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## Supplemental Material

### **Space–Time Covariation of Mortality with Temperature: A Systematic Study of Deaths in France, 1968–2009**

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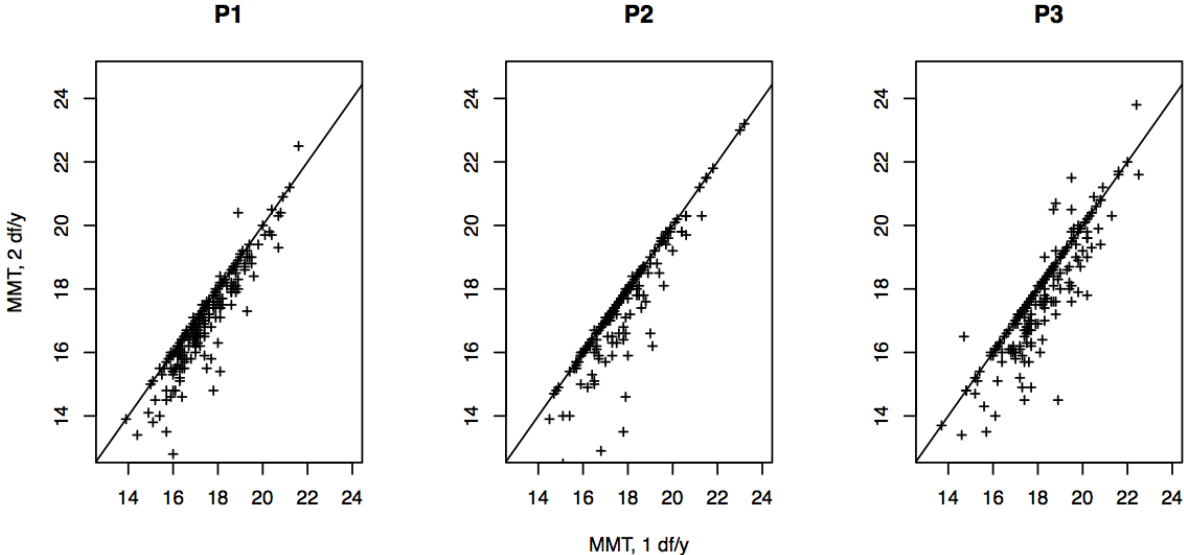
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# Sensitivity analyses

## Model 1: 2df/y

Testing for the sensitivity to the degree of freedom allowed to the smooth function of time was conducted by fitting a model with 2 df/y for  $s(t)$  in the by period analysis (see also Model 2 where 4df/year were used)

As shown in the figure below, the new MMT values found at each of the 3 periods were close from the values obtained with the model with 1 df/year presented in the paper.

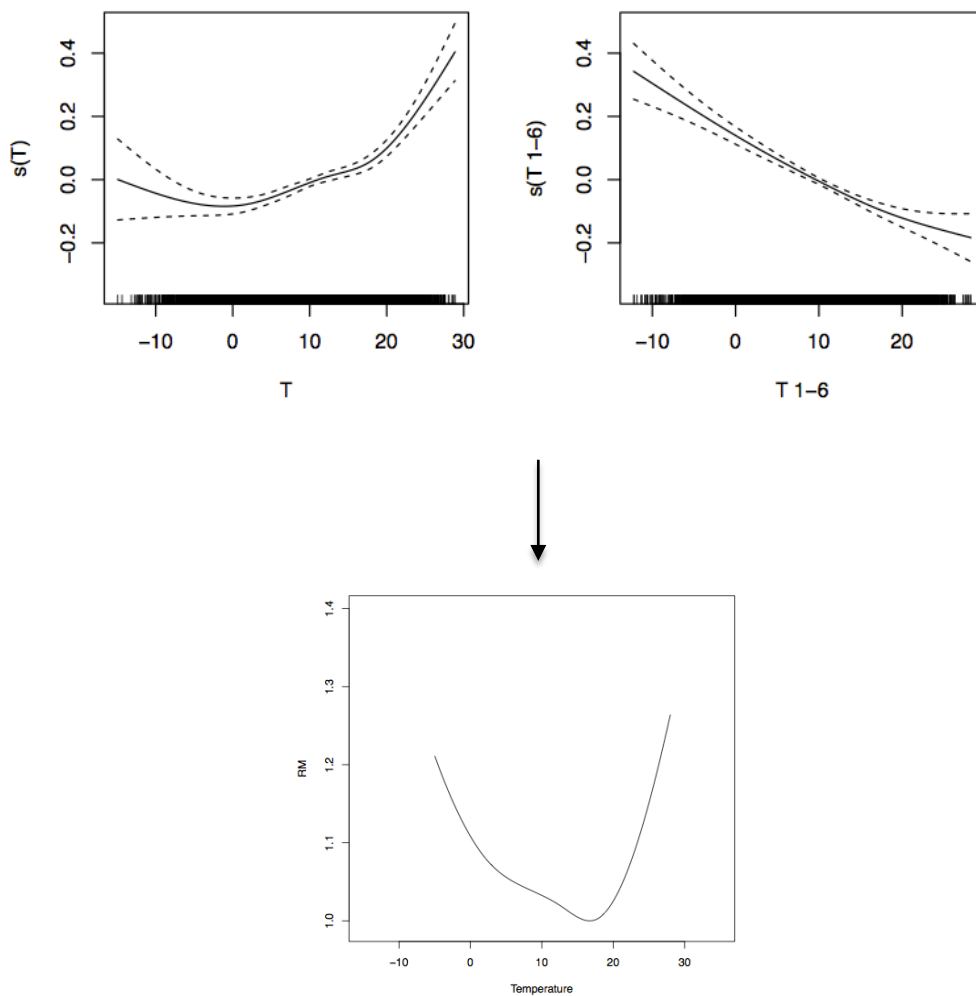


**Figure S1.** Comparison of MMT obtained with 1 and 2 df/y for  $s(t)$  for the 211 squares with  $> 7,500$  deaths and a U/J-shaped curve for all three periods. The full line figures the equality between the MMT estimates.

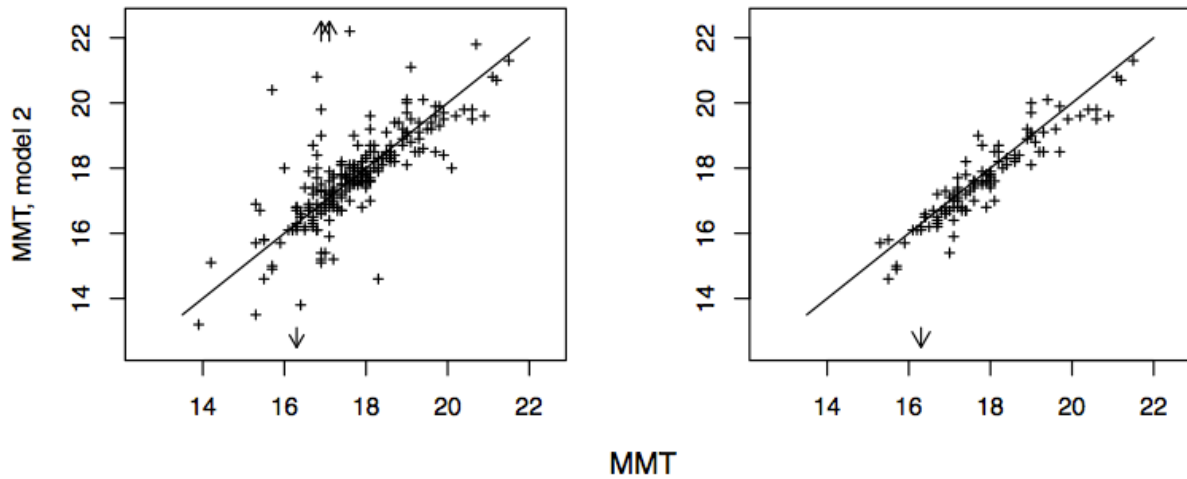
## Model 2: 4df/y and lagged temperature

In model 2, the possible lagged effects of temperature on mortality was adjusted for each square. The effects of  $T_t$  (temperature of the day) and  $T_{t-1;t-6}$  (mean temperature over the past 6 days) were modelled separately.

One example of the estimation of the temperature-mortality relationship is shown on Figure S3.



**Figure S2.** Derivation of the temperature-mortality relation with Model 2 in square 27-17 of the grid. Top panels: left  $s_{1a}(T_t)$ , right  $s_{1b}(T_{t-1;t-6})$ . Bottom panel: the final temperature-mortality curve  $(s_{1a}(T)+s_{1b}(T))/(s_{1a}(MMT)+s_{1b}(MMT))$ .



**Figure S3.** Comparison of MMT estimates obtained with Model 2 (4df/year + lagged effect of temperature) with those presented in the paper. Two separate analyses were done: The left panel presents the results obtained on the squares with > 22,500 deaths and U/J curves (n=225 ). The right panel presents the results obtained on the squares with > 50,000 deaths and U/J squares (n=107 ) 107 U/J curves.