

EGU21-16489

<https://doi.org/10.5194/egusphere-egu21-16489>

EGU General Assembly 2021

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## The relationship between temperature and digital hate – strong increase of racist tweets outside of climate comfort zone in Europe

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Temperature has been identified as a potential cause for human conflict. Conflict poses a fundamental obstacle to Sustainable Development Goal 16 which acknowledges the importance of building peace, justice and strong institutions for people around the world. Today, conflict is no longer limited to the physical space. The increasing digitalization of all areas of everyday life reinforces the impact of cyber racism, cyber discrimination and online hate. It disproportionately affects groups with an already increased risk of marginalization such as women, LGBTQ+ youth or people of color, causing affected persons to feel unsafe in digital spaces and limiting their access to online services. Twitter is one of the biggest social media platforms with more than 300 million active users around the world. We provide evidence that the amount of racist content posted to Twitter is non-linearly influenced by temperature. Exploiting the linguistic plurality of Europe, we investigate the relationship between daily maximum temperature and racist or xenophobic content online using a fixed-effects panel-regression approach for countries spanning multiple European climatic zones. Racist tweets are lowest between daily temperatures of 8°C to 17°C whereas ambient temperatures warmer or colder are associated with steep, non-linear increases. Within the next 30 years, temperatures are projected to shift with new heat extremes being reached. To quantify the potential impact on cyber hate, the number of days outside this range, weighted by the identified temperature-racist-tweet response curve is projected to increase across Europe. Results suggest, that future warming and more extreme temperatures could aggravate xenophobia and racism online, further hindering the achievement of SDG 16 and posing a challenge for future human well-being.