Supplementary information

Modelling of atmospheric concentrations of fungal spores: a two-year simulation over France using CHIMERE.

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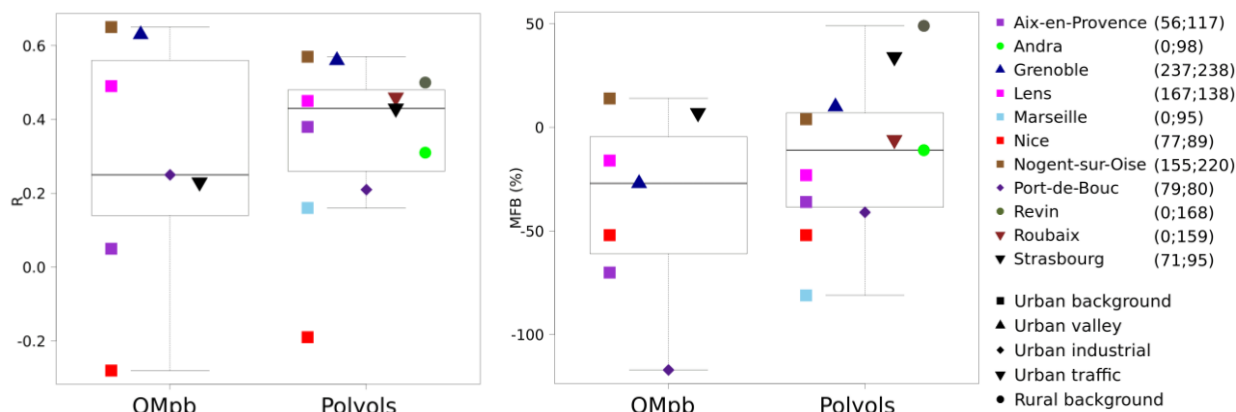
Figure S1 : Comparisons of simulated daily mean concentrations of fungal spore OA to OM from PMF primary biogenic factor (OMpb) and polyols measurements (sum of mannitol and arabitol). Biannual mean correlation and mean fractional bias (MFB) are respectively illustrated at left and right side. Ranges between minimal and maximal values, and medians for respectively 7 and 11 sites. The number of daily data for OMpb and polyols are noted next to the station list out of a total of respectively 842 and 1,497 monthly data.
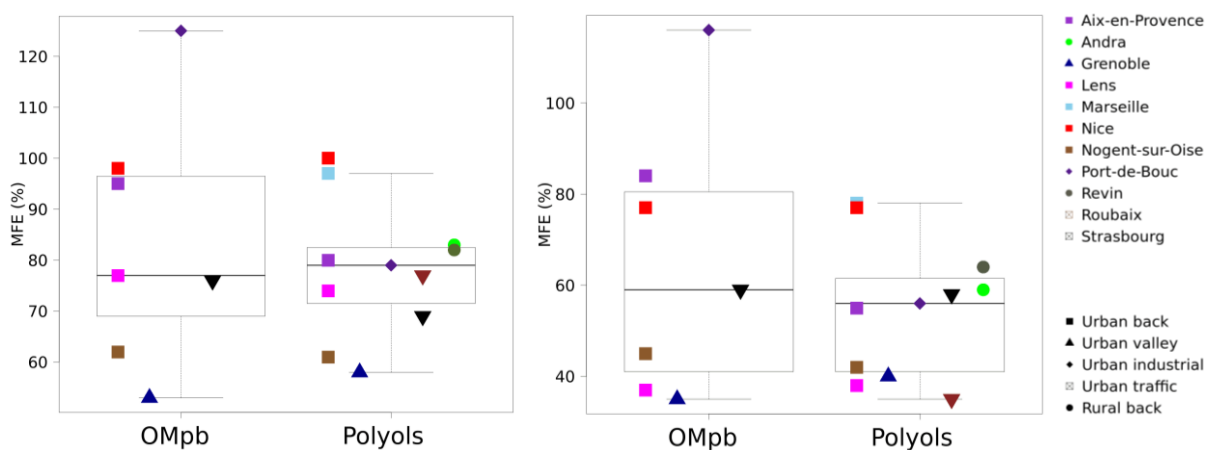
Figure S2 : Comparisons of simulated concentrations of fungal spore OA to OM from PMF primary biogenic factor (OMpb) and polyols measurements (sum of mannitol and arabitol). Biannual mean fractional error (MFE) on daily and monthly data are respectively illustrated at left and right side. Ranges between minimal and maximal values, and medians for respectively 7 and 11 sites.

Table S1 : Correlations (Pearson R), Mean fractional bias (MFB), Mean fractional error (MFE) and Root mean square error (RMSE) of biannual comparisons between modelling and measurements using daily and monthly mean data for polyols and OM. The scores concern all the stations, only the stations in the north and east of France + Grenoble (NE French sites) and the Mediterranean stations (Med. French sites).

Stat	Species	All sites	NE French sites	Med. French sites
Pearson R	Polyols daily	**+0.43** (-0.19, +0.57) [11]	**+0.46** (+0.31, +0.57) [7]	**+0.19** (-0.19, +0.38) [4]
	Polyols monthly	**+0.60** (-0.51, +0.81) [11]	**+0.78** (+0.52, +0.81) [7]	**+0.12** (-0.51, +0.53) [4]
	OMpb daily	**+0.25** (-0.28, +0.65) [7]	**+0.56** (+0.23, +0.65) [4]	**+0.05** (-0.28, +0.25) [3]
	OMpb monthly	**+0.47** (-0.62, +0.83) [7]	**+0.80** (+0.47, +0.83) [4]	**-0.26** (-0.62, +0.24) [3]
MFB (%)	Polyols daily	**-11** (-81, +49) [11]	**+4** (-23, +49) [7]	**-47** (-81, -36) [4]
	Polyols monthly	**-11** (-78, +53) [11]	**+5** (-23, +53) [7]	**-46** (-78, -31) [4]
	OMpb daily	**-27** (-17, +14) [7]	**-5** (-27, +14) [4]	**-70** (-117, -52) [3]
	OMpb monthly	**-28** (-116, +22) [7]	**-2** (-28, +22) [4]	**-72** (-116, -72) [3]
MFE (%)	Polyols daily	**79** (58, 100) [11]	**74** (58, 83) [7]	**88** (79, 100) [4]
	Polyols monthly	**56** (35, 78) [11]	**42** (35, 64) [7]	**67** (55, 78) [4]
	OMpb daily	**77** (53, 125) [7]	**69** (53, 77) [4]	**98** (95, 125) [3]
	OMpb monthly	**59** (35, 116) [7]	**41** (35, 59) [4]	**84** (77, 116) [3]
RMSE (µg/m3)	Polyols daily	**0.04** (0.02, 0.06) [11]	**0.04** (0.02, 0.06) [7]	**0.02** (0.02, 0.05) [4]
	Polyols monthly	**0.03** (0.01, 0.04) [11]	**0.03** (0.01, 0.04) [7]	**0.02** (0.02, 0.04) [4]
	OMpb daily	**1.01** (0.63, 1.58) [7]	**0.85** (0.63, 1.23) [4]	**1.16** (1.00, 1.58) [3]
	OMpb monthly	**0.77** (0.26, 1.33) [7]	**0.55** (0.26, 0.77) [4]	**0.91** (0.87, 1.33) [3]
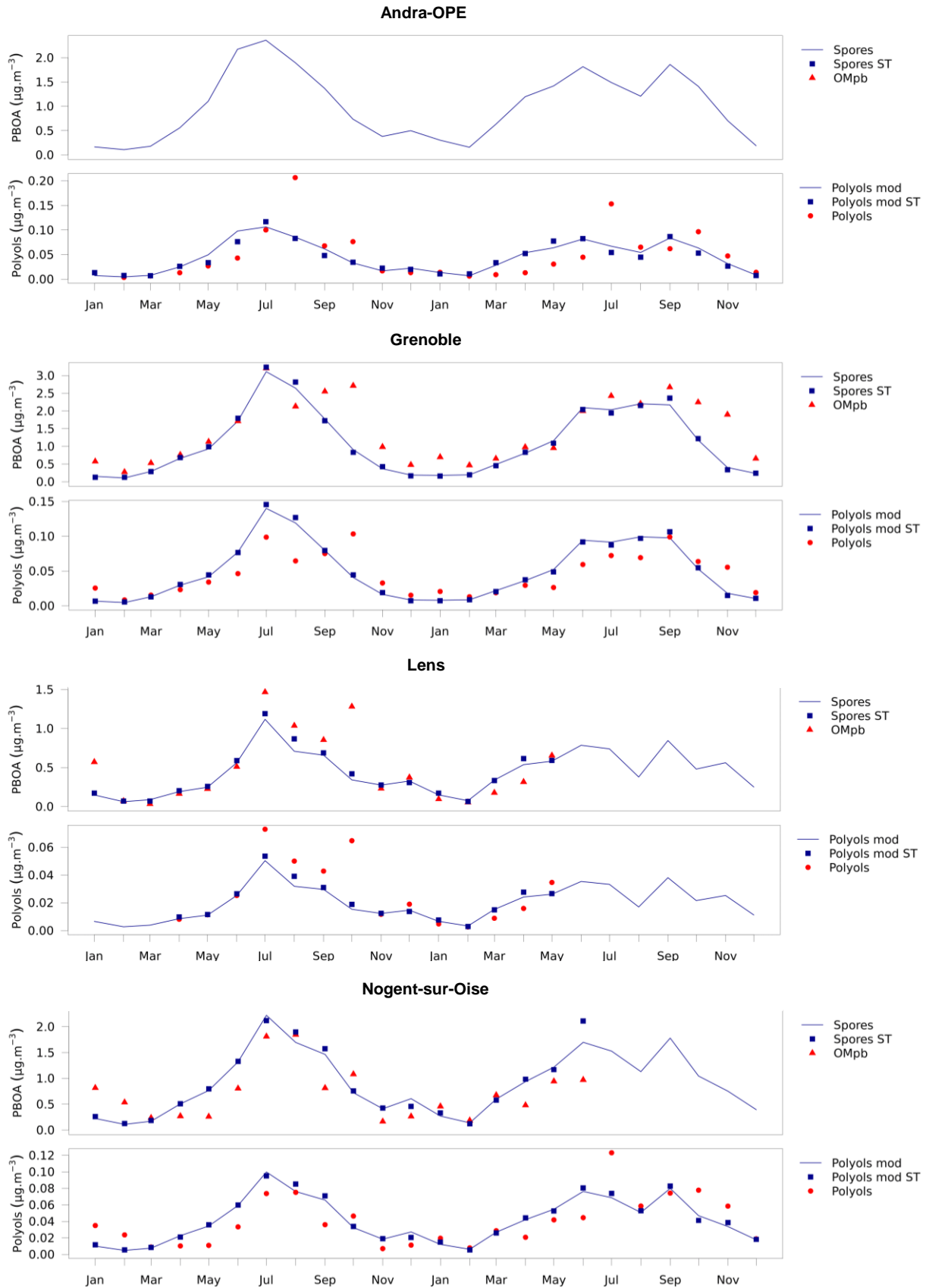
Figure S3 : Monthly PBOA and polyol concentrations over 2013 and 2014 modelled by CHIMERE (blue line), measured at the sites (red dots) and modelled by CHIMERE using the same timebase as the measurements (blue squares). The simulated values by CHIMERE have been derived by using a 4.5 % conversion factor between fungal spore OA and sum of polyols. Only the first 4 sites in Northern and Eastern France (NE), along with Grenoble (Andra-OPE, Grenoble, Lens, Nogent-sur-Oise).
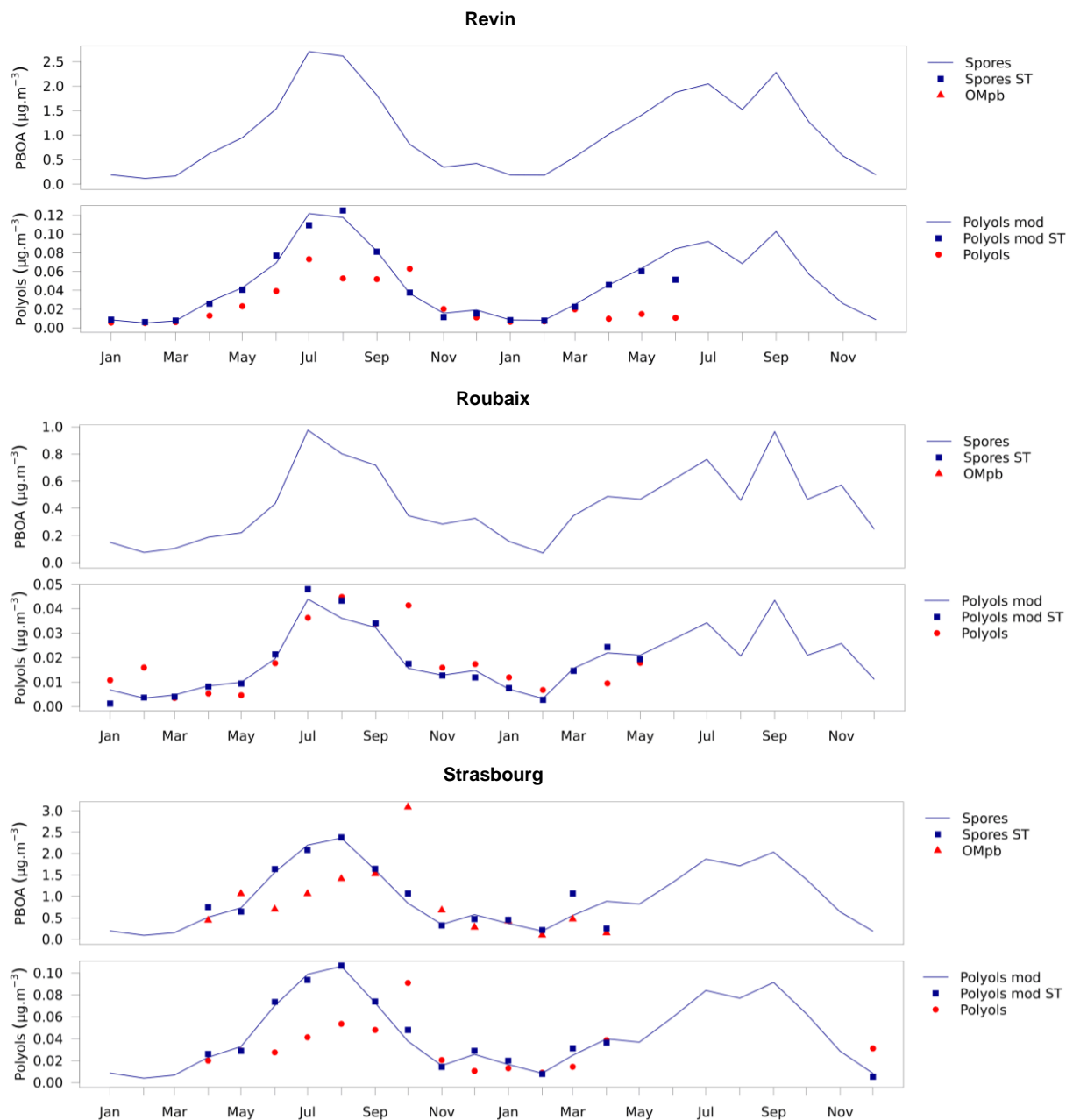
Figure S4 : Monthly PBOA and polyol concentrations over 2013 and 2014 modelled by CHIMERE (blue line), measured at the sites (red dots) and modelled by CHIMERE using the same timebase as the measurements (blue squares). The simulated values by CHIMERE have been derived by using a 4.5 % conversion factor between fungal spore OA and sum of polyols. Only the last sites in Northern and Eastern France (NE) (Revin, Roubaix, Strasbourg).
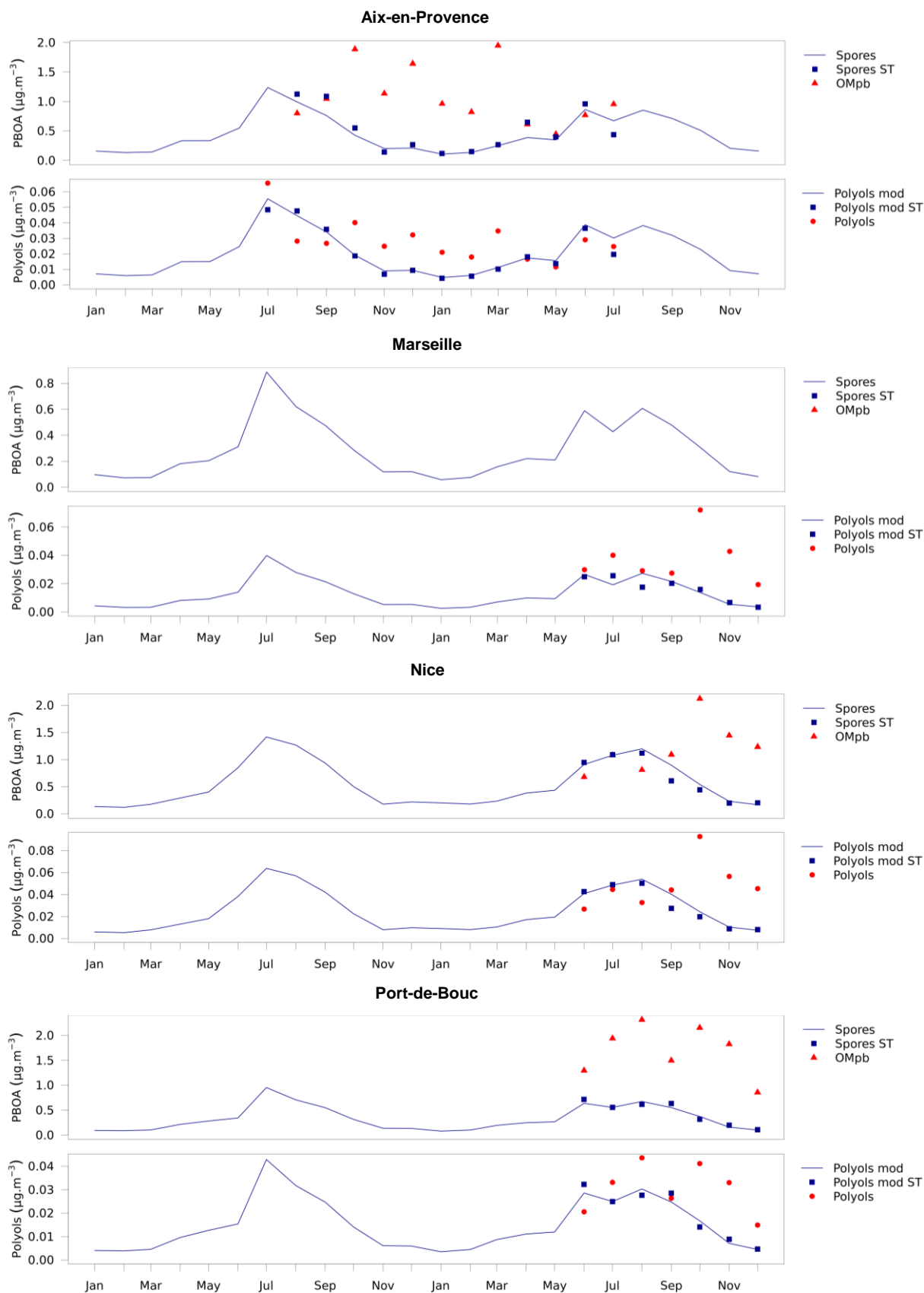
Figure S5 : Monthly PBOA and polyol concentrations over 2013 and 2014 modelled by CHIMERE (blue line), measured at the sites (red dots) and modelled by CHIMERE using the same timebase as the measurements (blue squares). The simulated values by CHIMERE have been derived by using a 4.5 % conversion factor between fungal spore OA and sum of polyols. Only the 4 Mediterranean sites (Med.) (Aix-en-Provence, Marseille, Nice, Port-de-Bouc).