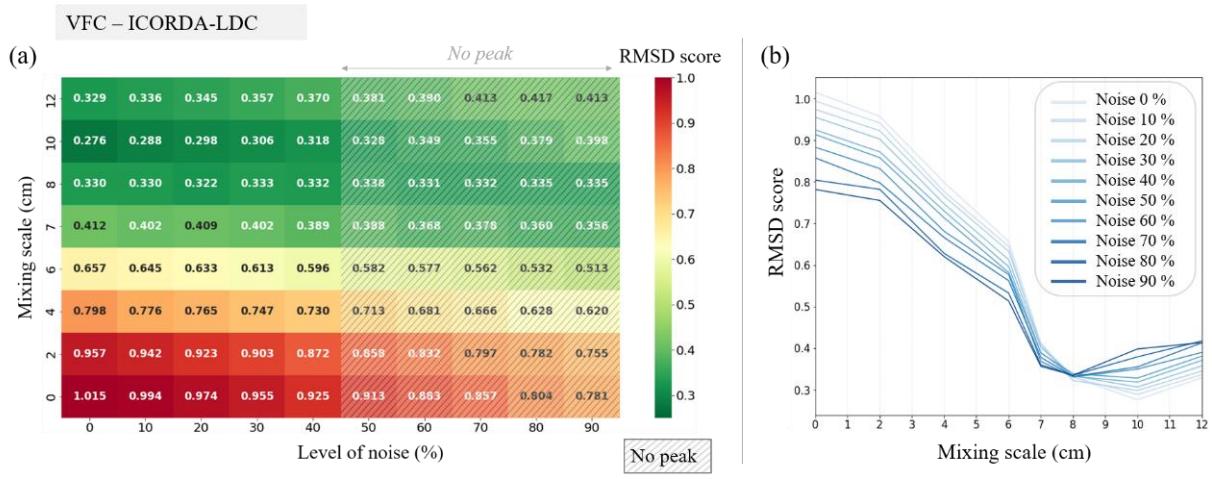

Figure R1 – (a) Model-observations RMSD score for the various sensitivity tests of the VFC model, with a noise level varying from 0 to 90 % and a mixing scale ranging from 0 to 12 cm. The grey hatched area corresponds to simulations where the frequency peak at 18-19 cm does not appear. (b) Evolution of the RMSD score along with the mixing scale for each level of noise. A low RMS score indicates a good match between the model and the observations, while a high RMS score indicates that the model-observation fit is poor.

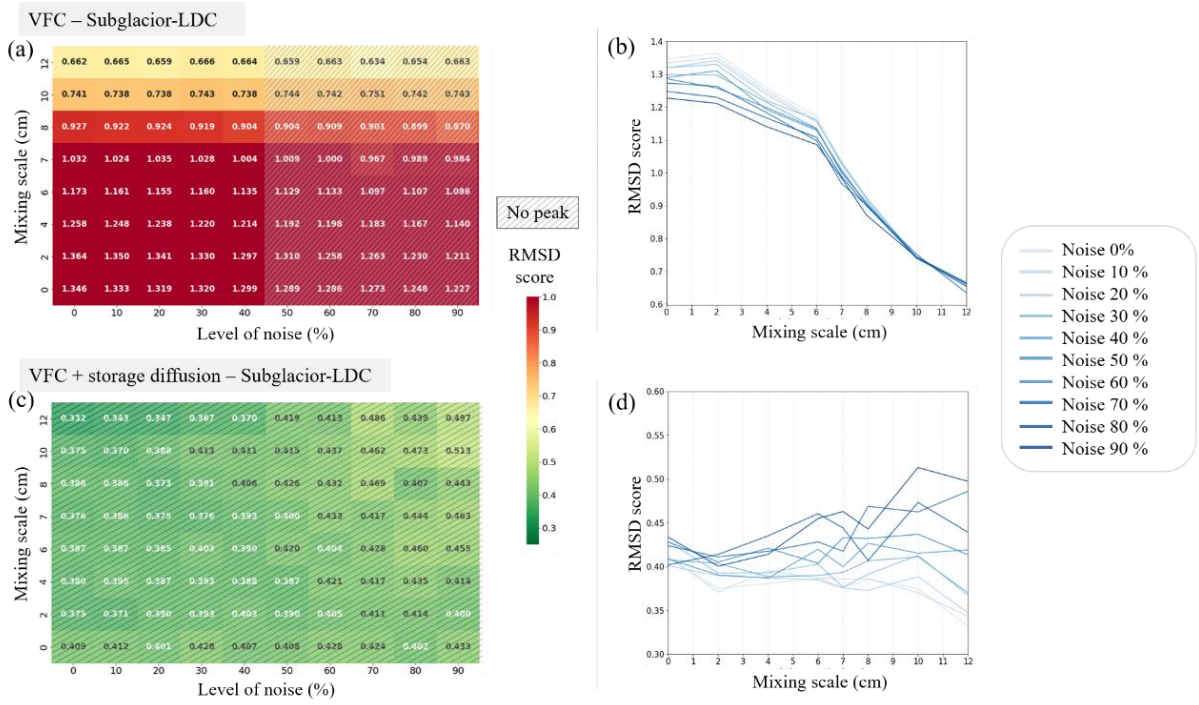

Figure R2 – Model-observations RMSD score for the various sensitivity tests of the VFC model, with a noise level varying from 0 to 90 % and a mixing scale ranging from 0 to 12 cm, (a) before and (c) after implementing the storage diffusion. The grey hatched area corresponds to simulations where the frequency peak at 18-19 cm does not appear. Evolution of the RMSD score along with the mixing scale for each level of noise, (b) before and (d) after adding the storage diffusion. A low RMS score indicates a good match between the model and the observations, while a high RMS score indicates that the model-observation fit is poor.

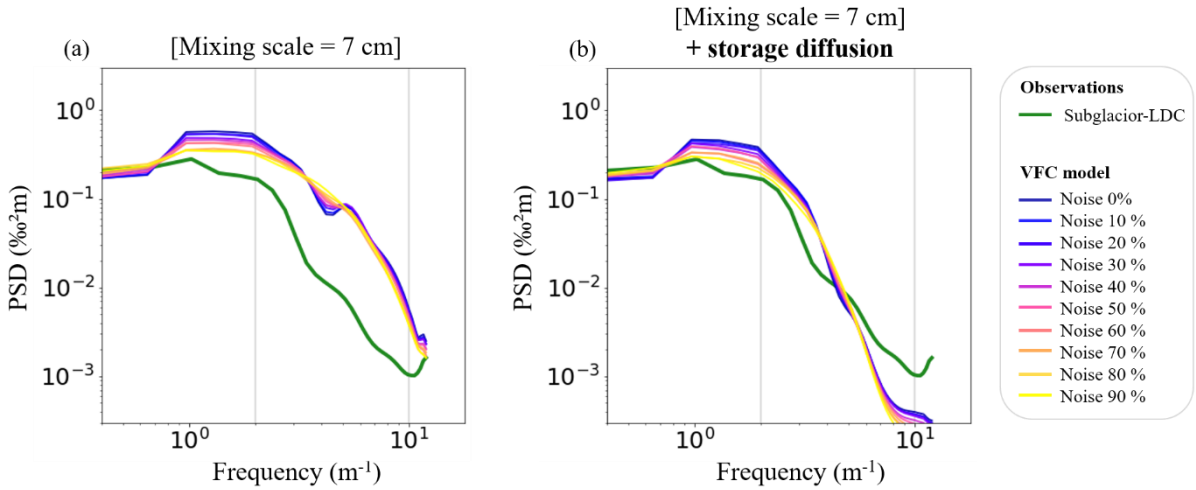

Figure R3 – Comparison of ICORDA-LDC spectrum and VFC spectra for a range of noise levels between 0 and 90%, and a mixing scale of 7 cm, (a) before and (b) after implementing the storage diffusion. The dashed line highlights the frequency peak in the observations and the grey solid lines delimit the spectral domain to evaluate the model.