Figure S1 (a). Plume masks based on simulated (two columns on the left) and satellite derived (two columns on the right) column amount of SO2 for the 7th to 18th of September 2014.
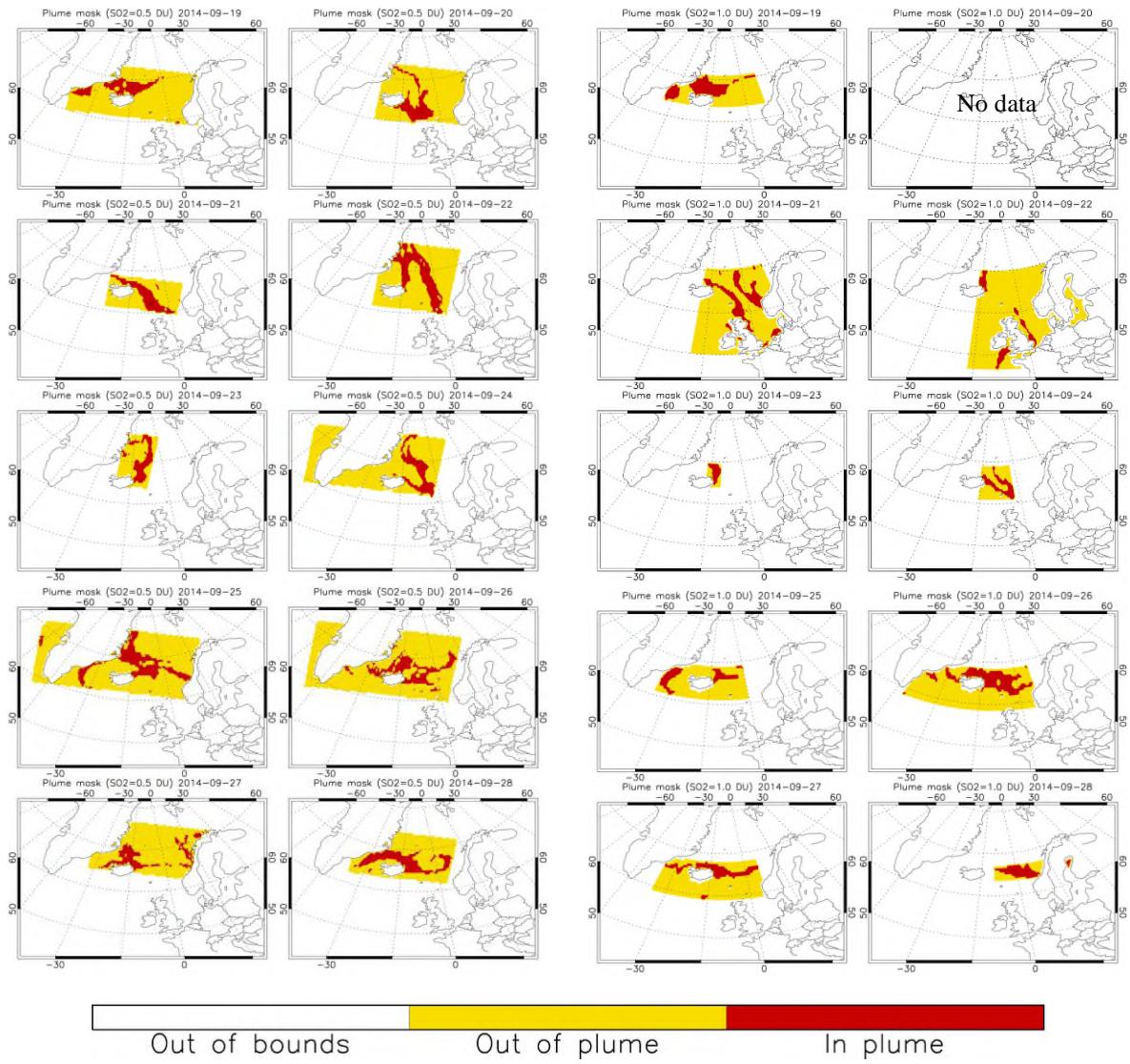
Figure S1 (b). Plume masks based on simulated (two columns on the left) and satellite derived (two columns on the right) column amount of SO2 for the 19th to 28th of September 2014.
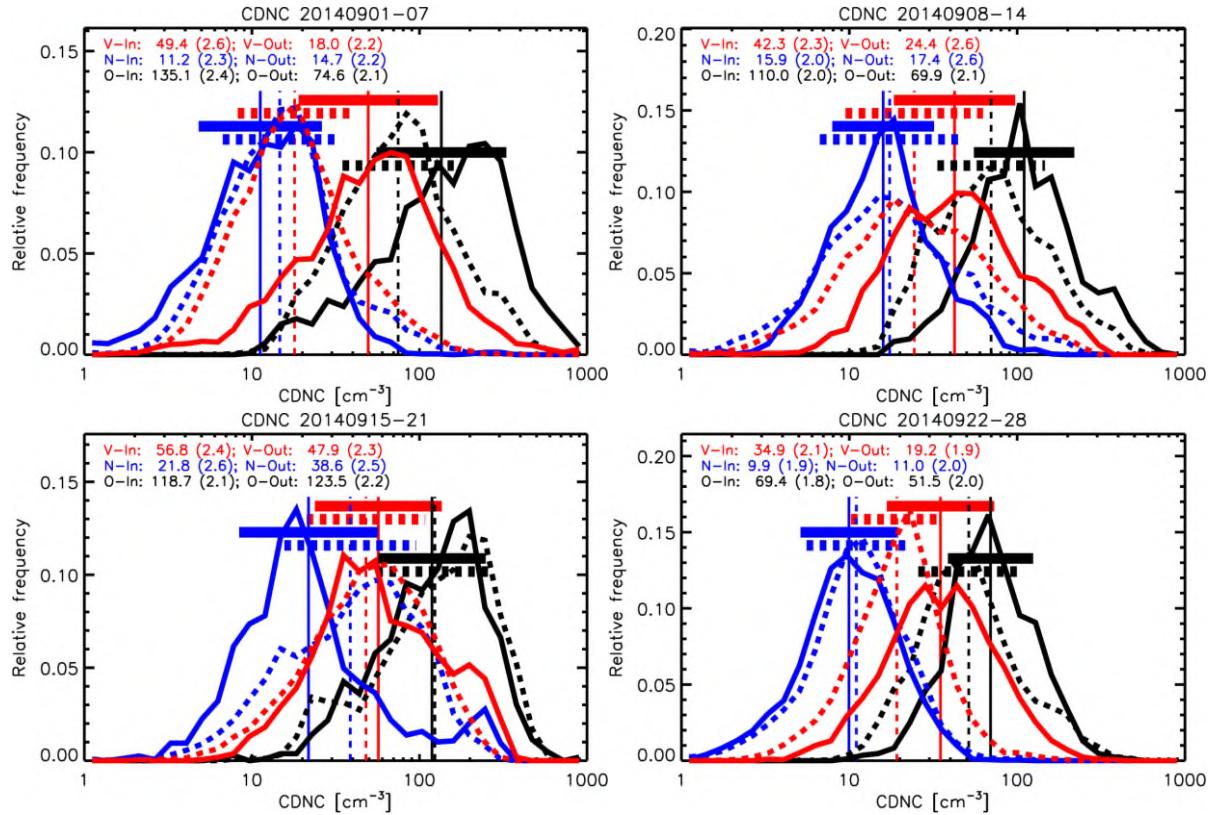
Figure S2. Relative frequency of occurrences of values of CDNC in four 7-day periods in Volc and NoVolc simulations (red and blue, respectively) and satellite observation (black) within (solid lines) and out of (dotted lines) the volcanic plume judged by column SO2 loading.

Vertical lines are placed at the geometric means and horizontal lines show the range of one geometric standard deviation. Within each panel are shown the geometric means and (within parentheses) the standard deviations.
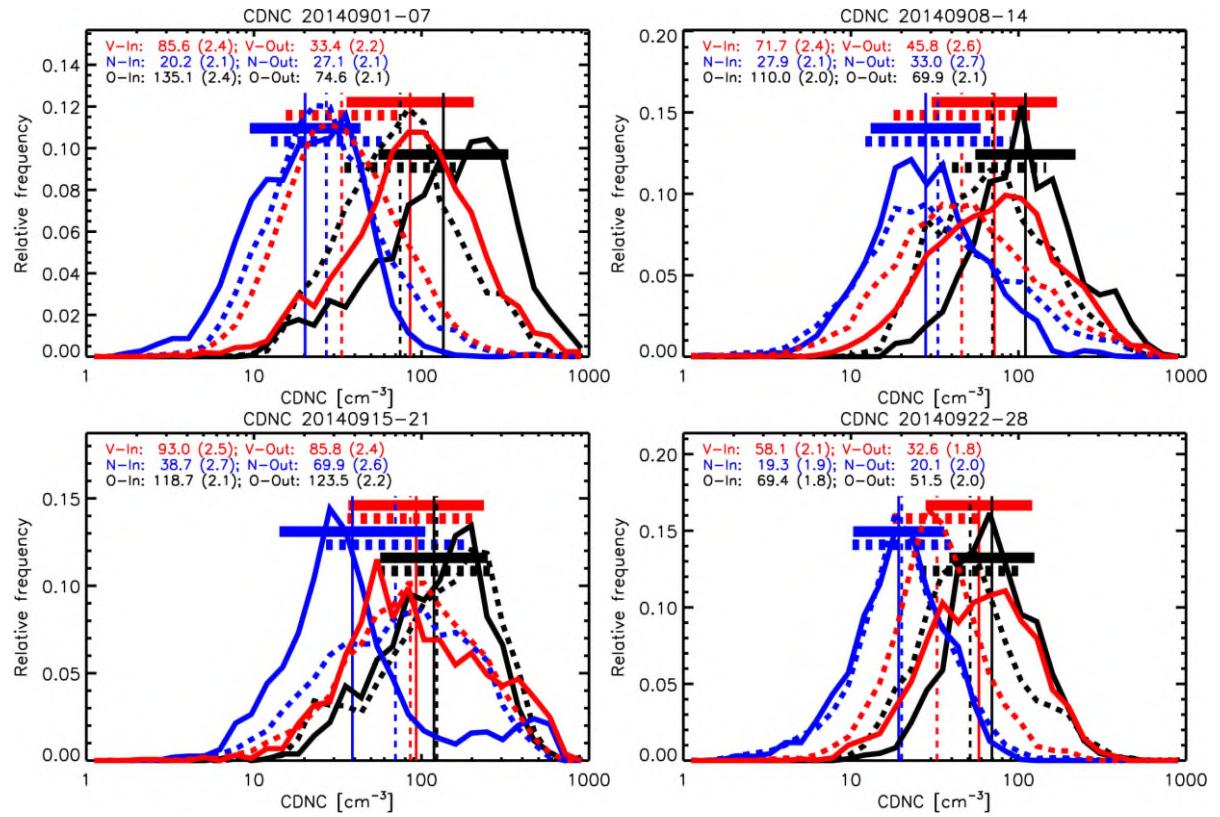
Figure S3. Same as figure S2 but for the simulations with enhanced background aerosols.
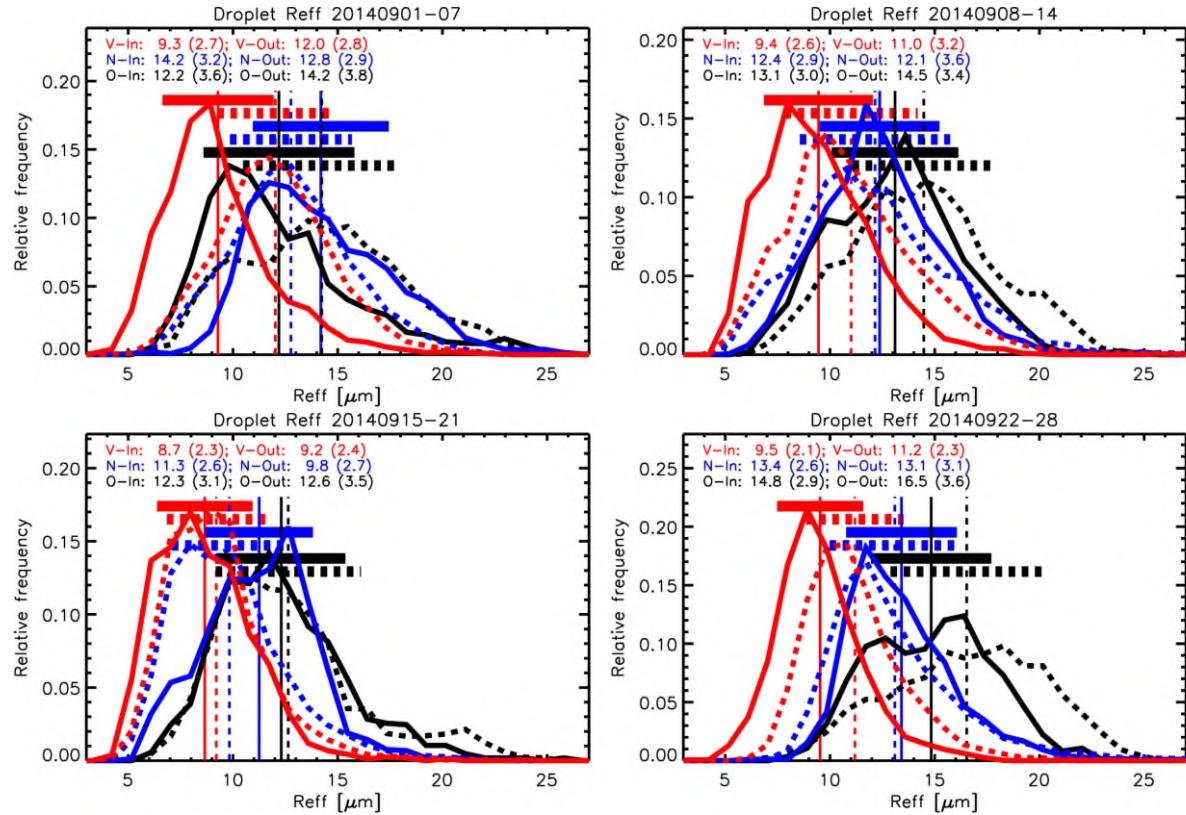
Figure S5. Same as figure S3 but for droplet effective radius. Note that linear horizontal axis is used and arithmetic means and standard deviations are shown here.
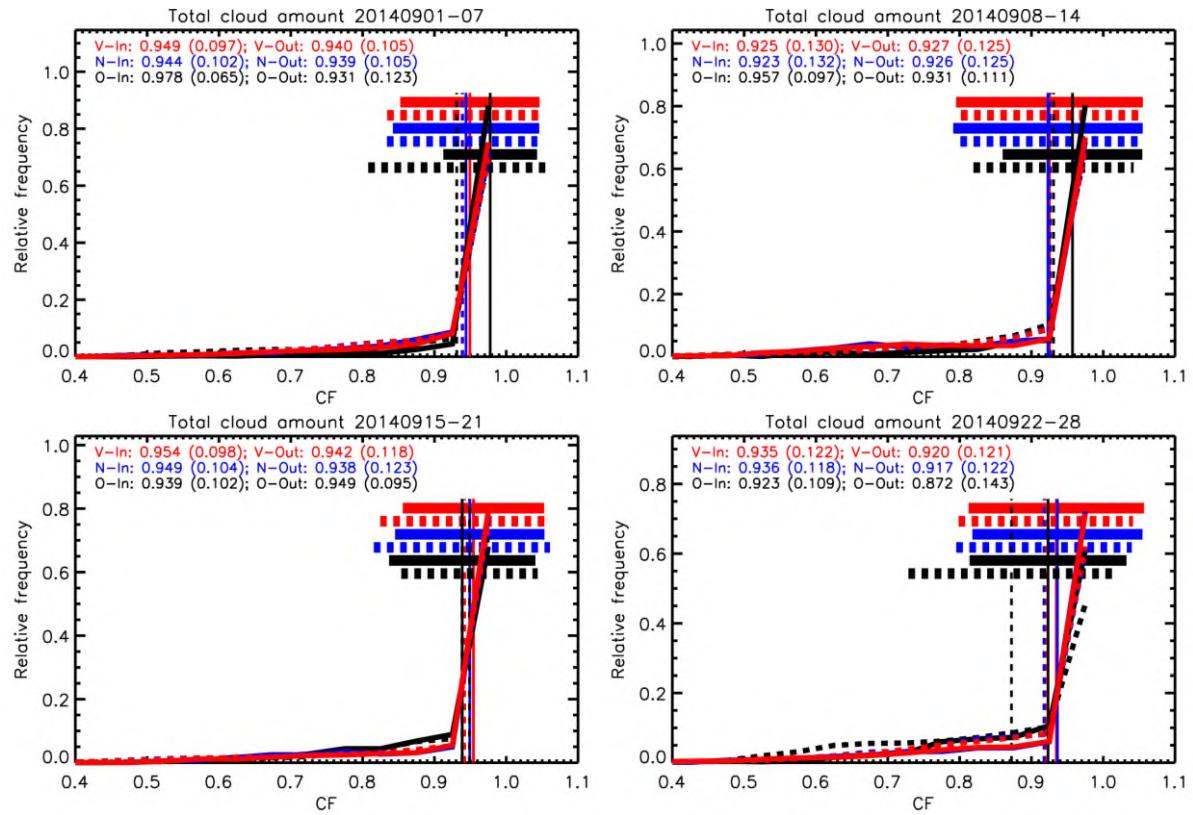
Figure S6. Same as figure S5 but for total cloud fraction.
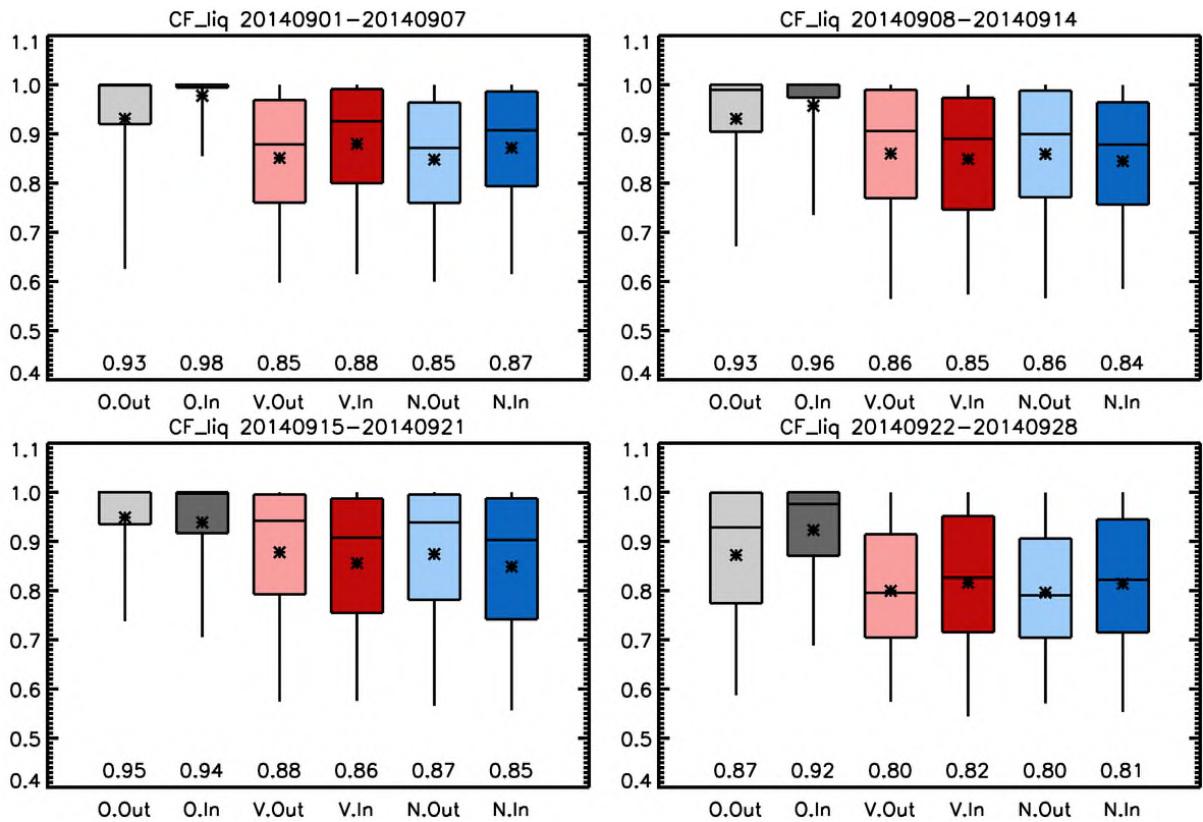
Figure S7. Same as figure 7 but for liquid cloud fraction from the model only. Liquid cloud fraction is not available for MODIS and only the total cloud fraction is shown. Note that the vertical axis has a linear scale and the values at the bottom and shown in stars are arithmetic means. Corresponding probability distribution functions are shown in figure S8.
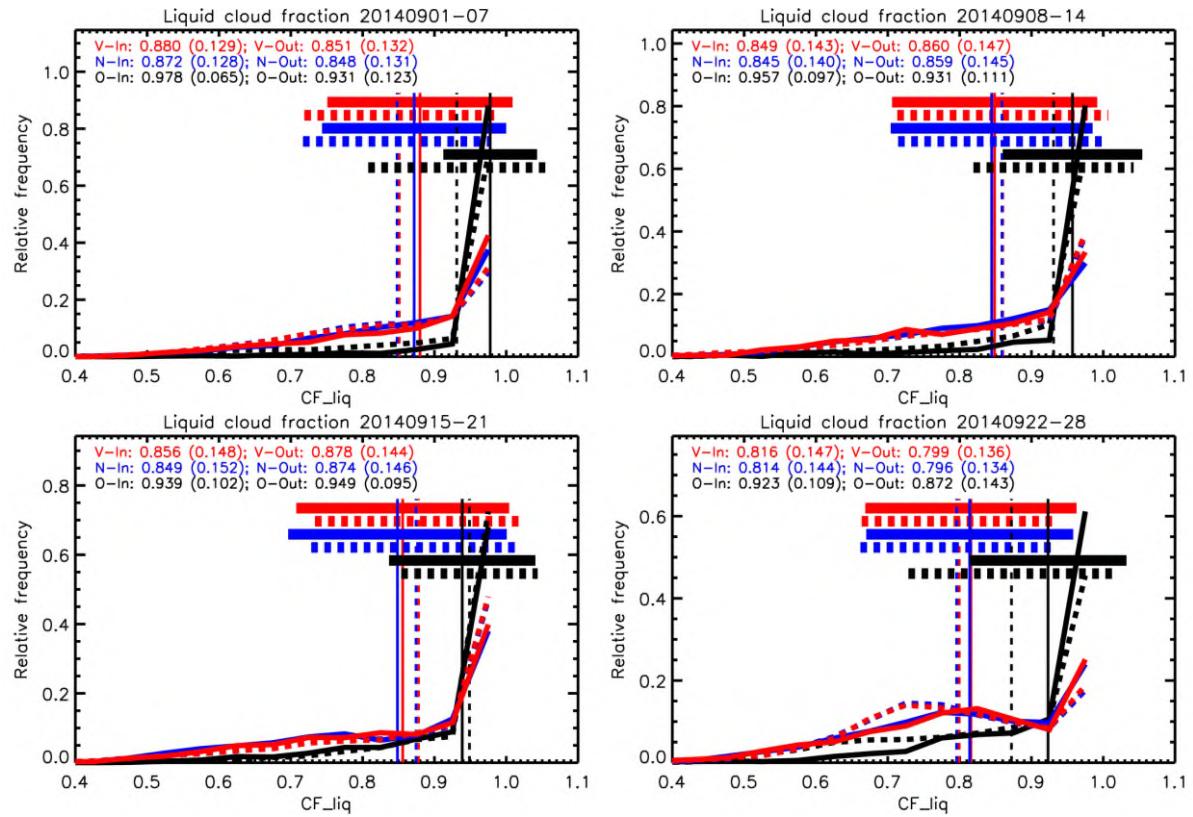
Figure S8. Same as figure S6 but for liquid cloud fraction.