

IMPLICIT MODELLING OF THE LAS BAMBAS DEPOSITS, PERU

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The primary objectives of any 3D implicit geological model are to better visualize, understand, and demonstrate the data you have, to provide an environment fostering robust interpretation, to build on those interpretations and extrapolate into theoretical space, to quantify our economic variables, and to encourage the scientific method by allowing competing theories to be explored virtually, maximizing discovery and expansion.

Recent advances in understanding MMG's Flagship project, the Las Bambas Mine, Apurimac, Peru, its mineralizing system and analysis of the opportunities for expansion have been assisted by the construction of an implicit geological model that not only effectively demonstrates the major features of the system, but has provided a versatile experimental environment within which geological theories and generation of predictive geometries are constantly queried.

Las Bambas is a world class suite of Cu deposits in the high Andes. The system can be described as a series of Eocene igneous stocks, sills and dike swarms intruding lower cretaceous limestones of the Ferrobamba formation, resulting in the generation of garnet-pyroxene-epidote-magnetite skarns, which have mineralised through syn-epigenetic fluid interaction, filling voids and introducing chalcopyrite and bornite, with later molybdenite mineralisation.

In this presentation, the implicit model serves as an effective medium for illustrating the Las Bambas deposit geometries and mineralisation relationships, leading to analysis of near mine exploration opportunity.