Correction to: Interactive comment on "Temperature trends at the Mauna Loa Observatory, Hawaii" by B. D. Malamud, D.L. Turcotte, C.S.B. Grimmond

In the supplementary material of our "*Reply to referee and editor comments*" (Malamud *et al.*, 2011) on p. 7, Eq. (S1) was correct but Eq. (S2) incorrect. The general reasoning of the arguments (except for Eq. S2) was correct. Eq. (S1) in our reply is equivalent to:

$$T = 5.35\lambda \ln\left(\frac{C}{C_0}\right) + T_0, \tag{C1}$$

with T in °C, equilibrium climate sensitivity λ in °C m^2 W^{-1}. The constant C_0 is a reference concentration for CO_2 and T_0 a reference value for temperature. Similar to our reply (Malamud *et al.*, 2011), we calculate the mean annual temperature (T), mean annual maximum (T_{max}), mean annual minimum (T_{min}) and mean annual diurnal temperature range (DTR), for each year 1977–2006, based on the hourly Mauna Loa temperature data (NOAA, 2009). We then calculate the best-fit linear regression of these variables with the product $5.35\ln(C/C_0)$, where C is the mean annual concentration of CO_2 at Mauna Loa and $C_0 = 334$ ppmv is the reference value for 1977. The slope (Eq. C1) is the value of the equilibrium climate sensitivity λ. We find (uncertainties ±1 standard error of the slope): $\lambda[T] = 0.84 \pm 0.45$ °C m^2 W^{-1}, $\lambda[T_{max}] = -0.48 \pm 0.53$ °C m^2 W^{-1}, $\lambda[T_{min}] = 1.58 \pm 0.38$ °C m^2 W^{-1}, and $\lambda[DTR] = -2.06 \pm 0.28$ °C m^2 W^{-1}. In our revised manuscript we present a graph of T, T_{max}, T_{min} and DTR, each as a function of $5.35\ln(C/C_0)$, along with the other results described here.

References Cited

Malamud, B.D., Turcotte, D.L., and Grimmond, C.S.B.: Interactive comment on "Temperature trends at the Mauna Loa Observatory, Hawaii" by B. D. Malamud et al. Clim. Past Discuss., 6, C1635–C1635, 2011.

NOAA (National Oceanic and Atmospheric Administration), Earth System Research Laboratory (ESRL), Mauna Loa hourly temperature data for 1 January 1997 to 7 February 2007 (updated 2008): ftp://ftp.cmdl.noaa.gov/met/hourlymet, accessed 1 December 2009.