



Monitoring Arctic and high-latitude wildfires in 2019 and 2020

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The boreal summers of 2019 and 2020 were witness to extensive high northern latitude wildfire activity, most notably within the Arctic Circle across eastern Russia. Near-real-time monitoring of the wildfire activity, based on satellite observations of active fires, showed widespread and persistent fires at a scale that had not been observed in the previous years that satellite observations are available. The European Centre for Medium-Range Weather Forecasts (ECMWF) through its operation of, and contribution to, different Copernicus Services is in a unique position to provide detailed information to monitor high-latitude wildfire activity, including their evolution and potential impacts, when they occur. Fire weather forecasts from the Copernicus Emergency Management Service (CEMS), and surface climate anomalies from the Copernicus Climate Change Service (C3S) both provide context to the environmental conditions required for wildfires to persist. Analyses based on observations of fire radiative power, along with analyses and forecasts of associated atmospheric pollutants, from the Copernicus Atmosphere Monitoring Service (CAMS) aid in quantifying the scale and intensity in near-real-time and the subsequent atmospheric impacts. We present an analysis of Arctic and high northern latitude wildfires during the summers of 2019 and 2020, reviewing the underlying meteorological/climatological conditions, the estimated emissions and transport of smoke constituents over the Arctic Ocean. We will show that the different datasets, while being relatively independent, show a strong correspondence and provide a wealth of information required to monitor and provide context for wildfire activity.