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Supplement of

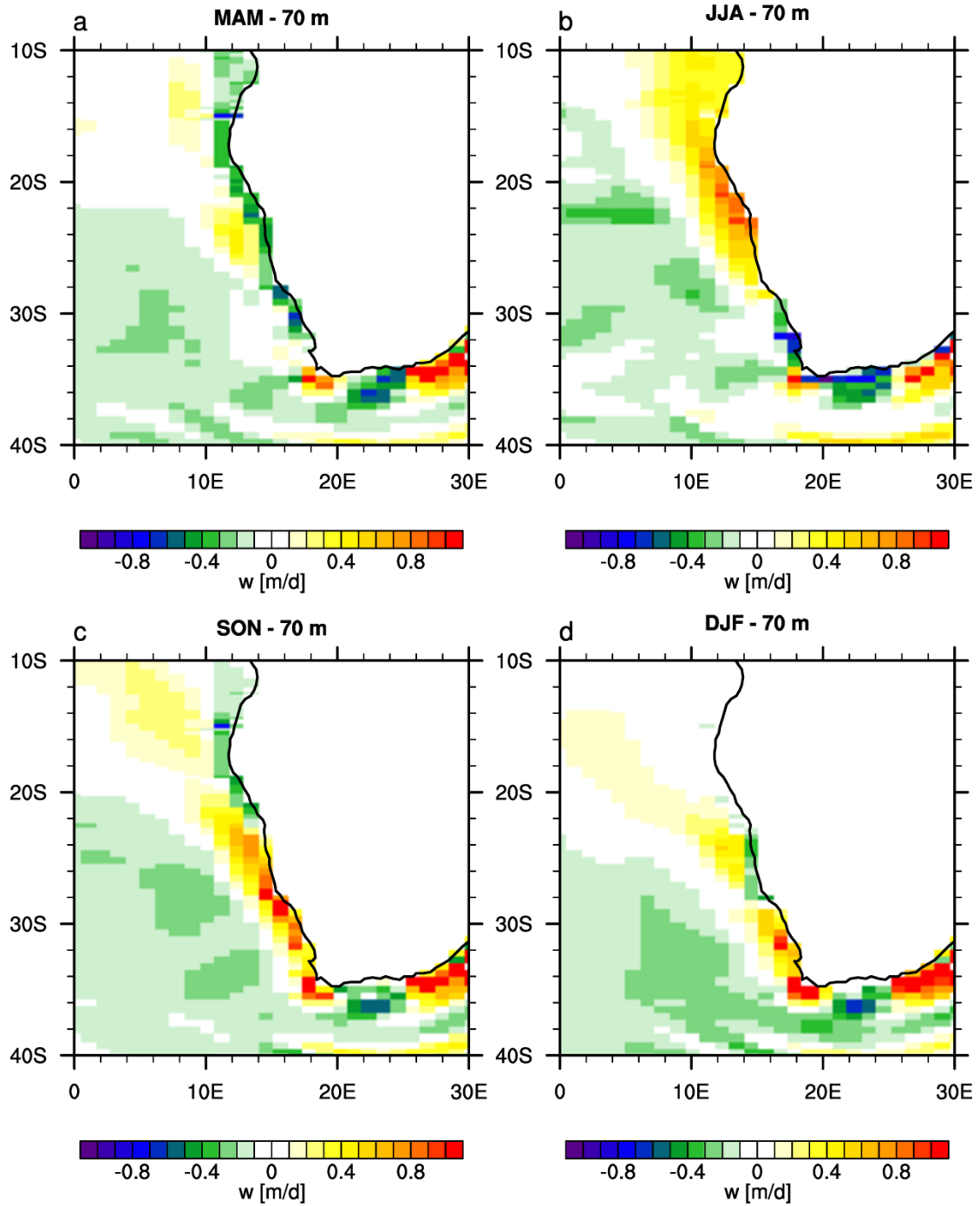
The effect of mountain uplift on eastern boundary currents and upwelling systems

Gerlinde Jung and Matthias Prange

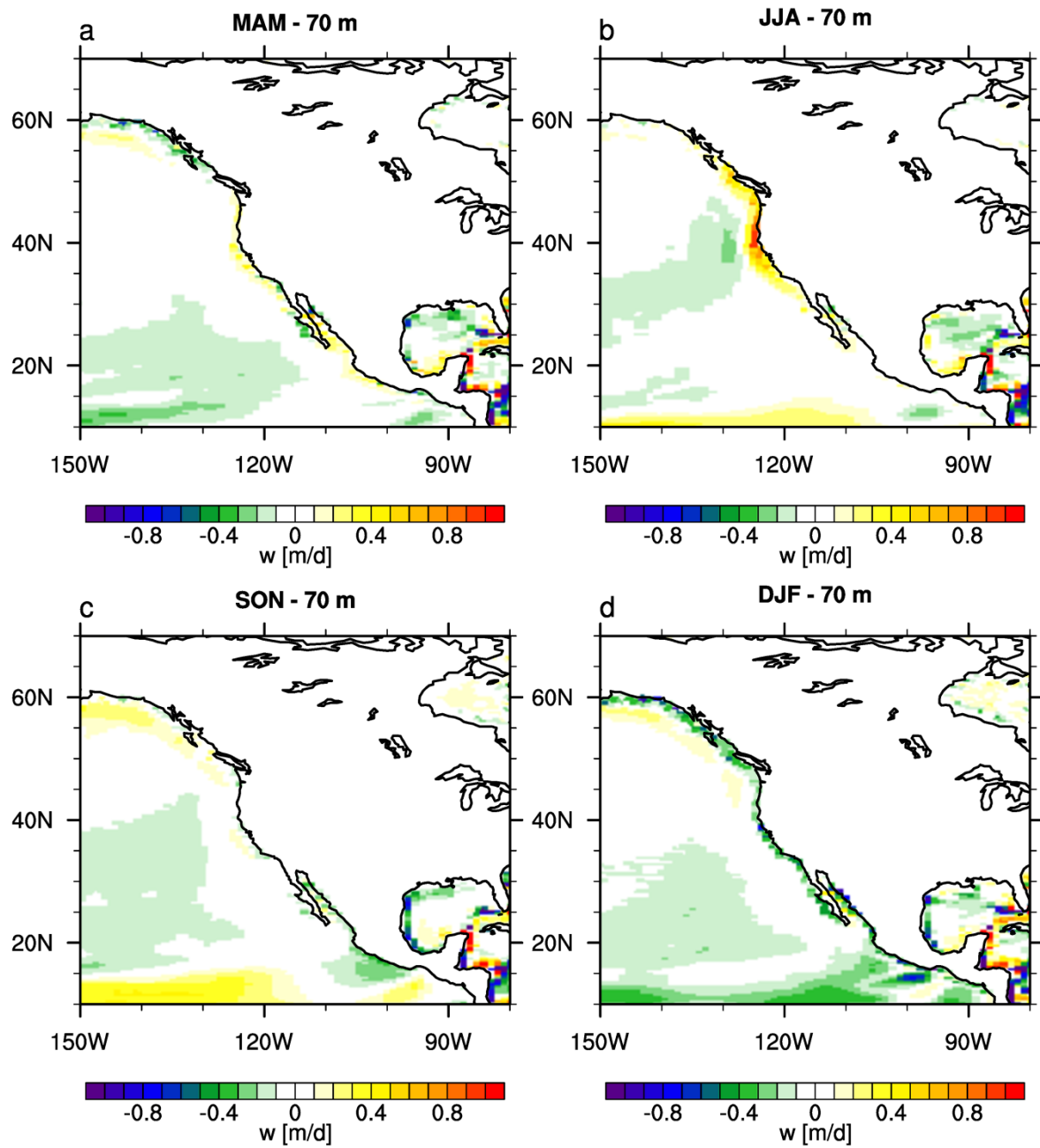
Correspondence to: Gerlinde Jung (gjung.sc@gmail.com)

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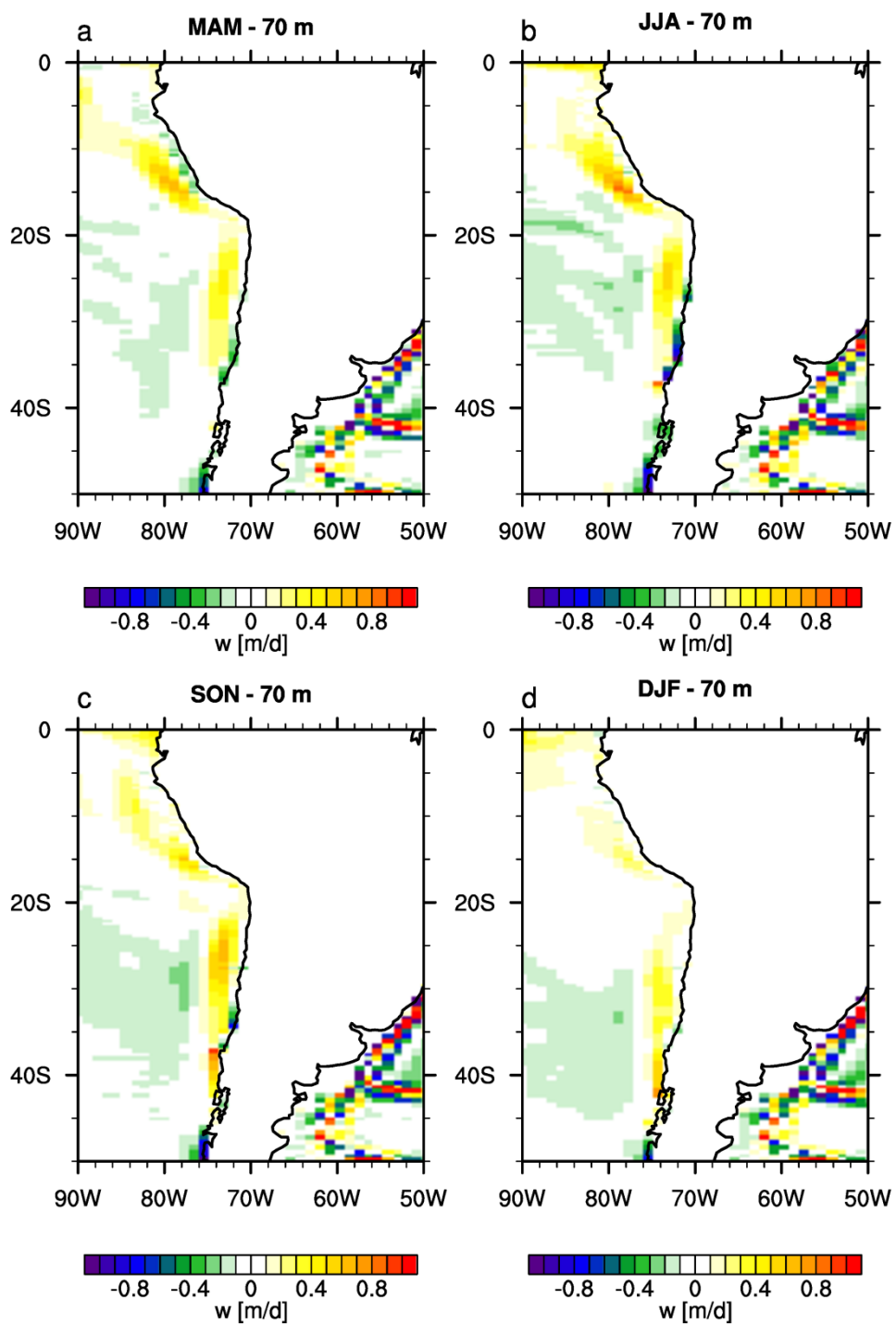
1) Evaluation of upwelling velocities - control run (CTRL)



S1: Seasonal mean vertical velocity [m d^{-1}] at a depth of 70m in the control run (CTRL) for MAM (a), JJA (b), SON (c), DJF (d). Positive (negative) values denote upward (downward) motion.

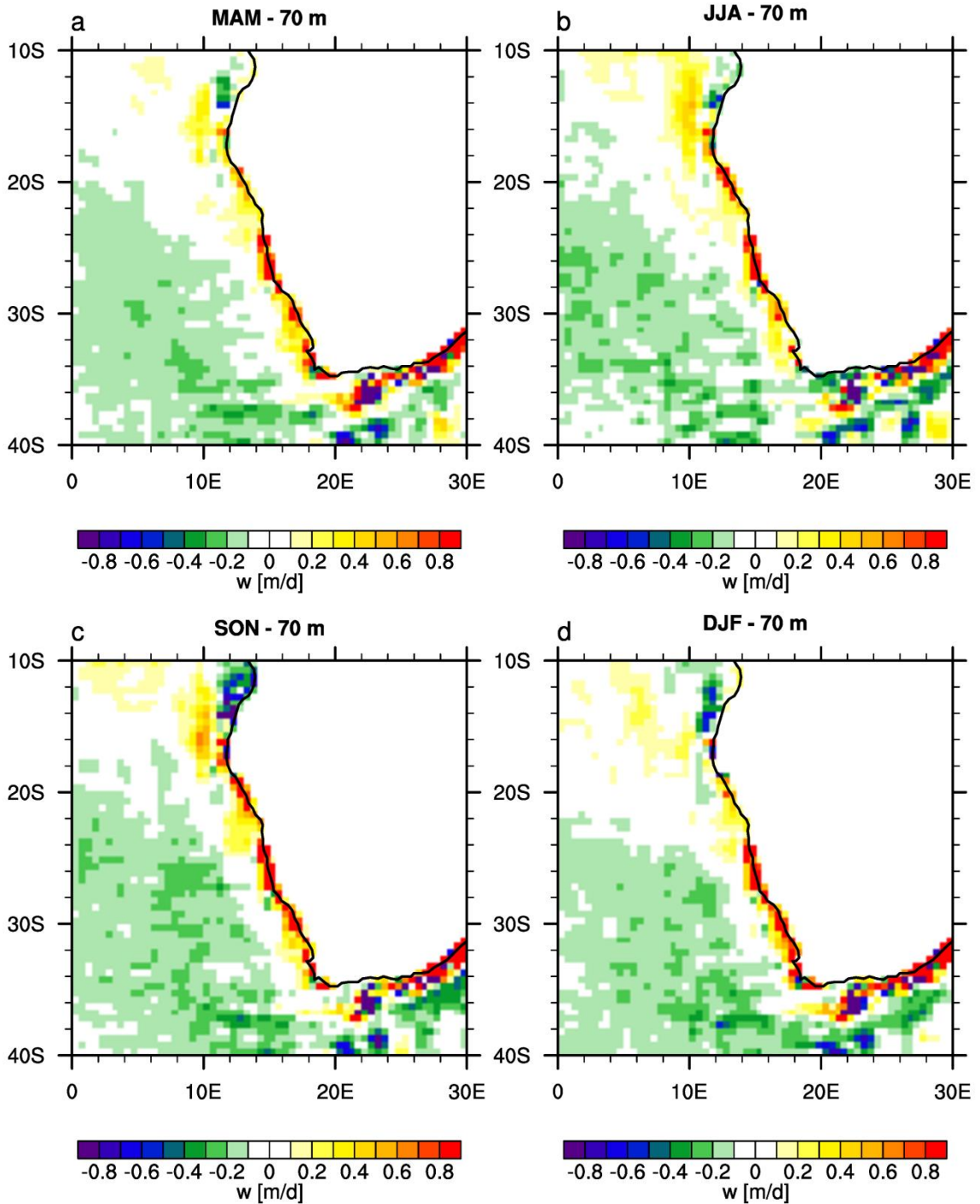


S2: Seasonal mean vertical velocity [m d^{-1}] at a depth of 70m in the control run (CTRL) for MAM (a), JJA (b), SON (c), DJF (d). Positive (negative) values denote upward (downward) motion.

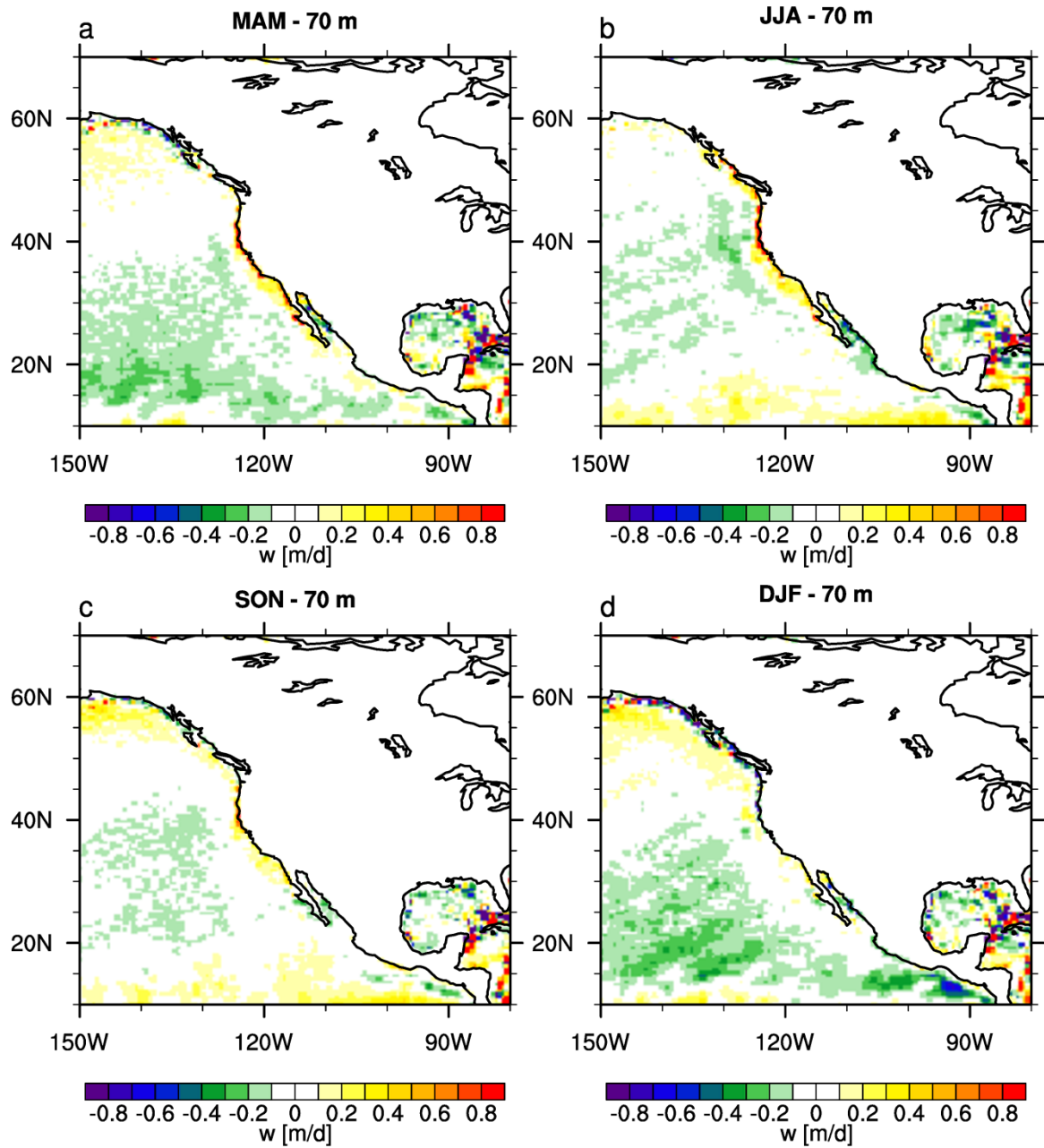


S3: Seasonal mean vertical velocity [m d^{-1}] at a depth of 70m in the control run (CTRL) for MAM (a), JJA (b), SON (c), DJF (d). Positive (negative) values denote upward (downward) motion.

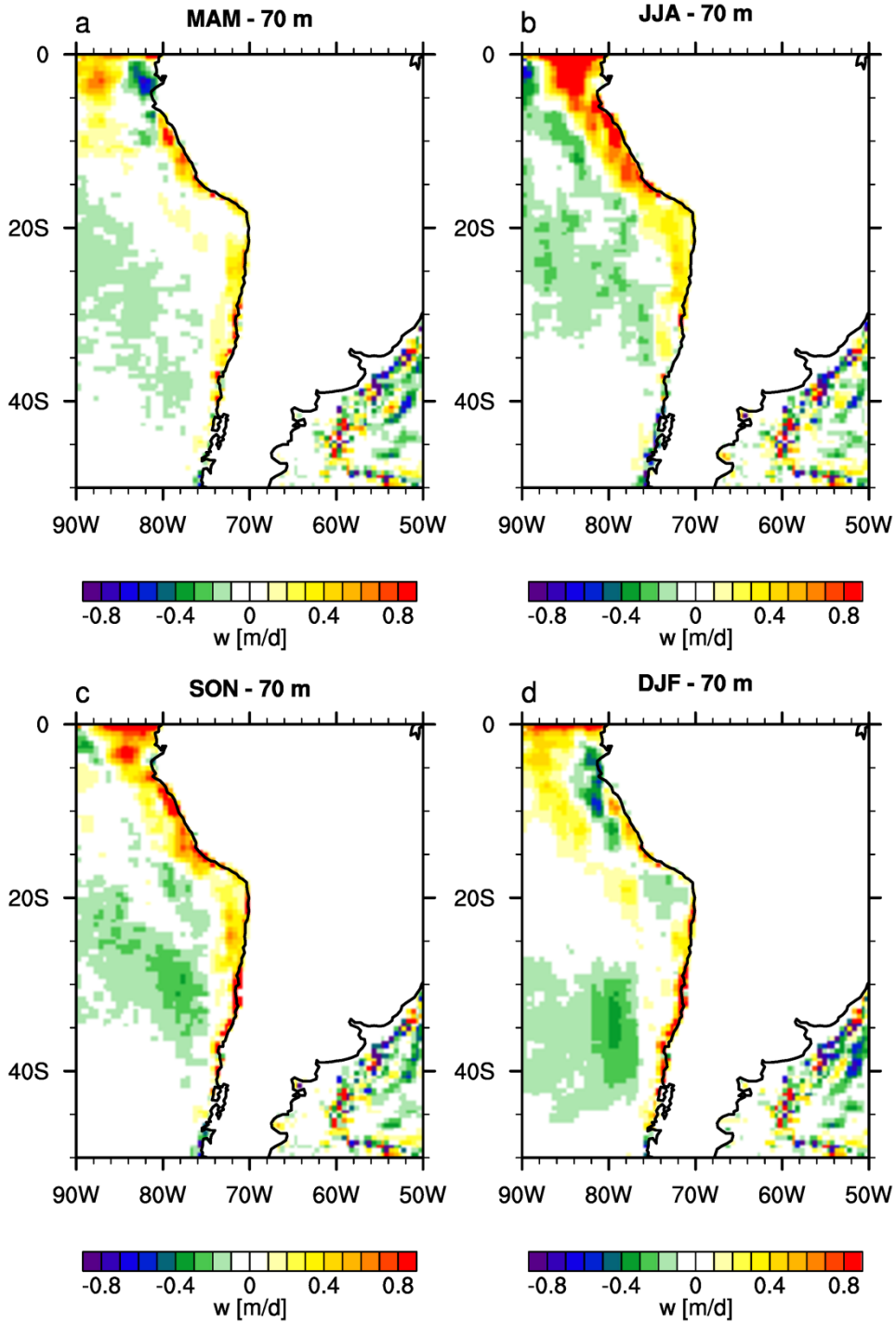
2) Evaluation of upwelling velocities – Carton-Giese SODA 2.2.4 reanalysis



S4: 30-year seasonal averages (1979-2008) of vertical velocity [m d^{-1}] at a depth of 70m from Carton-Giese SODA 2.2.4 reanalysis for MAM (a), JJA (b), SON (c), DJF (d). Positive (negative) values denote upward (downward) motion.

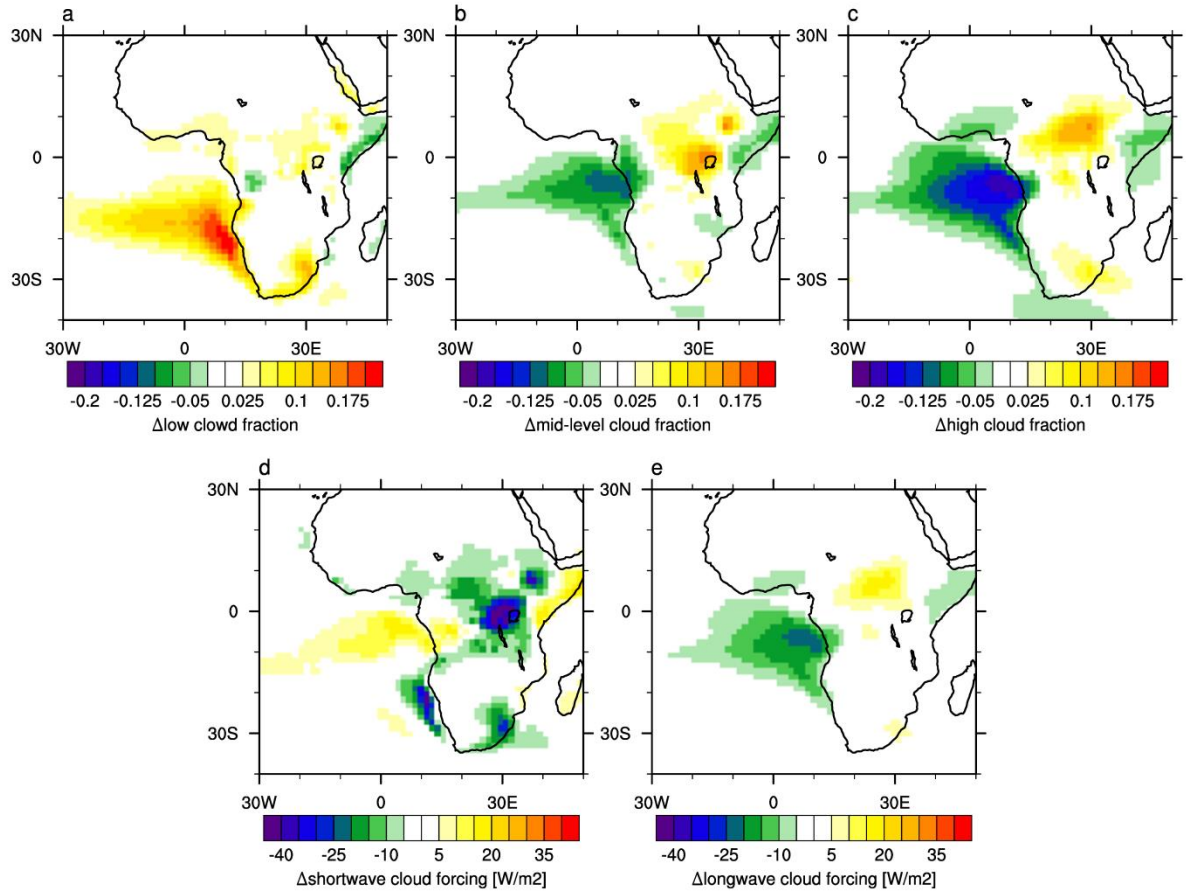


S5: 30-year seasonal averages (1979-2008) of vertical velocity [m d^{-1}] at a depth of 70m from Carton-Giese SODA 2.2.4 reanalysis for MAM (a), JJA (b), SON (c), DJF (d). Positive (negative) values denote upward (downward) motion.

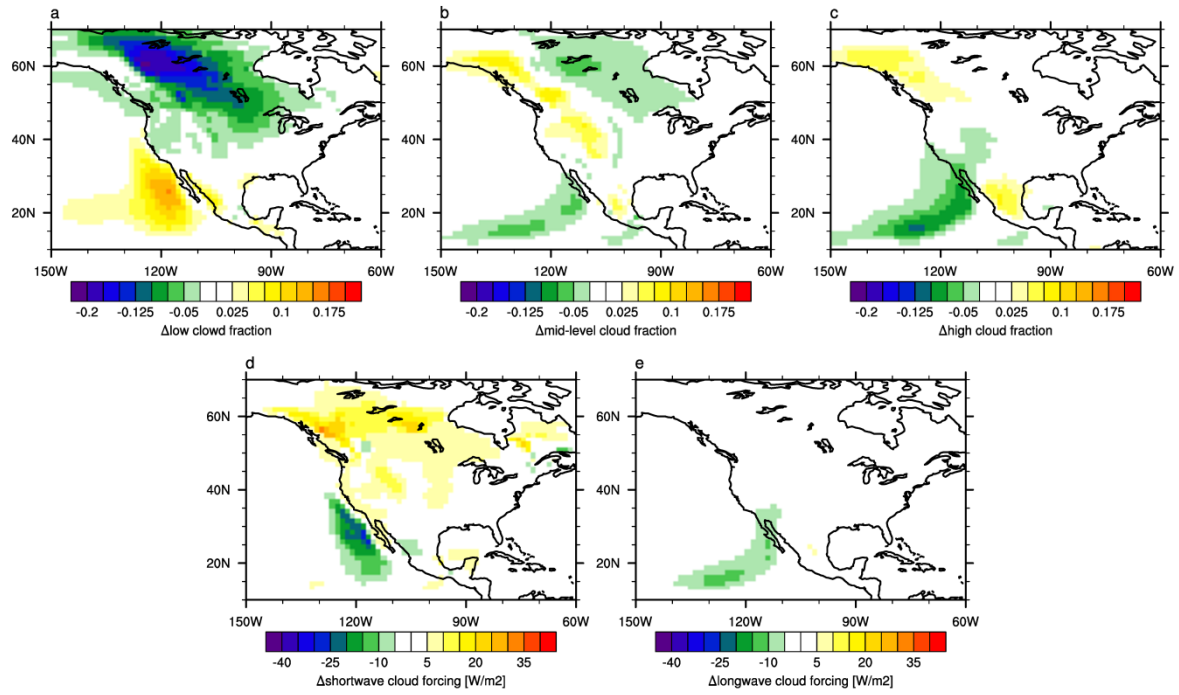


S6: 30-year seasonal averages (1979-2008) of vertical velocity [m d⁻¹] at a depth of 70m from Carton-Giese SODA 2.2.4 reanalysis for MAM (a), JJA (b), SON (c), DJF (d). Positive (negative) values denote upward (downward) motion.

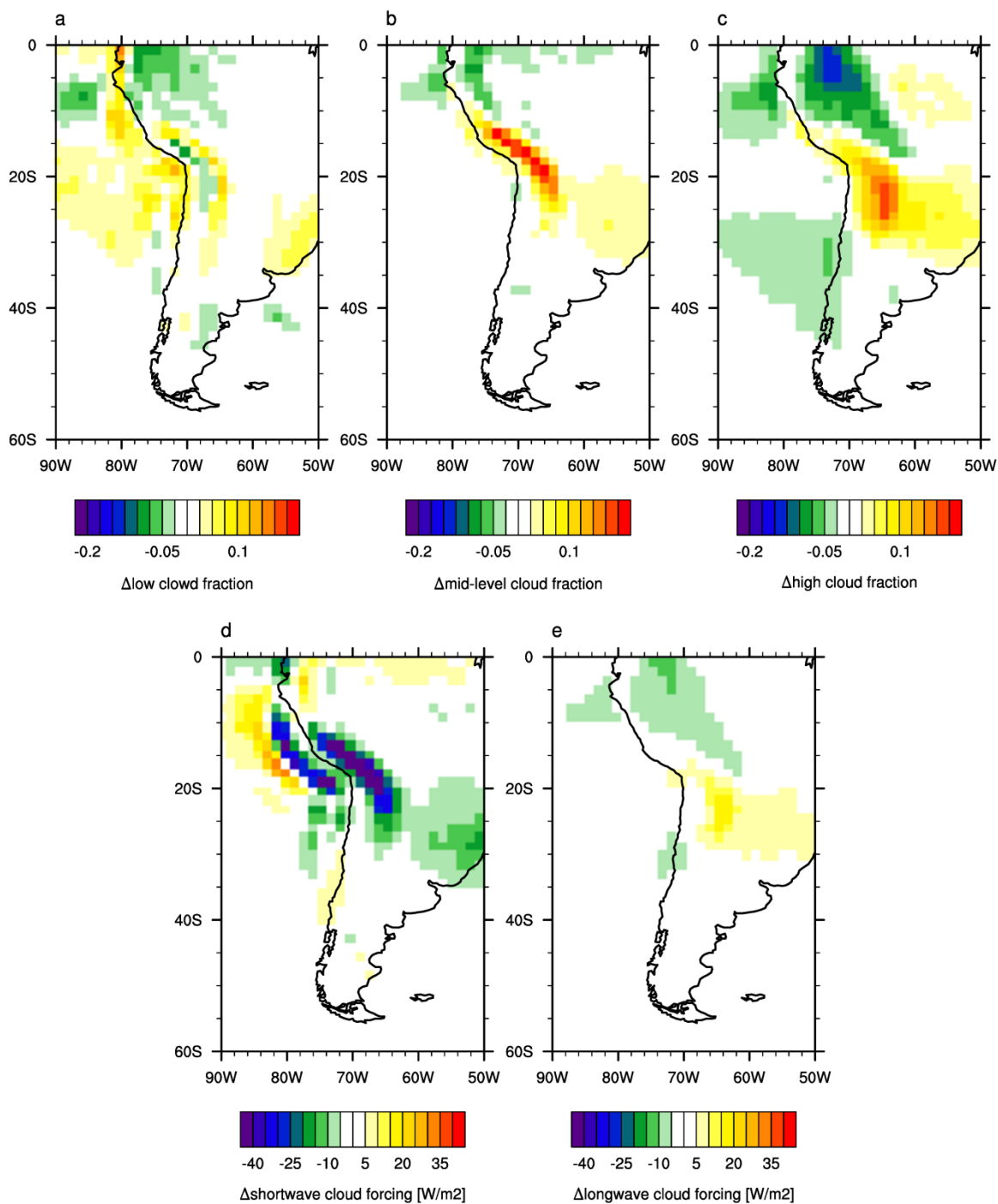
3) Shortwave and longwave contributions to the cloud-radiation feedback



S7: Annual mean responses in low (a), mid-level (b) and high (c) cloud fraction, and in shortwave (d) and longwave (e) cloud forcing [W/m^2] to African mountain uplift (CTRL – AF).



S8: Annual mean responses in low (a), mid-level (b) and high (c) cloud fraction, and in shortwave (d) and longwave (e) cloud forcing [W/m²] to North American mountain uplift (CTRL – NA).



S9: Annual mean responses in low (a), mid-level (b) and high (c) cloud fraction, and in shortwave (d) and longwave (e) cloud forcing [W/m²] to Andean uplift (CTRL – AND).