Recommendation: **Accept after Minor Revisions**

Overall Evaluation

This article presents a novel Hybrid Coupled Model (HCM$_{ROMS}$) based on the Regional Ocean Modeling System (ROMS) for studying the El Niño-Southern Oscillation (ENSO). The authors provide a detailed description of the model's formulation and evaluate its performance in simulating ENSO-related phenomena. The research is well-conducted, with clear objectives, robust methodology, and comprehensive analysis. The results demonstrate the model's capability to simulate ENSO cycles and associated three-dimensional temperature anomalies, making it a valuable tool for future ENSO research.

1. **P5, Line 108**: "and Um and Vm are calculated time series of left field and left field in the statistical model", the second "left field" should be changed to "right filed"?

2. **P11, Line 228**: We adopt ERSST in this subsection instead of using the NOAA OI SST, "OI SST" => "OISST"

3. **P18, Line 372, 374**: "It shows that the leading EOF (Mode 1)", "The second EOF (Mode 2)". The first and second EOFs have been defined as Mode 1 and Mode 2, respectively, so, please ensure consistency in terminology throughout the subsequent text.

4. **P18, Line 397**: "phase vectors are in the third quadrant" => " the fourth quadrant"

5. **P18, Line 399**: "phase vectors are in the fourth quadrant" => "the third quadrant"

6. **P19, Line 406**: "Vectors at the bottom right of (a-b, d-e) show", "d-e" should be changed to "d-g"?

7. **P22, Line 457**: "where [$*$] denotes the interannual operator", the symbol $*$ is not found in Eq. 5

8. **P23, Line 481**: "both advection and vertical diffusion effects play constructive roles in shaping the dipole-type temperature changes (Figs. 14b).", Figs. 14b => Figs. 14b, f, and j

9. **P23**: The streamlines in Fig 14 need some description.

10. **P24, Line 535**: "The distinct functions of Mode2 explain the asymmetry between",

Mode2 => Mode 2