Supplementary Information — Organization of ice multiplication mechanisms among basic cloud types. Part II: Sensitivity tests

Akash Deshmukh[1*], Deepak Waman[2,3], Ashok Kumar Gupta[4], Vaughan Phillips[2*]

[1]University of Lille, CNRS, UMR 8518, Laboratoire d'Optique Atmospherique, Lille, France.
[2]Department of Physical Geography and Ecosystem Science, University of Lund, Lund, Sweden.
[3]Currently at Institute of Meteorology and Climate Research Troposphere Research, Karlsruhe Institute of Technology, Karlsruhe, Germany, Karlsruhe, Germany.
[4]Department of Earth and Environmental Sciences, Vanderbilt University, Nashville, Tennessee, USA.

*Corresponding author(s). E-mail(s): akash.deshmukh@univ-lille.fr; vaughan.phillips@mgeo.lu.se;

Content: S1 Supplementary Figures

S1 Supplementary Figures

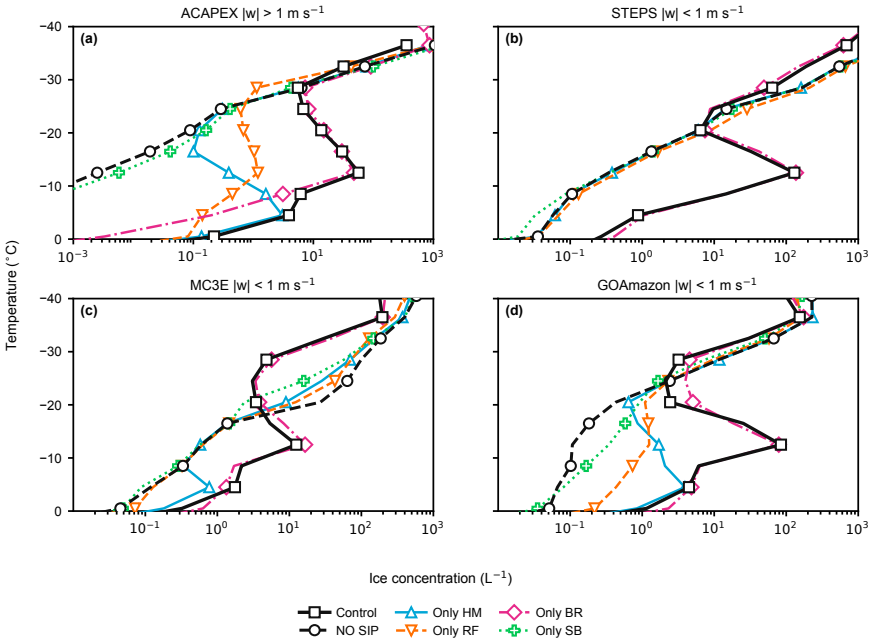


Fig. S1 Averaged vertical profiles of ice concentrations shown here for the (a) convective regions of ACAPEX and stratiform cloud regions of (b) STEPS, (c) MC3E, and (d) GOAmazon system. The various lines represent the ice concentrations from only-HM run (cyan upward-pointing triangles), only-RF run (orange downward-pointing triangles), only-BR run (magenta diamond), only-SB run (green plus). Also shown are the control (black full line with open squares) and no-SIP (dashed black line with open circles) simulations.

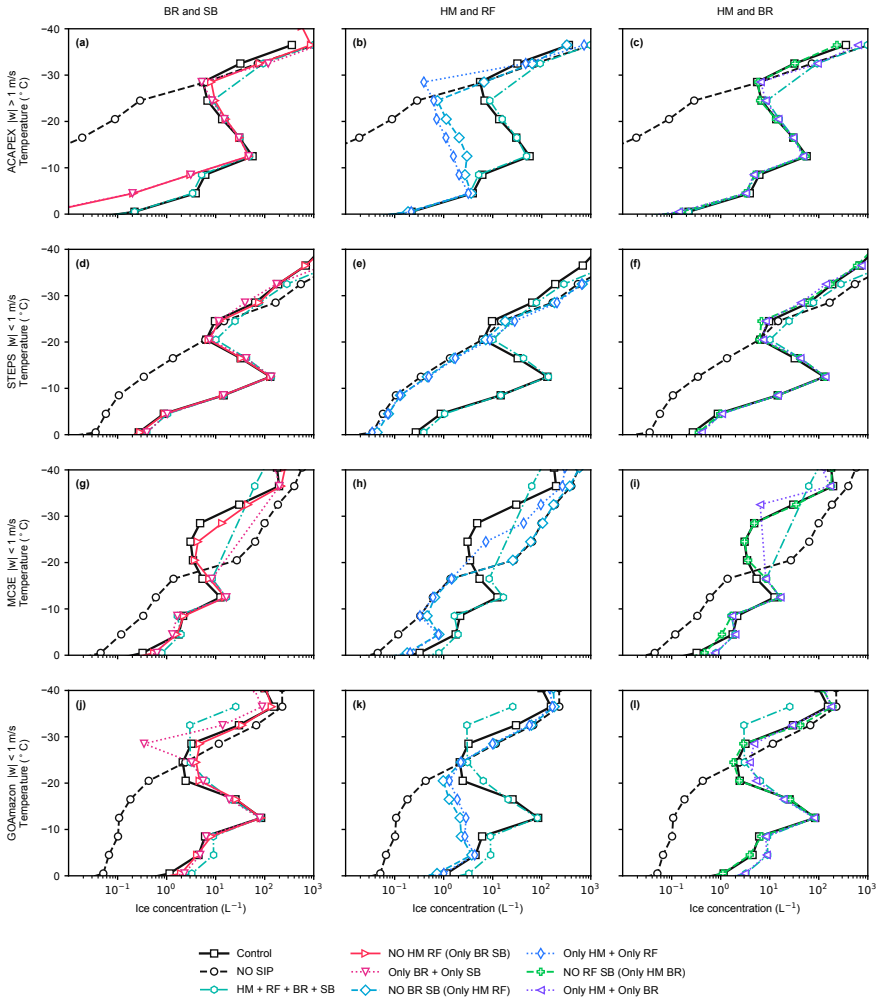


Fig. S2 Same as Figure 3 but for the convective regions of the ACAPEX (a-c) and stratiform cloud regions of STEPS (d-f), MC3E (g-i), and (j-l) GOAmazon. Each column title represent the pairs of SIP mechanisms which tested for synergy sensitivity.

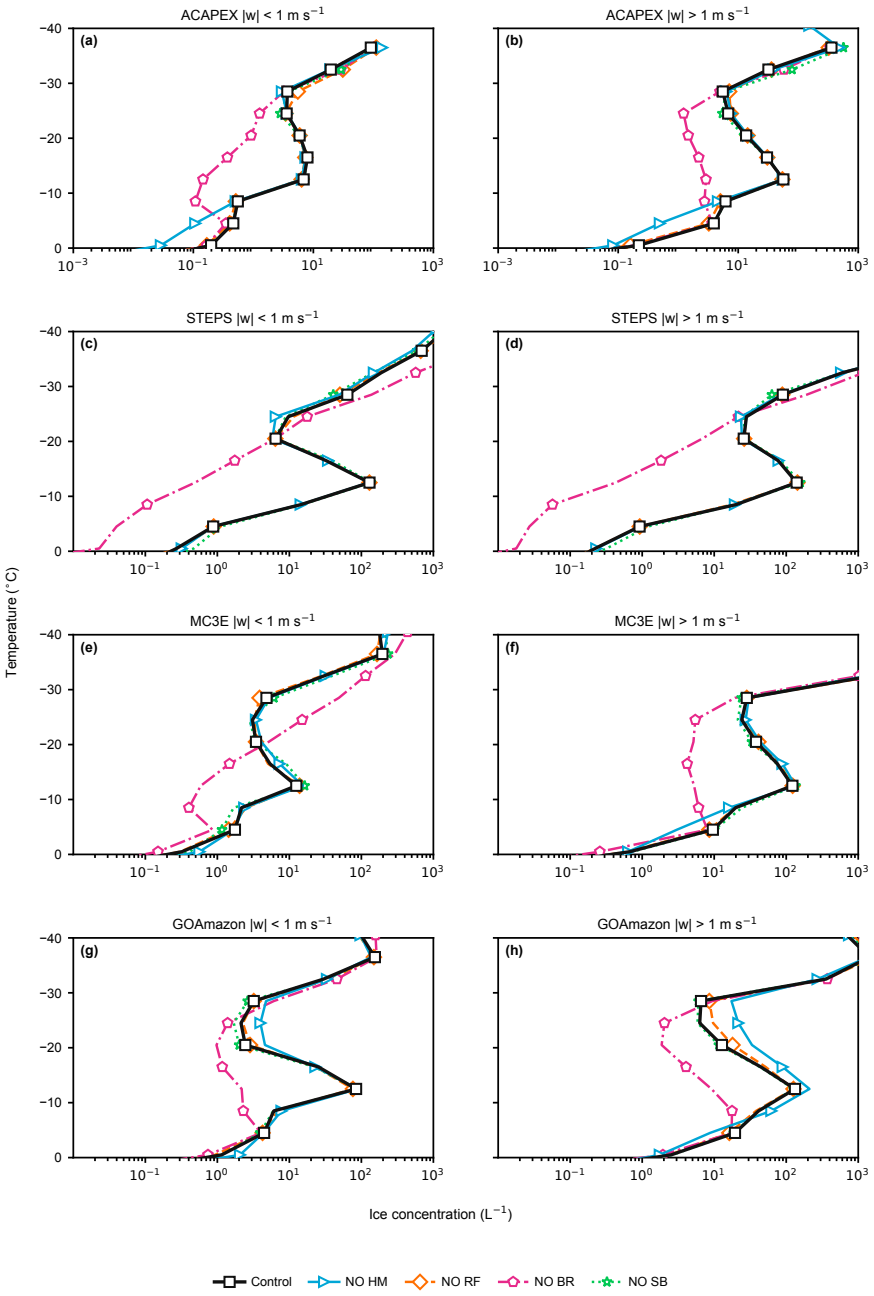


Fig. S3 Average ice concentration profile displayed here for the stratiform (left side panels) and convective (right side panels) regions of the (a,b) ACAPEX, (c,d)STEPS , (e,f) MC3E, and (g,h) GOAmazon. The lines represent the ice concentrations from No HM run (cyan right-pointing triangles), No RF run (orange diamonds), No BR run (magenta pentagram), No SB run (green star) and control (black full line with open squares).

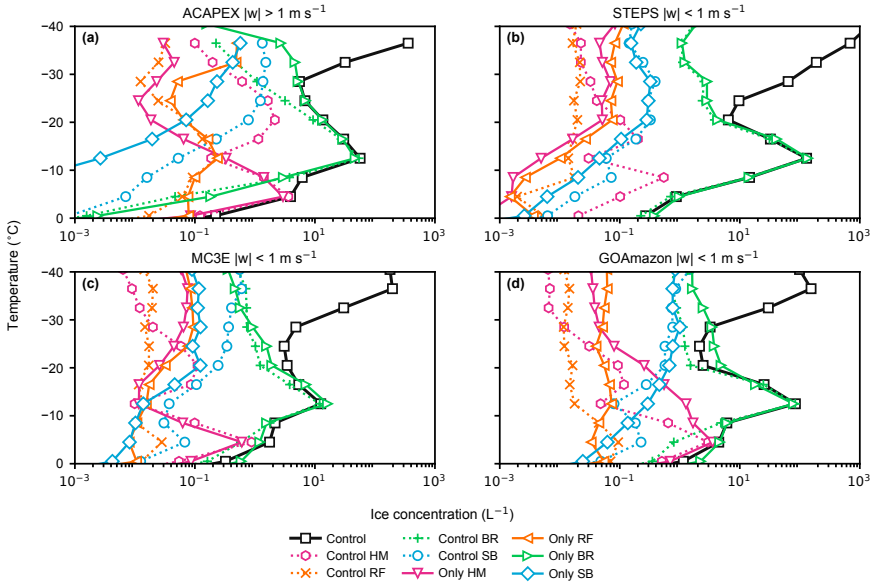


Fig. S4 Averaged vertical profiles of ice concentrations shown here for the (a) convective regions of ACAPEX and stratiform cloud regions of (b) STEPS, (c) MC3E, and (d) GOAmazon system. The various lines represent the ice concentrations from only-HM run (cyan upward-pointing triangles), only-RF run (orange downward-pointing triangles), only-BR run (magenta diamond), only-SB run (green plus). Also shown are the control (black full line with open squares) and no-SIP (dashed black line with open circles) simulations.

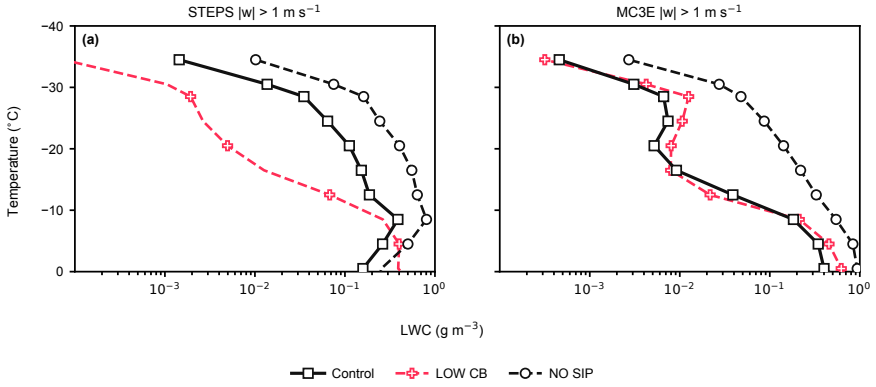


Fig. S5 Vertical profiles of LWC (g m^{-3}) for the convective regions of the (a) STEPS and (b) MC3E cases, for the control (open squares on solid line), No-SIP (open circles on dashed line) and low cloud base (pentagrams on red dashed line) runs.