

Supplementary material: *On the impacts of phytoplankton-derived organic matter on the properties of the primary marine aerosol: Part 2- composition, hygroscopicity and cloud condensation activity*

Fuentes.E., Coe, H., Green, D. and McFiggans, G.

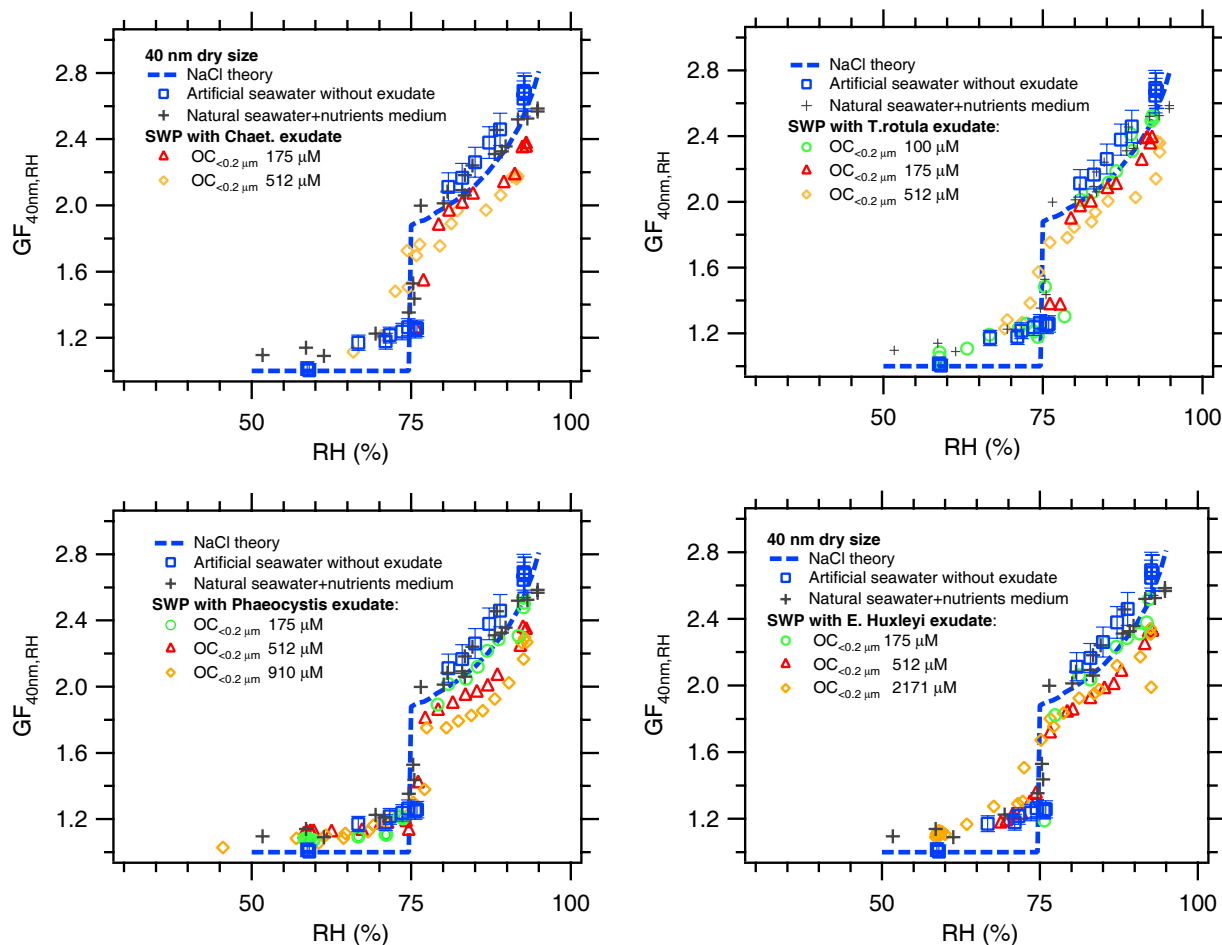


Fig S1. Humidograms of 40 nm dry particles generated by bubble-bursting from artificial seawater and seawater proxies (SWP) containing different algal exudates. A shape factor $\chi=1.04$ was applied to the presented data. Error bars indicate the uncertainty in the diameter selected by the DMA as function of the shape factor correction in the range from spherical ($\chi=1$) to cubic ($\chi=1.08$) particles.

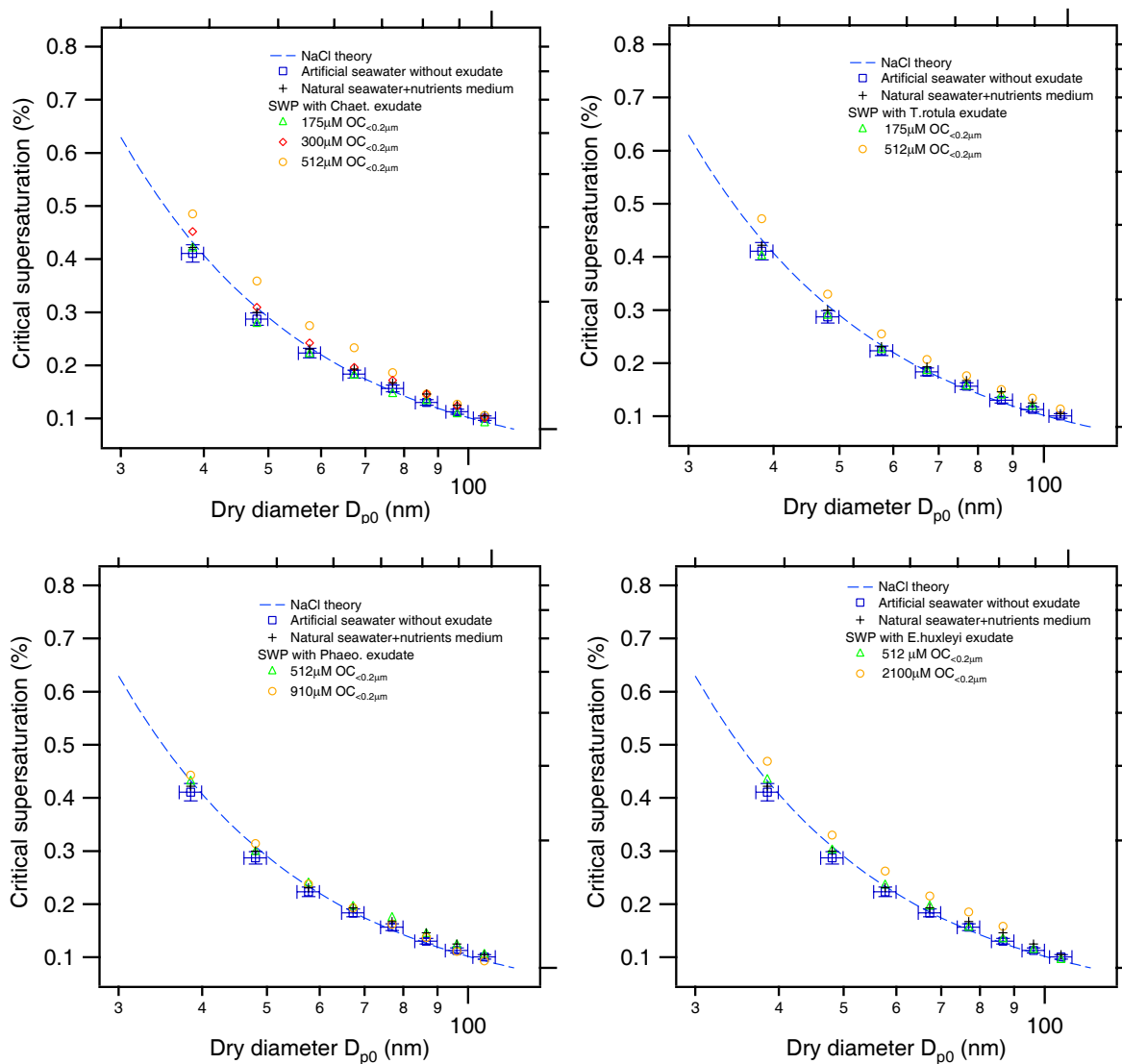


Fig. S2. Critical supersaturation as a function of particle diameter for the aerosol generated from artificial seawater and seawater proxies (SWP) enriched with algal exudate at different organic concentrations. A shape factor $\chi=1.04$ was applied to the presented data. Horizontal error bars indicate the uncertainty in the diameter selected by the DMA as function of the shape factor correction in the range from spherical ($\chi=1$) to cubic ($\chi=1.08$) shape. Vertical bars indicate the mean uncertainty in the determination of the critical supersaturation taken as $\pm 1\sigma$ standard deviation.

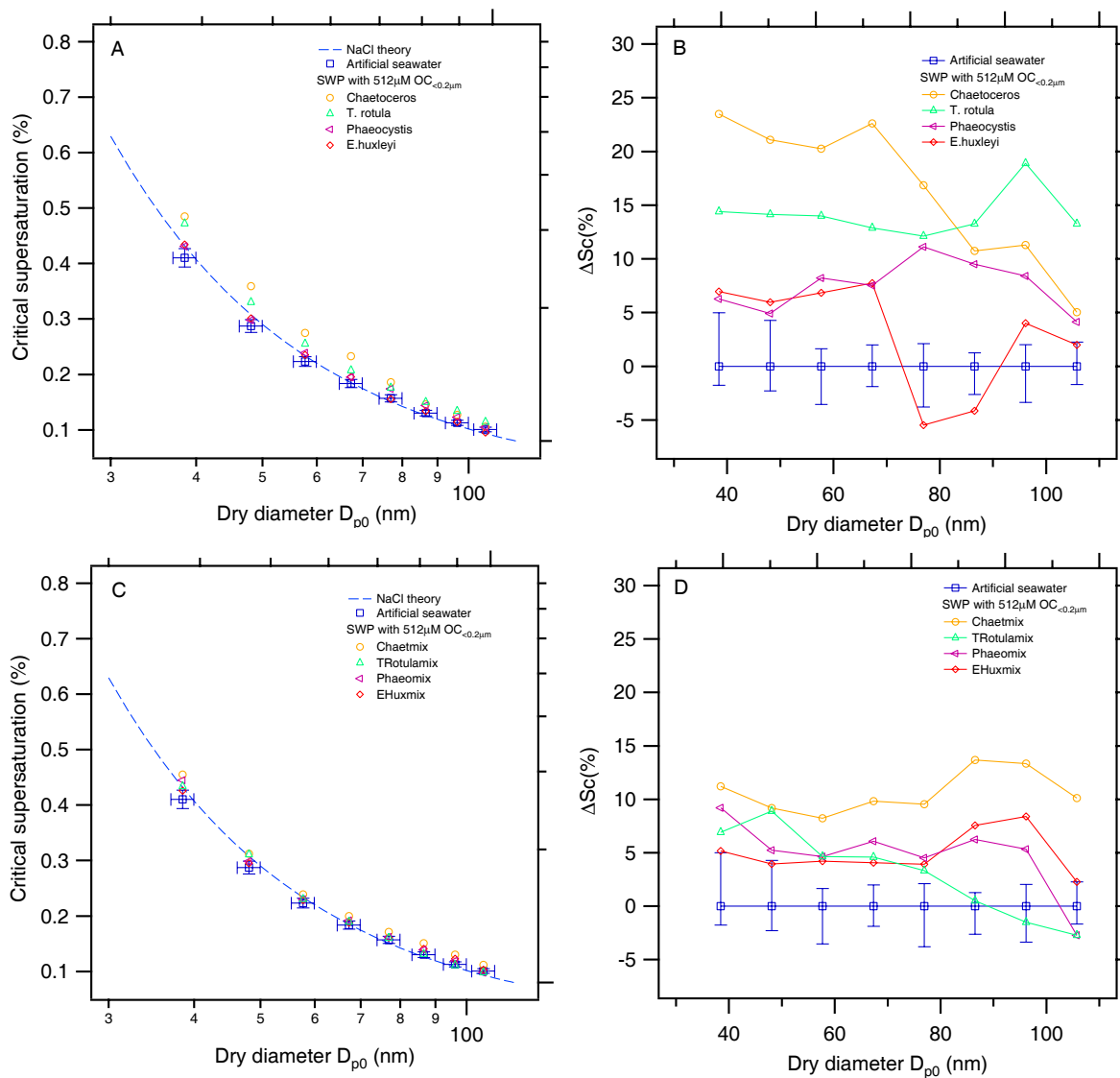


Fig. S3. (A,C) Critical supersaturation as a function of particle diameter for the aerosol generated from artificial seawater devoid of exudate and seawater proxies (SWP) enriched with algal exudate at 512 μM $\text{OC}_{<0.2\mu\text{m}}$. (B,D) relative variation in the critical supersaturation with respect to the critical supersaturation for the case without exudate. A and B: single exudates; C and D: algal mixtures.

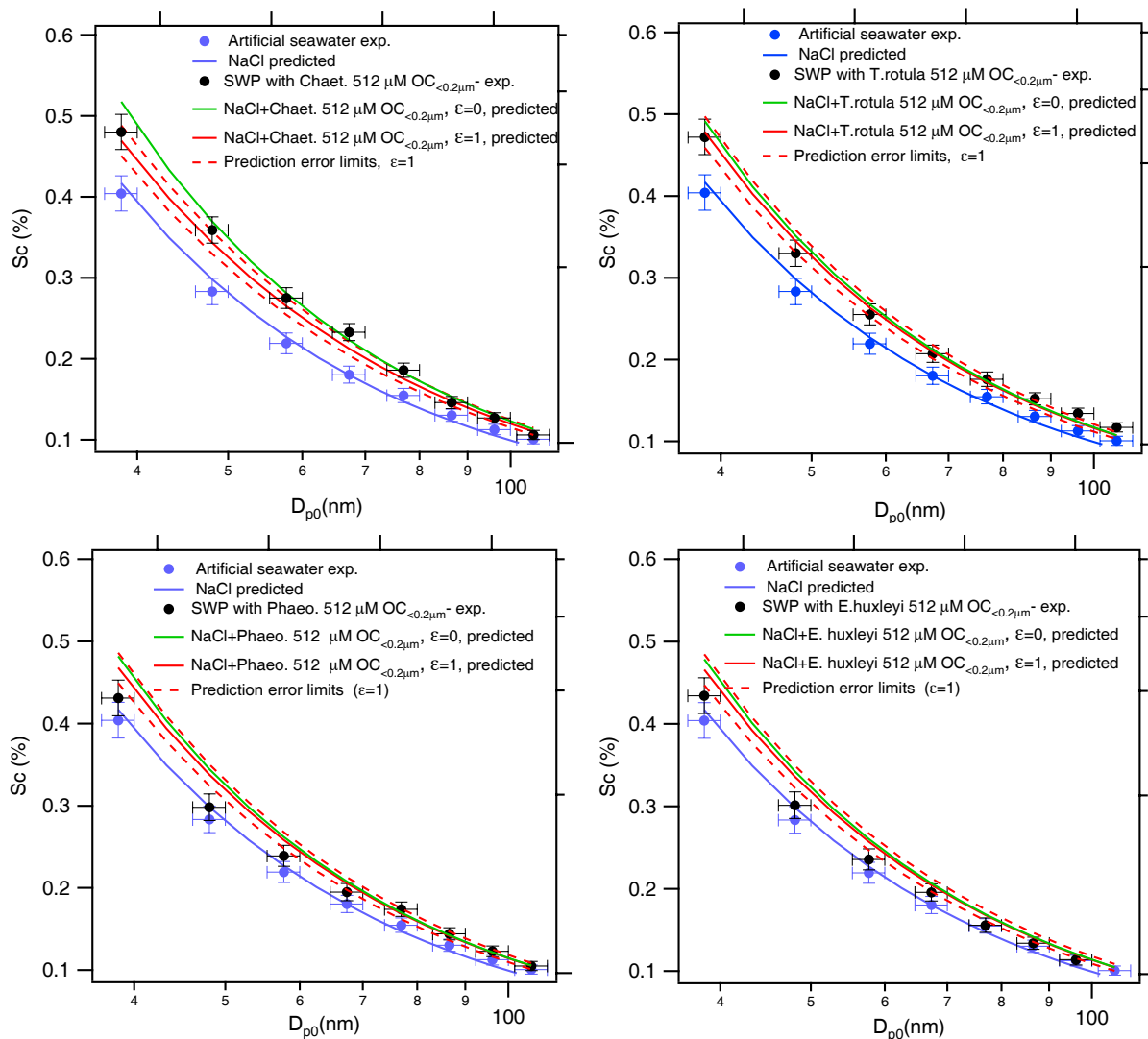


Fig. S4. Experimental and predicted critical supersaturation as a function of the dry particle size for primary seaspray generated from artificial seawater devoid of exudate and seawater proxies (SWP) containing algal exudate. No visual differences are appreciated between Flory-Huggins and Raoult's law predictions with deviations $<0.5\%$. The particle composition employed was derived from the ZSR approximation from the hygroscopicity measurements.

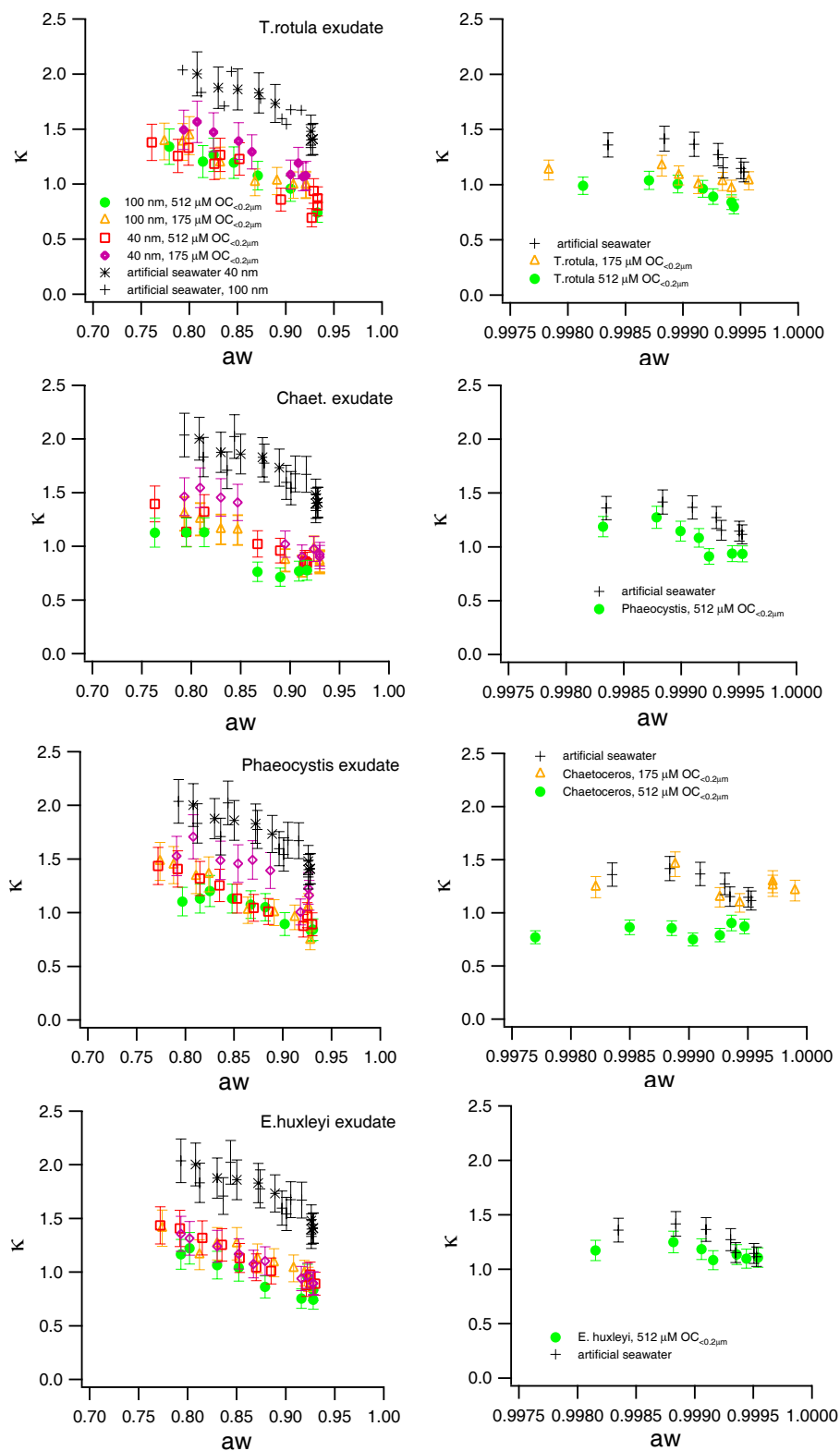


Fig. S5. Hygroscopic parameter κ in the sub- and supersaturated regions for primary marine aerosol produced from artificial seawater devoid of exudate and seawater proxies enriched with marine exudate.