



Supplement of

Effects of transport on a biomass burning plume from Indochina during EMeRGe-Asia identified by WRF-Chem

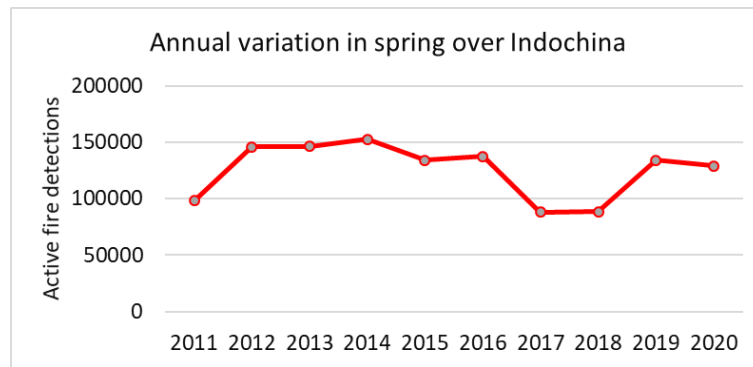
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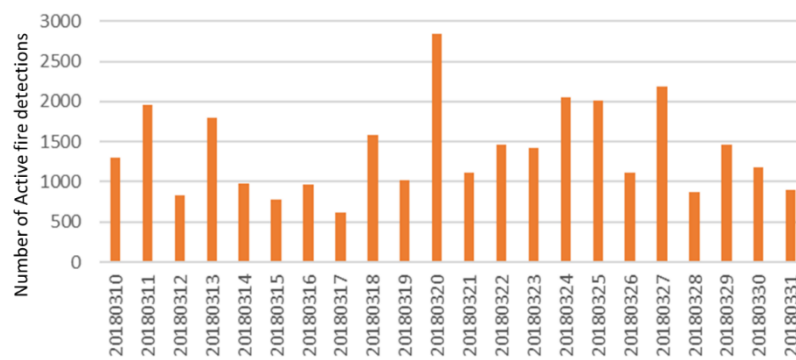
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This file contains five supplementary figures.

(a)



(b)



(c)

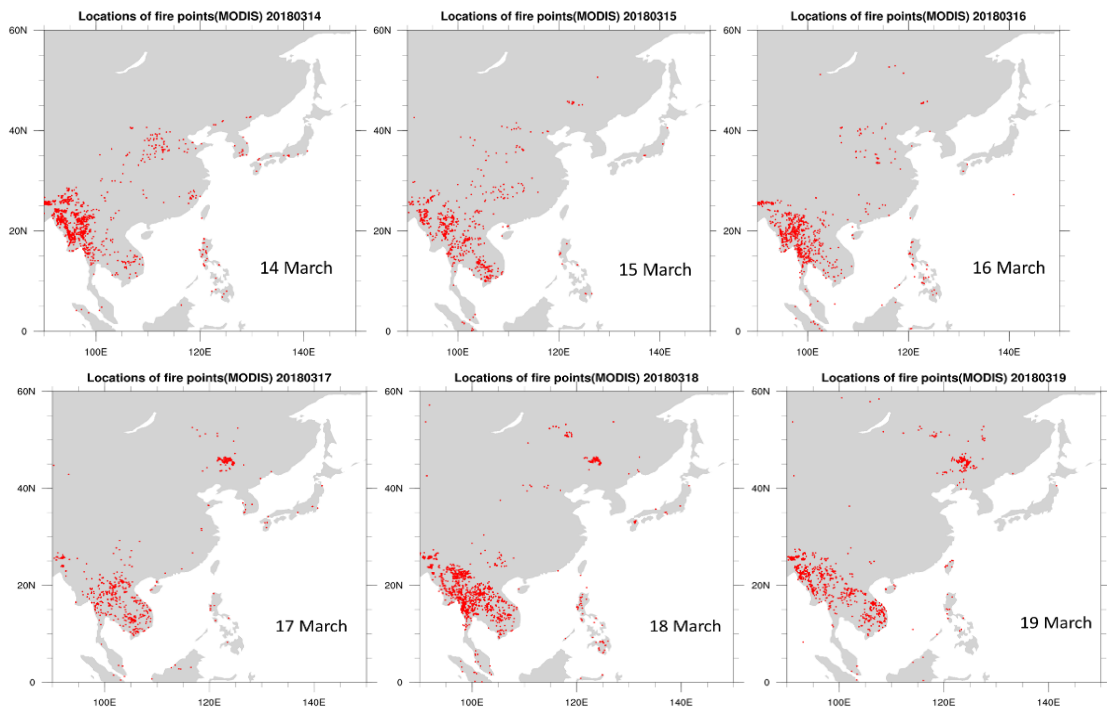


Figure S1: The variation of the number of active fire detections from Terra MODIS satellite over Indochina (10 °N to 23°N, 90°E to 110°E). (a) annual variation in spring (March, April, and May) from 2011 to 2020 (b) daily variation between 10 and 31 March 2018 (c) spatial distribution between 14 and 19 March 2018.

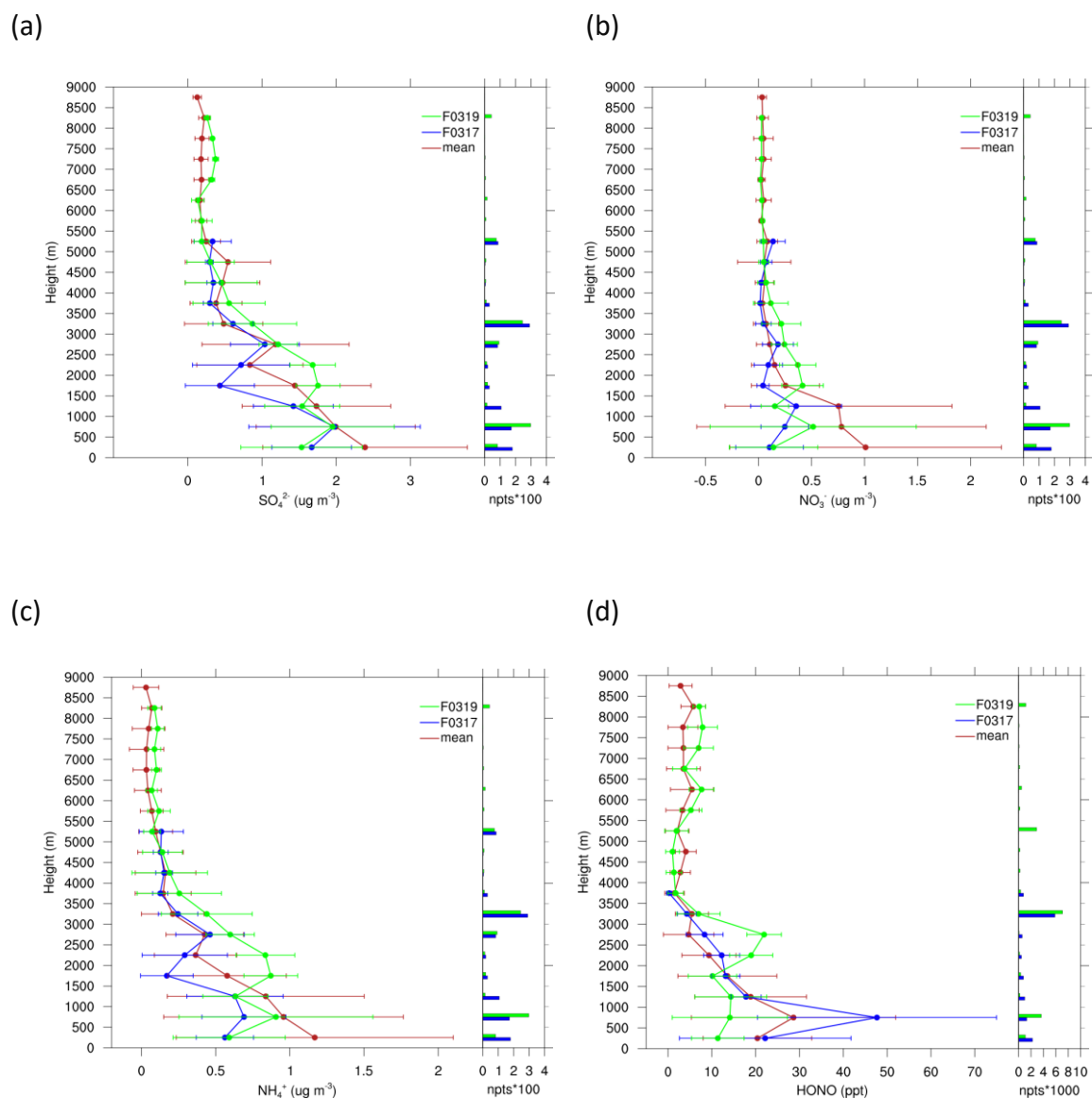


Figure S2 Observed vertical distribution of the concentrations for the mean profiles (red) (including 17, 19, 22, 24, 26, 30 March, and 04 April 2018) and cases on 17 (blue) and 19 (green) March 2018. (a) SO_4^{2-} (b) NO_3^+ (c) NH_4^+ (d) HONO. The number of data points is shown in the right panel.

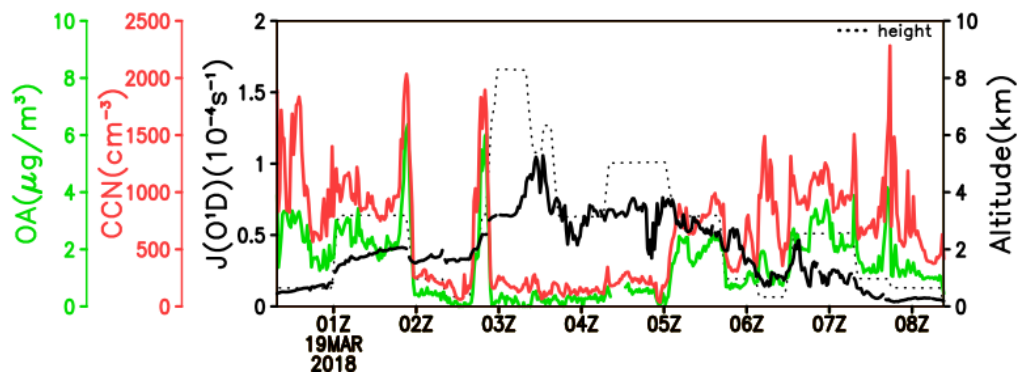


Figure S3 Observed OA concentration ($\mu\text{g}/\text{m}^3$), J value (O^1D) (10^{-4}s^{-1}) (black solid) and CCN number (cm^{-3}) (red) along with the flight altitude (dot) on 19 March 2018.

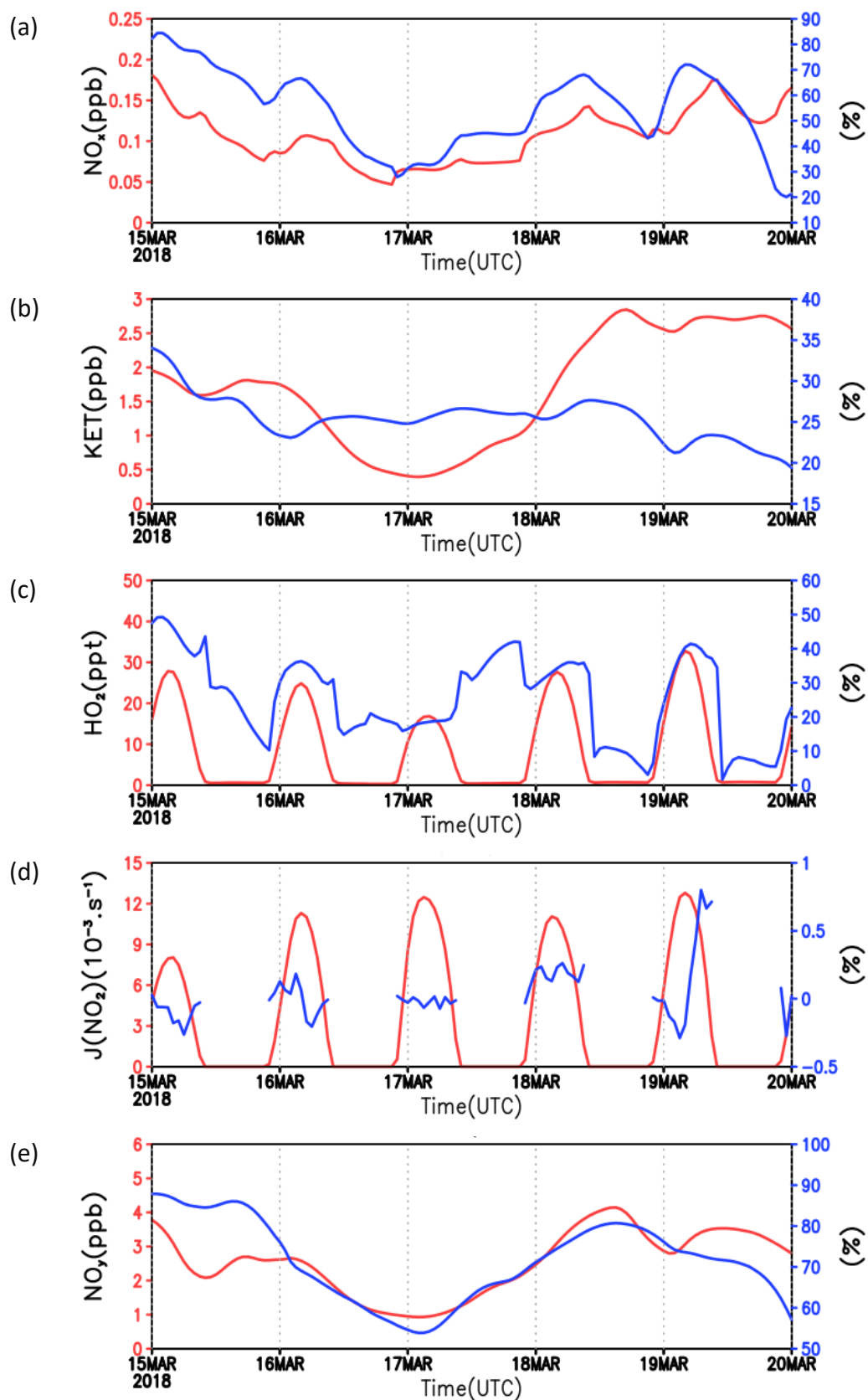
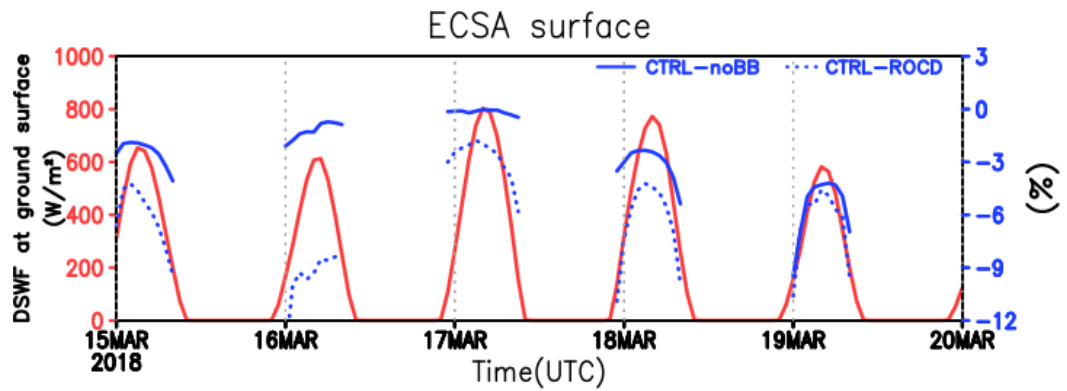


Figure S4 Simulated mean concentration (red) and contributed by BB (%) (blue) between 2 km and 4 km over the region ECSA in Fig.1a during 15-19 March 2018. (a) NO_x (b) KET (ketones) (c) HO_2 (d) $J(\text{NO}_2)$ (e) NO_y .

(a)



(b)

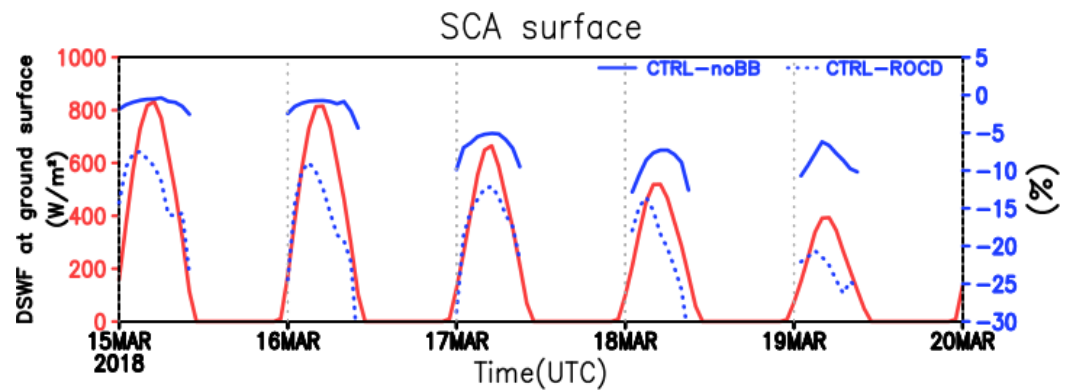


Figure S5 Simulated mean downward short wave flux (DSWF) (red) reduction at ground surface over the regions in Fig. 1a and contributed by BB (% , blue), aerosol indirect effect (% dashed) during 15-19 March 2018. (a) ECSA (b) SCA