Evaluation of The Cloud Phase Transition in Climate Models
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Problem:
- Liquid and ice clouds have different radiative forcing on the climate system.
- Their accurate representation in GCMs is key to reducing cloud-climate feedback uncertainties.

Finding:
- Differences in modeled cloud phase are very large (~27°C spread).
- The transition from mixed-phase to ice clouds occurs at too warm temperature in most models (i.e. not enough supercooled liquid clouds in the high troposphere).
- Models with complex microphysics scheme typically better represent the cloud phase.

Significance:
- First study to analyze the cloud phase transition of multiple climate models against satellite observations (including NASA GEOS5 and GISS models).
- Useful and original tools for modelers to develop, test and improve their cloud scheme at global scale.


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