Surpac is developed by the Australian international software company large mining software package that can be applied to geological, surveying, mining design and management, etc. In this paper, by analyzing drilling data and processing, establishing mine geology database method is discussed.

1 Surpac Geological Database Function Module

Database is an effective management tool of handling data, which is convenient for data retrieval and management. Surpac geological data in the database of third party software, by Surpac database to access the database informations.

2 The Establishment of the Geological Database

Through the analysis with the structure of geological database matched to the Surpac software, and by analyzing, summarizing the data we collected, the drilling data are regarded as the main data sources, then we set up geological database. (1) drilling positioning table (Collar Table): the informations this table stored include the drilling portiforium position (Hole ID (Hole_id) and X/Y/Z coordinates), the maximum depth of drilling (Max_depth), the hole path of drilling (Hole_path). The field (Hole_path) refers to Mathematical laws involved in the process of drilling removal, which is used to indicate the trajectory characteristics of drilling. The start and end date of drilling, drilling types, whether mine discovered or not, drilling quality or project name, which also can be stored in the database.

3 Geological Data Entry

Although Surpac provides two data entry, but due to the large number data, still adopt the most used "import data". Here the "text" as a source of data import, it is important to note that each column in the file must be with the data in the table the column. Here will involve the format file, format file will record the import data, is generally consistent with the name of the database.

4 Display the Data in Three Dimensional Space

After geological database has been set up, using Surpac powerful graphics display system, in three-dimensional space according to the geological data, including the trajectory, grade value, lithology and code, stratum strike, etc. As shown in figure 1, it is along the direction of the borehole, for different lithology show different color, and on the left side mark and depth, lithology code in grade.

Fig.1 The drilling three-dimensional display

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value marked on the right side of the hole at the same time, also can display the grade value of wave curve.

5 Geological Interpretation

According to the rock formations and grade and understanding of the orebody, interpretation of the orebody in profile. Through interpretation of orebody section, which can be used to realize the orebody delineation, and then it could form a three-dimensional orebody.

6 Geological Statistics and Analysis

Through statistical sample value and space distribution, in order to understand the orebody distribution and determine the high values and preparing block model of valuation. Basic statistical analysis including the total number of samples, which is to say, variance, standard deviation, the percentage and frequency distribution and the grade of the sample distribution, etc. Different statistical analysis according to the calculation method of single sample is divided into normal and logarithmic transformation. In Surpac composite sample is before long sample length and grade, the space quantization on some discrete points. Combination is the precondition of geological statistics and analysis. According to the technical requirements, select the combination the length of the sample, the original data are combined, produce a series of discrete points in space, and statistical analysis to it.

Conclusion

Establish a geological database is the precondition of 3d visualization, this is Surpac data base. When drilling data is finished, we need to pay attention to the information classification, the structure of the data sheets. Making good use of the geological database, in order to further to develop mining human-computer interaction provide better prepared.

References