EAMv2 tuning

- EAMv1P configuration (by Po-Lun Ma)

https://acme-climate.atlassian.net/wiki/spaces/ATM/pages/829423815/EAMv1P+configuration

  - Code modification
    1. components/cam/src/control/camsrfexch.F90 (gustiness)
    2. components/cam/src/physics/cam/clubb_intr.F90 (gustiness, tpert, theta_v)
  - CLUBB (21), ZM (6), MG2 (5) and aerosol (3) tuning parameters
  - Post-v1 bug fixes (RRTMG, MG2)

- F20TRC5-CMIP6_A01 simulations

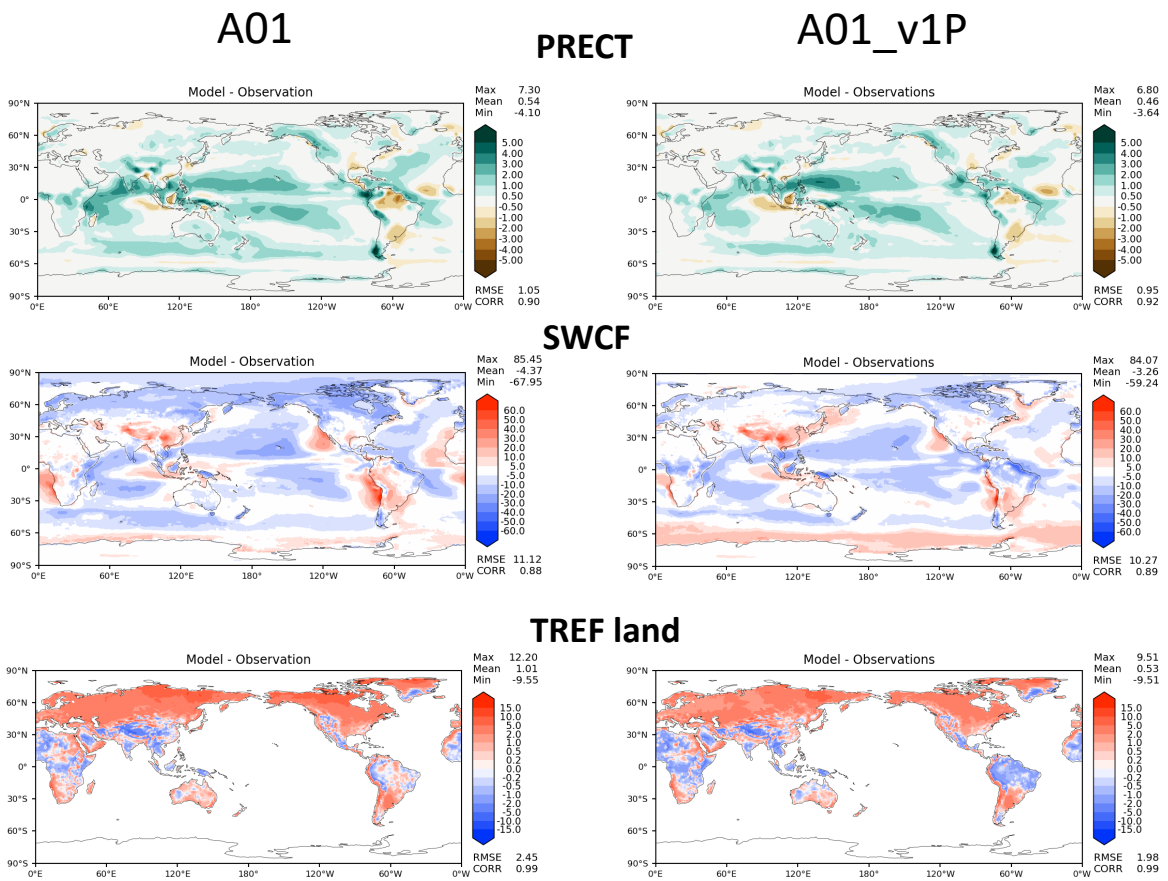
https://acme-climate.atlassian.net/wiki/spaces/EWCG/pages/1045726092/20190930+master.F20TRC5-CMIP6+A01+v1P.ne30+oECv3.compy

  - A01_v1P
  - A01_v1P_clubb (CLUBB tuning parameters, 2X10yr)
  - A01_v1P_zm (ZM tuning parameters, 10yr)
  - A01_v1P_mic (MG2 and related parameters, 10yr)

This work was performed under the auspices of the U. S. Department of Energy by Lawrence Livermore National Laboratory under contract DE-AC52-07NA27344. LLNL-PRES-797185

Improved model performance

- Double ITCZ bias in the eastern Pacific
- The precipitation bias over Amazon, and Andes
- Marine stratocumulus and trade-wind cumulus clouds
- Surface temperature bias over NH mid- and high- latitude land
- Surface wind stress and so on (not shown here)



Future plan

- Analyze the 10-year experiment with mainly CLUBB tunable parameters to have a new baseline coupled simulation (partially v1P + tri-grid + CLUBBv2 related tunable parameters)
- Further tune the parameters to improve model performance.
- Evaluate aerosol-cloud interactions and cloud feedbacks