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Hydroclimate Drivers and Atmospheric Teleconnections of Long Duration Floods: An Application to Large Reservoirs in the Missouri River Basin

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Highlights:

- Multivariate flood attributes (duration, volume, peak) have to be considered for a comprehensive flood risk analysis and severity assessment.
- Long duration floods in the Missouri River Basin have a decadal to bi-decadal variability.
- Persistent atmospheric processes and climate patterns that lead to frequent rainfall events govern the long duration flood events.
- Antecedent flow conditions and rainfall intensity dictate the long duration flood and flood volume variability.
- Dam control and floodplain management strategies have to be revisited to take into account flood duration in addition to the instantaneous peak flow events.

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