

Supplemental Information for:

**Carbonaceous aerosol source apportionment using the aethalometer model-Evaluation by radiocarbon and levoglucosan analysis at a rural background site in southern Sweden**

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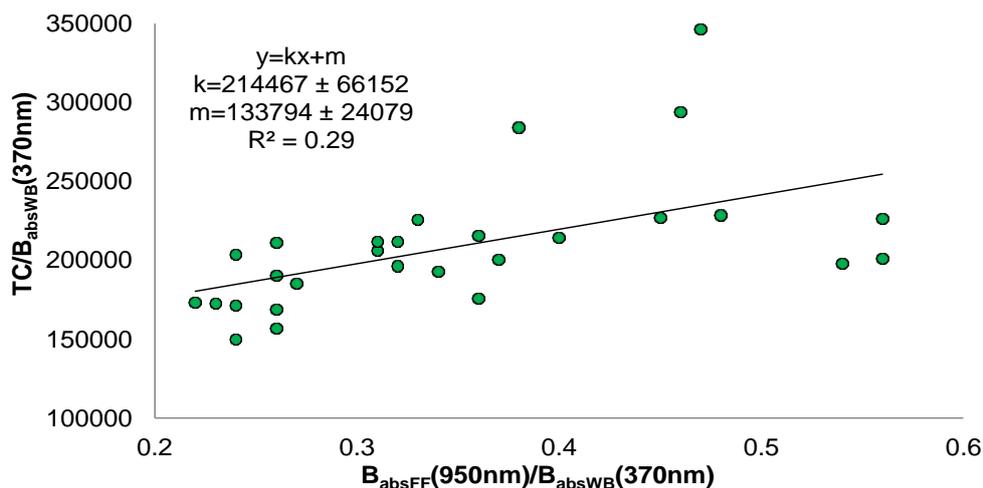


Figure S1. Linear regression model fit derived from Eq. 10. The slope ( $k$ ) equals the  $C_1$  parameter. Only winter data are used. One outlier has been detected with the Grubbs test and hence removed.

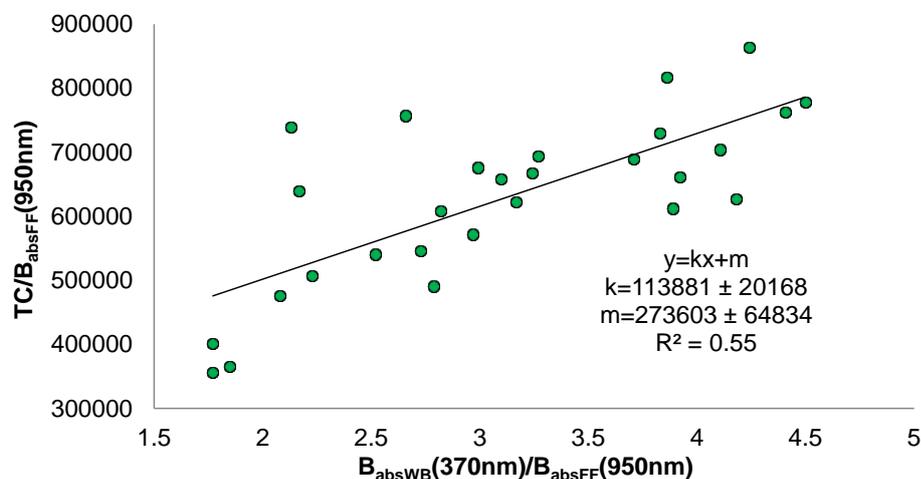


Figure S2. Linear regression model fit derived from Eq. 11. The slope ( $k$ ) equals the  $C_2$  parameter. Only winter data are used. One outlier has been detected with the Grubbs test and hence removed.

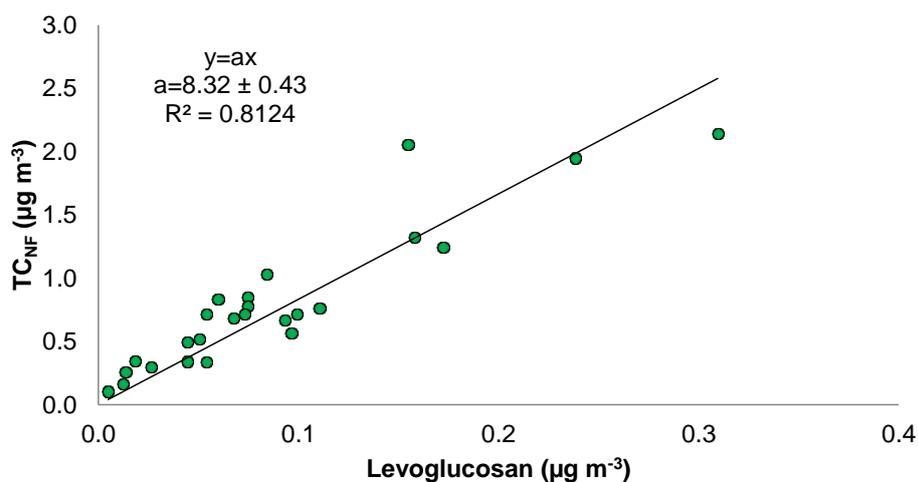


Figure S3. Linear regression model fit between total carbon non-fossil ( $TC_{NF}$ ) and levoglucosan. The model fit is forced through origin. The slope ( $a$ ) is used in Eq. 18. Only winter data are used.

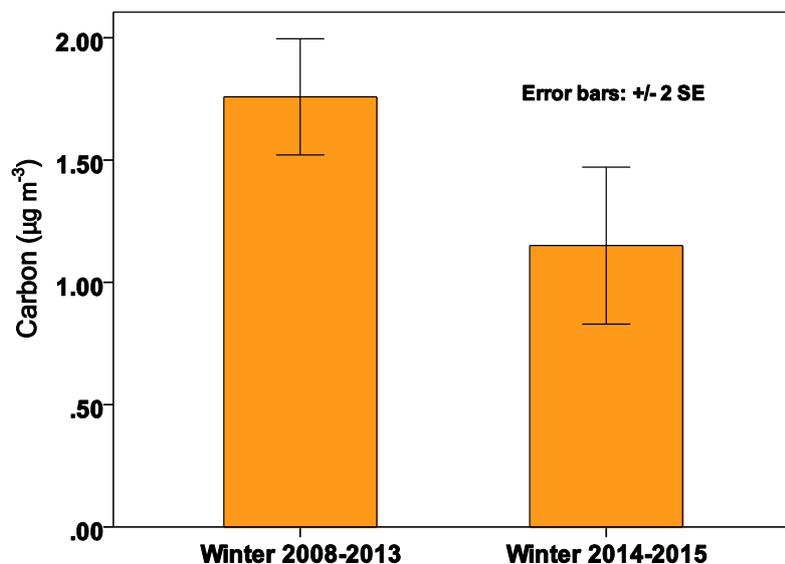


Figure S4. Measured total carbon at Vavihill measurement station the winters (December-February) of 2008-2013 and 2014-2015. Error bars display 2 times standard error of the mean.

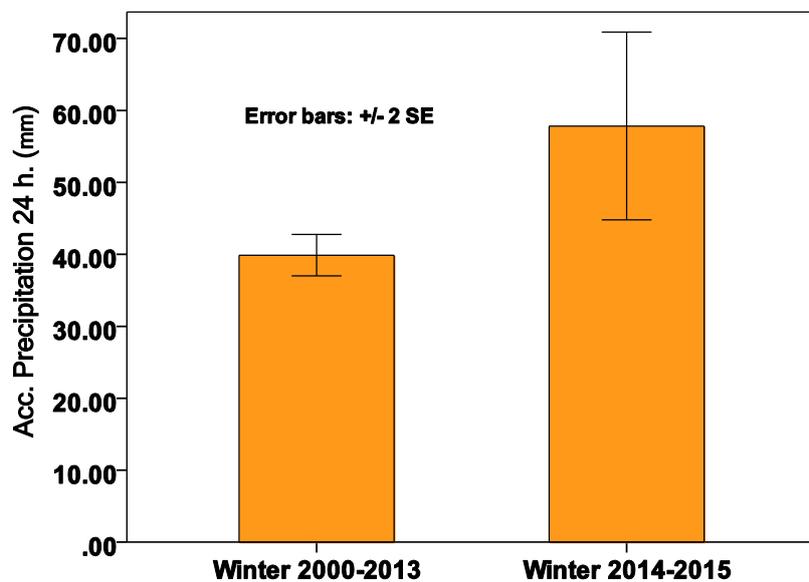


Figure S5. Accumulated precipitation the last 24 h before air mass arrival at Vavihill measurement station the winters (December-February) of 2008-2013 and 2014-2015. Error bars display 2 times standard error of the mean.

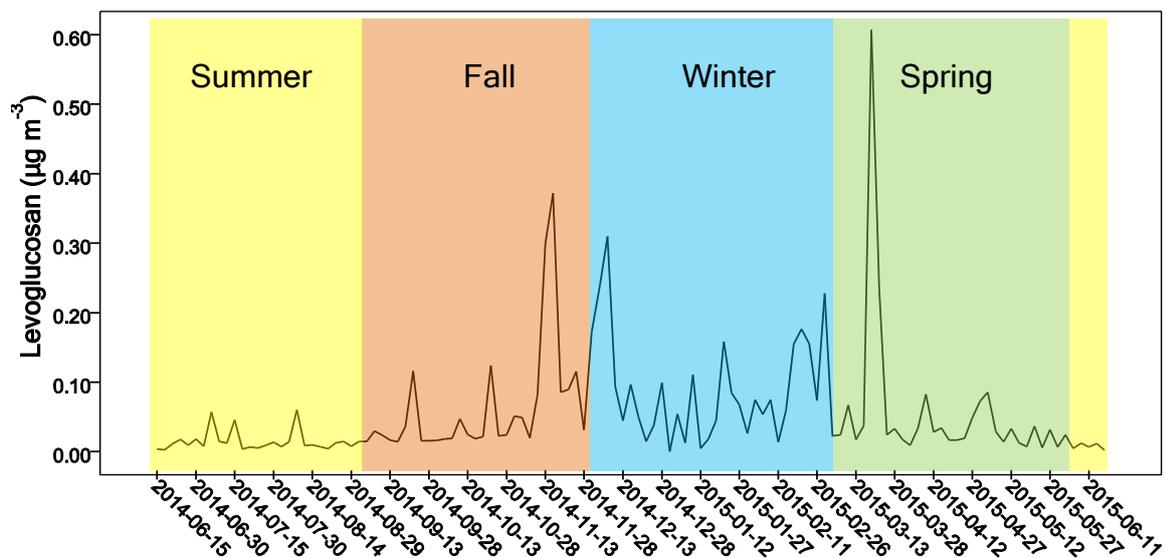


Figure S6. Levoglucosan concentrations in aerosols collected at Vavihill measurement station (N=122) June 2014-June 2015. Colors represent different seasons.

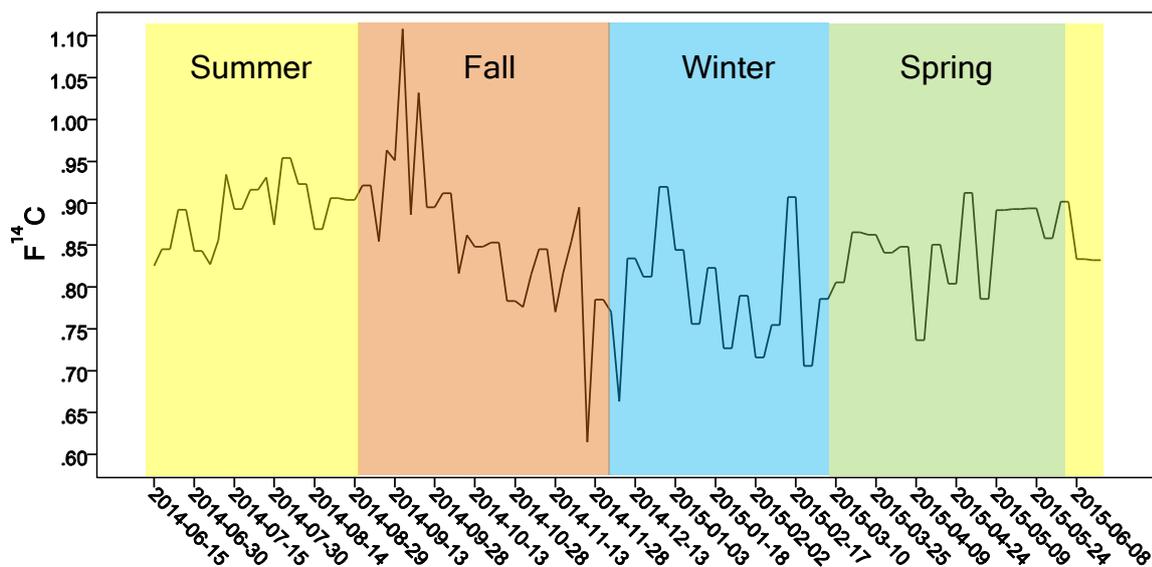


Figure S7. Radiocarbon concentration in aerosols, expressed as fraction modern carbon,  $F^{14}\text{C}$ , for 119 aerosol filter samples collected at Vavihill measurement station June 2014-June 2015. Colors represent different seasons.