



Maintenance of the Boreal Forest rainbelts during Northern Summer

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It is not unreasonable to expect that boreal forests that exist along 60°N in the Eurasian and North American continents were created and are maintained by warm seasonal rainfall. As revealed from satellite observations and various precipitation sources, zonally elongated rainbelts appear along these forests. It was observed by this study that baroclinic zones associated with strong Arctic westerlies coincide with minor storm tracks and boreal forest rainbelts only in eastern Canada. In contrast, this coincidence does not occur in northern Europe, eastern Siberia, and the Alaska–Pacific coast, because boreal forest rainbelts in these regions are located farther south of strong Arctic westerlies and ahead of high-latitude troughs over central Eurasia, the Bering Sea, the Labrador Sea, and the Norwegian Sea. The water vapor budget analyses show that the boreal forest rainbelts are essentially maintained by the convergence of water vapor flux associated with transient disturbances at high latitudes.