USE OF INTERPOLATION VARIANCE MAPS FOR MINE PLANNING IN ARAXÁ PHOSPHATE MINE, STATE OF MINAS GERAIS, BRAZIL.

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The Araxá phosphate mine is located near the Araxá city, State of Minas Gerais, Brazil. In this mine the ore-grade control is based on assay data obtained from channel samples collected systematically at a regular spacing of 12.5 m. This mine is exploited in two quarries named Trincheirão and Morro das Cobras. In this paper we discuss the spatial distribution of ore grade (P2O5) as well as the contaminant elements (MgO, SiO2 and BaSO4) in apatitc-ore types. Moreover, the uncertainty measurements (kriging and interpolation variances) are also provided. The kriging variance as long as does not depend on data used for kriging estimation, cannot be considered, indeed, as a precise measurement of uncertainty. On the other hand, the interpolation variance, which depends on local grade values, measures the actual data dispersion. This paper presents the integrated use of interpolation variance maps with underlying geology as a mine-planning tool for the geologist and mine engineer. Actually, the P2O5 distribution and its interpolation variance map allow the geologist to plan a blasting. Moreover, the spatial distribution of contaminants as well as their interpolation variance maps provides additional information to the geologist on the ore quality.