

2023 PAMIP Webinar Series

Arctic Amplification processes: seasonal energy transfer and atmosphere-surface energy exchange

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Abstract

Given the rapid nature of Arctic change and the importance of these changes to society, it is important to understand the causes and consequences of the rapidly changing Arctic. Many studies indicate that our understanding of Arctic Amplification is incomplete and results in a substantial spread in the projected warming by the end of century across a range of climate forcing scenarios. Reducing this uncertainty requires a better process-level understanding of Arctic Amplification and improvements in the representation of these processes in climate models. This presentation describes our understanding of two processes shown to contribute to uncertainty in Arctic climate change, namely seasonal energy transfer and remote-local process interactions. The presentation emphasizes the influence of surface-type dependent turbulent flux exchanges of heat and moisture, the rectification of episodic atmospheric heat transport events on time-averaged changes, local and remote feedback interactions, and cross-seasonal energy transfers. The presentation offers science community activities that could be taken to advance our understanding and reduce uncertainty in Arctic Amplification.



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