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The evidence for two-way feedbacks between clouds and large-scale climate variability in the extratropics

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Large scale patterns of climate variability have been widely examined in the context of dry atmospheric dynamics but less so in the context of two-way interactions with clouds. In this talk I will survey the emerging evidence for feedbacks between large scale climate variability and cloud processes at extratropical latitudes. Observational and numerical analyses reveal that large-scale patterns of climate variability have a pronounced signature not only in cloud incidence but also in cloud radiative forcing. Numerical experiments suggest that cloud processes, in turn, may play a key role in determining the structure and amplitude of hemispheric scale dynamic variability. Implications for climate change are discussed.