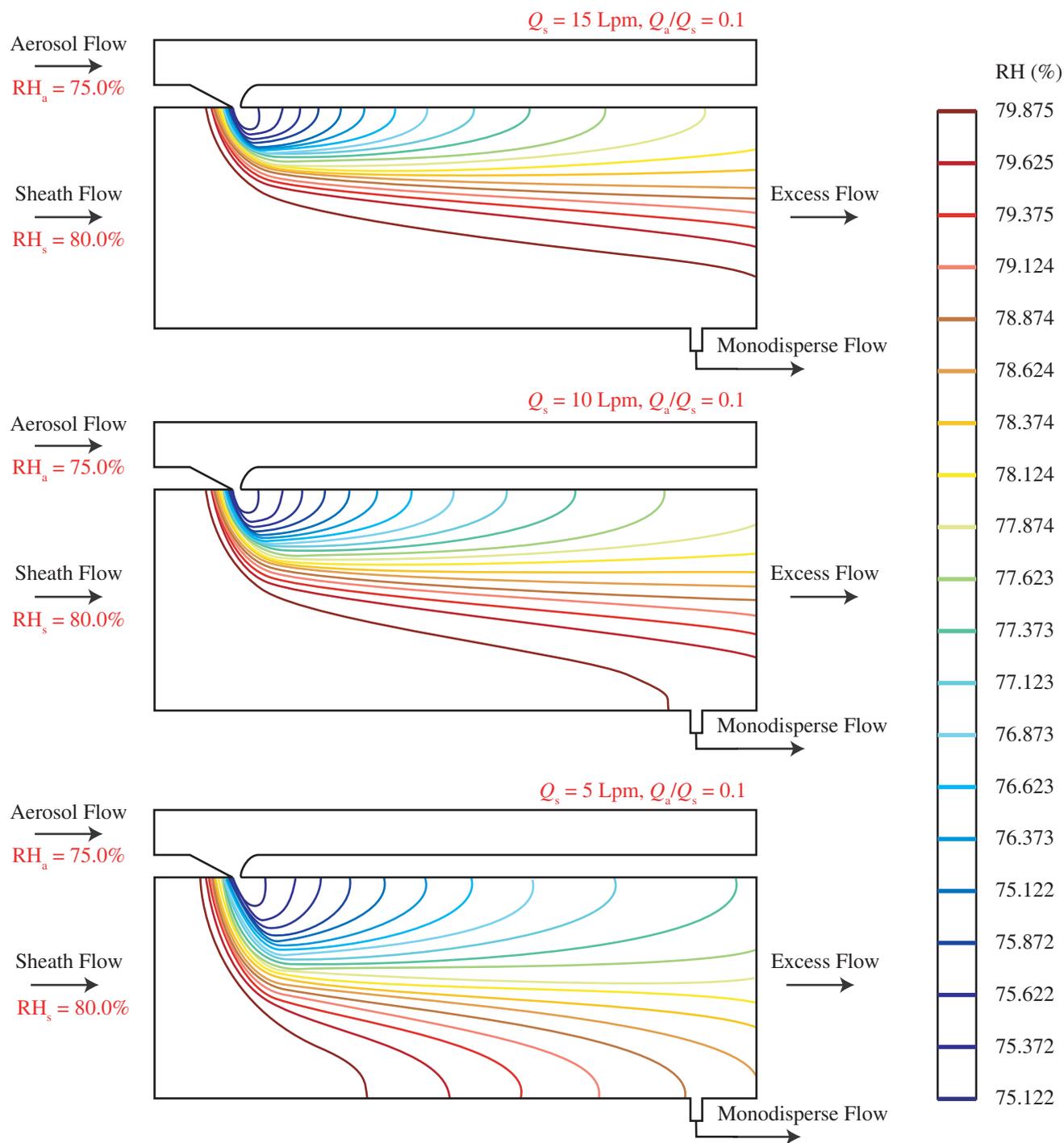


**Figure S1.** Hygroscopic growth curves for 10-nm NaCl particles showing that prompt deliquescence occurs provided that  $RH_s = RH_a$ .



**Figure S2.** Modeled relative humidity profiles within DMA-2 in the TnDMA. Lines are obtained by numerically solving the convective-diffusion equation using the commercial finite element package FEMLAB in Matlab. Simulations are performed for typical flow conditions through the DMA ( $Q_s = 5, 10,$  and  $15 \text{ Lpm}$ ) for the same boundary conditions of  $RH_a = 75\%$  and  $RH_s = 80\%$ . Depending on the flow conditions, a range of RH profiles can be established within the DMA. Different RH profiles result in smoother or sharper apparent nonprompt phase transitions (see discussion in the main manuscript).