

Climate Change in the Mining Industry: Where We Are Now and Where We Are Heading

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Abstract:

Climate change effects are beginning to make their mark on the Canadian mining sector.

Occurrences of extreme heat waves and flood events that were projected for the 2050's and beyond are being observed today. Regulators and global practice guidelines are calling for an understanding and application of climate change, including the Global Industry Tailings Standard on Tailings Management (ICMM 2020). The state of practice is evolving through direct experience in dealing with changes, as well as with industry guidelines, such as the Guide to Climate Change Adaptation for the Mining Sector (MAC 2021).

The definition in climate change projections is narrowing its focus from annual variability to seasonal and monthly variability, with an emphasis on characterization of extremes. In addition to the projected air temperature and precipitation, an understanding of climate-driven change to environmental conditions, including streamflow, evaporation and ground temperature, is required to quantify effects and characterize risk.

As new climate change projections and scenarios become available, such as the Sixth Assessment Report (IPCC 2021) and the magnitude and timing of effects varies, adaptation strategies must also evolve. Having an understanding of climate-related risks and hazards is a critical component of a mining company's risk management strategy. This presentation will describe how the mining industry is reacting to the evolving climate change science, including how to manage the uncertainty through risk-based decision making. Several advancements in good engineering practice and areas for improvement will be discussed in the context of mining project case studies.