

# Supplement of "The Relationship between Low-Level Cloud Amount and Its Proxies over the Globe by Cloud Types"

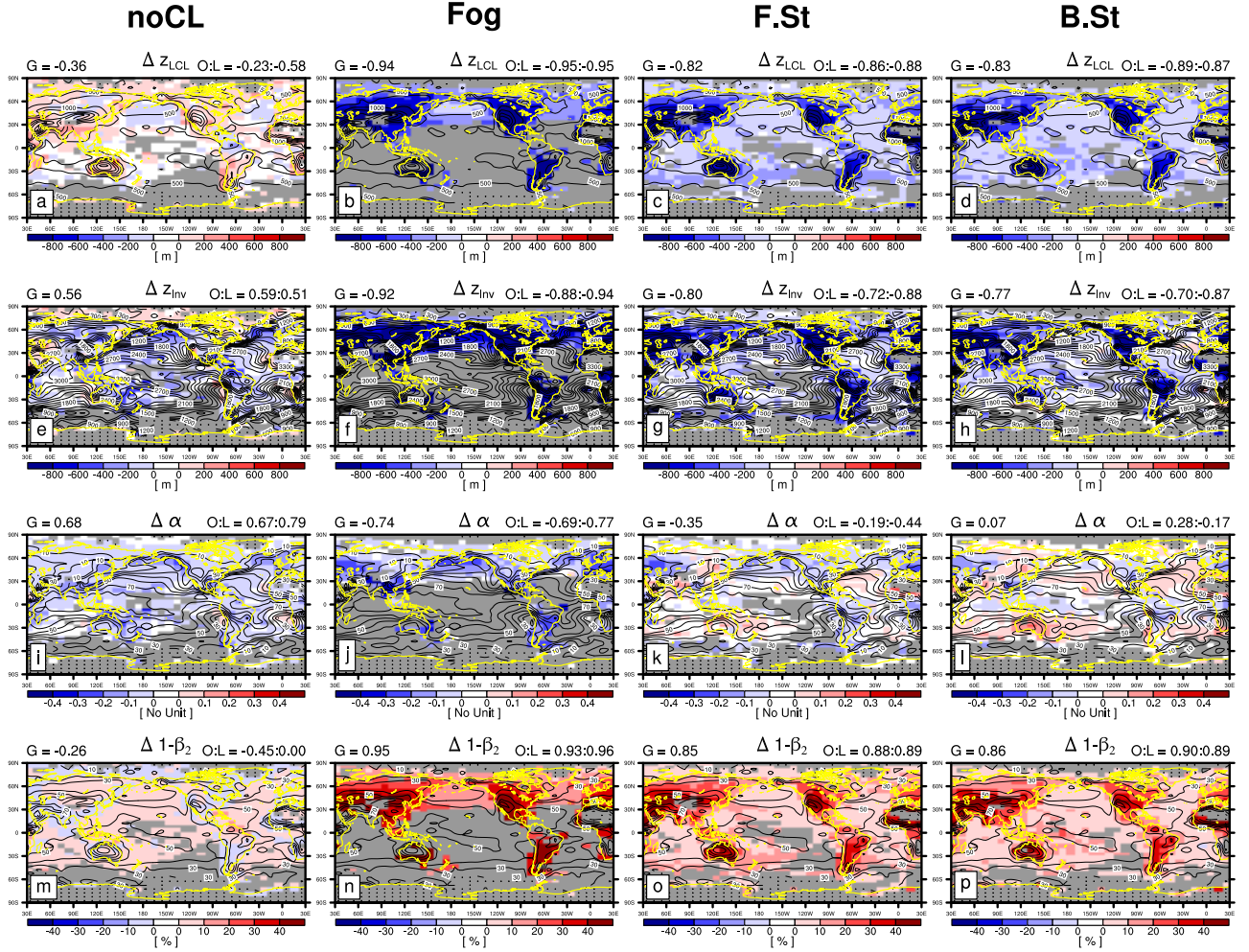
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## Supplement 1: Composite anomalies of $z_{LCL}$ , $z_{inv}$ , $\alpha$ , and $1 - \beta_2$ for various low-level cloud types

Figures S1, S2, and S3 are the same as Figures 3, 4, and 5, respectively, but for  $z_{LCL}$ ,  $z_{inv}$ ,  $\alpha$ , and  $1 - \beta_2$ .



**Figure S1.** Composite anomalies of (1st row)  $z_{LCL}$ , (2nd)  $z_{inv}$ , (3rd)  $\alpha$ , and (4th)  $1 - \beta_2$  with respect to the annual climatology when (first column) noCL, (2nd) Fog, (3rd) F.St, and (4th) B.St was reported. Contour line is the annual climatology of LCA and individual variables. At the top of individual plot, non-centered correlation coefficients between  $\Delta AWP$  and  $\Delta$ variable over the globe (G), ocean (O) and land (L) are shown. In each plot, statistically insignificant anomalies at the 99.9 % confidence level from the two-sided Student t-test assuming independent samples are denoted by white color, and grid boxes with the observation number of a specific CL less than 100 are shaded by gray color. Grid boxes with total observation number less than 100 are marked with a dot.

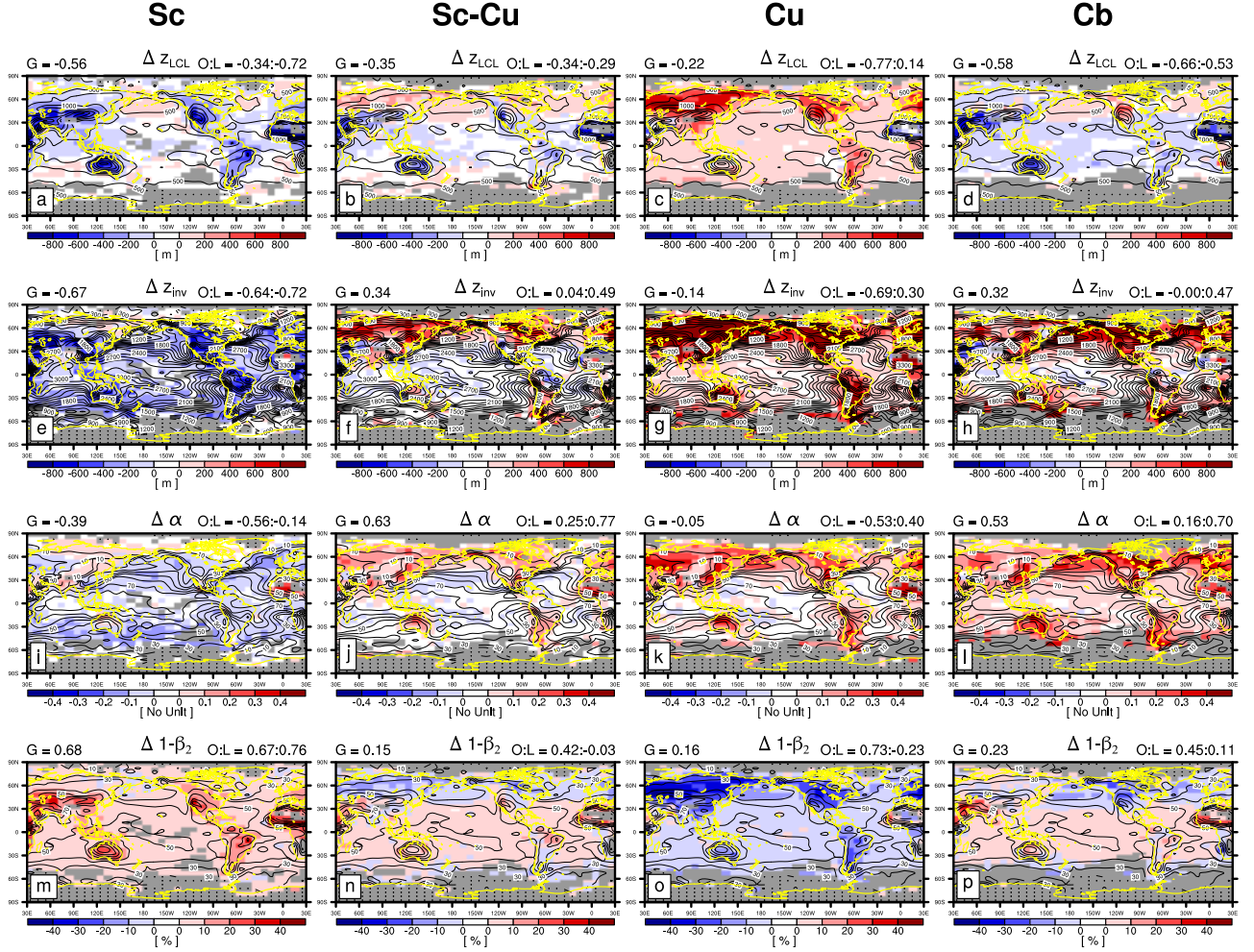
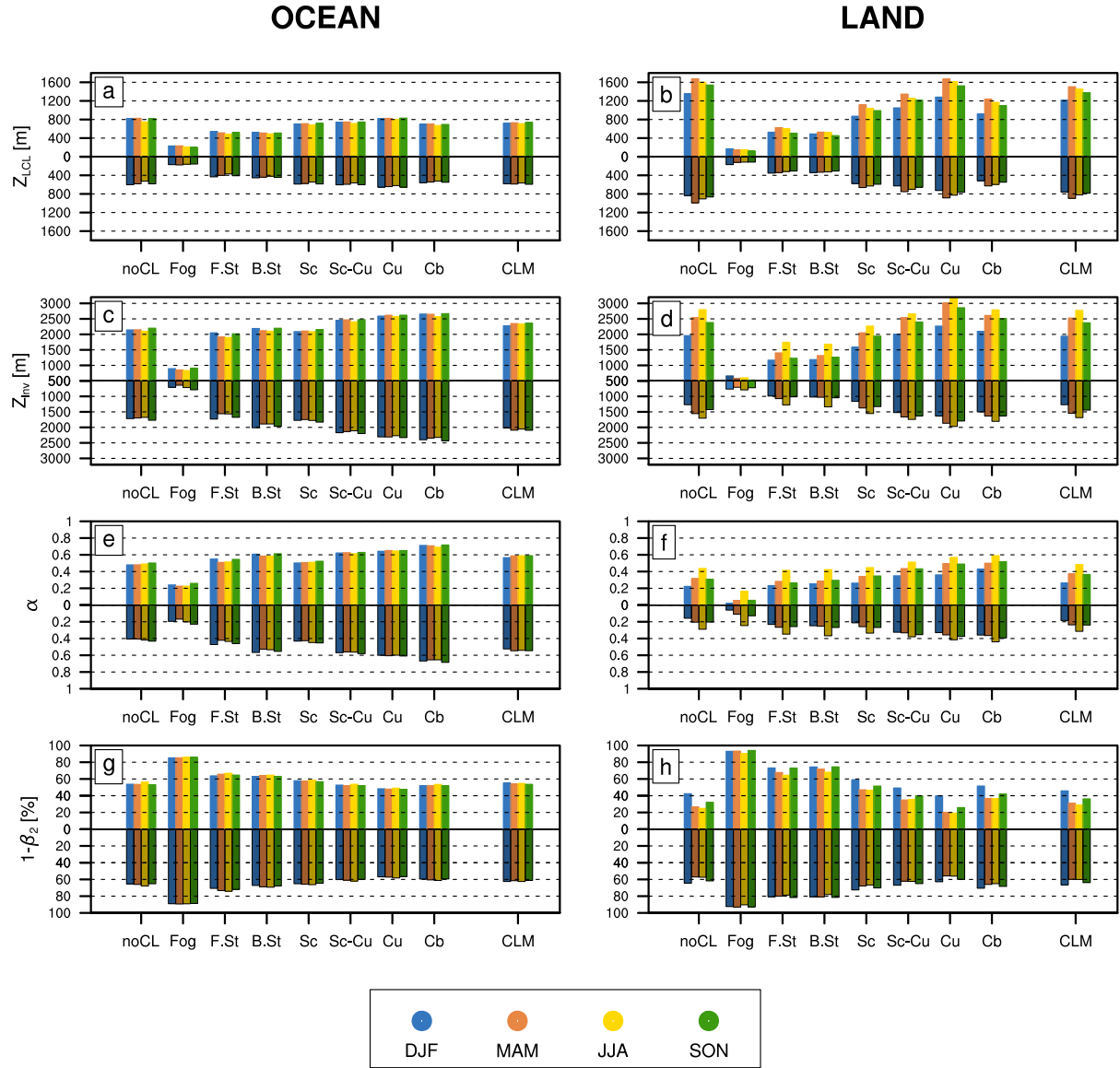


Figure S2. Same as Fig. S1 but for Sc, Sc-Cu, Cu, and Cb.



**Figure S3.** Seasonal climatologies of the (1st row)  $z_{LCL}$ , (2nd)  $z_{inv}$ , (3rd)  $\alpha$ , and (4th)  $1 - \beta_2$  averaged over the (left) ocean and (right) land for each season (DJF, MAM, JJA, SON denoted by different colors) during the daytime (09 am - 09 pm, upward bars with bright colors) and nighttime (09 pm - 09 am, downward bars with dark colors), respectively, when a specific CL was reported. In each plot, CLM denotes the climatology for all CLs.