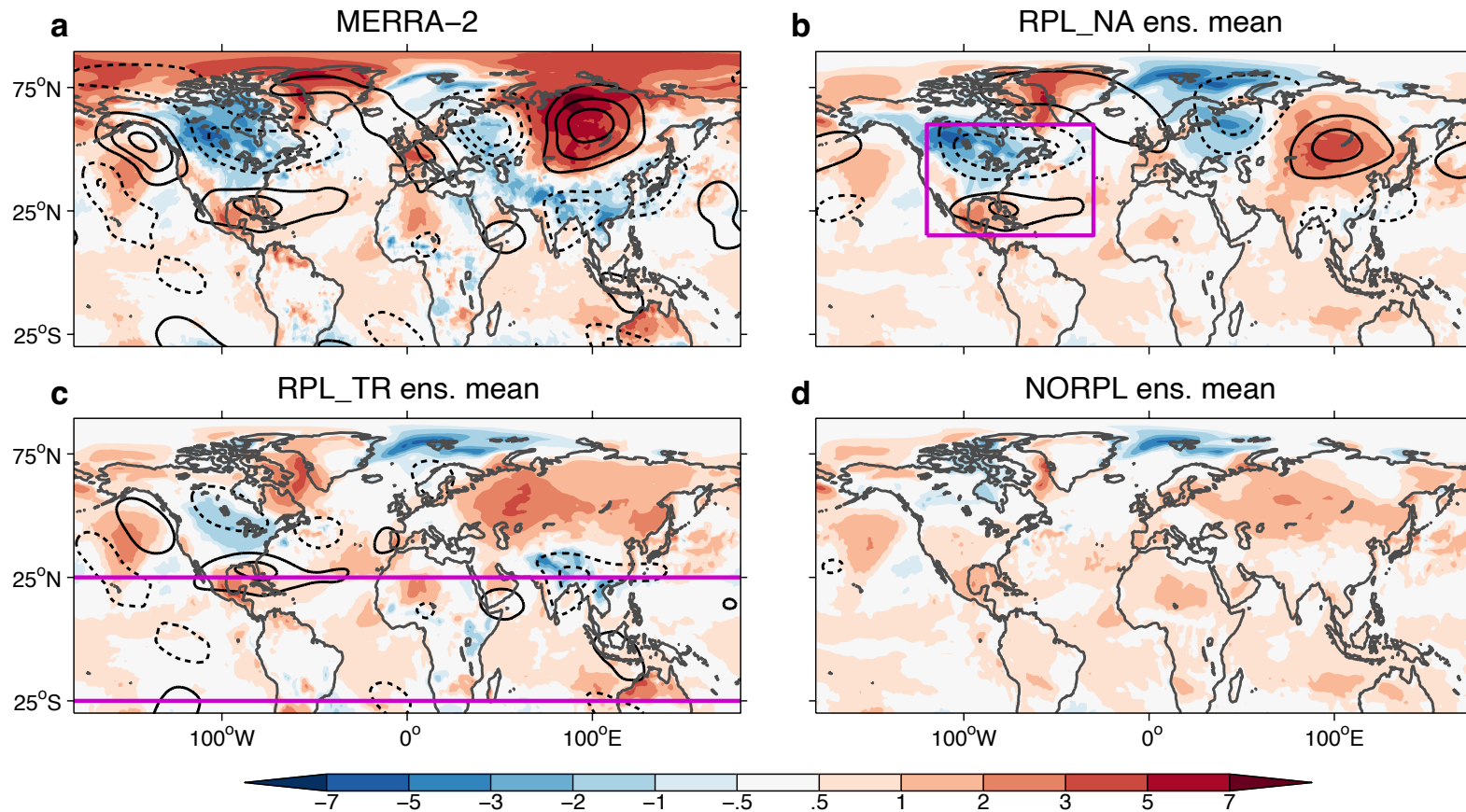


# Dynamical Drivers of the Exceptional Warmth Over Siberia During the Spring of 2020



The extreme Siberian warmth can be largely attributed to:

- 1) Persistent atmospheric ridging over northern Asia associated with Rossby wave trains originating from the North Atlantic (cf. panels a and b).
- 2) A tropical-extratropical teleconnection through which tropical heating affected the upper-troposphere dynamics and extratropical circulation, causing warming over the mid-high latitudes (panels c and d).

**April 2020 anomalies** in 2-m air temperature (color fills, K) and 250mb eddy stream function (contours drawn every  $5 \times 10^6 \text{ m}^2/\text{s}$ ) for (a) MERRA-2 and large-ensemble GEOS5 AGCM simulations with (b) regional replay applied near North America (magenta box; RPL\_NA), (c) replay applied over the tropics (RPL\_TR), and (d) no replay (NORPL).