

Supporting information A

Unravelling the Dynamics of Moisture Transport during Atmospheric Rivers Producing Rainfall in the Southern Andes

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Supporting Figures S1-S5

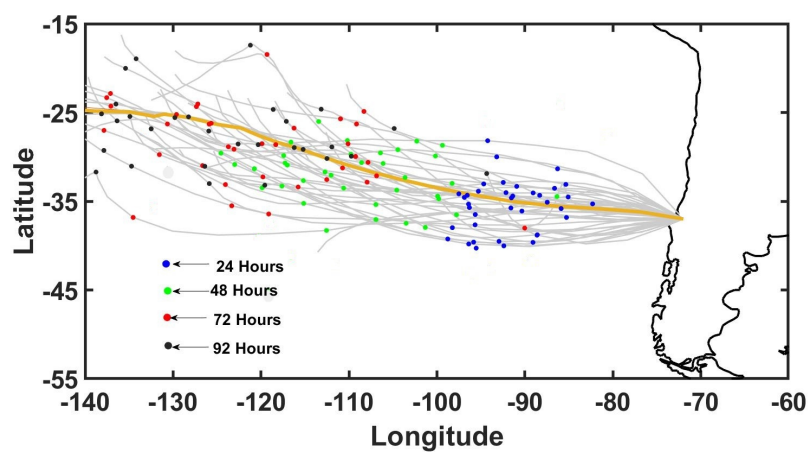


Figure S1: The HYSPLIT trajectories for all the 50 atmospheric river considered for this study. The colored dots along the trajectories corresponds to the positions of the parcels every 24 hours. The thick line is the mean of all the trajectories.

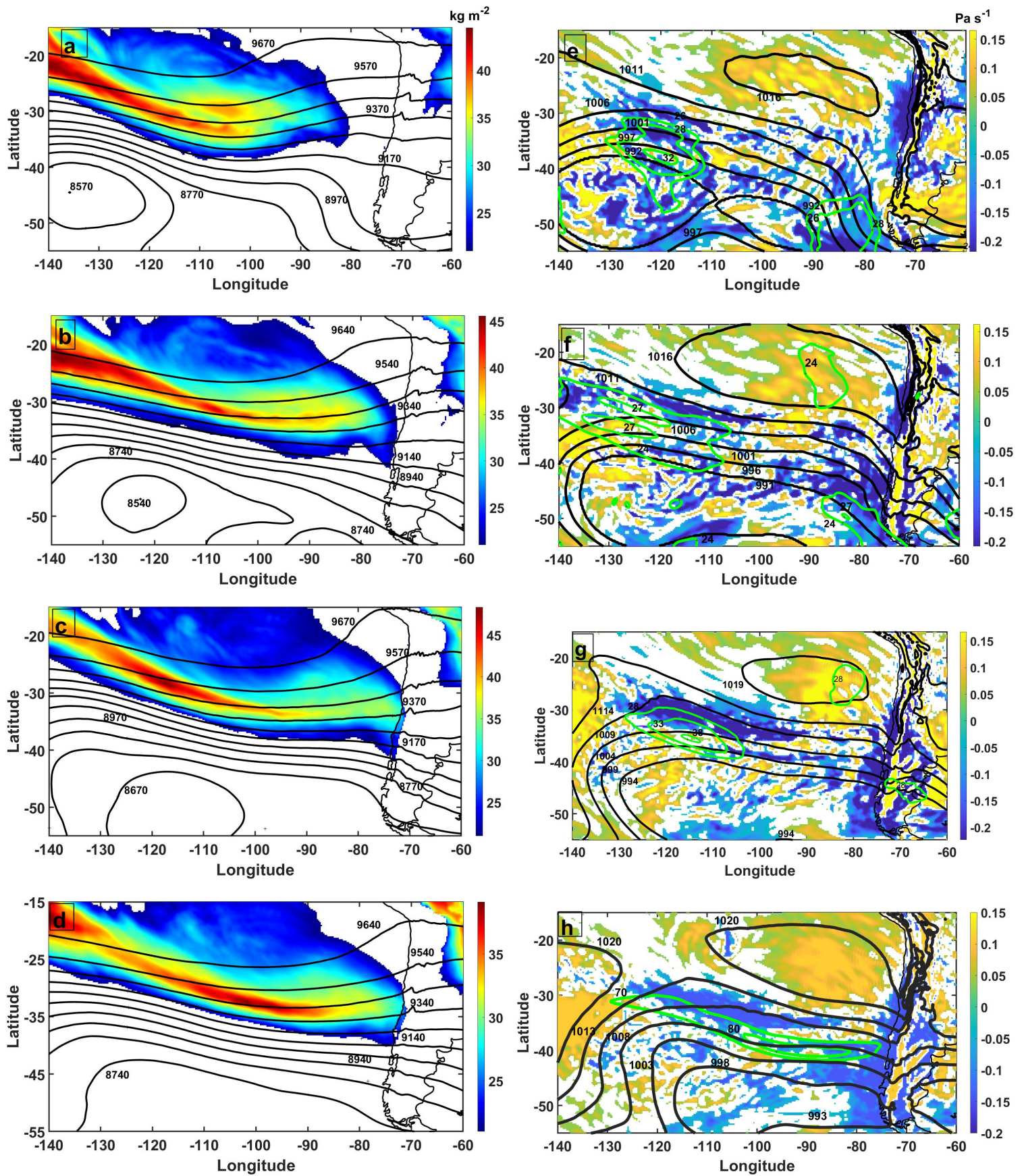


Figure S2: ERA5 derived daily mean of (a-d) integrated water vapor, IWV (shaded) (kg m^{-2}) and 300-hpa geopotential height (contour) (m) for the atmospheric river (AR) observed on 23 June 2023 (Figure 1 in the main text) 24 hours interval. (e-g) 500-hpa Omega velocity in pressure coordinate (shaded), 300-mb vector wind (solid green contour) (m s^{-1}), and the mean sea level pressure (solid black contours). The panels a-e, b-f, c-g and d-h corresponds to the time intervals -96 to -72 hr, -72 to -48 hr, -48 to -24 hr, -24 to 0 hr respectively. '0 hr' is the landfalling hour defined in the main text.

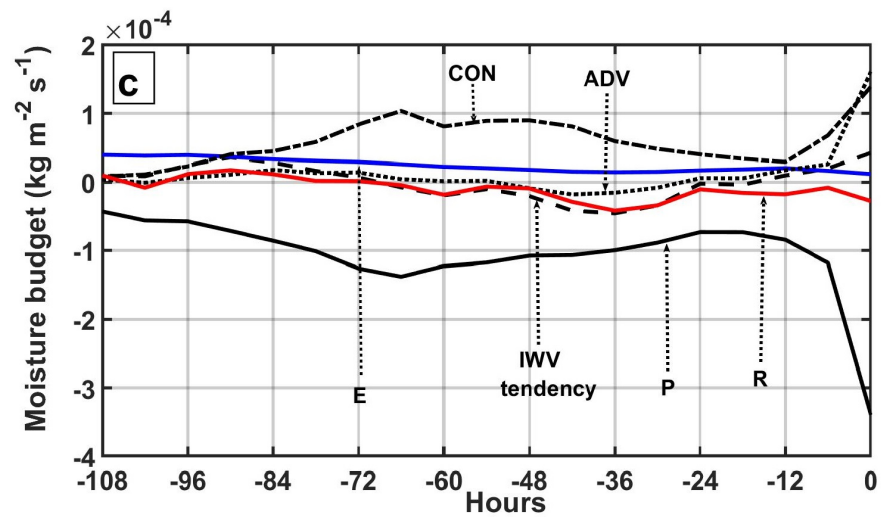


Figure S3: Comparison of the mean values for all the budget terms. 'P', 'E', 'CON', 'ADV', 'R' indicate precipitation, evaporation, mass convergence, and the residue terms with the IWV tendency term.

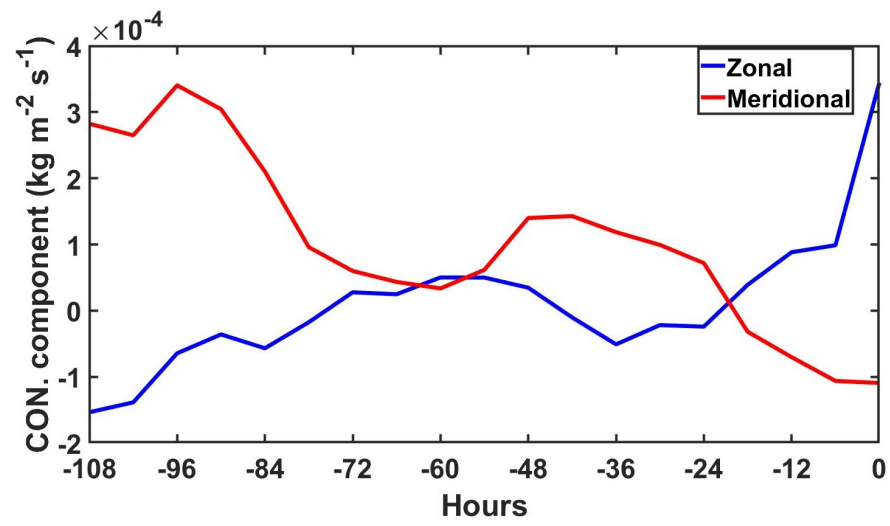


Figure S4: Zonal and meridional components of moisture convergence term for the AR reported in Figure 1 of the main text.

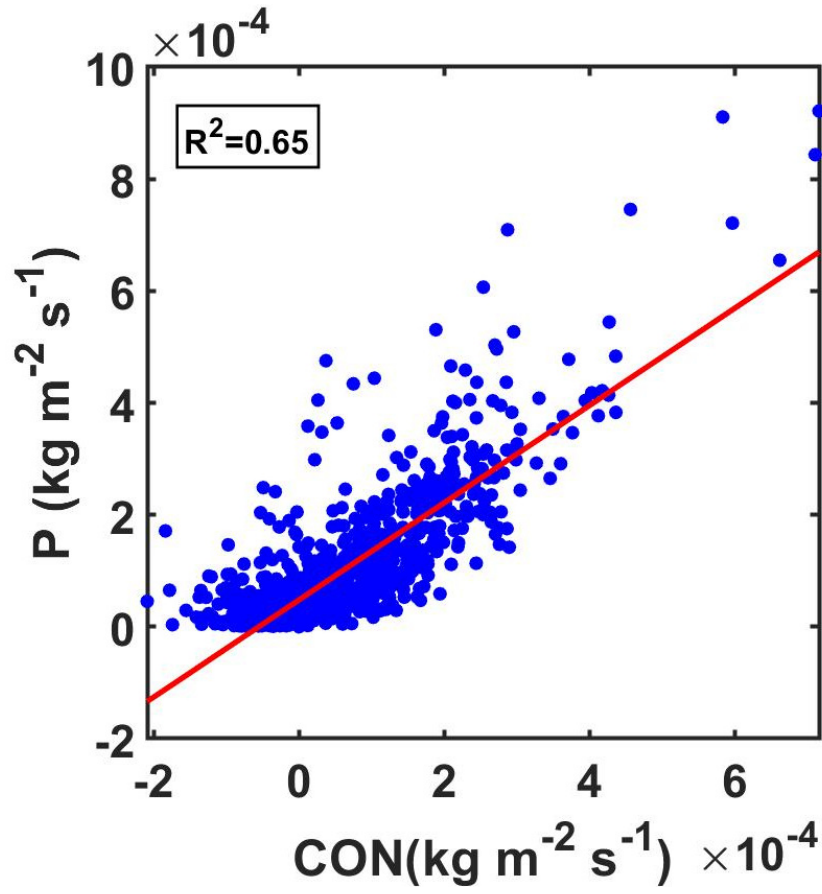


Figure S5: Scatter plot of precipitation, 'P' and mass convergence 'CON' for all the 50 atmospheric rivers. The red line indicate the best fit line obtained from a linear fit with coefficient of determination, R^2