

# **Arctic cloud annual cycle biases in climate models:**

## **Supplementary Material**

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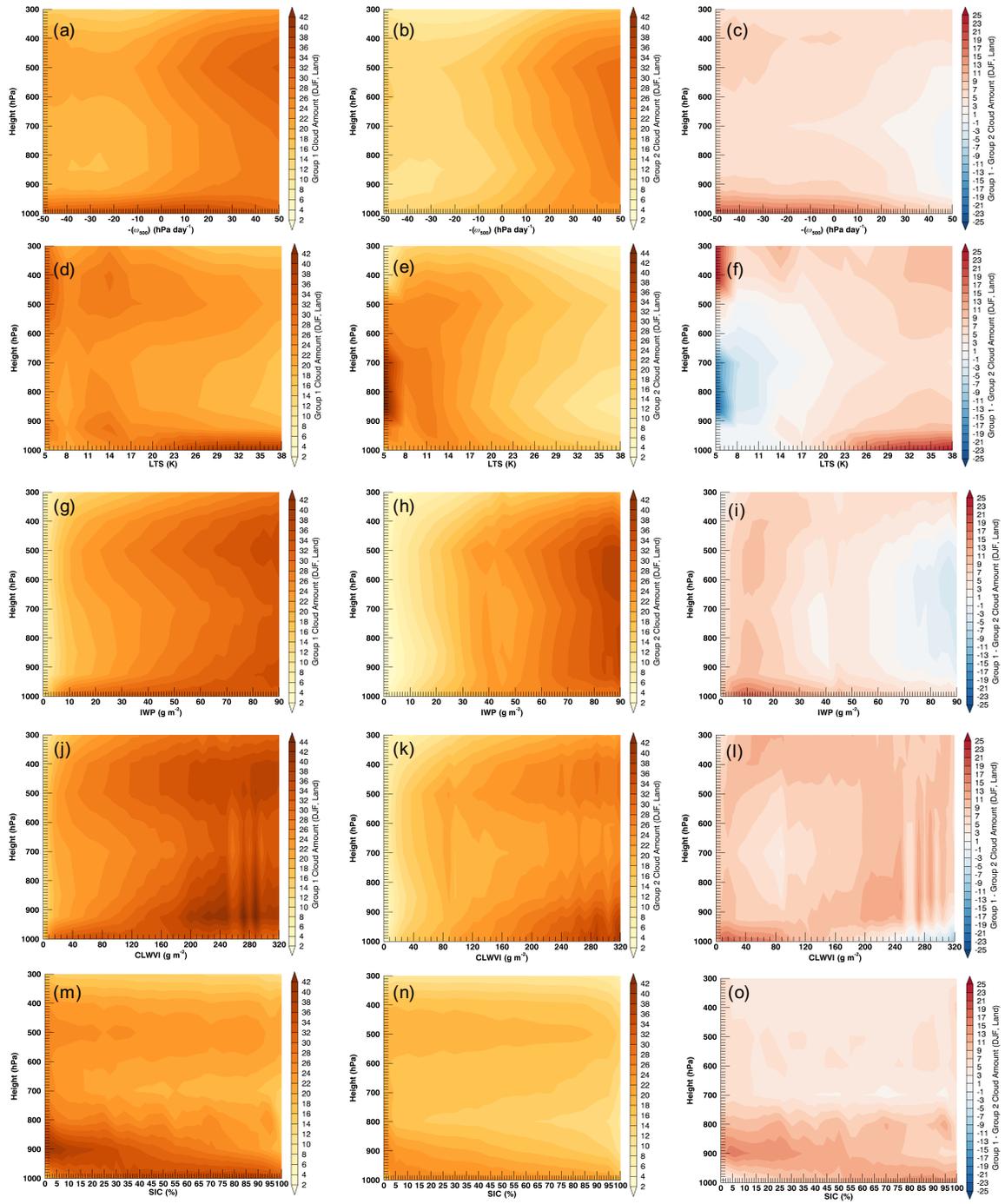


Fig. S1. Vertically-resolved, DJF average cloud amount stratified by  $-\omega_{500}$  for (a) Group 1, (b) Group 2, and (c) Group 1 minus Group 2, LTS for (d) Group 1, (e) Group 2, and (f) Group 1 minus Group 2, IWP for (g) Group 1, (h) Group 2, and (i) Group 1 minus Group 2; CLWVI for (j) Group 1, (k) Group 2, and (l) Group 1 minus Group 2, and SIC for (m) Group 1, (n) Group 2, and (o) Group 1 minus Group 2. All panels are for land.

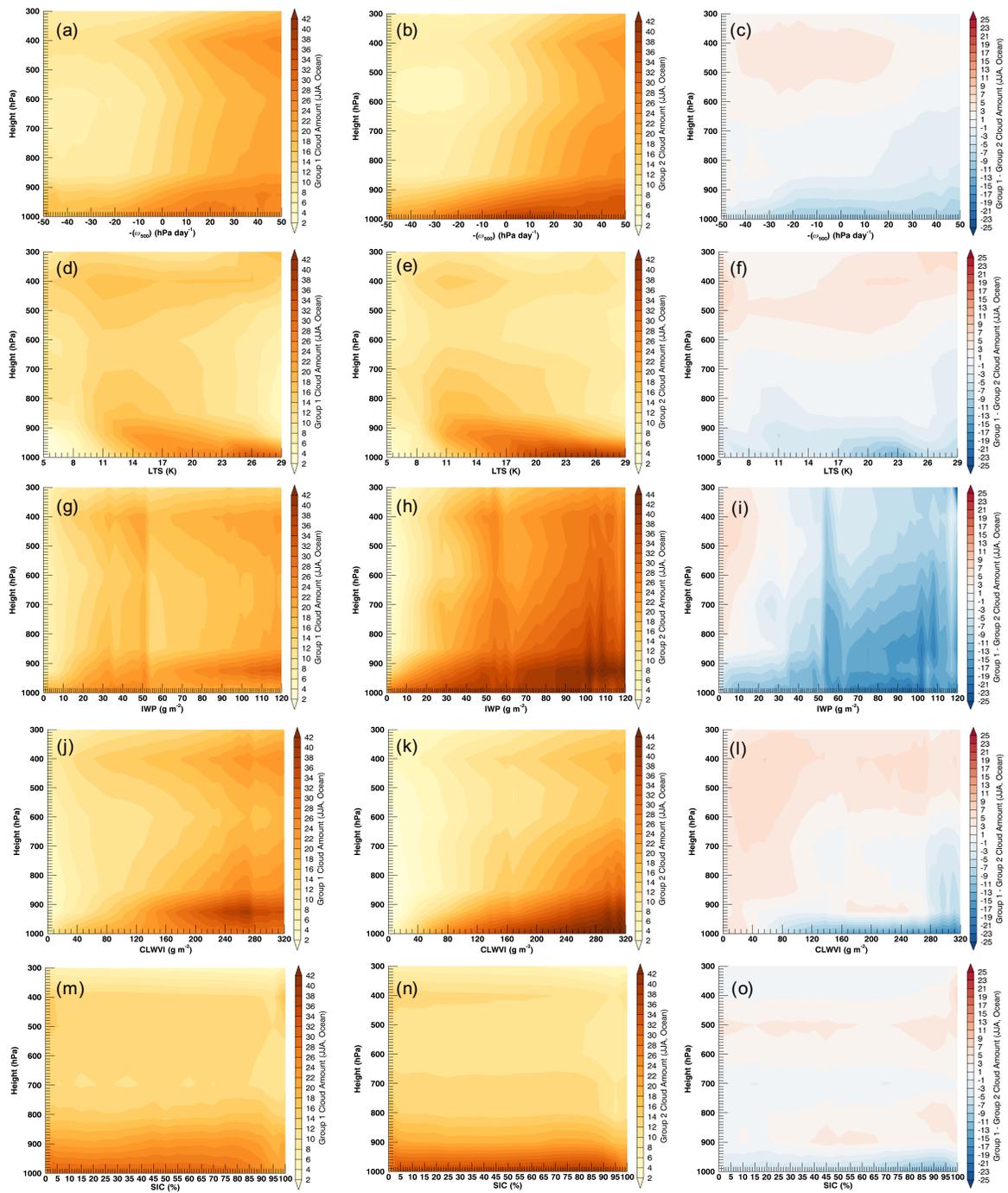


Fig. S2. Vertically-resolved, JJA cloud amount stratified by  $-\omega_{500}$  for (a) Group 1, (b) Group 2, and (c) Group 1 minus Group 2, LTS for (d) Group 1, (e) Group 2, and (f) Group 1 minus Group 2, IWP for (g) Group 1, (h) Group 2, and (i) Group 1 minus Group 2; CLWVI for (j) Group 1, (k) Group 2, and (l) Group 1 minus Group 2, and SIC for (m) Group 1, (n) Group 2, and (o) Group 1 minus Group 2. All panels are for ocean.

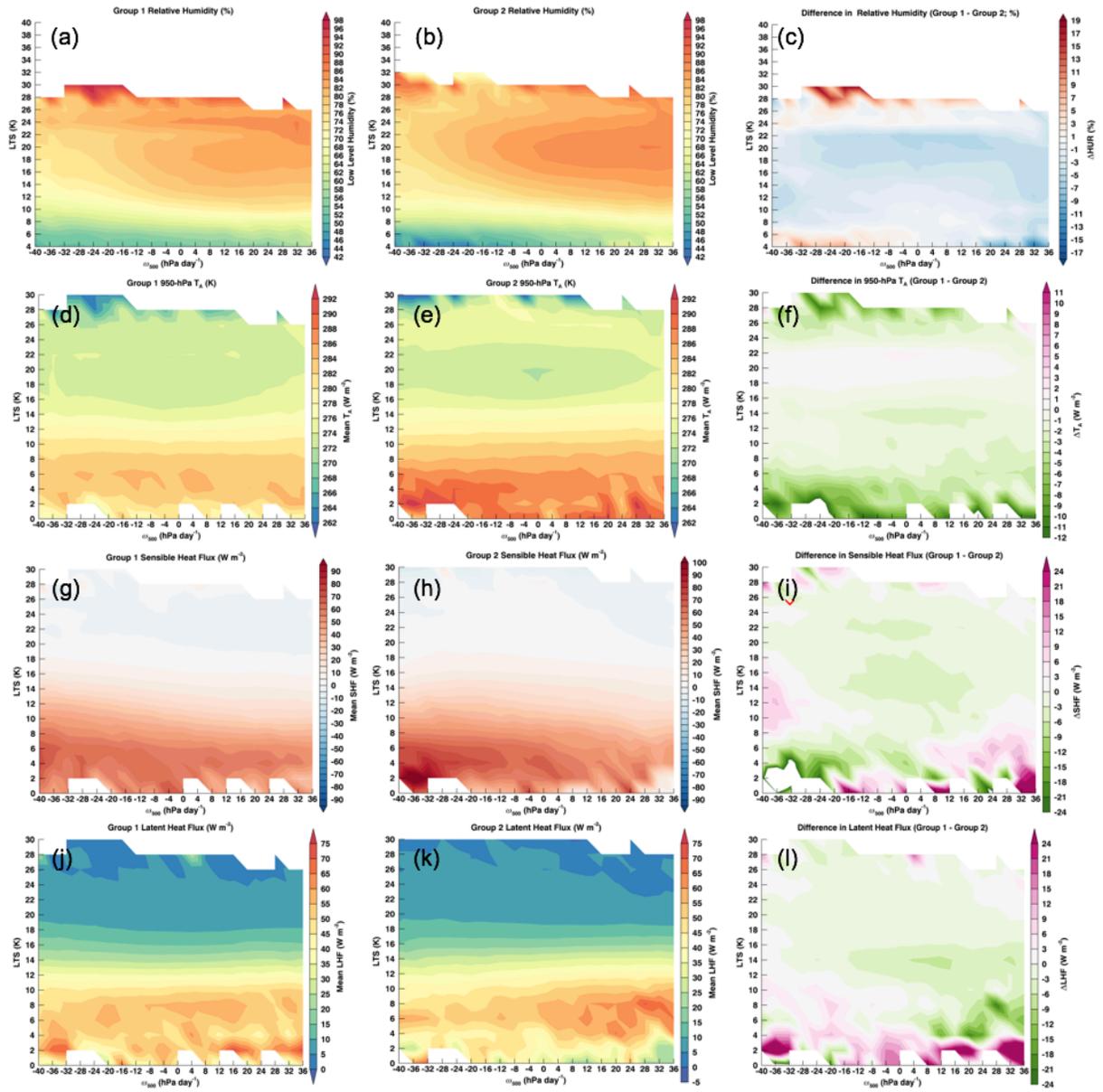


Fig. S3. Contours of JJA atmospheric and surface conditions in the LTS and  $-\omega_{500}$  joint distribution for (left column) Group 1, (middle column) Group 2, and (right column) Group 1 minus Group 2 for (a-c) RH, (d-f)  $T_A$  at 950hPa, (g-l) SHF, and (j-l) LHF.