



Changes in extreme events in the northern extratropics

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The presentation addresses several lines of evidence of contemporary (past 40-50 years) changes that have led to changes in the frequency (and intensity) of extreme events in high- and mid-latitudes of the Northern Hemisphere. Among these extreme events are prolonged no-rain intervals, very heavy rainfall events, severity of the “fire” weather, winter thaws, high streamflow, duration of hot and cold spells of various severity, and frequency of strong hurricanes landfalling on the Pacific and Atlantic coasts. Contemporary climate models send several very different messages regarding changes in the energy and water cycle over northern extratropical land areas that are leading to climate extremes of different kinds: “disproportional rates of warming”, “when it rains it pours”, “summer dryness”, “intensification of forest fires in the boreal zone”, and others. All of these terms/slogans characterize several (although frequently correlated among themselves) changes in occurrences of extreme events. We show that for most of the regions of Northern Eurasia and North America with a dense network of long-term time series of daily observations, the ongoing changes in extreme events generally correspond to these predictions.