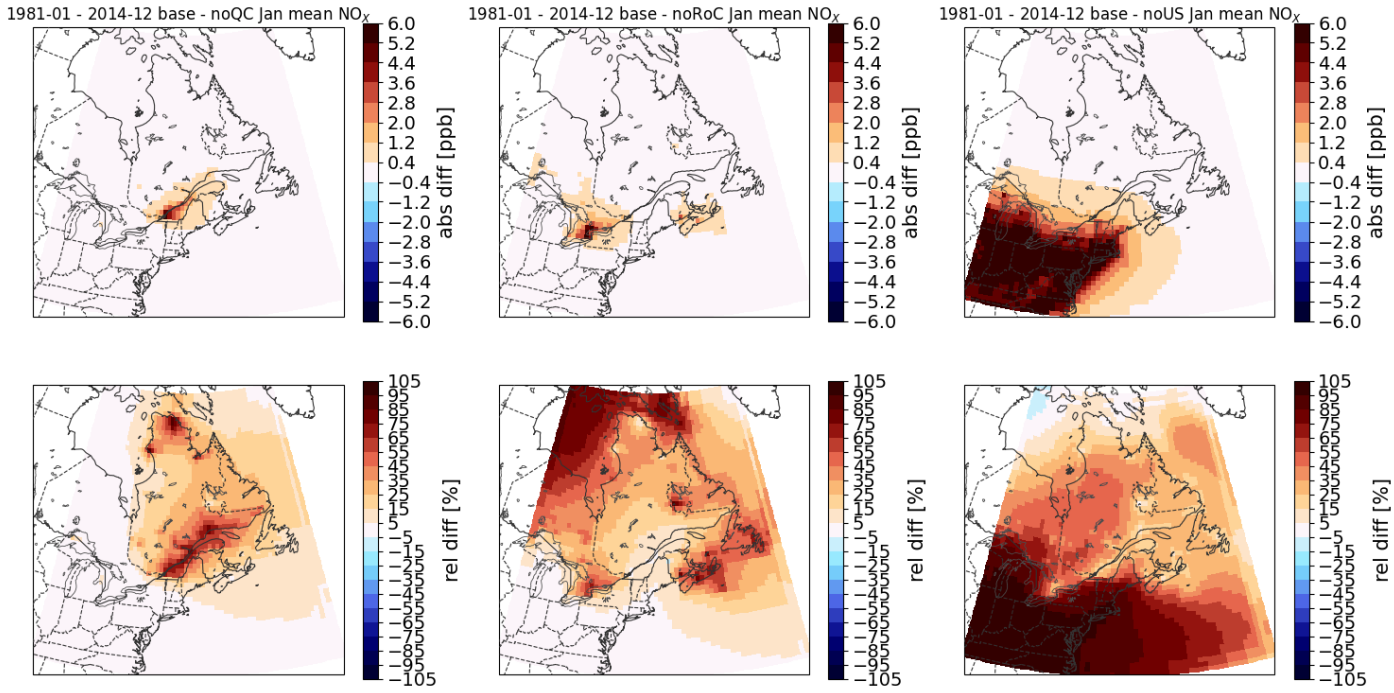

Fig. A1 Differences in January NO_X surface concentrations between the sensitivity simulations and the base simulation. Top row: absolute differences. Bottom row: relative differences. The three columns show the results of the noQC (left), noRoC (centre) and noUS (right) sensitivity simulations.

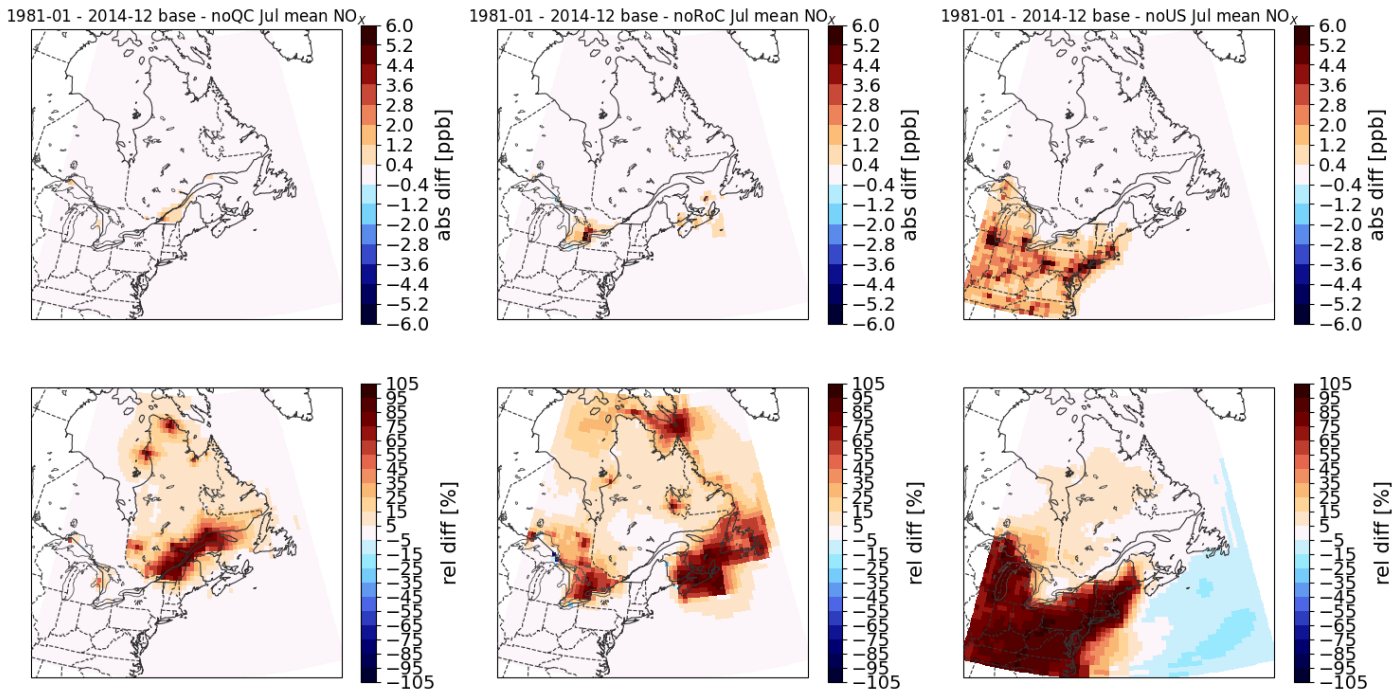

Fig. A2 Differences in July NO_X surface concentrations between the sensitivity simulations and the base simulation. Top row: absolute differences. Bottom row: relative differences. The three columns show the results of the noQC (left), noRoC (centre) and noUS (right) sensitivity simulations.

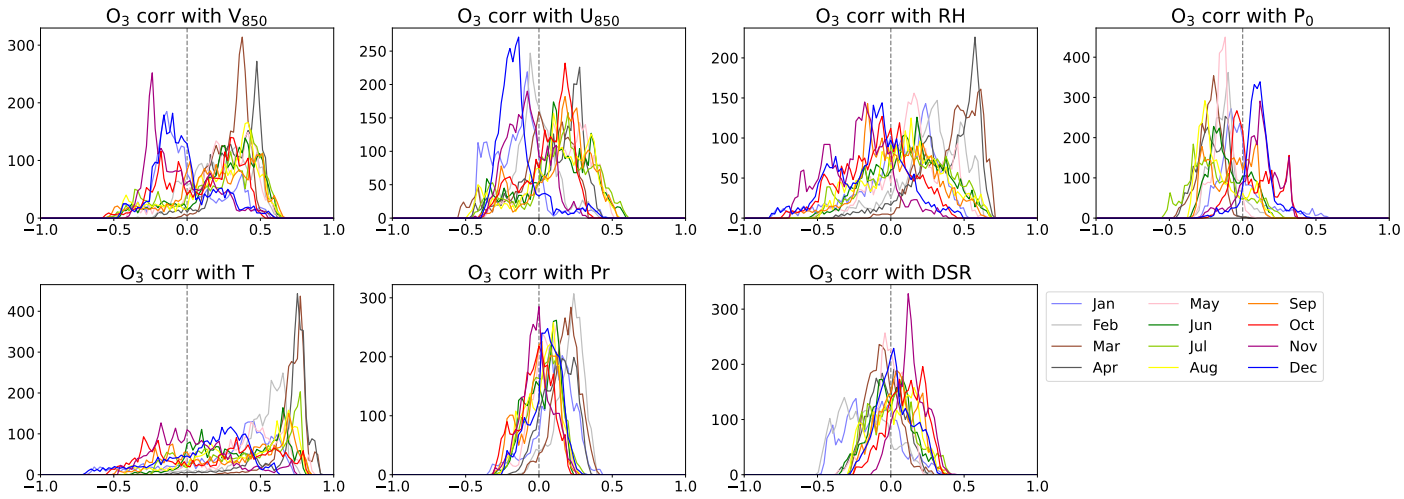

Fig. A3 Monthly histograms of correlations between O_3 concentrations and the meteorological variables.

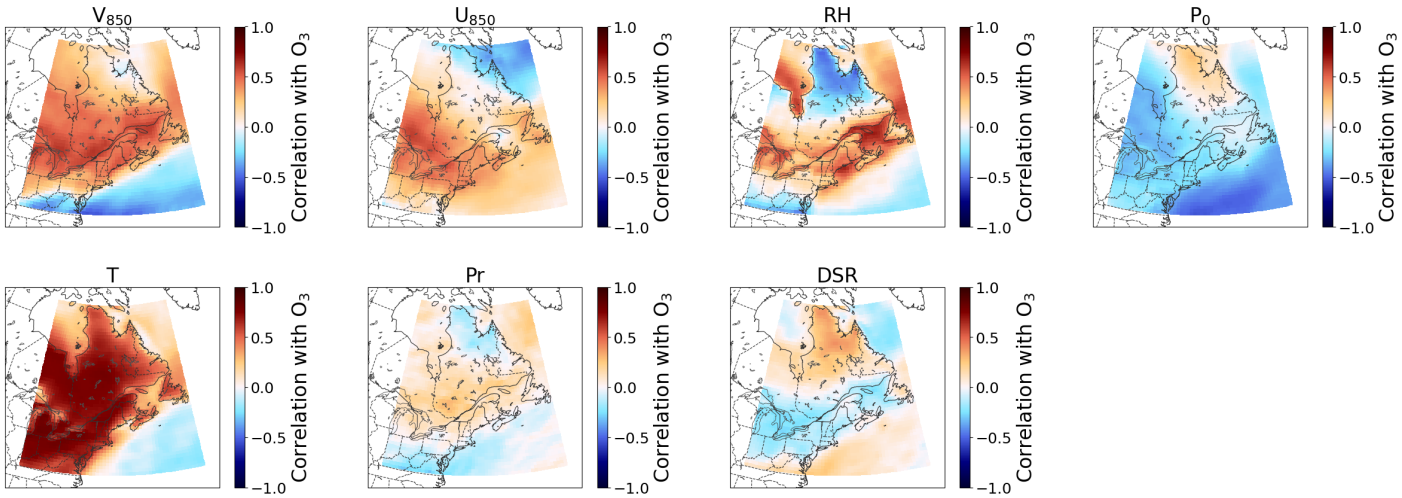

Fig. A4 July correlations between the O_3 concentrations and the meteorological variables.

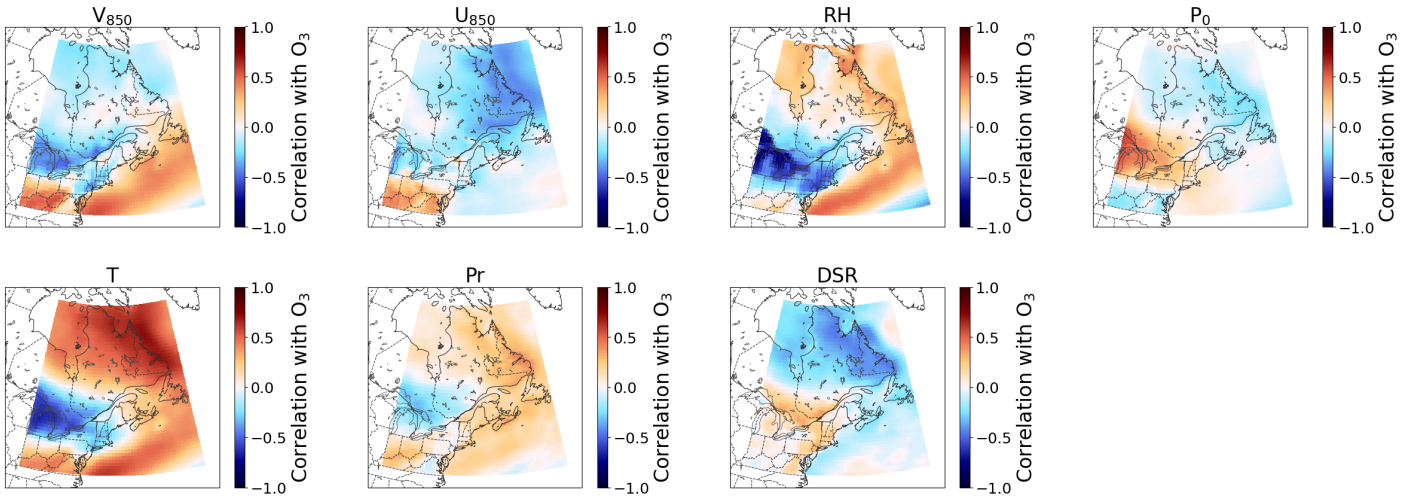

Fig. A5 January correlations between the O_3 concentrations and the meteorological variables.

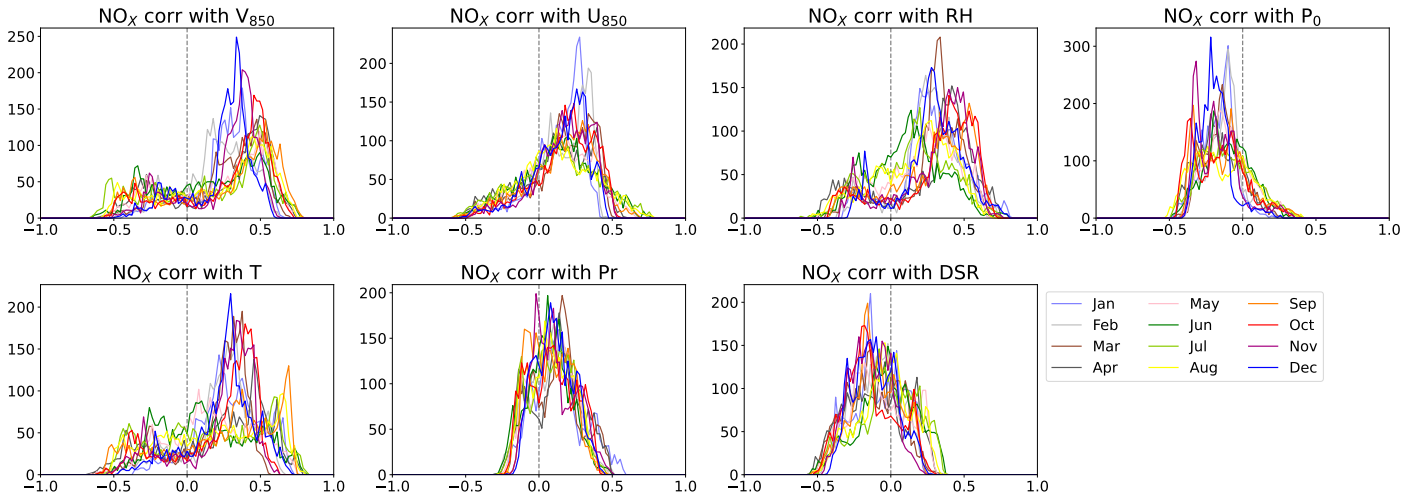

Fig. A6 Monthly histograms of correlations between NO_X concentrations and the meteorological variables.

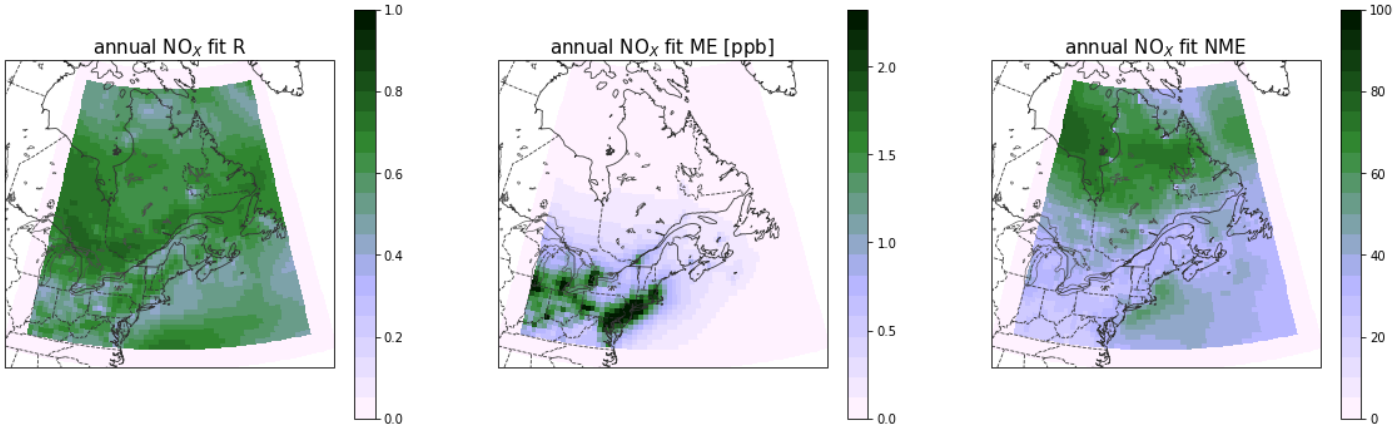

Fig. A7 Annual means of goodness-of-fit metrics between the emulator and the training data for NO_X. Left: correlation coefficient. Centre: mean error. Right: normalized mean error.

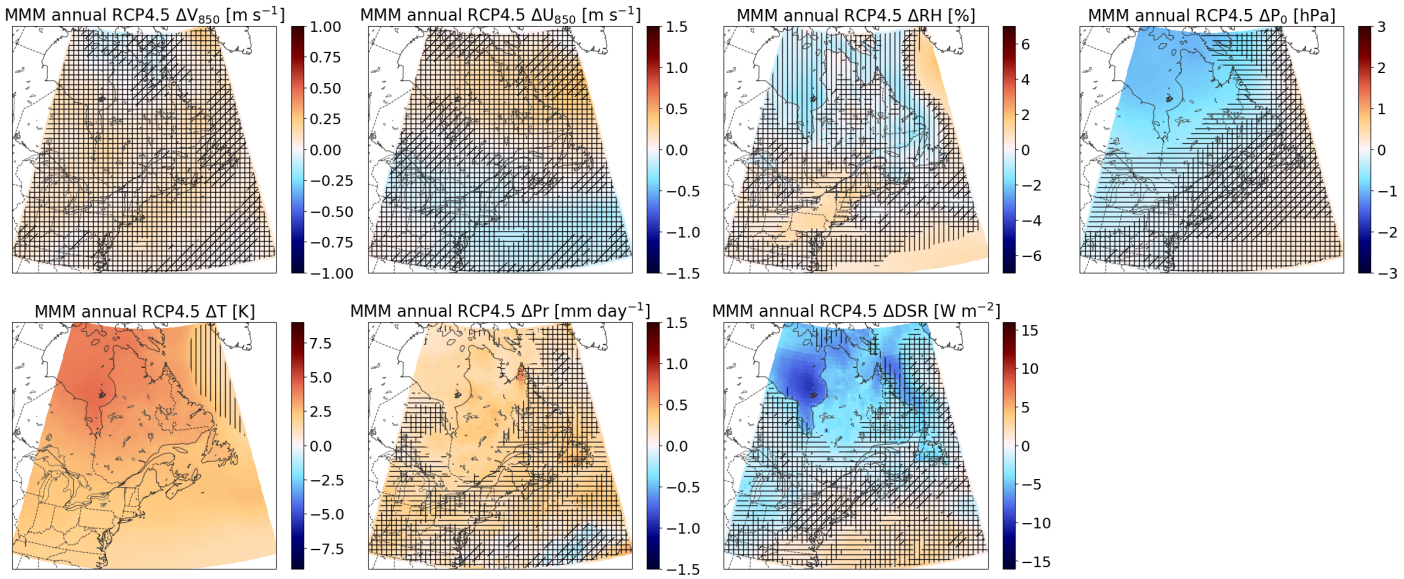

Fig. A8 CRCM5 ensemble-mean projected changes in meteorological variables for the RCP4.5 scenario. Hatching is described in Sect. 3.3

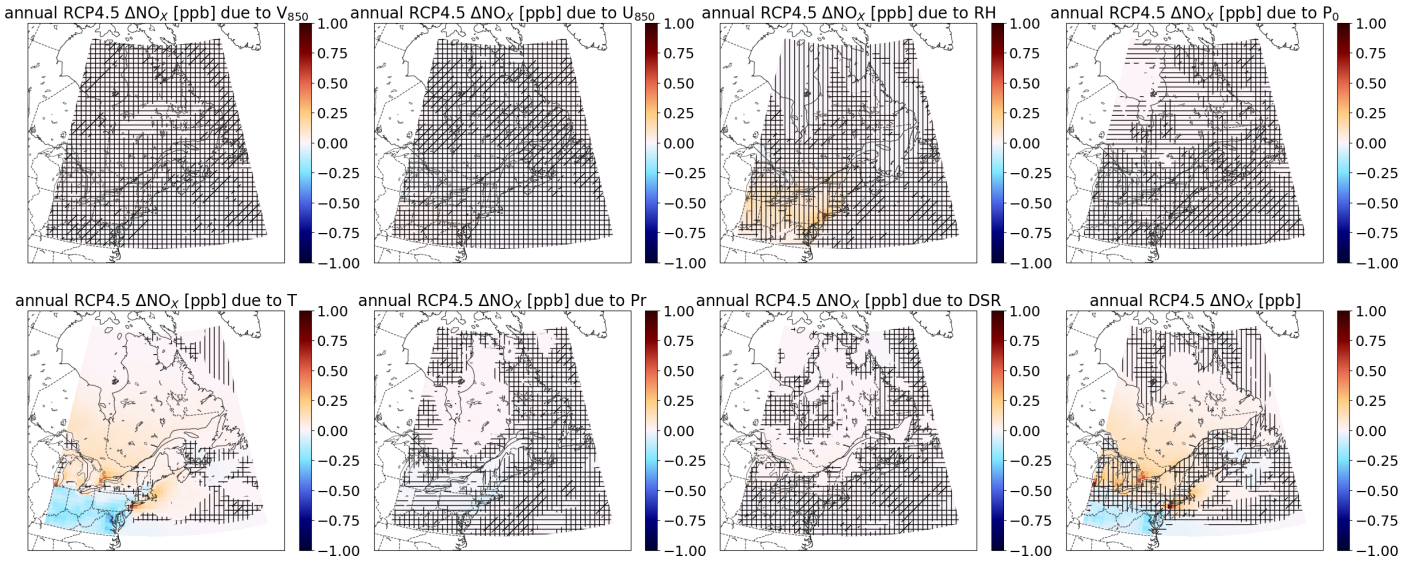

Fig. A9 CRCM5 ensemble-mean projected changes in annual mean NO_X concentrations for the RCP4.5 scenario due to each meteorological variable in isolation. Total projected change is shown in the lower right. Hatching is described in Sect. 3.3.

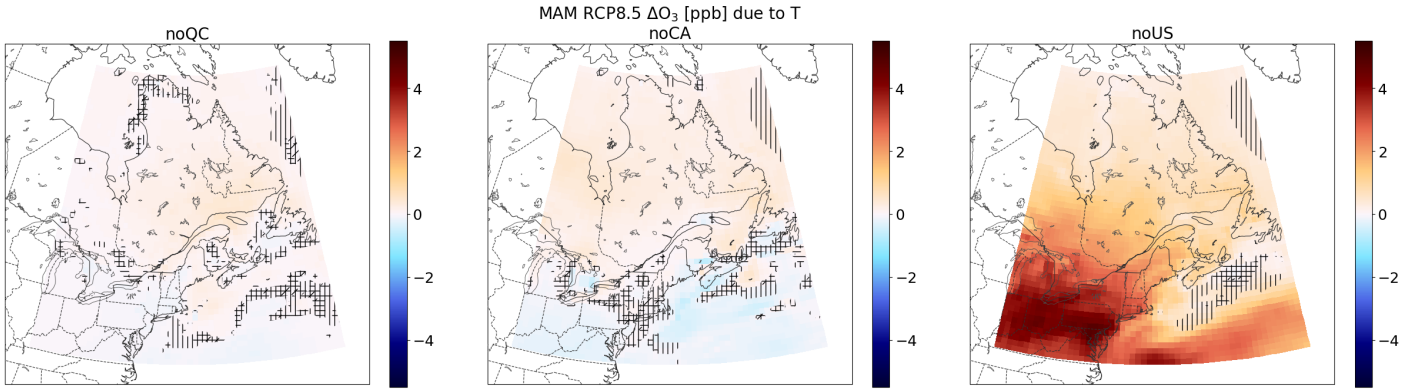

Fig. A10 Spring (March, April, May) means of CRCM5 ensemble-mean changes in the absolute contributions of different regions to the O_3 concentrations for the RCP8.5 scenario due to changes in only T. Hatching is described in Sect. 3.3. Left: contribution from Quebec (base - noQC). Centre: contribution from the RoC (base - noRoC). Right: contribution from the US (base - noUS).

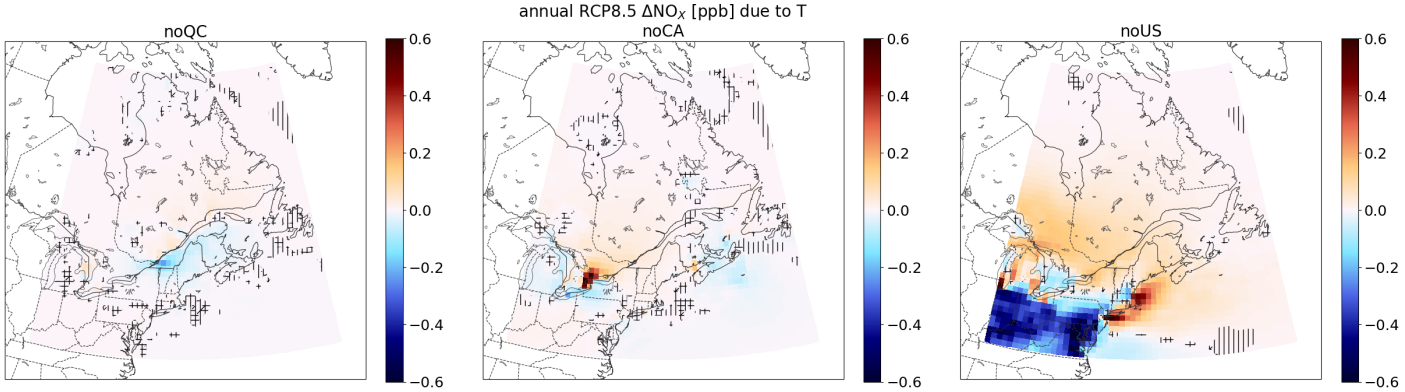

Fig. A11 Annual means of CRCM5 ensemble-mean changes in the absolute contributions of different regions to the NO_X concentrations for the RCP8.5 scenario due to changes in only T. Hatching is described in Sect. 3.3. Left: contribution from Quebec (base - noQC). Centre: contribution from the RoC (base - noRoC). Right: contribution from the US (base - noUS).

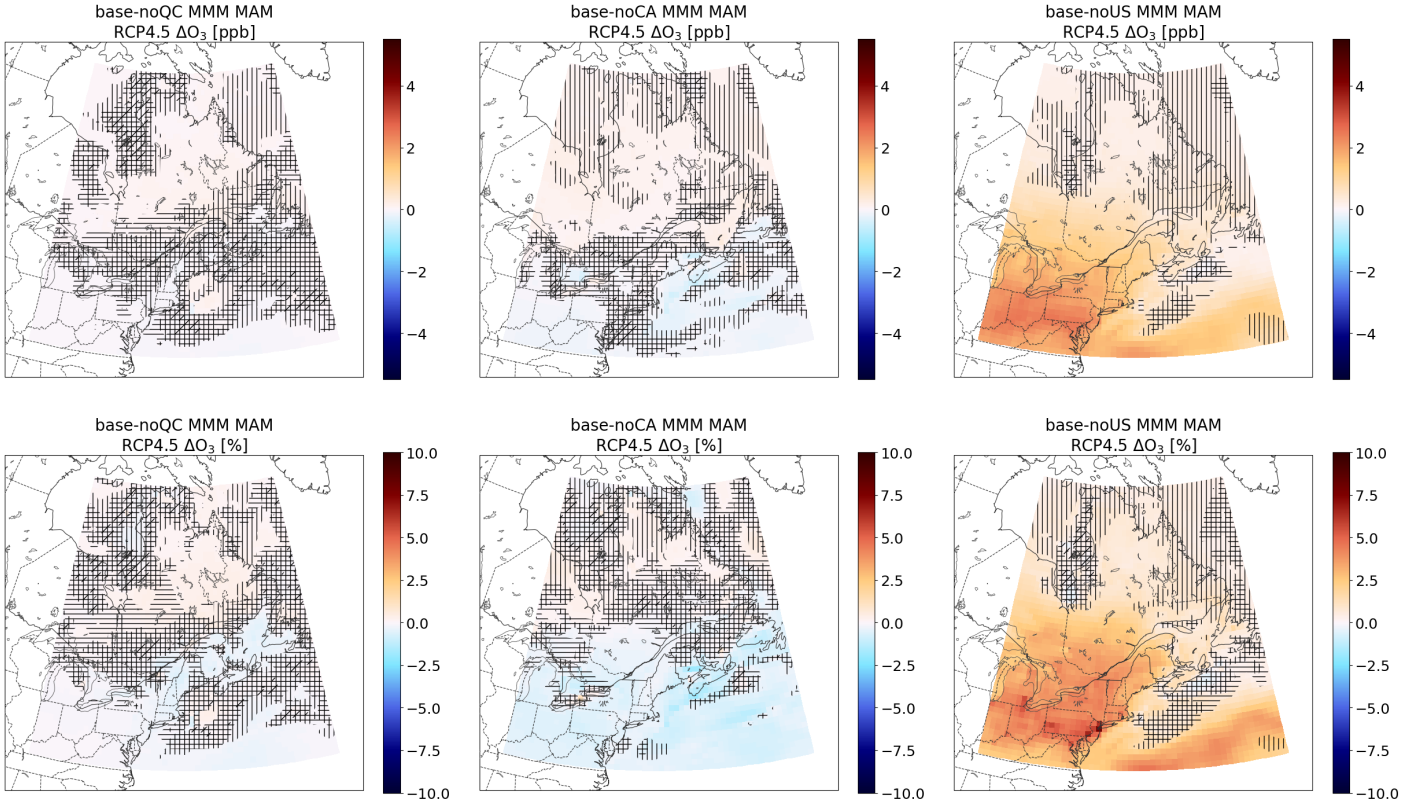

Fig. A12 Spring (March, April, May) means of CRCM5 ensemble-mean changes in the contributions of different regions to the O_3 concentrations. The GHG scenario is RCP4.5. Hatching is described in Sect. 3.3. Top: changes in absolute contributions. Bottom: changes in relative contributions. Left: contribution from Quebec (base - noQC). Centre: contribution from the RoC (base - noRoC). Right: contribution from the US (base - noUS).

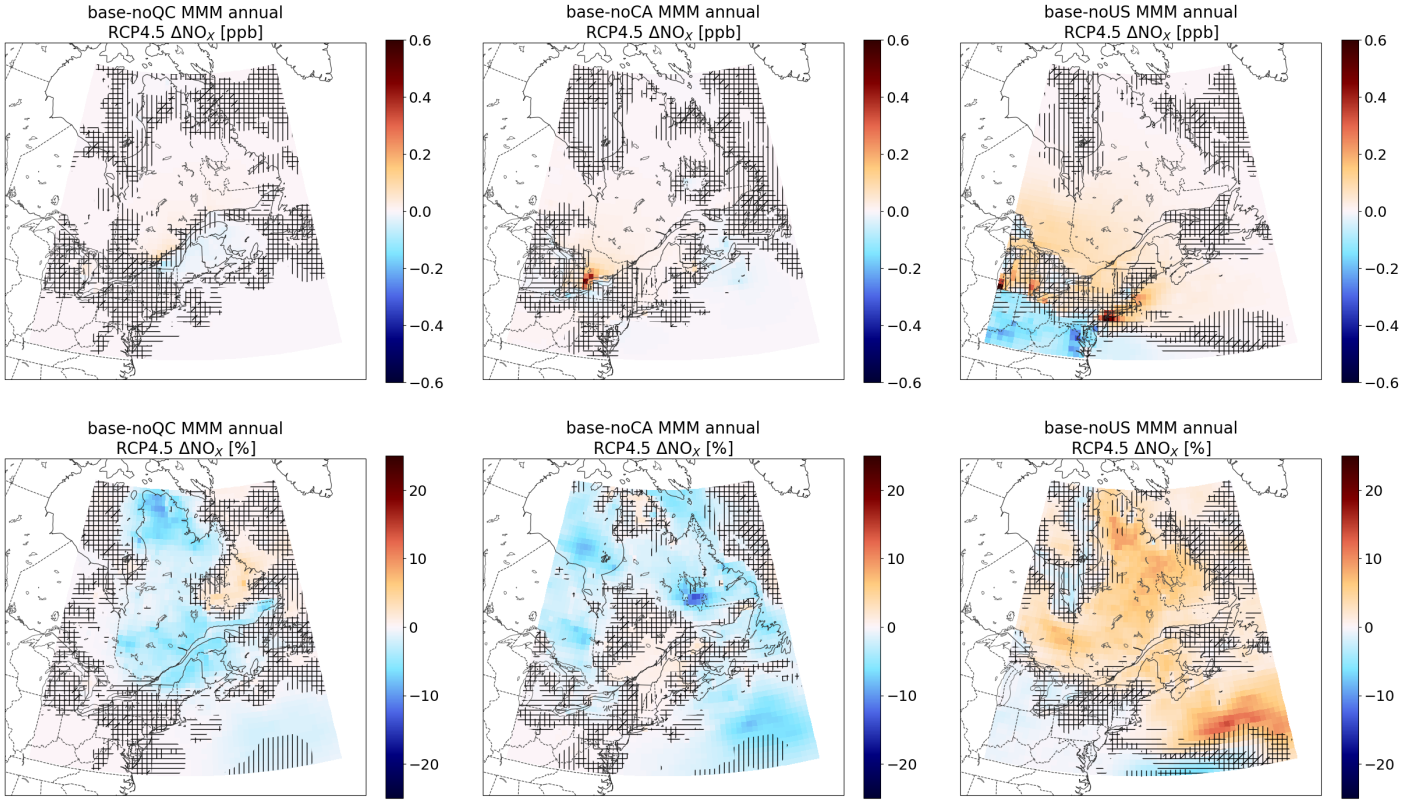

Fig. A13 Annual means of CRCM5 ensemble-mean changes in the contributions of different regions to the NO_X concentrations for the RCP4.5 scenario. Hatching is described in Sect. 3.3. Top: changes in absolute contributions. Bottom: changes in relative contributions. Left: contribution from Quebec (base - noQC). Centre: contribution from the RoC (base - noRoC). Right: contribution from the US (base - noUS).