



# Understanding How Clouds Respond to Climate Change May Lead to More Moderate Predictions



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## Background

Low-altitude stratocumulus (Sc) and shallow cumulus (Cu) clouds are one of the biggest uncertainty in projections of future climate.

In response to warming, the changes in Sc and Cu clouds may either strengthen or weaken future climate warming. This is an example of “feedback;” as the clouds change in response to warming, they may either cool or warm the atmosphere more than before. This affects the climate, which in turn affects the clouds, etc.

*Can we constrain their response to warming (cloud feedback) with satellite observations to improve climate model future projections?*

## Findings:

- This is the first study to estimate observational Sc and Cu cloud feedbacks (using NASA CloudSat-CALIPSO satellite observations)
- We found that Sc drive most of the low-altitude cloud feedback
- When you include this feedback, both the strong- and weak-warming models are unrealistic
- If current trends of surface warming persist, the future warming should be more moderate than many climate models predict

## Why does it matter?

This result can be used to reduce the uncertainty in climate model projections of future warming.

