Managing rockbursting conditions in mine development and operational environments is a complex and difficult challenge. The hazard and the associated risks can be managed based on local experience, monitoring, and informed data-rich analysis. On the other hand, blind development for deep tunneling is being carried out around the world at depths in excess of 2 km and rockbursting has become a common and serious challenge. The rockburst mechanism is predominantly tunneling-induced dynamic rupture or strain bursting, distinct from the remote or mine-generated events that impact mining excavations.

Considerations of rock petrology, fabric, mechanical parameters, and structure allow an estimate of brittle response. The potential for energy storage and rapid release must be accounted for in order to understand the burst potential early in the basic design stage for deep tunnels. Failure to do so can result in unsafe conditions and years of delay. A multistep semi-empirical approach for early assessment of strain burst or dynamic rupture potential along deep tunnel alignments in variable ground is presented along with strategies to mitigate the impact of rockbursting during construction.

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