

Reply to reviewers:

Thank you for your thoughtful comments; we will consider them carefully. In the original manuscript, we used year-round ERA5 SLP and 975 hPa wind data of 11 years to identify SOM patterns, which was justified by the use of deseasonalized and normalized fields. However, both reviewers raised concerns about this approach since our analysis focused only on the warmer months. To avoid confusion, we have now generated SOM-based synoptic patterns using meteorological data exclusively from April to September, and the resulting patterns are consistent with those from the full-year dataset (shown in Figure below). Furthermore, to prevent seasonal mixing, our updated analysis now uses only April–September, corresponding to the Southern California spring (April–June) and summer (July–September), with October removed. Following additional reviewer feedback, we have also reordered the synoptic patterns to reflect the progression of cyclonic development, and present all results accordingly. We will implement all of these revisions and address the remaining minor comments before submitting the revised manuscript with response to reviewers.

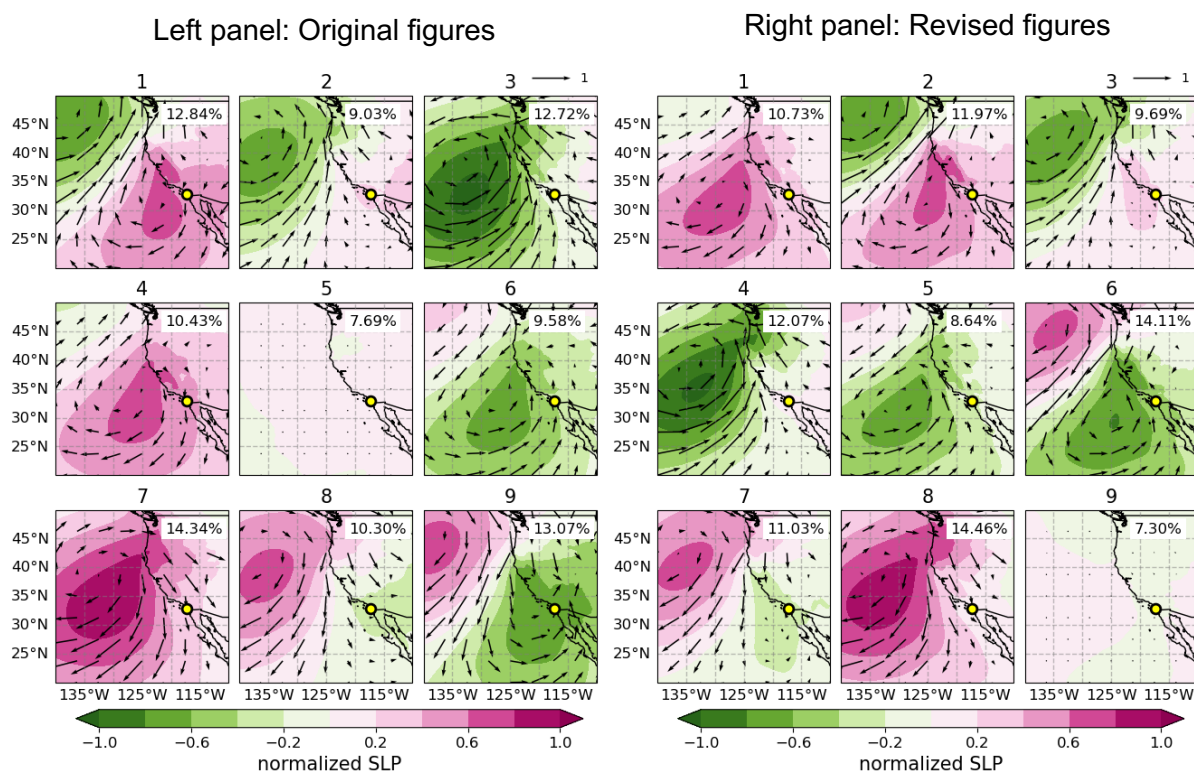


Figure: **Left panel:** Nine synoptic regimes derived from 11 years of year-round daily composite maps of normalized SLP and 975-hPa winds using SOM. **Right panel:** SOM characterized nine regimes based on 11 years of April–September daily composites of normalized SLP and 975-hPa winds, and are reordered to follow cyclonic progression.