

Regional Topography Impacts Storms

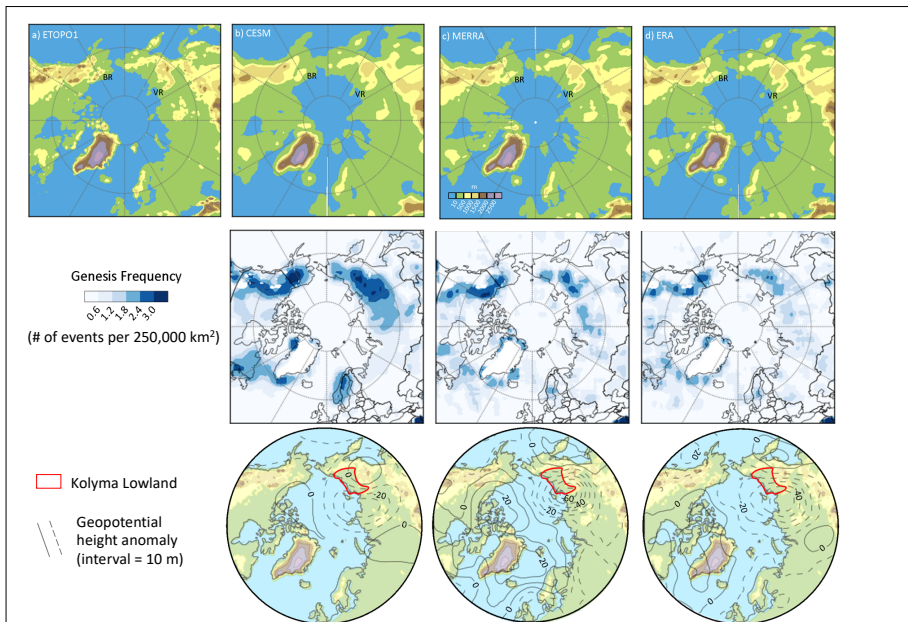


The Arrigetch Peaks rise over 2,100 meters (7,100 ft) above sea level in the Endicott Mountains of the central Brooks Range in Alaska)

Including major topographic features like the North American Cordillera or the Himalayas is important to large-scale circulation.

Similarly, treatment of smaller topographic features, like the Brooks Range (BR) or Verkhoyansk Range (VR) can influence regional circulation regimes in the Arctic.

Example: preferred genesis regions for Arctic cyclones are less restricted in CESM compared to reanalyses, which have more precise topography and assimilate observational data.



(top) Surface topography in (a) NOAA's ETOPO1 digital elevation model (b) CESM, and (c-d) the underlying models of two atmospheric reanalyses. (middle) The frequency of summer cyclogenesis events in CESM and the reanalyses. (bottom) The geopotential height anomalies at 500 hPa in CESM and the reanalyses when summer cyclogenesis occurs in the Kolyma Lowland (red outline).

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