

عنوان مقاله:

Analysis and Forecast of Mining Accidents in Pakistan

محل انتشار:

مجله معدن و محیط زیست، دوره 11، شماره 4 (سال: 1399)

تعداد صفحات اصل مقاله: 10

نویسندگان:

K. Shah - *Department of Mining Engineering, University of Engineering and Technology Peshawar, Peshawar, Pakistan*

I. Mithal Jiskani - *School of Mines, China University of Mining and Technology, Xuzhou, China*

N. Shahani - *School of Mines, China University of Mining and Technology, Xuzhou, China*

H. Rehman - *Department of Mining Engineering, Balochistan University of Information Technology, Engineering and Management Sciences, Quetta, Pakistan*

N. Khan - *Department of Mining Engineering, Balochistan University of Information Technology, Engineering and Management Sciences, Quetta, Pakistan*

S. Hussain - *Department of Mining Engineering, University of Engineering and Technology Peshawar, Peshawar, Pakistan*

خلاصه مقاله:

In the mining sector, the barrier to obtain an efficient safety management system is the unavailability of future information regarding the accidents. This paper aims to use the auto-regressive integrated moving average (ARIMA) model, for the first time, to evaluate the underlying causes that affect the safety management system corresponding to the number of accidents and fatalities in the surface and underground mining in Pakistan. The original application of the ARIMA model provides that how the number of accidents and fatalities is influenced by the implementation of various approaches to promote an effective safety management system. The ARIMA model requires the data series of the predicted elements with a random pattern over time and produce an equation. After the model identification, it may forecast the future pattern of the events based on its existing and future values. In this research work, the accident data for the period of ۲۰۰۶-۲۰۱۹-is collected from Inspectorate of Mines and Minerals (Pakistan), Mine Workers Federation, and newspapers in order to evaluate the long-term forecast. The results obtained reveal that ARIMA (۲, ۱, ۰) is a suitable model for both the mining accidents and the workers' fatalities. The number of accidents and fatalities are forecasted from ۲۰۲۰ to ۲۰۲۵. The results obtained suggest that the policy-makers should take a systematic consideration by evaluating the possible risks associated with an increased number of accidents and fatalities, and develop a safe and effective working platform.

کلمات کلیدی:

Autoregressive integrating moving average method, fatalities, safety management system, Forecasting, mine safety

