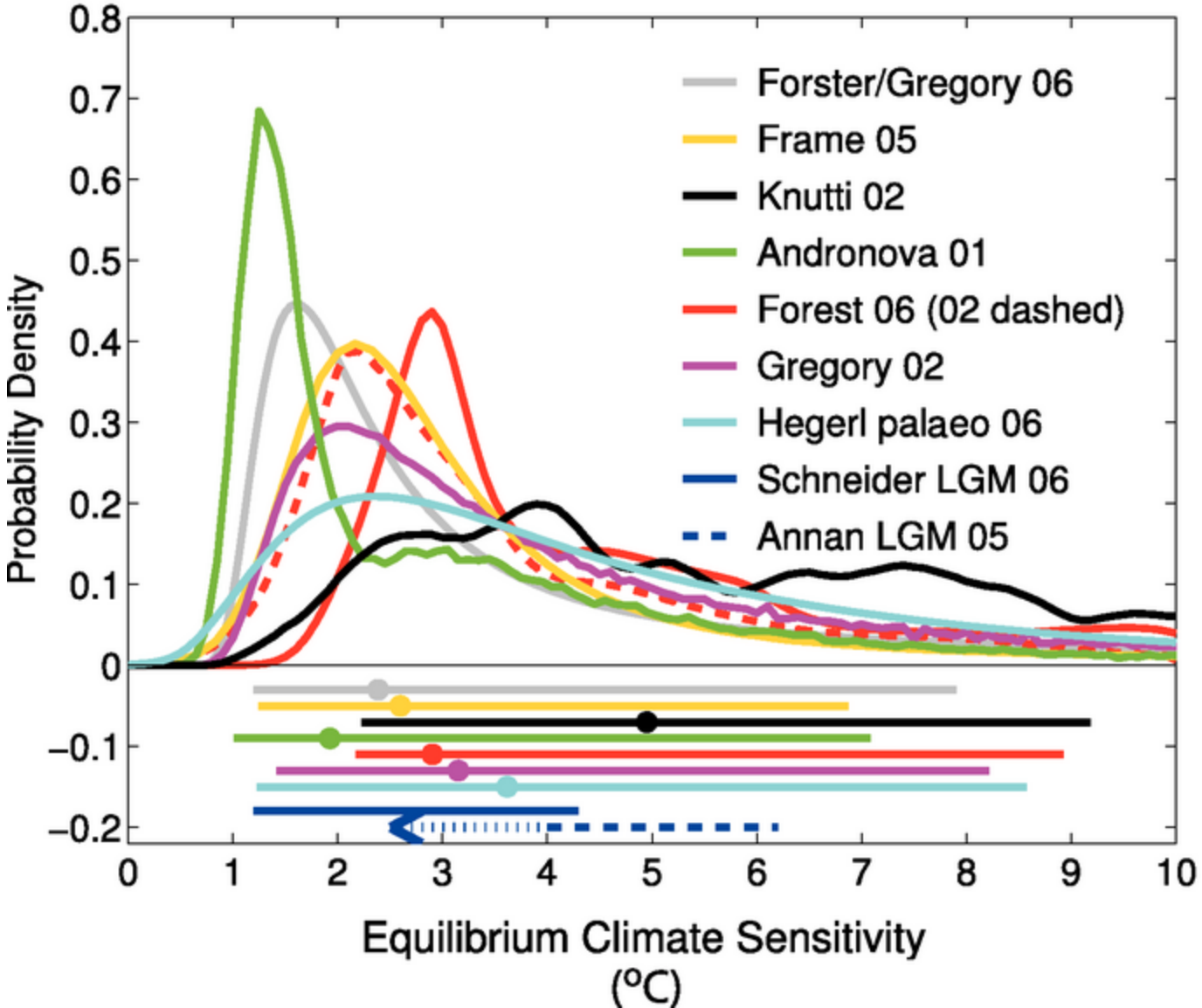
Uncertainty over Climate Sensitivity

(from IPCC AR4,Fig 9.20)



What kind of uncertainty is this?

CO2 (ppm)

Pre-industrial: 280

Current: 390

Table 1. Estimates of the welfare loss due to climate change (as equivalent income loss in percent); estimates of the uncertainty are given in bracket as standard deviations or 95% confidence intervals.

Study	Warming (˚C)	Impact (%GDP)
(Nordhaus 1994b)	3.0	-1.3
(Nordhaus 1994a)	3.0	-4.8 (-30.0 to 0.0)
(Fankhauser 1995)	2.5	-1.4
(Tol 1995)	2.5	-1.9
(Nordhaus and Yang 1996)[a]	2.5	-1.7
(Plamberk and Hope 1996)[a]	2.5	-2.5 (-0.5 to –11.4)
(Mendelsohn et al. 2000a)[a,b,c]	2.5	0.0[b] 0.1[b]
(Nordhaus and Boyer 2000)	2.5	-1.5
(Tol 2002a)	1.0	2.3 (1.0)
(Maddison 2003)[a,d]	2.5	-0.1
(Rehdanz and Maddison 2005)[a,c]	1.0	-0.4
(Hope 2006)[a,e]	2.5	0.9 (-0.2 to 2.7)
(Nordhaus 2006)	2.5	-0.9 (0.1)
(Nordhaus 2008)	3.0	-2.5
(Maddison and Rehdanz 2011)[a]	3.2	-11.5
(Bosello et al. 2012)	1.9	-0.5

[a] Note that the global results were aggregated by the current author.

[b] The top estimate is for the "experimental" model, the bottom estimate for the "cross-sectional" model.

[c] Mendelsohn et al. only include market impacts.

[d] Maddison only considers non-market impacts on households.

[e] The numbers used by Hope are averages of previous estimates by (Fankhauser 1995) and (Tol 2002a); Stern *et al.* (2006) adopt the work of Hope.

Source: Tol, 2012