The past, present, and future of Greenland precipitation
Our view through CloudSat observations and CESM simulations

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A brief roadmap of my story today

**Why?**
Let’s learn Greenland

**How?**
See behind the curtain

**What?**
Bringing it all together
Why?
Let’s learn Greenland

How?
See behind the curtain

What?
Bringing it all together

Where?
Getting started
Why?
The importance and mysterious future of the Greenland Ice Sheet

Large body of ice second only to Antarctic

Entire mass would account for 7.2m sea level rise

Melting in a warming climate

Loss of mass to melting opposed by precipitation

Map credit: Eric Gaba
Where?
Meeting in the middle

Why?
Let’s learn Greenland

How?
See behind the curtain

What?
Bringing it all together
CloudSat Cloud Profiling Radar 2CPC establishes our viewpoint

2C PRECIP COLUMN

Near surface reflectivity

Temperature

Ice fraction
How?

CESM + COSP allow us to evaluate our view and point it to the future

CFMIP Observation Simulator Package

- Sub-grid generators
- CloudSat reflectivity

Can fairly apply 2CPC algorithm
How?

These tools provide a wealth of information
These tools provide a wealth of information...
How?

These tools provide a wealth of information.
Where?
Finishing strong

Why?
Let’s learn Greenland

How?
See behind the curtain

What?
Bringing it all together
CESM + COSP tell a positive story of structure, with a negative spin for the future.
What? In the future, a shift
Details in algorithms could have large impacts on sensitive regions.
What?
It looks good! For now...

Where?
A roadmap recap

Why?
Keeping tabs on the Greenland Ice Sheet

How?
CloudSat, CESM, and COSP

What?
It looks good! For now...
Thank you!