In the beginning, a good measure of a GCM’s performance was their ability to simulate the observed seasonal cycle. That is, a reasonable simulation of the means (e., small biases) and standard deviations of TODAY’S climate would suffice.

Here, we argue that coupled GCM ([CGCM for short] simulations of FUTURE climates should be evaluated in much more detail, REGIONAL climate variability, and climate drifts/changes in a manner suitable for policy decisions.

Arguably, it is not the bias, but rather the reliability of the model-generated anomaly time-series, even down to the [CGCM grid-scale, which really matter. This statement is underlined by the social need to address potential climate variability, and climate drifts/changes in a manner suitable for policy decisions.

Important Definitions for this presentation:
- “Anomaly Time-series” or AT is defined as a series of monthly values created as the difference of the parameter value for that month from its climatology. The length of which is dependent on the length of the observations/simulations.
- Longwave Cloud Radiative Forcing or LWCRF is defined as the difference of the Outgoing Longwave Radiation [OLR] and the Clear-Sky OLR [CCLR].
- Longwave Cloud Feedback or LWCF is defined as the change in Outgoing Longwave Radiation [OLR] or LWP due to changes in LWCF.

Motivation:

- Examples to be reproducible by [CGCM runs, available on request.]
- [A31D-0122] for references.

Our MAIN POINT:

- (CGCM simulations should exhibit the Observed moist processes related behavior illustrated here.

Of course, a CGCM has to simulate the El Niño - La Niña variability reliably, which is still a tough task. We believe that first, the underlying GCM has to simulate the spatial distributions/patterns shown here, say, [Tropical troposphere anomalies]. If and when such GCM vs. Observations maps correlate well, we may regard this CGCM to be well suited for the atmospheric module of a CGCM.

Further Conclusions:
- [A31D-0122] for references.