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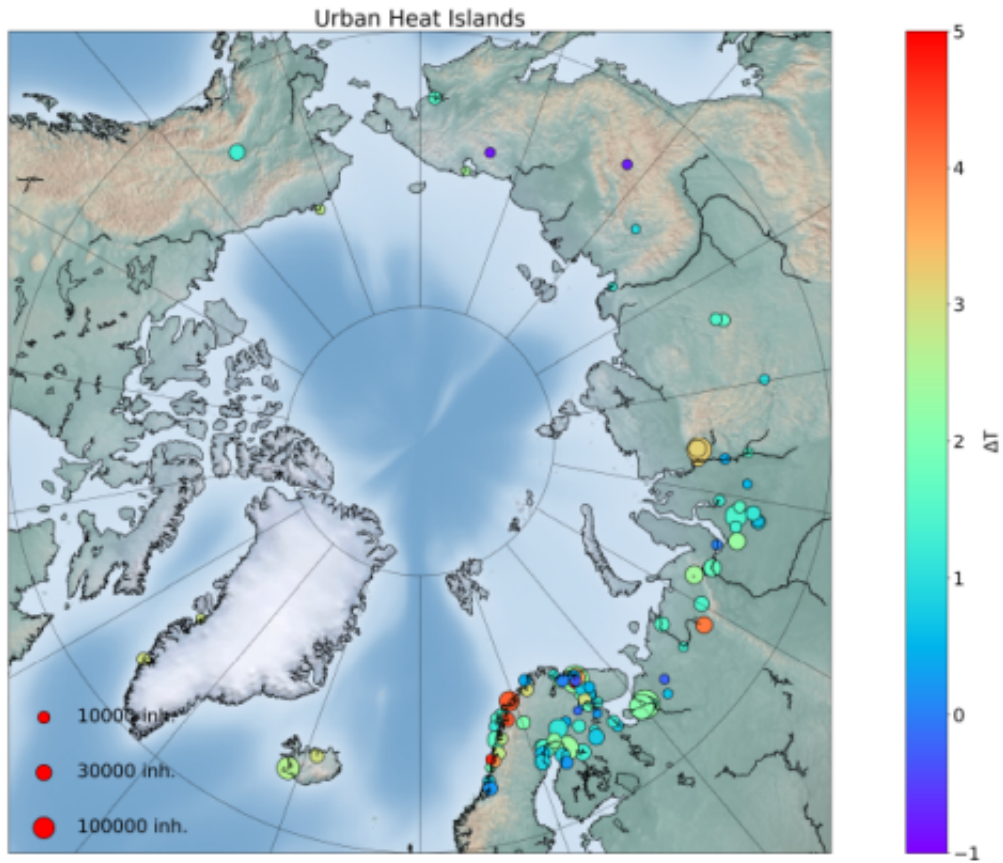
A local climate perspective from Arctic towns

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Across the Arctic, human settlements are challenged by rapid climate change and a broad range of environmental transformations. Some of them, such as Barrow (Utqiagvik, Alaska), must relocate; others, such as Norilsk (Russia), must restructure and rebuild. This presentation reports on local climate anomalies in 118 circum-Arctic cities and towns. For several key towns, a nexus review of the environmental consequences of the local warm anomalies is detailed. Longyearbyen (Svalbard), Apatity and Nadym (Russia) are in focus. For instance, Longyearbyen – the European “gate” to the Arctic – experiences one of the strongest climate change. The surface air temperature here has increased by almost 10°C over the last 100 years with more than 100 consecutive months being warmer than normal. Snowfall increases threatening with hazardous slab snow avalanches. The last extreme heat wave (July, 2020) showed temperatures up to +21°C and massive flooding in the coal mine. This study synthesizes observational evidence of the climate change in the town from a local perspective. We relate meteorological conditions with sustainability issues. The study looks at local climate diversity and its role for society and economy of the settlement.



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