

Abstract Submitted
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Satellite observations of atmospheric water vapor distributions

KYLE PRESSEL, The University of California, Berkeley, WILLIAM COLLINS, Lawrence Berkeley National Laboratory — The Intergovernmental Panel on Climate Change Fourth Assessment Report identified cloud feedback as the largest source of uncertainty in Global Climate Model (GCM) estimates of climate sensitivity. Cloud feedback is resultant from the sensitivity of clouds to the thermodynamic structure of the atmosphere which is in turn modified by the clouds themselves. Prognostic statistical cloud schemes have been developed to account for subgrid-scale cloud variability in a more physically consistent manner. Statistical cloud schemes assume a distributional form for some measure of water substance concentration and then determine cloud cover and properties based on a particular parameterization of that distribution. As the majority of atmospheric water substance exists in a vapor state, we will report preliminary results of a characterization of water vapor distributions based on retrievals from the Advanced Infrared Sounder (AIRS) onboard NASA's Aqua satellite. We will report on the vertical variation of distributional forms with height and comment on the physical mechanisms maintaining these distributions.

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