

# Future emergence of novel ecosystem terrain caused by glacial retreat

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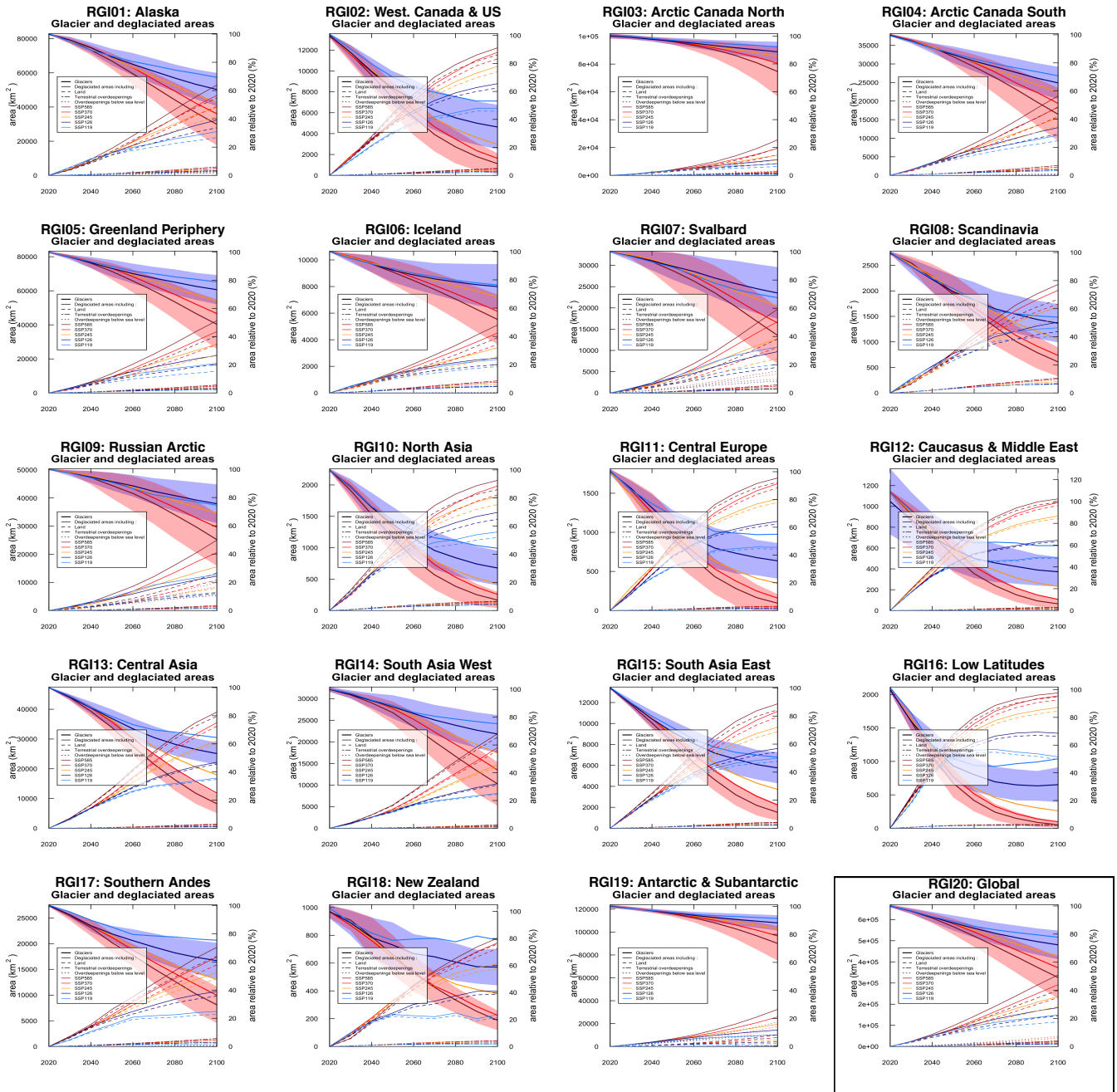
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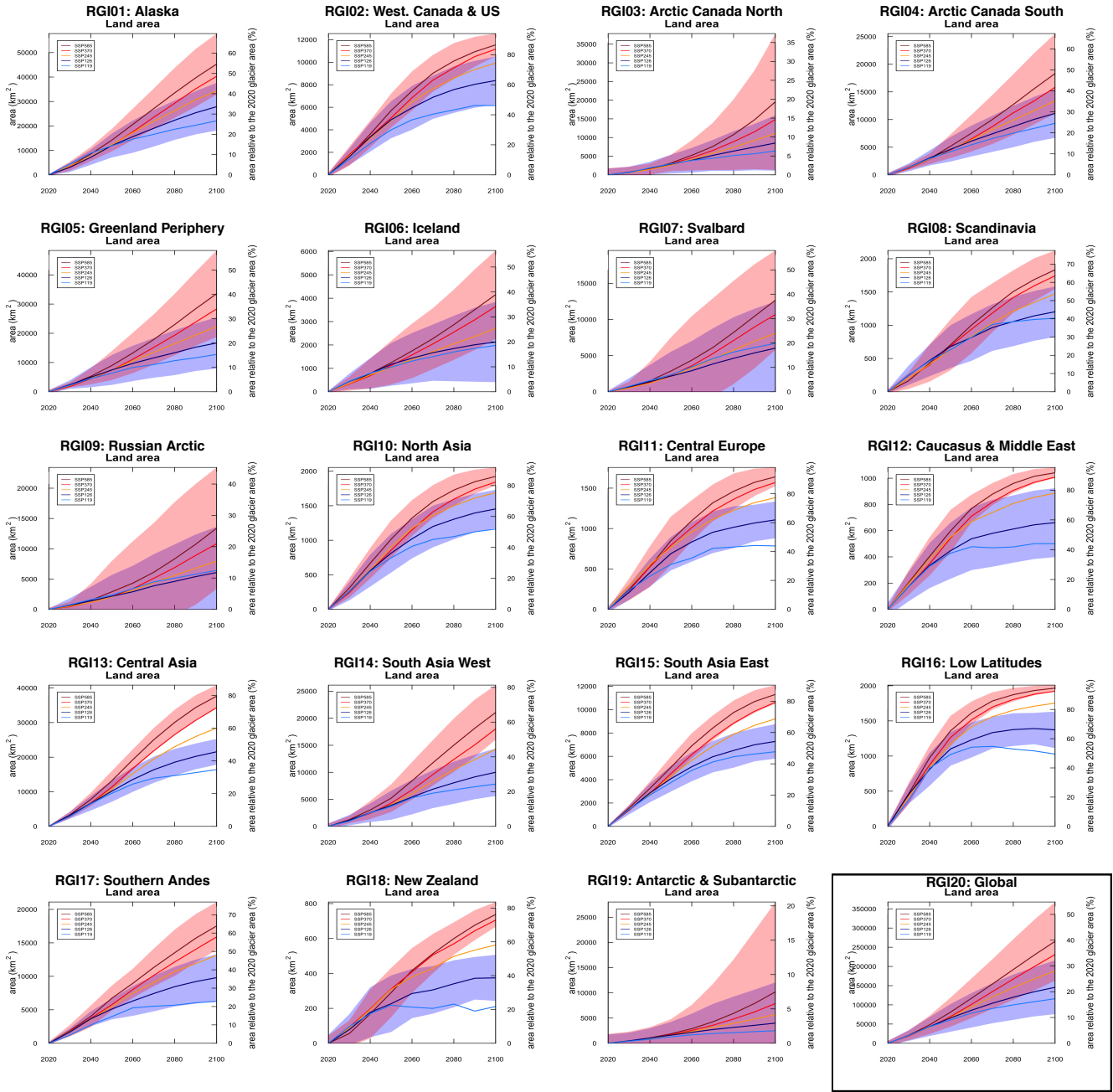
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## SUPPLEMENTARY FIGURES

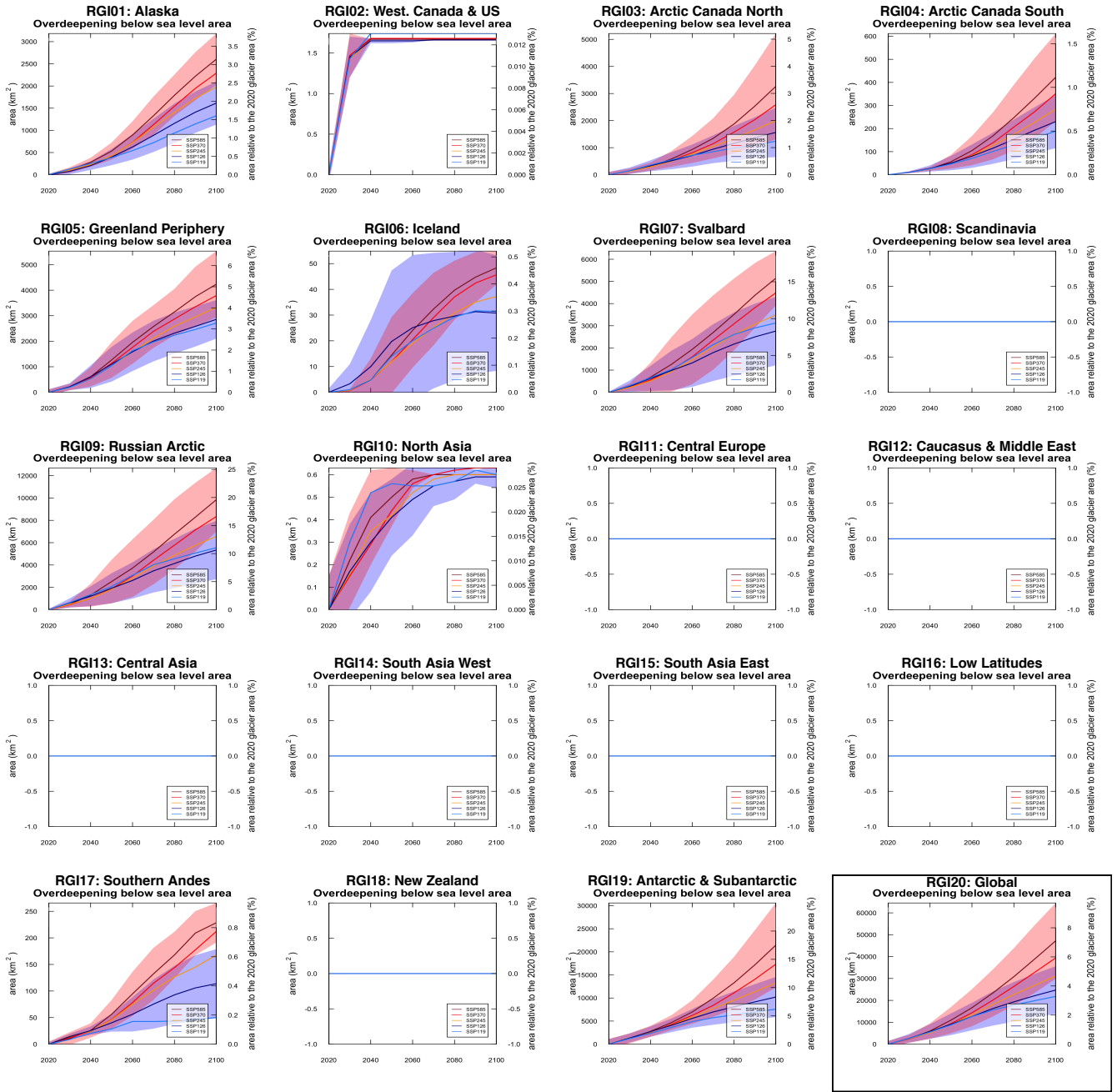


**Supplementary Figure 1: Future evolution of glaciers and emerging deglaciated areas.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5 and for glacier area evolution.

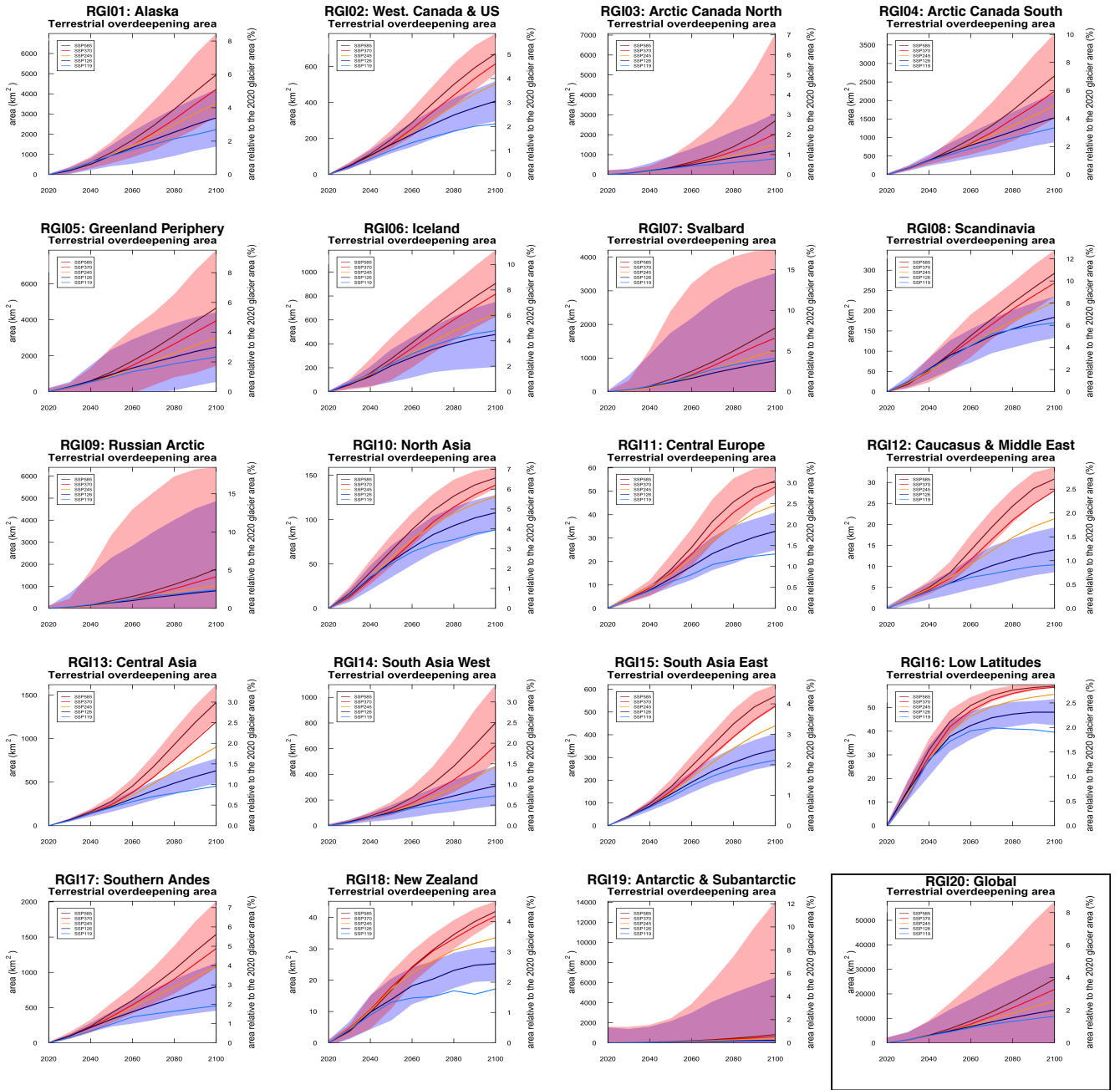




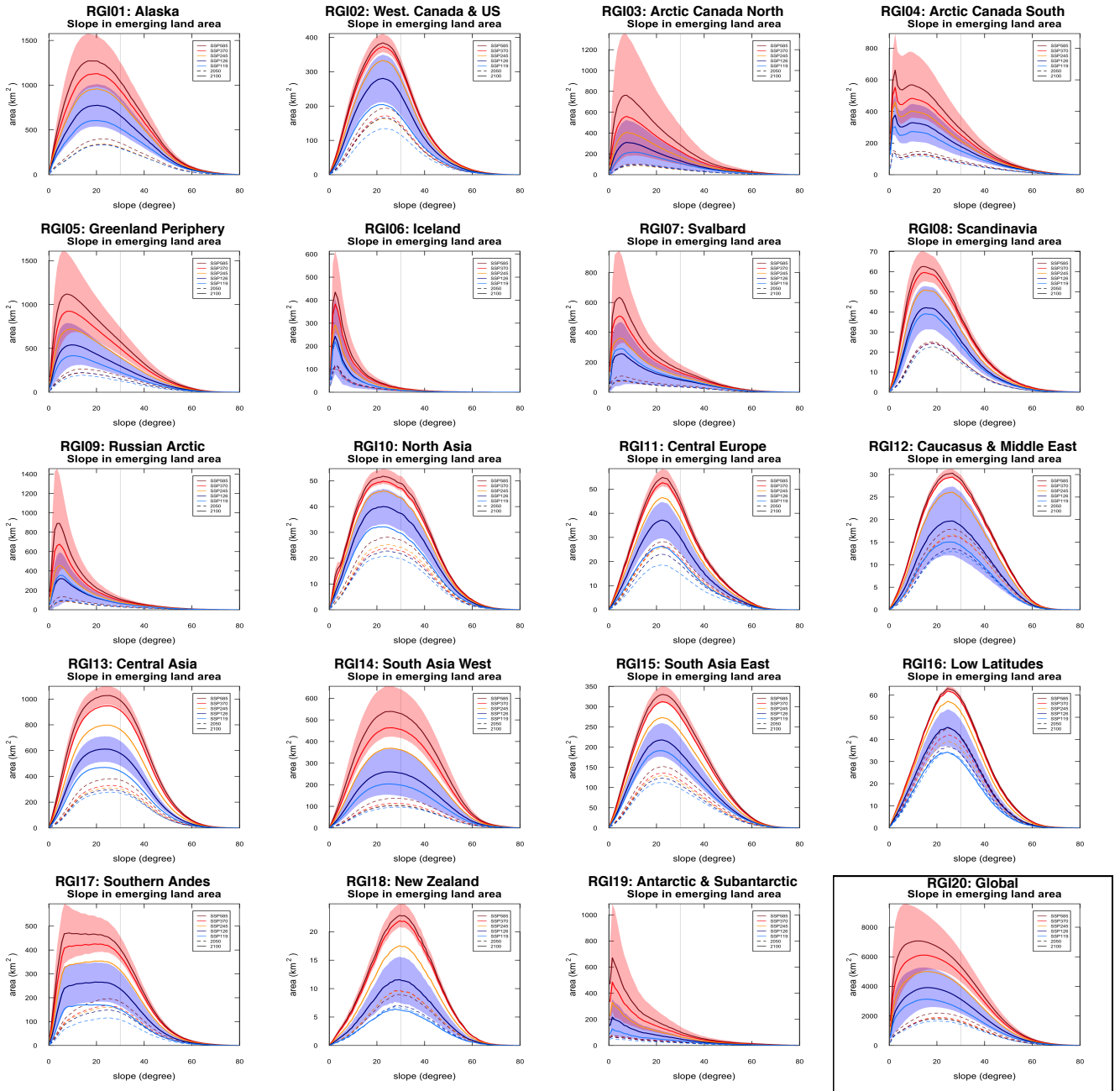
**Supplementary Figure 2: Future evolution of emerging terrestrial areas.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



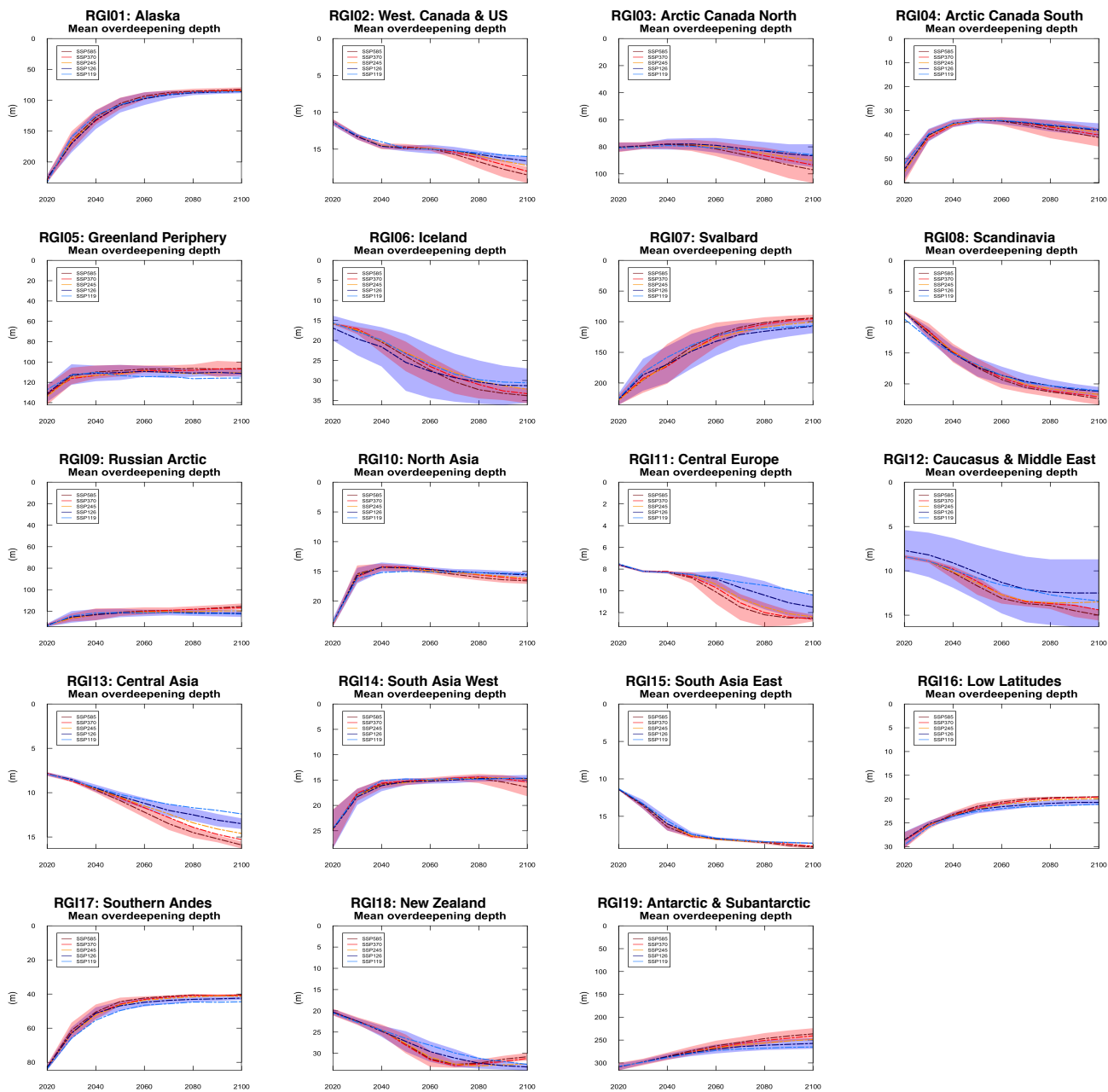
**Supplementary Figure 3: Future evolution of emerging overdeepenings below sea level areas.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



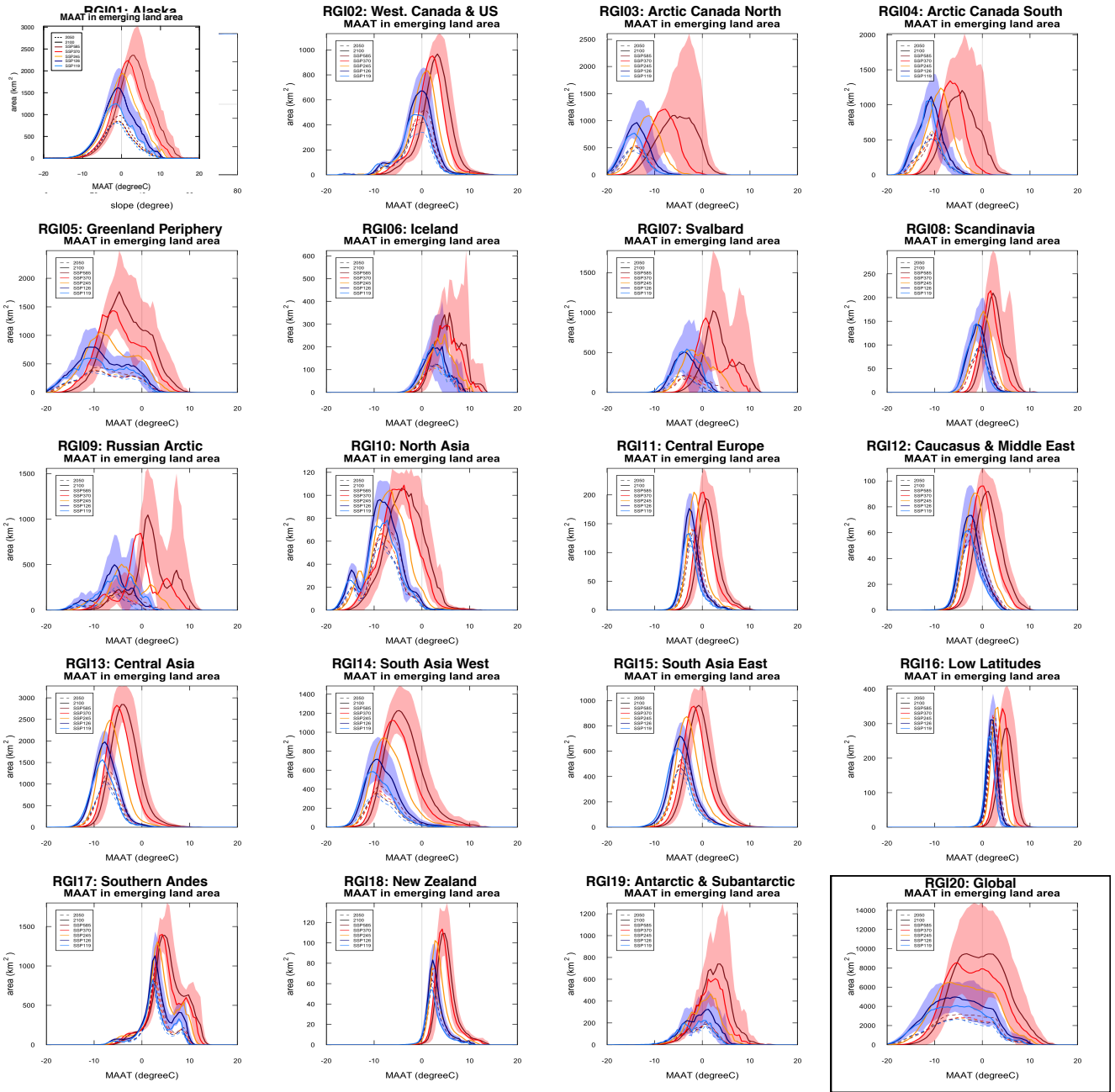
**Supplementary Figure 4: Future evolution of emerging terrestrial overdeepenings areas.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



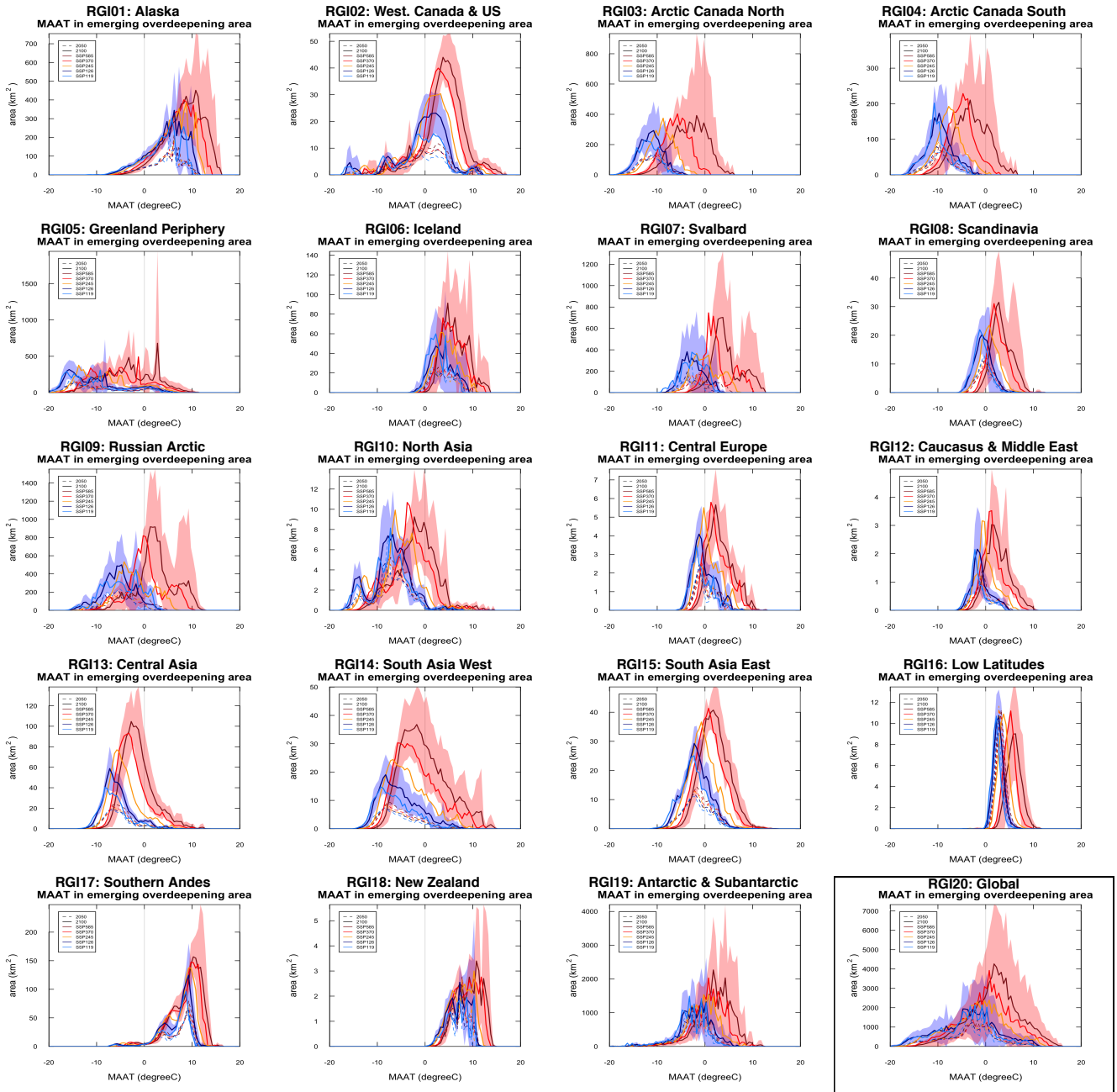
**Supplementary Figure 5: Slope distribution in emerging terrestrial areas.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



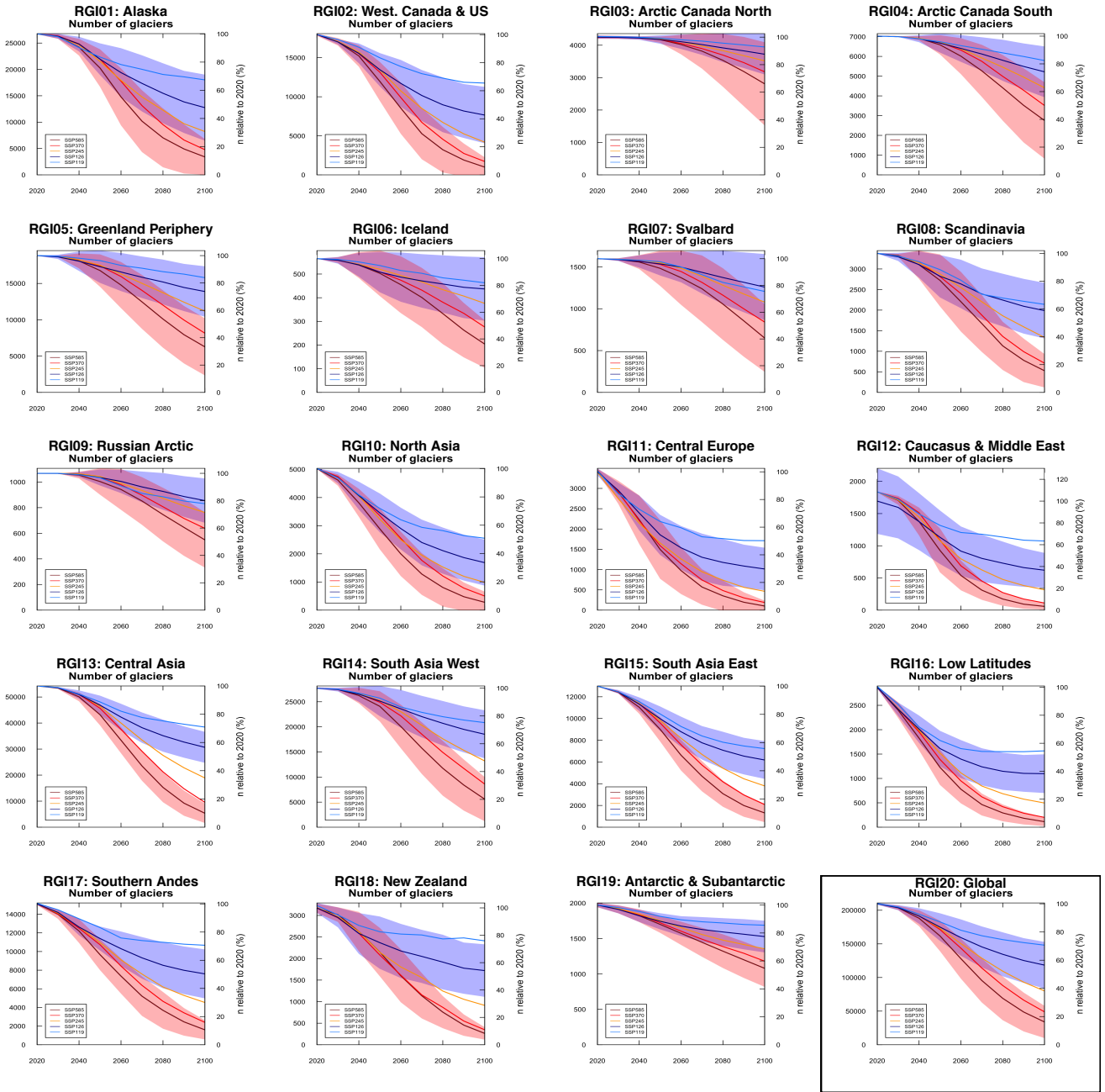
**Supplementary Figure 6: Mean depth of future emerging overdeepenings.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



**Supplementary Figure 7: Mean Annual Air Temperature (MAAT) distribution in terrestrial areas in the 2000-2110 period. For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.**

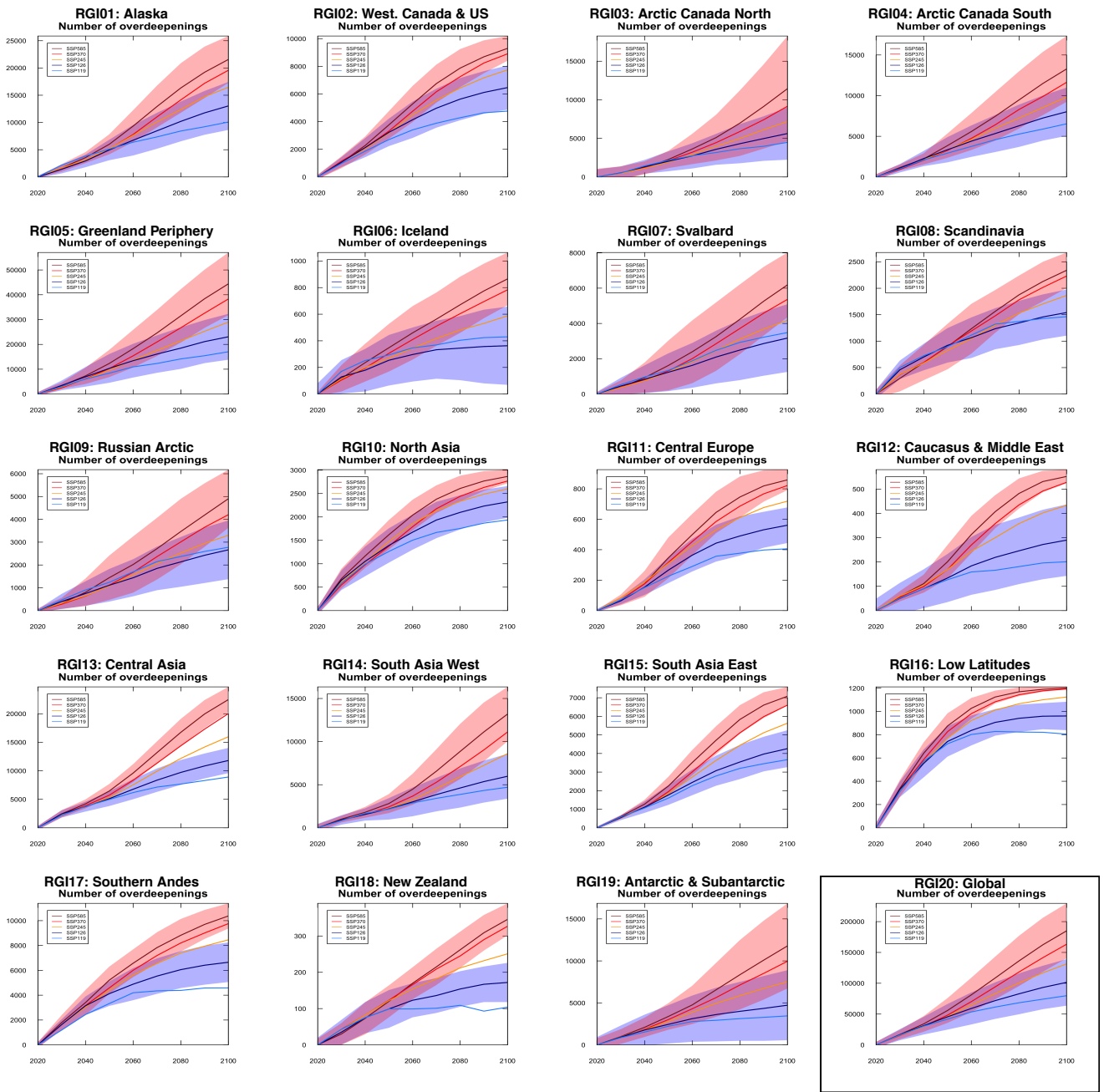


**Supplementary Figure 8: Mean Annual Air Temperature (MAAT) distribution in emerging overdeepening areas in the 2000-2110 period.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.

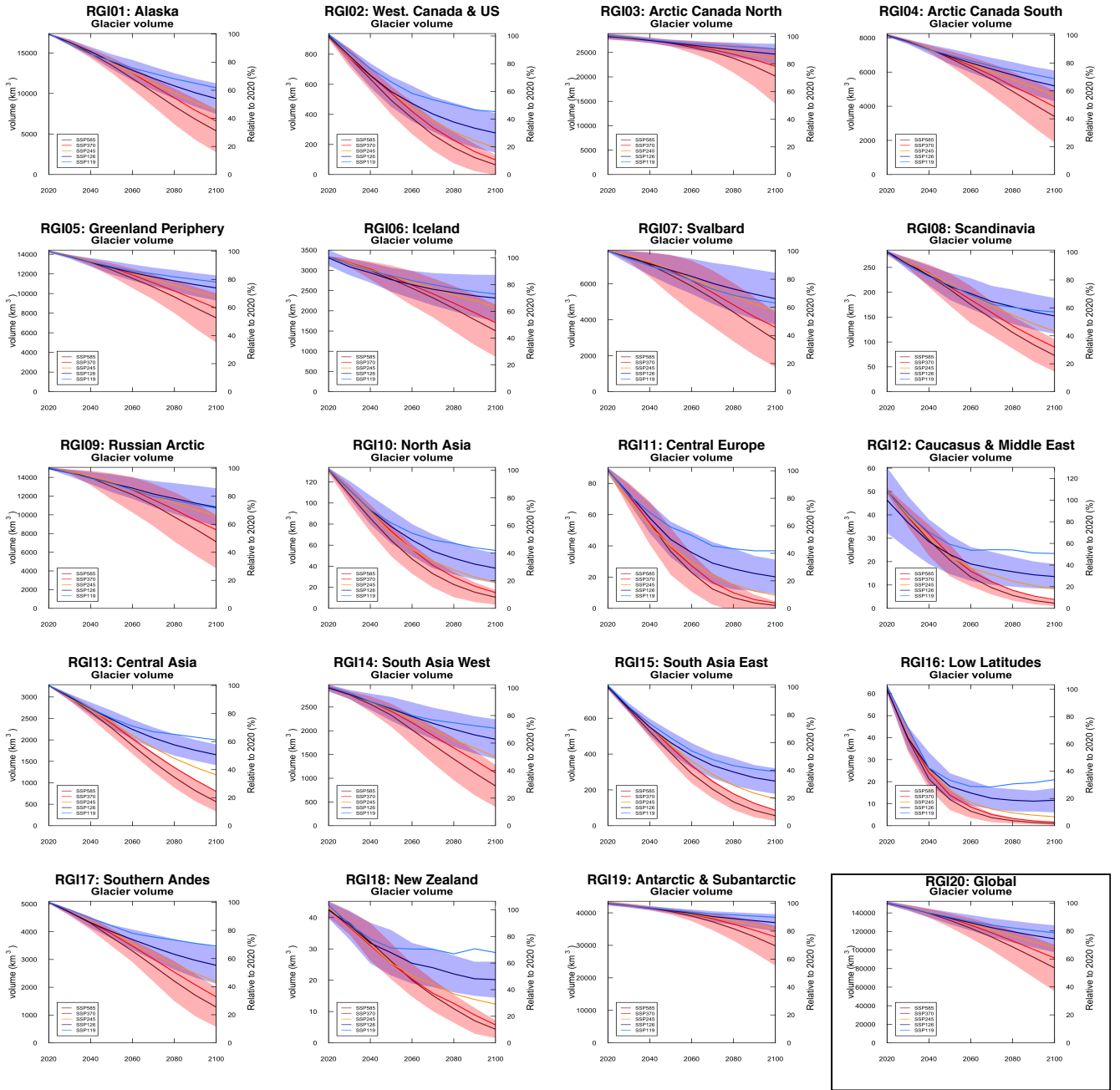


**Supplementary Figure 9: Future evolution of glacier number.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.

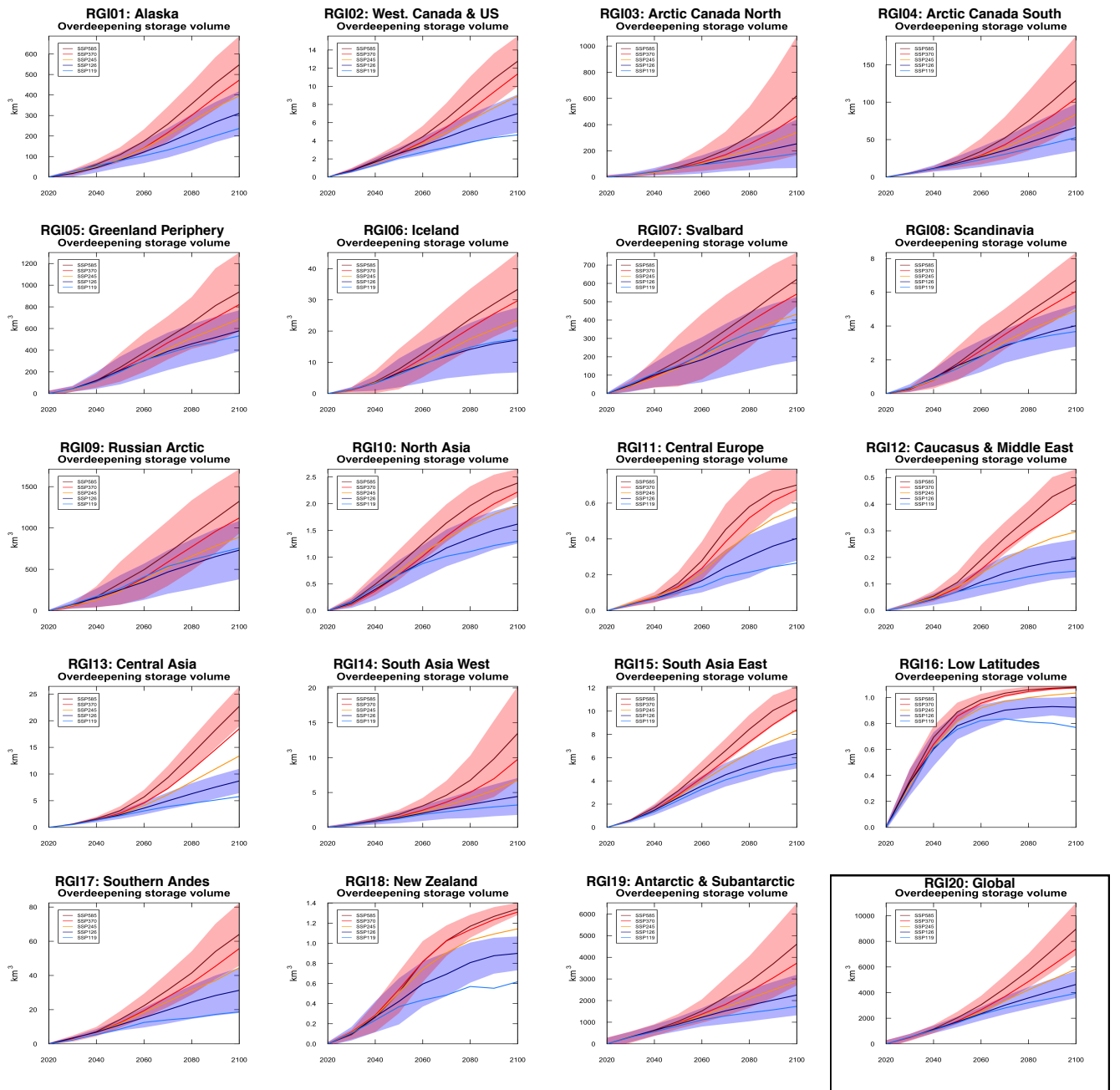




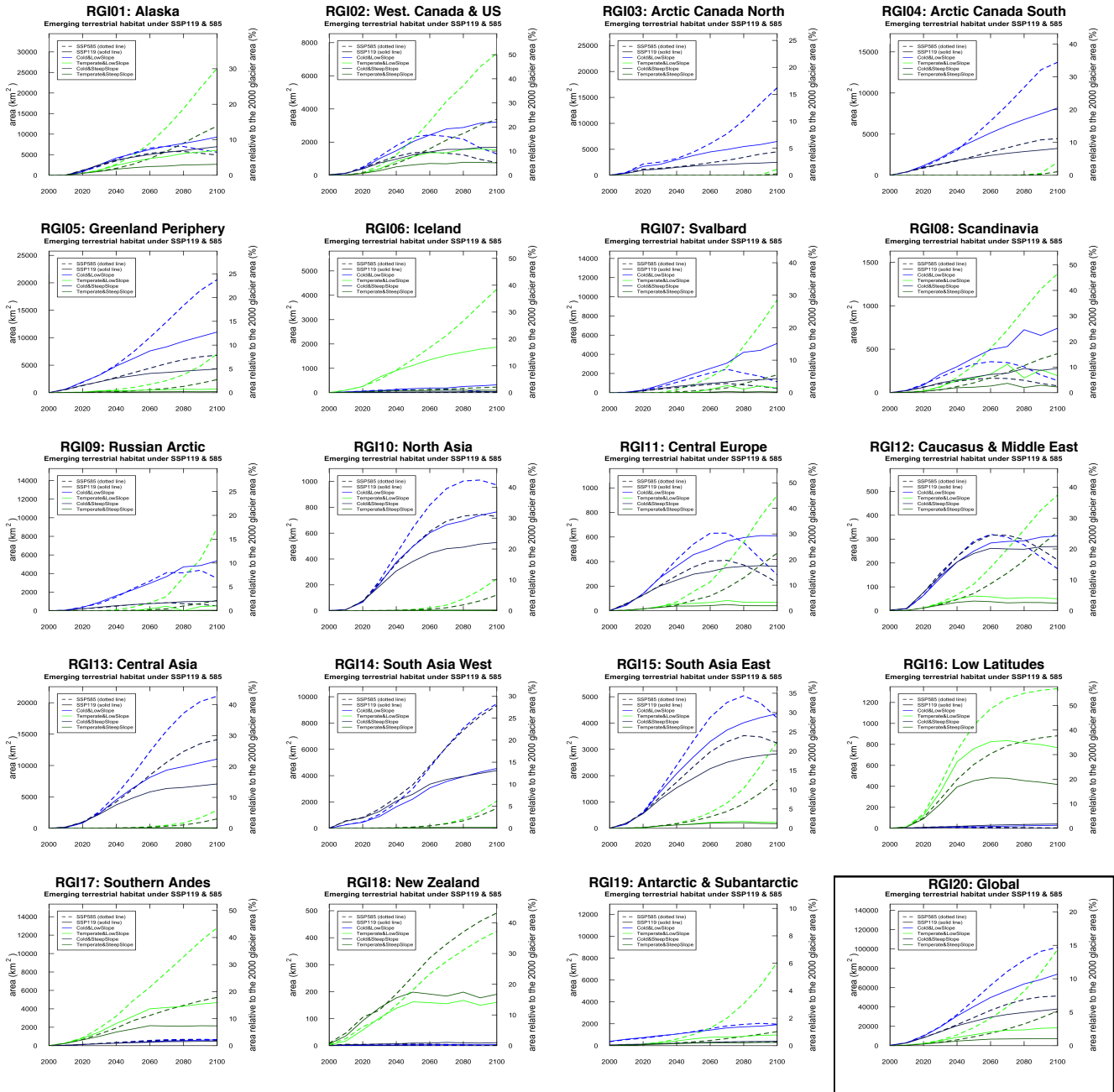
**Supplementary Figure 10: Future evolution of the number of emerging bedrock overdeepenings and, thus potential lakes and fjords.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



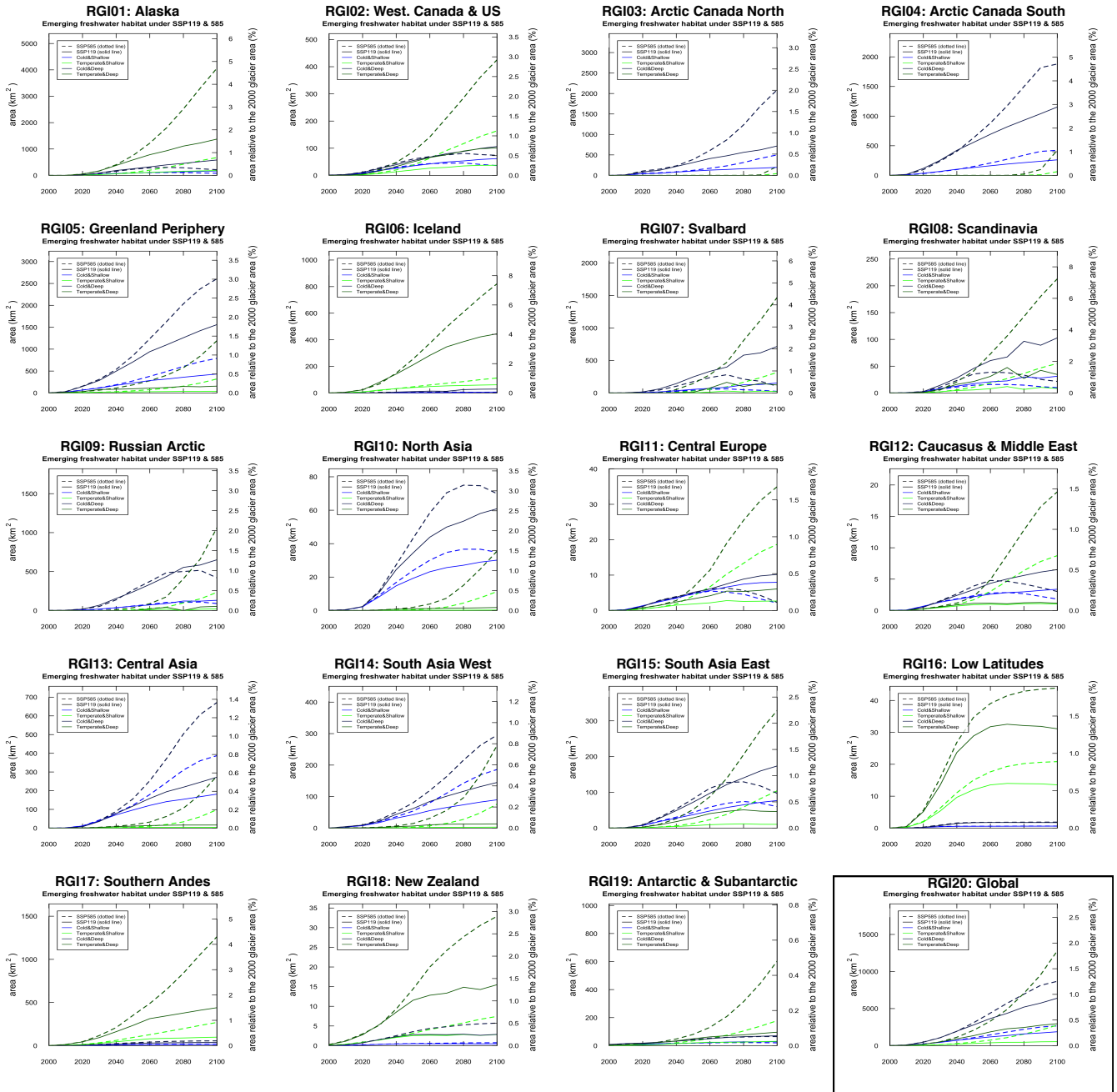
**Supplementary Figure 11: Future evolution of glacier volume.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



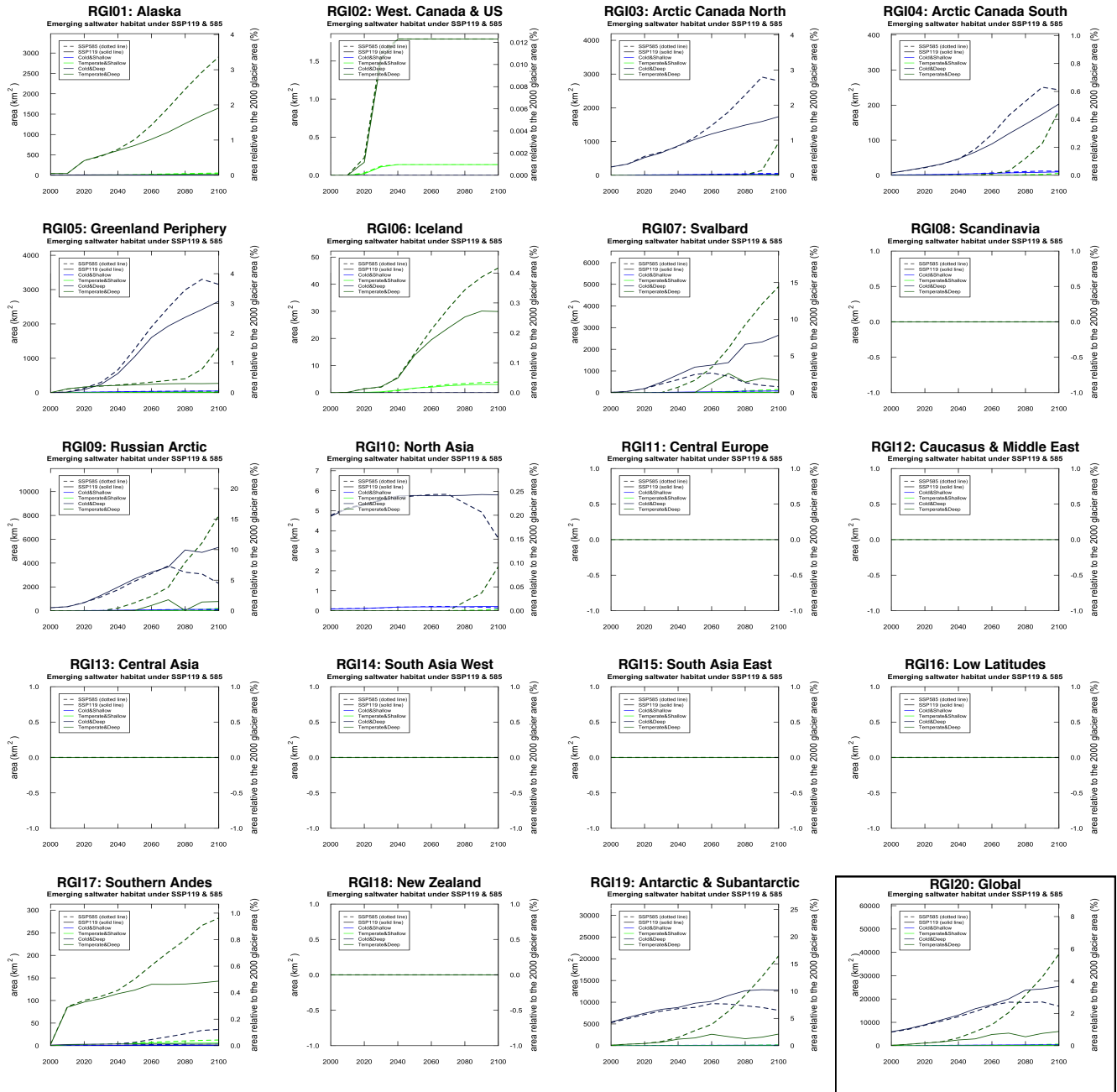
**Supplementary Figure 12: Future evolution of emerging overdeepening volume.** For clarity, standard deviations ( $\pm 1\sigma$ ) are solely displayed for SSP 1-2.6 in blue and the SSP 5-8.5.



**Supplementary Figure 13: Future evolution of *habitats* in emerging land areas.** This first order classification relies on the thresholds of  $30^\circ$  for slope and  $0^\circ\text{C}$  for Mean Annual Air Temperature.



**Supplementary Figure 14: Future evolution of *habitats* in emerging terrestrial overdeepening areas.** This first order classification relies on the thresholds of 5m for depth and 0°C for Mean Annual Air Temperature.



**Supplementary Figure 15: Future evolution of *habitats* in emerging overdeepening below sea level areas.** This first order classification relies on the thresholds of 5m for depth and 0°C for Mean Annual Air Temperature.