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# Climatology of clouds containing supercooled liquid in the Western Arctic

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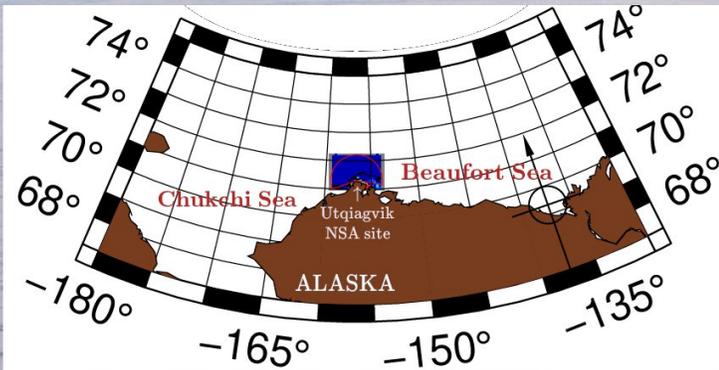
Leipzig Institute for Meteorology  
University of Leipzig  
16th December 2021

**AGU** FALL  
MEETING

New Orleans, LA & Online Everywhere  
13–17 December 2021

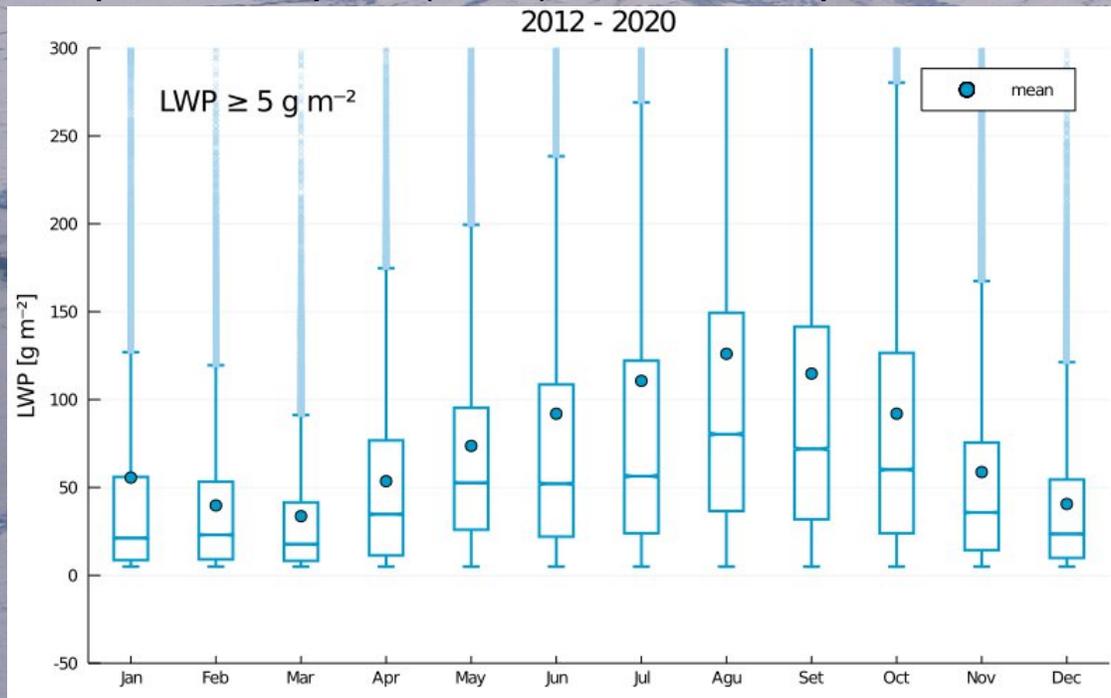
Session: A42F: Microphysical and Macrophysical Properties and Processes of Ice and Mixed-Phase Clouds: Linking in Situ, Remote-Sensing Observations and Multiscale Models

# Arctic Cloud Climatology

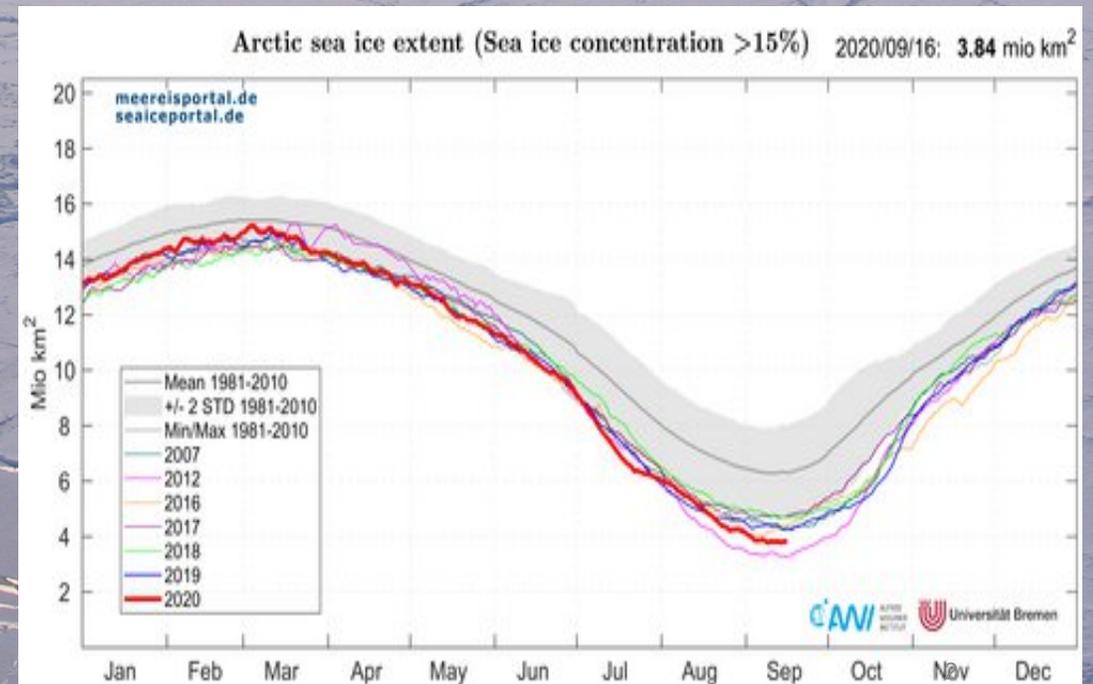


Yearly cycle of liquid-containing clouds in the Western Arctic resembles the annual Arctic Sea Ice Extent. Locally the relation between Sea Ice and Arctic clouds, particularly mixed-phase, is less understood.

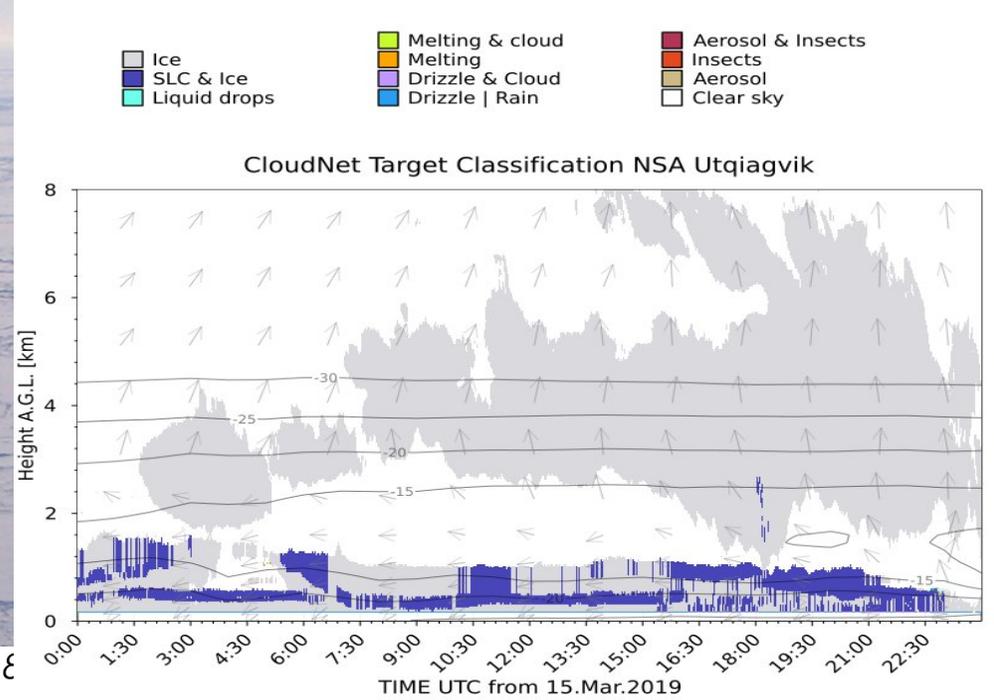
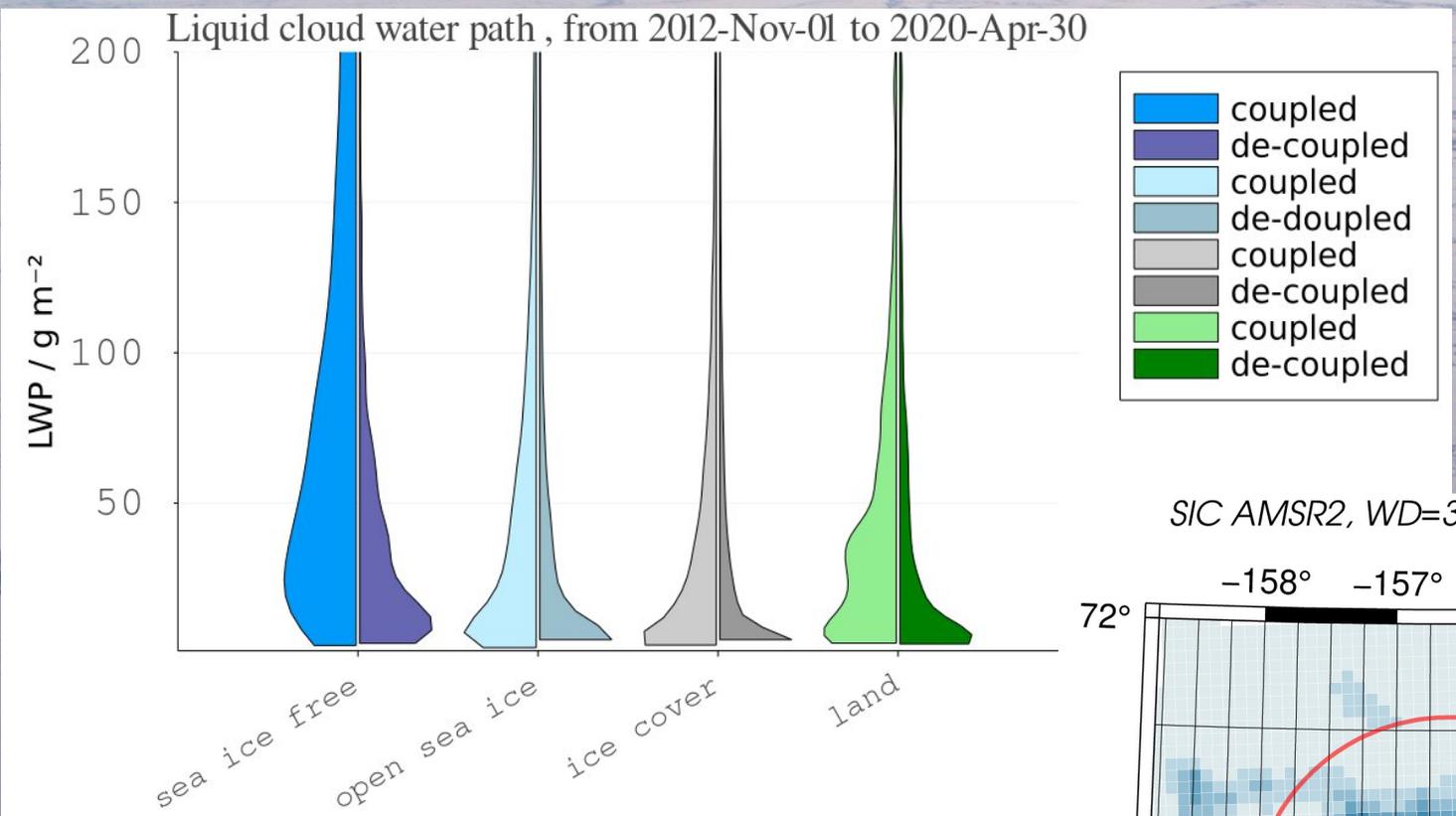
Liquid water path (LWP) at North Slope of Alaska



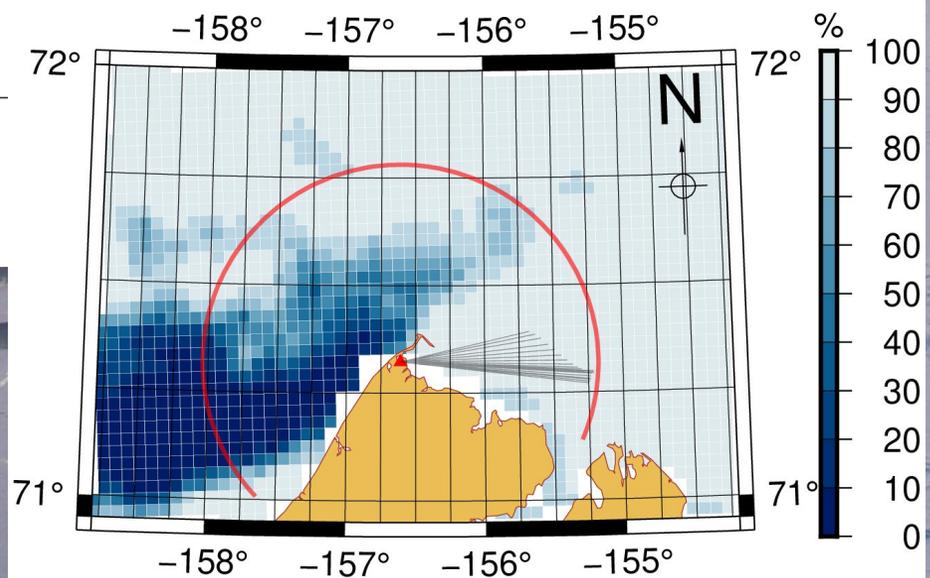
Arctic Sea Ice Extent ([www.meericeportal.de](http://www.meericeportal.de))



# Coupled Clouds have larger Liquid Content



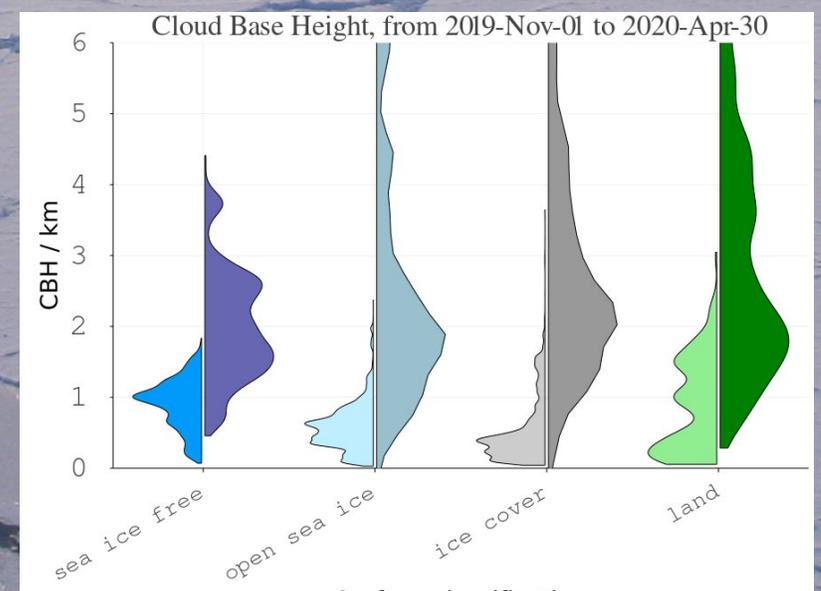
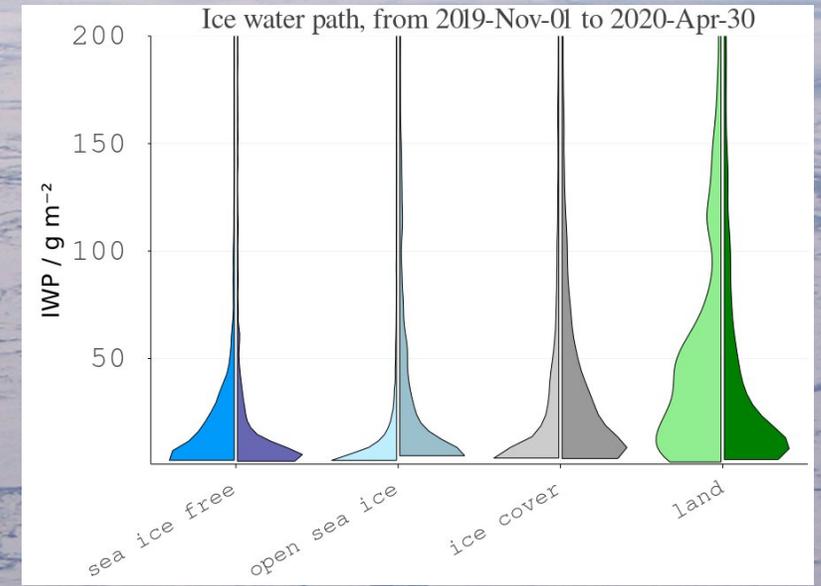
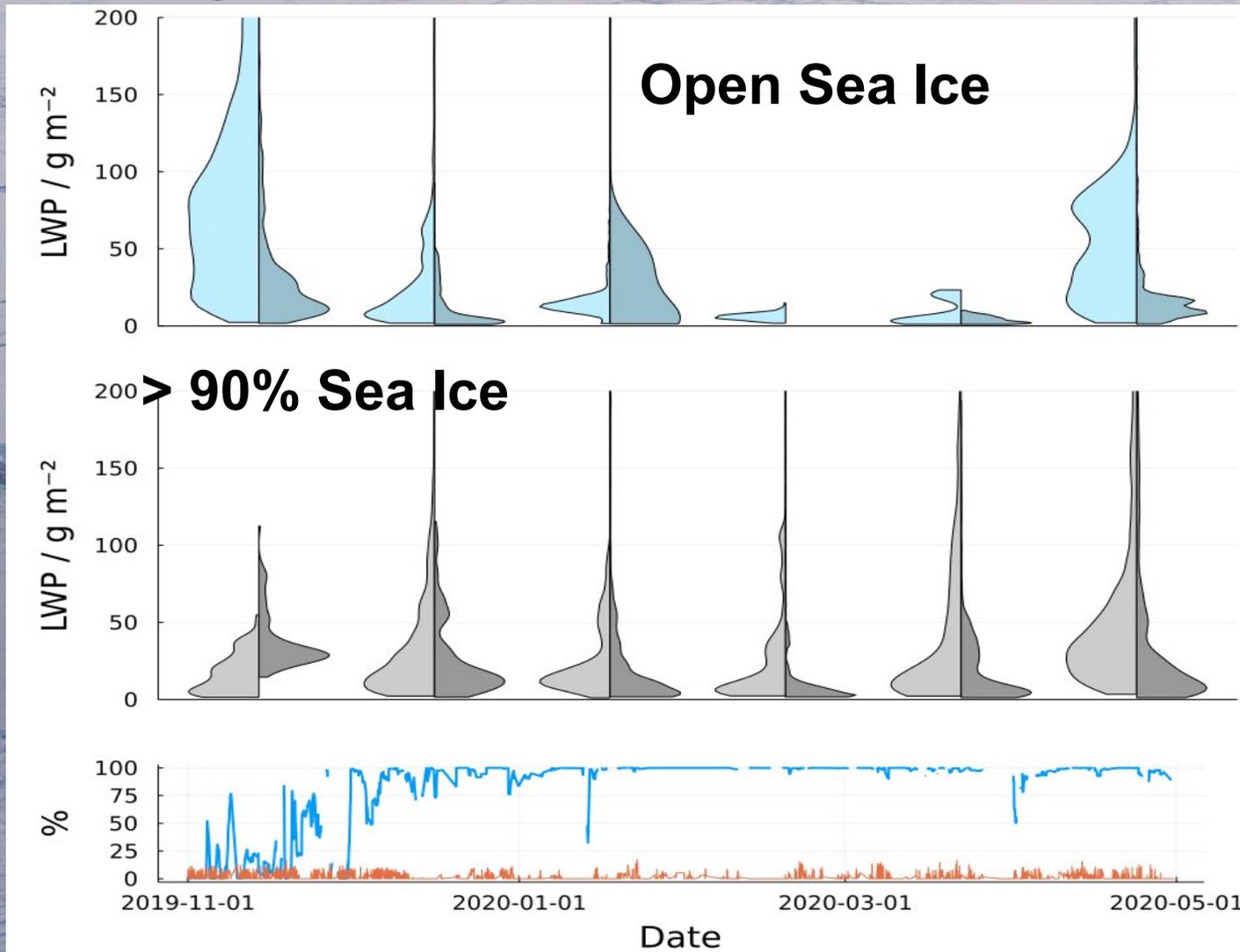
SIC AMSR2, WD=359.8



Coupled to the water vapor transport coming from a given direction

# Coupled Clouds → lower Ice Content & lower Cloud base

Monthly variability reveals an entanglement of coupled clouds with sea ice.

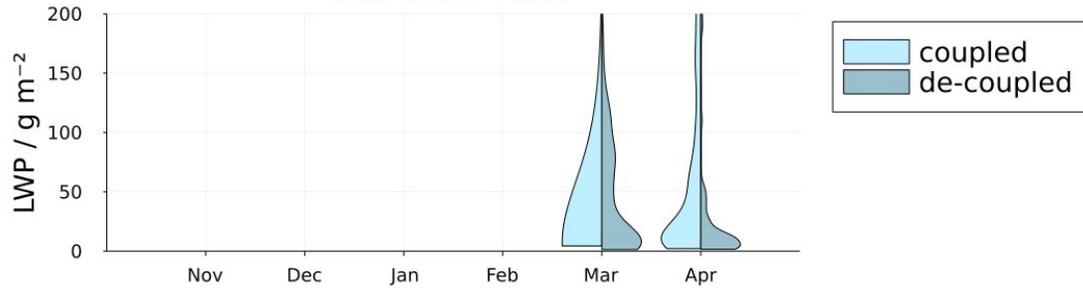




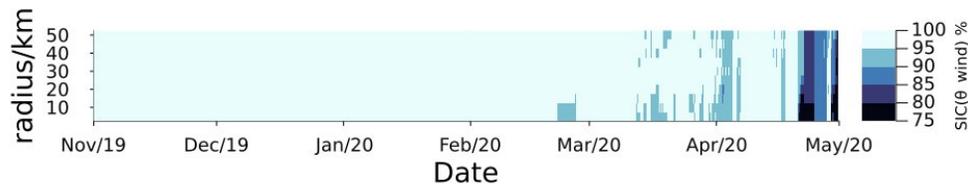
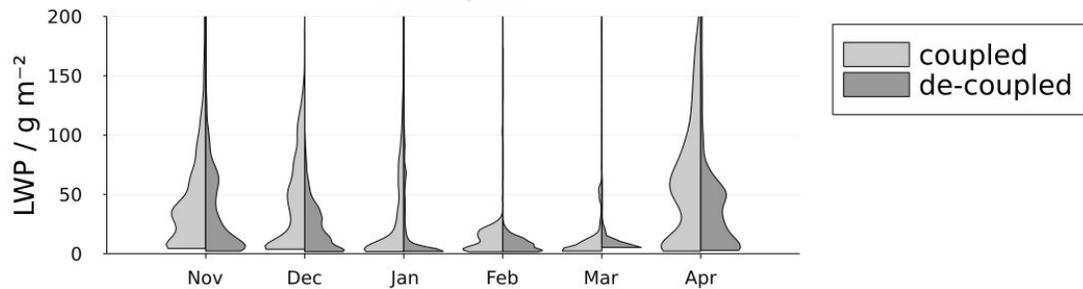
# Arctic Amplification: Climate Relevant Atmospheric and Surface Processes and Feedback Mechanisms (AC)<sup>3</sup>

For the central Arctic visit eLighting  
poster: **C52C-08** on Fri. 17<sup>th</sup>.

15% < SIC < 95%



SIC ≥ 95%



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