عنوان مقاله:

A three dimensional geometrical model for calculation of induced stresses surrounding longwall working

محل انتشار:

تعداد صفحات اصل مقاله: 14

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خلاصه مقاله:

There are various criteria that need to be examined alongside each other when designing a longwall mining system. Challenges such as determination of the supported roof width, support system design, caving height determination, lateral or chain pillar size determination, and optimum support design for the main gate and tail gate roadways have to be tackled for this aim. Three-dimensional analysis would deliver the highest accuracy of induced stresses around the longwall working area. Thus, the main purpose of this paper is to develop a three dimensional geometrical computing model (3GCM) for calculating the induced stresses in both longitudinal and transverse loading orientations of the extraction panel. 3GCM is capable of studying the changes of induced stresses along the longitudinal orientation of working and the lateral pillar as well as the induced stresses ahead and behind of the face. The proposed computational model, for analyzing the vertical induced stresses, was used in one of the longwall workings in the Parvade-2 coal mine of Tabas, Iran. Validation of 3GCM has approved its high efficiency for the analysis of induced stresses within the working as well as surrounding areas.

کلمات کلیدی:

3GCM, Longwall, Induced stress, Coal mining

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