EXTENDED DATA - AEROSOL EFFECTS ON CLOUDS ARE CONCEALED BY NATURAL CLOUD HETEROGENEITY AND SATELLITE RETRIEVAL ERRORS

1. Introduction

References

[Painemal et al. (2020)] Painemal, D., Chang, F.-L., Ferrare, R., Burton, S., Li, Z., Smith Jr., W. L., Minnis, P., Feng, Y., and Clayton, M.: Reducing uncertainties in satellite estimates of aerosol–cloud interactions over the subtropical ocean by integrating vertically resolved aerosol observations, Atmos. Chem. Phys., 20, 7167–7177, https://doi.org/10.5194/acp-20-7167-2020, 2020.

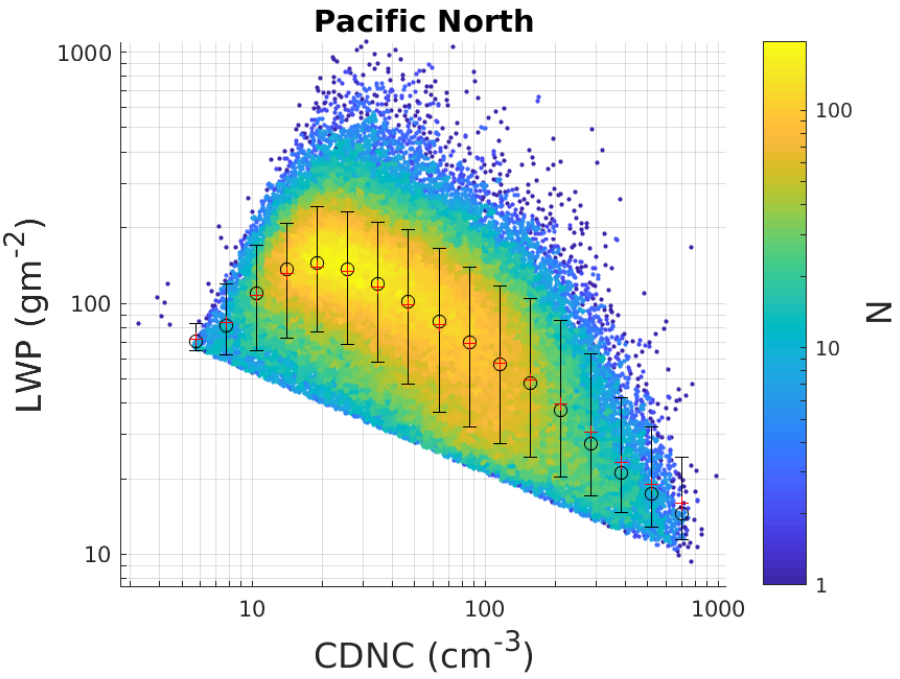

FIGURE 1. Satellite-based CDNC-LWP relationship obtained with cloud data over Pacific North region of [Painemal et al. (2020)].

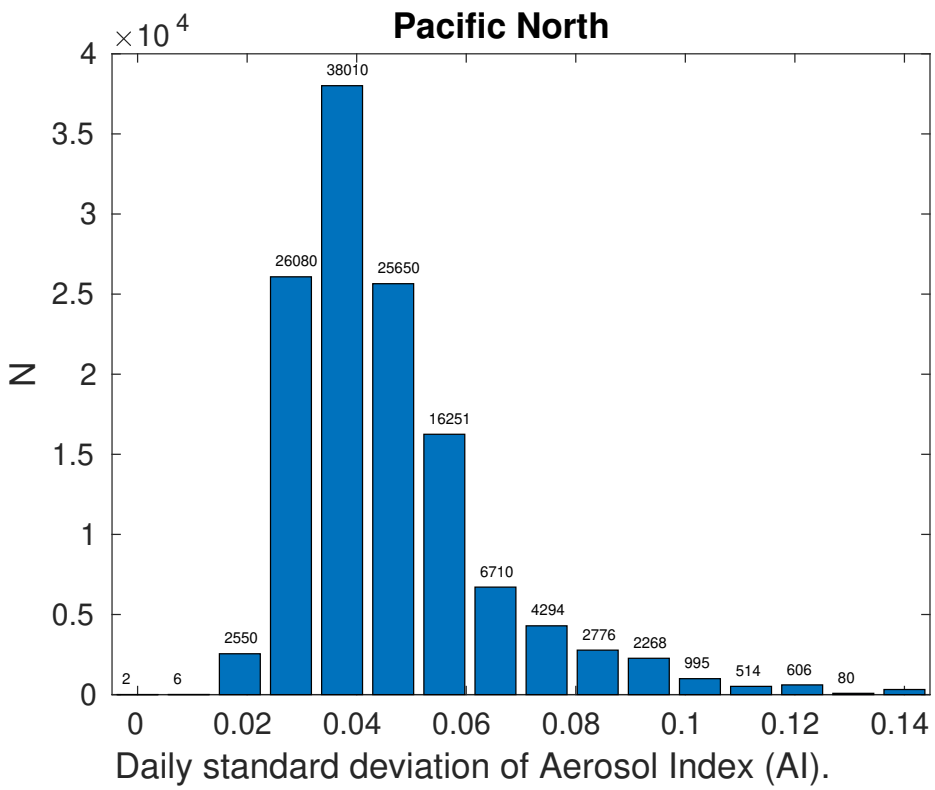

FIGURE 2. Histogram for standard deviation of AI for each day in the Pacific North area.

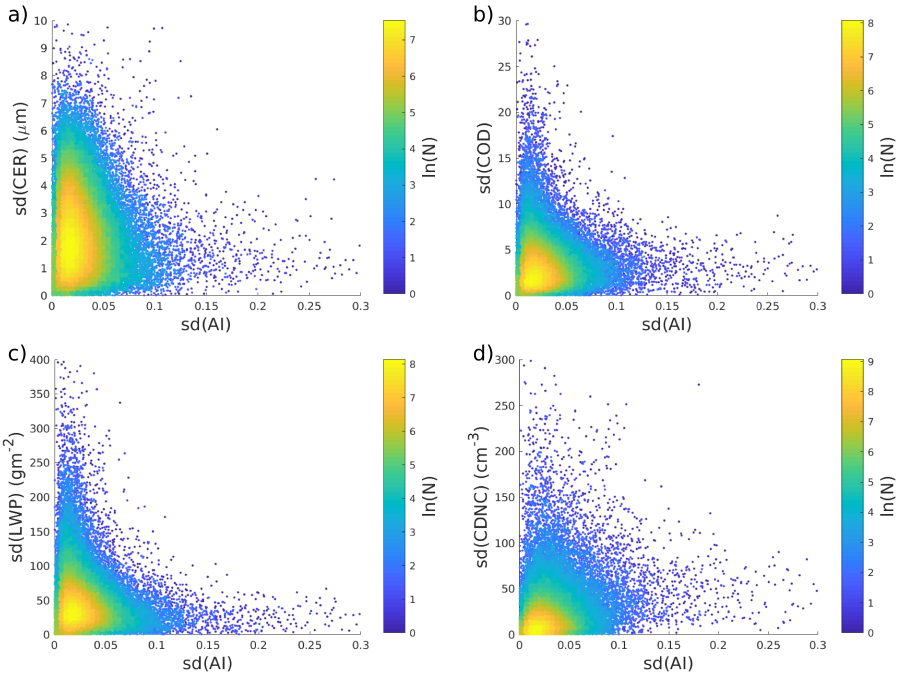

FIGURE 3. Standard deviation (sd) of cloud parameters against standard deviation of Aerosol Index, over same region than shown in Figure 5. L2 satellite data were aggregated to the 1x1 degree and sd was calculated for each center pixel of 3x3 degree area.

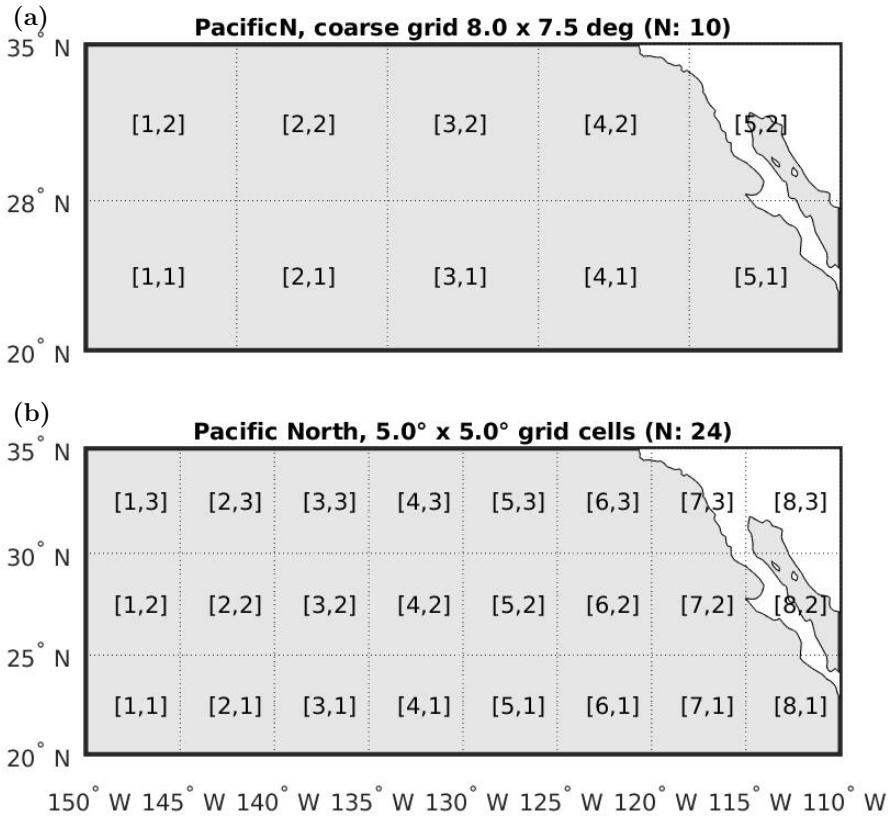

FIGURE 4. Division of the Pacific North area into smaller grid cells, and the indexing used in the scatter plots below.

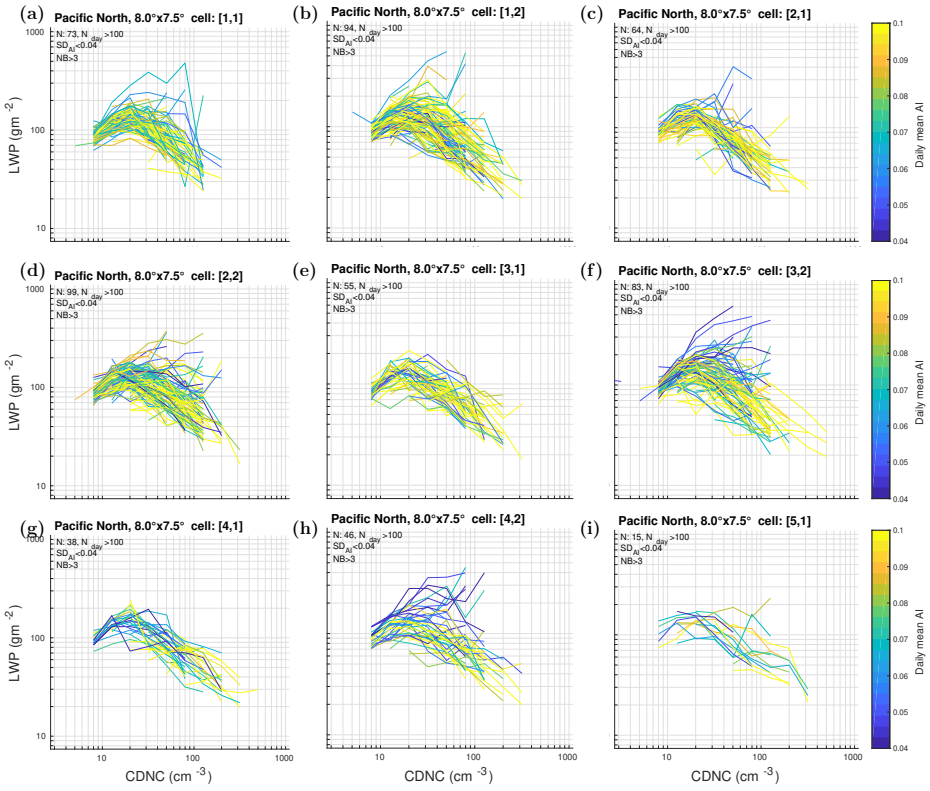

FIGURE 5. Same as Figure 1b in the article, but for the Pacific North area divided into ten 8° × 7.5° grid cells. One of the cells did not contain sufficient data for plotting.

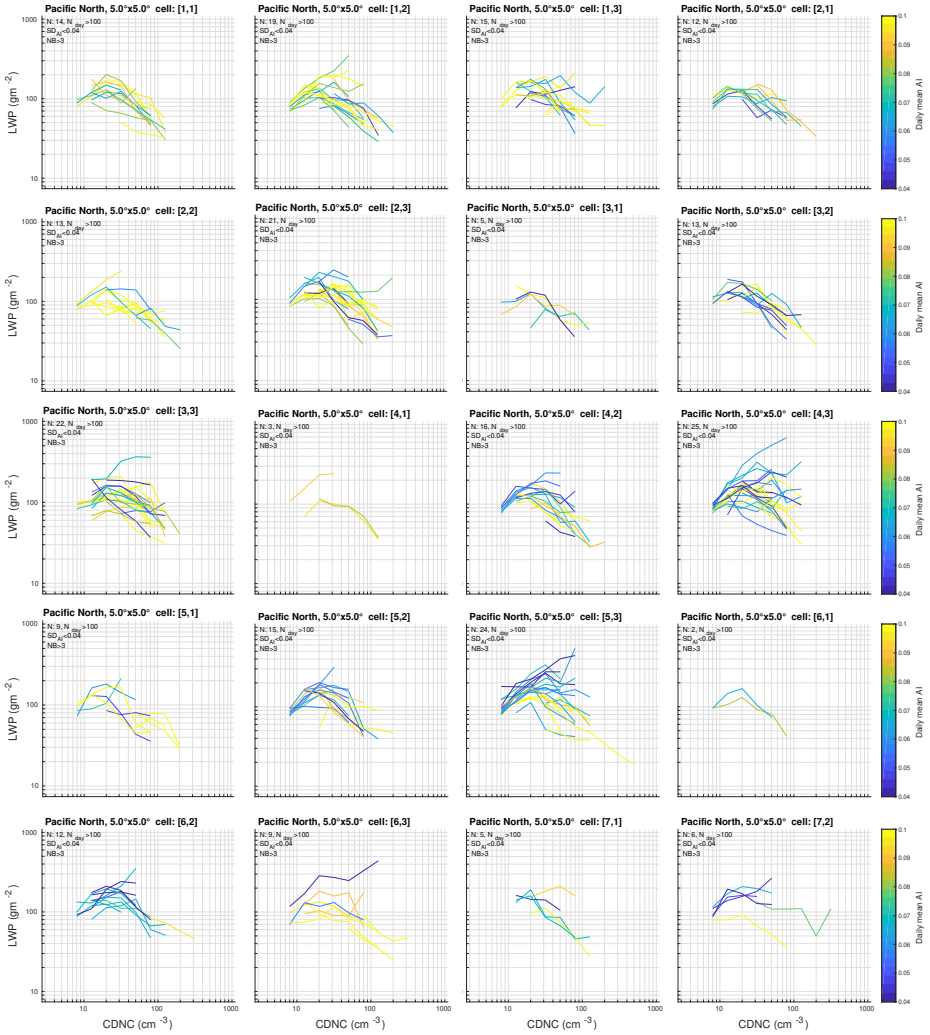

FIGURE 6. Same as Figure 5 above, with area divided into 24 $5° \times 5°$ grid cells. Four cells did not contain sufficient data for plotting.

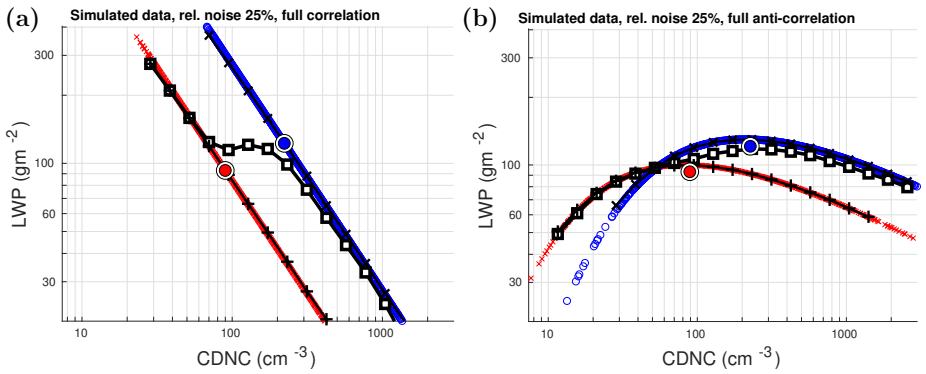

FIGURE 7. Same as Figure 4 in the article, but now with (a) fully correlated CER/COD error, and (b) fully anti-correlated error.