

Supplementary Material

Contribution of volcanic and fumarolic emission to the aerosol in marine atmosphere in the central Mediterranean Sea: Results from Med-Oceanor 2017 cruise campaign

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Table S1 Percentage chemical composition of PM₁₀ and PM_{2.5} in each sampling site.

PM₁₀												
	Acireale	Acicastello	Marsili	Ischia	Phlegrean Fields (1)	Phlegrean Fields (2)	Stromboli (1)	Stromboli (2)	Stromboli (3)	Panarea	Vulcano (1)	Vulcano (2)
OM+EC	20.9	25.3	25.3	30.7	38.3	30.8	26.4	24.4	36.3	26.4	22.5	19.1
SIA	16.7	19.8	14.7	14.6	15.2	21.3	22.2	26.3	24.4	21.3	24.9	17.1
SS	6.8	14.5	6.5	6.6	8.6	10.5	4.8	3.7	3.8	3.1	4.2	23.7
Dust	44.7	34.0	35.5	36.9	14.4	13.7	21.9	26.3	22.5	41.8	19.5	7.5
Traces	0.7	1.0	1.1	1.6	1.1	1.2	1.1	0.5	1.0	1.1	0.7	0.6

PM_{2.5}									
	Acicastello	Marsili	Ischia	Phlegrean Fields (1)	Phlegrean Fields (2)	Stromboli (1)	Stromboli (2)	Stromboli (3)	Vulcano (1)
OM+EC	29.4	29.2	26.6	56.2	38.6	31.6	32.5	44.4	28.9
SIA	17.1	16.3	17.6	16.9	24.5	27.2	39.2	32.0	31.6
SS	7.0	10.7	2.5	3.8	3.8	1.8	4.4	2.5	1.9
Dust	35.3	32.9	34.4	5.8	6.4	13.8	13.4	9.1	7.4
Traces	1.1	1.2	1.2	1.4	1.6	1.3	1.2	1.0	0.7

Figure S1 Hourly mean meteorological data; Temperature and Pressure (up) and wind speed (down).

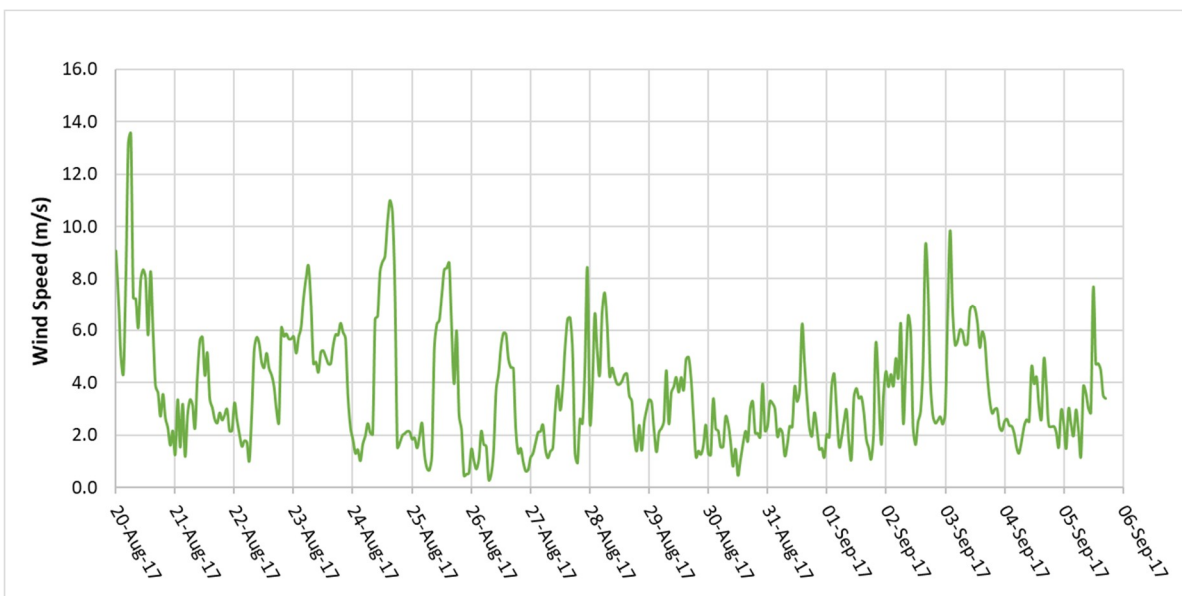
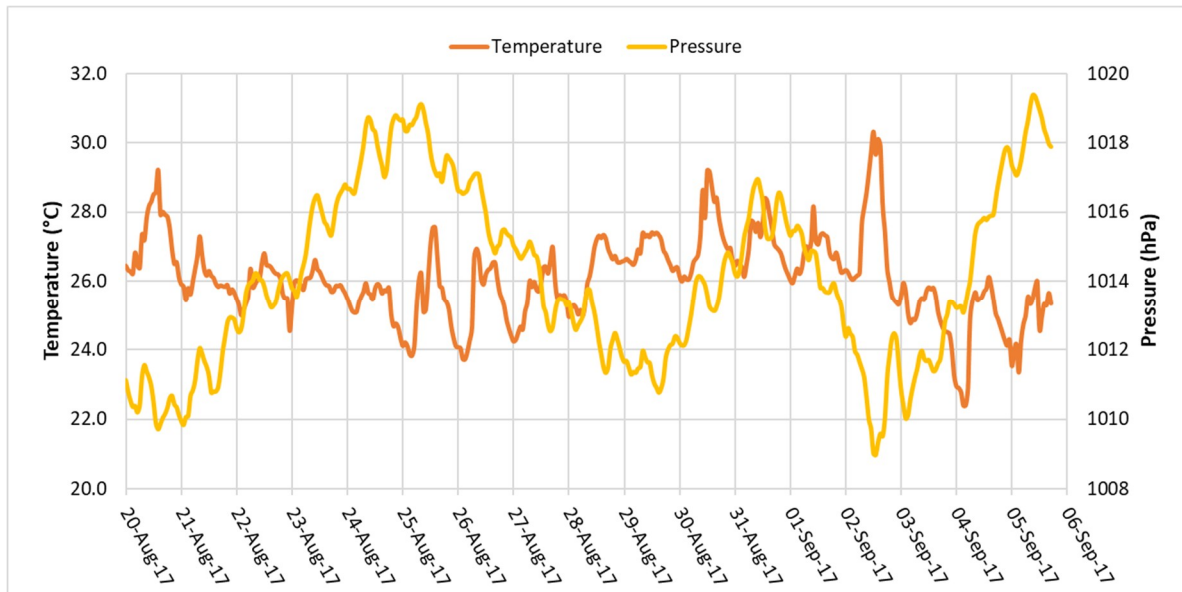


Figure S2: Wind roses for sampling points

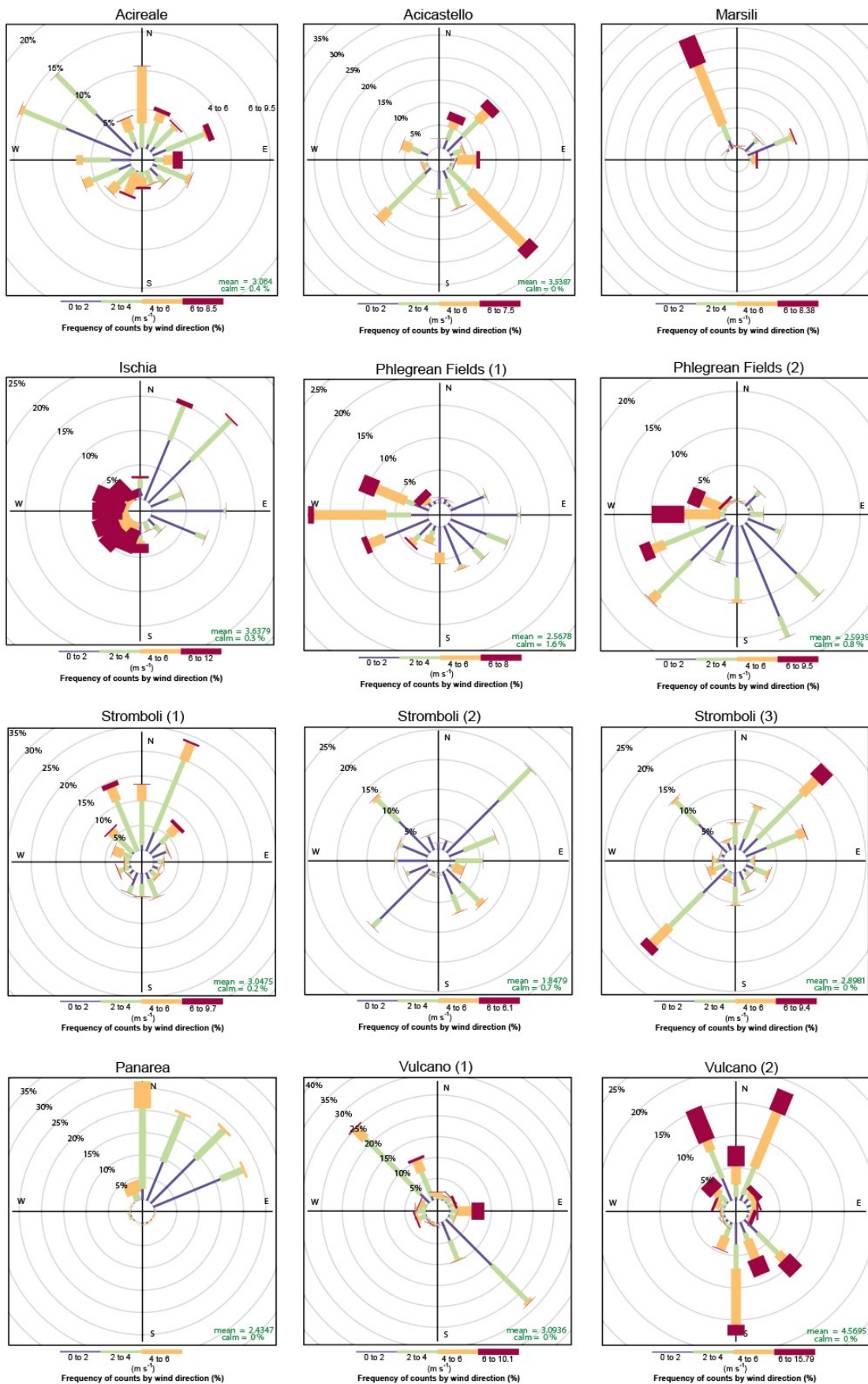


Figure S3 NCEP/NCAR reanalysis maps (mean and anomaly) of the period from the start of the campaign to August 31st (up) and September 2nd (down)

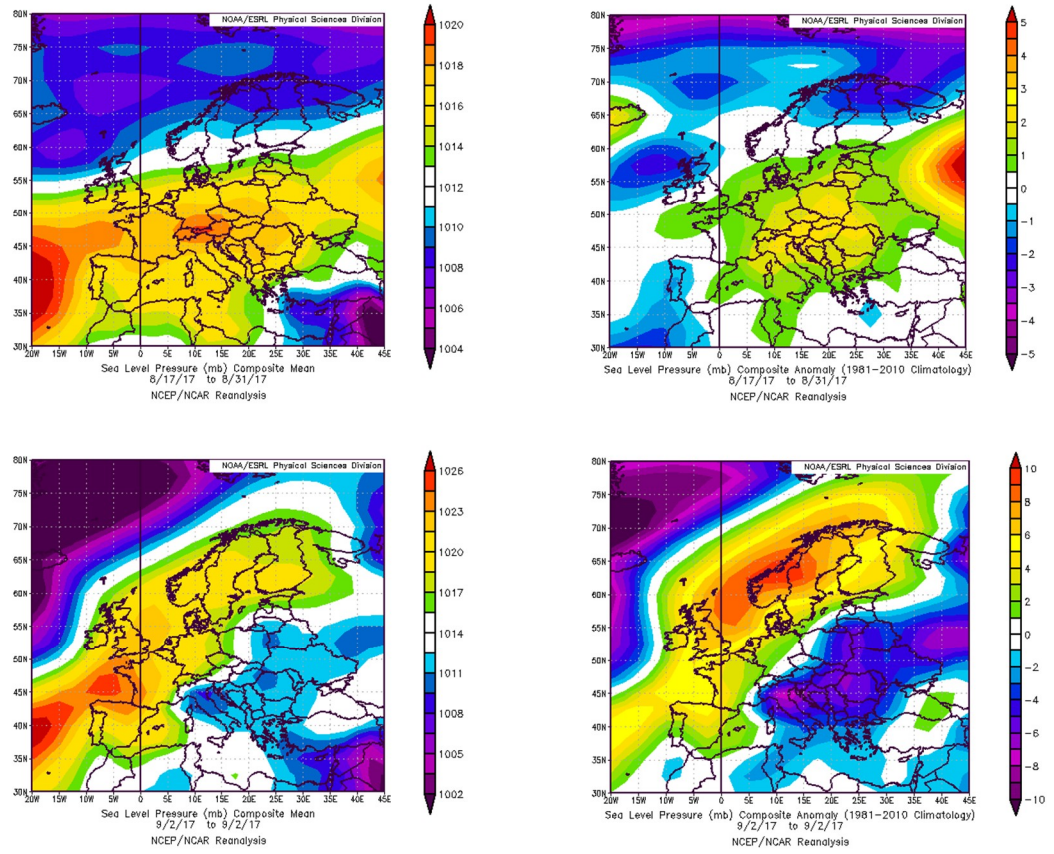


Figure S4 Acireale maps NAAPS, air mass back trajectory and BSC-Dream.

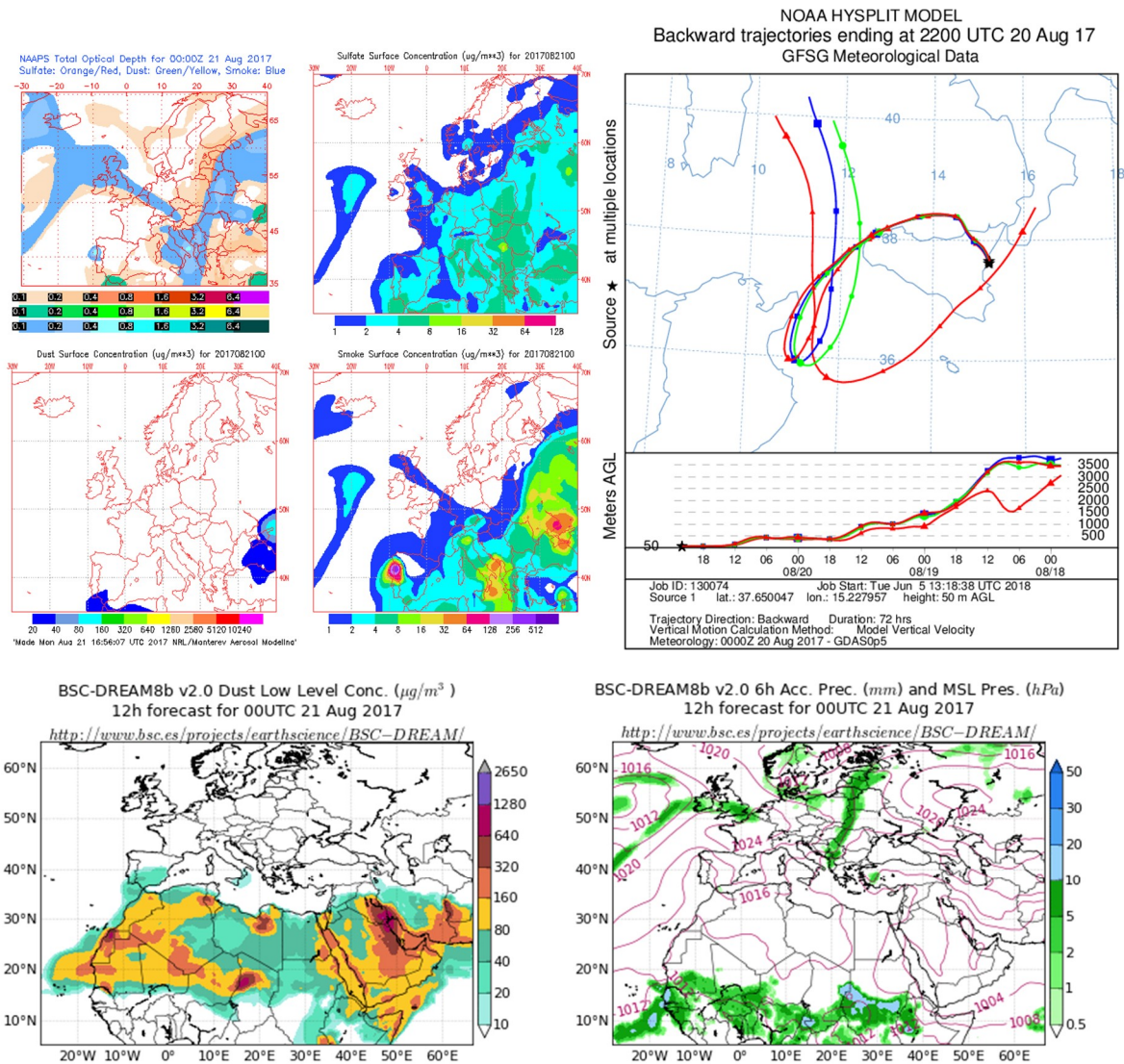


Figure S5: Time series plot of SO₂ for each of the sampling sites; Y-axis: concentration (ppb), X-axis: sampling time (hours)

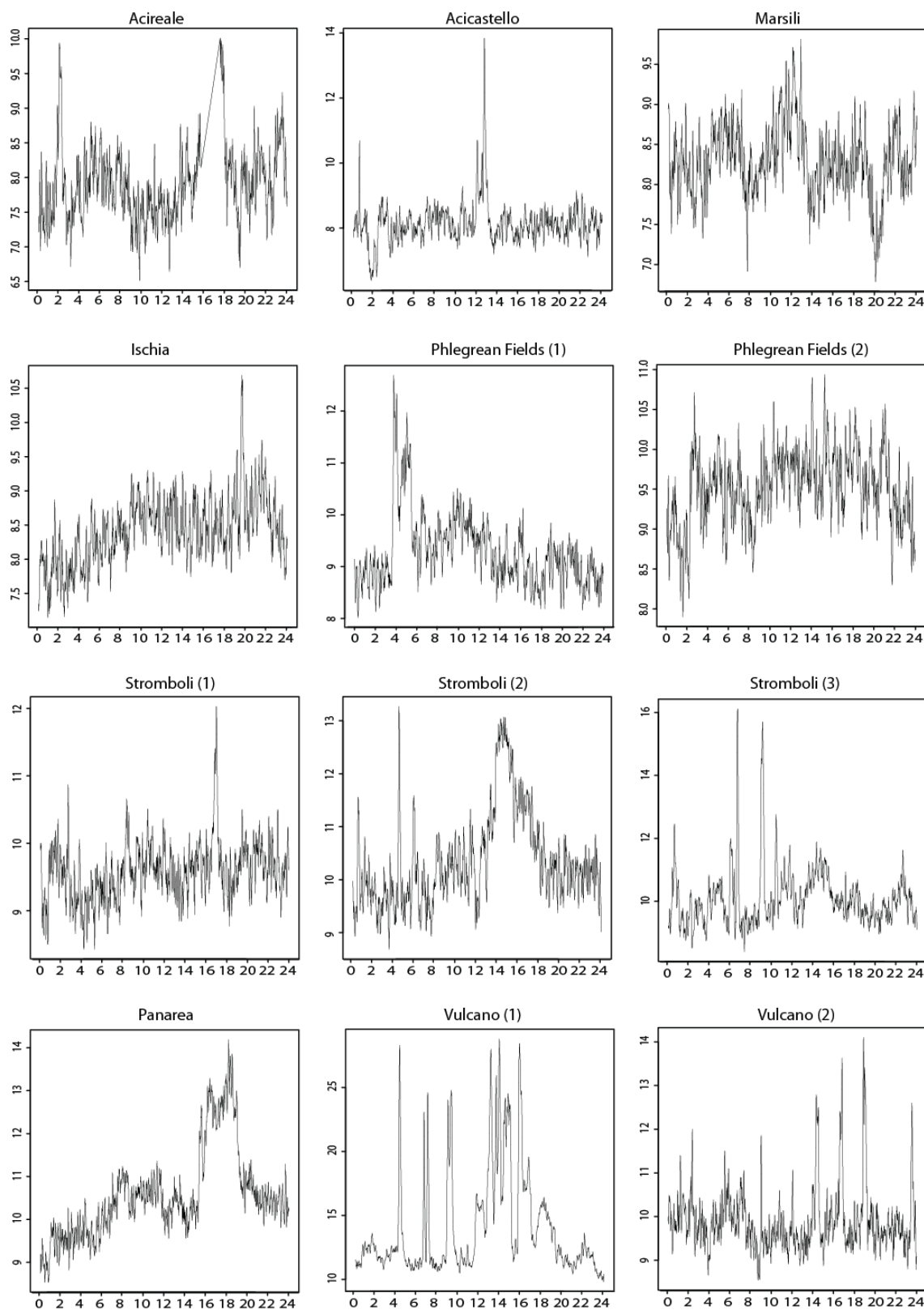


Figure S6 Enrichment Factors for Etna (Acicastello sample) and Stromboli (Stromboli (3) sample). Dashed lines highlight thresholds for EFs= 10 and EFs=100

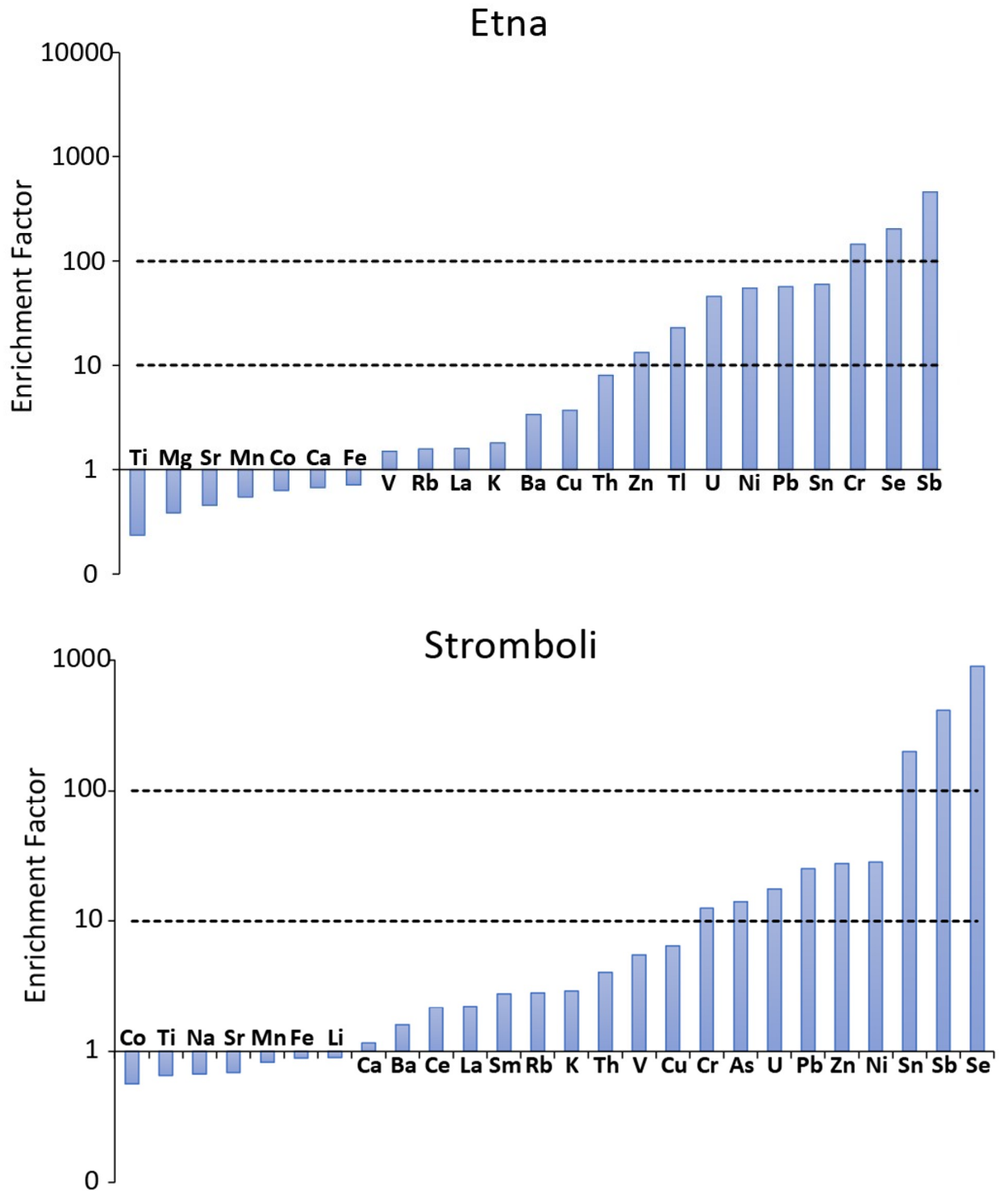


Figure S7 Correlation between SO_2 and nss-SO_4^{2-} (as $\mu\text{g m}^{-3}$) in PM_{10} and $\text{PM}_{2.5}$. The plots (a) and (b) comprise all the sampling points, whereas the Vulcano (2) sample is excluded in (c) and (d) plots the plots.

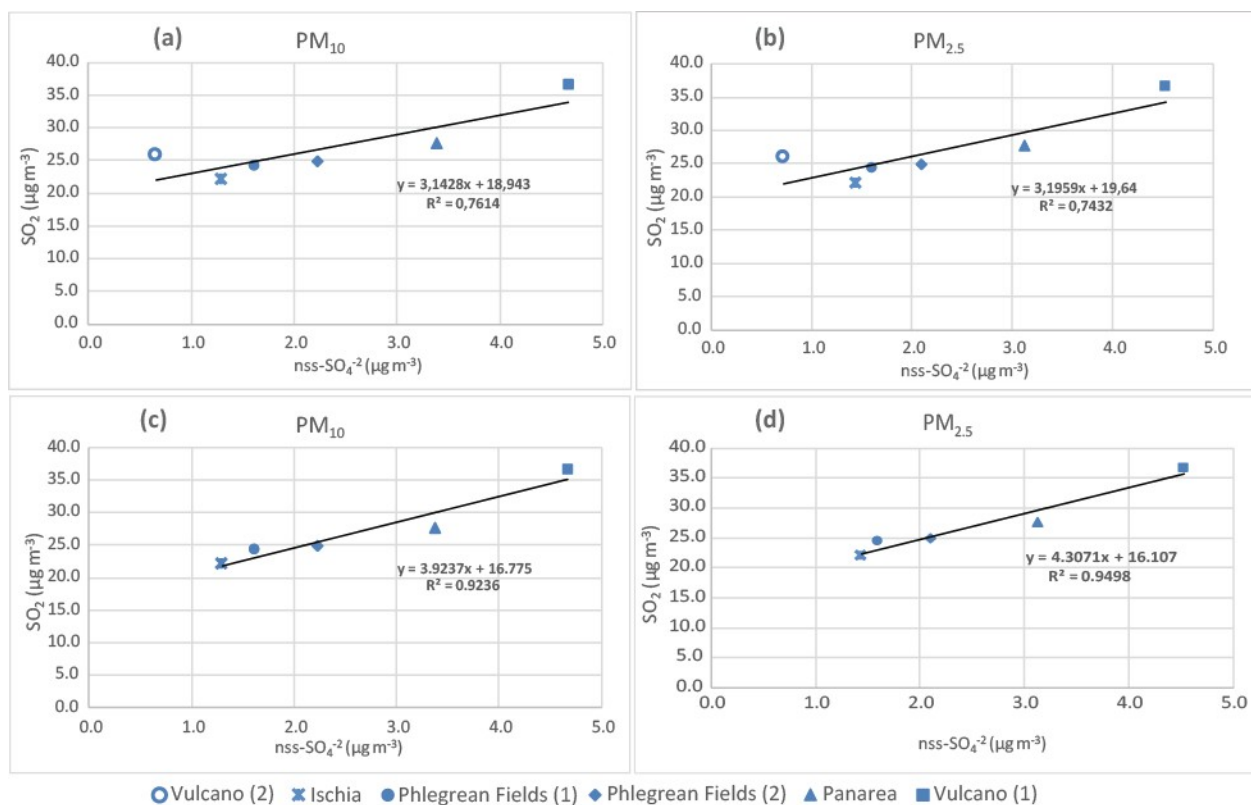


Figure S8. LDA scatterplot for aerosol samples collected in volcanic (Vo) or solfatara (So) sites.

