

## The Gold Ridge Epithermal Au Deposit, Guadalcanal, Solomon Islands

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The Gold Ridge epithermal Au deposit is located on Guadalcanal Island, Solomon Islands. The deposit is hosted within the Gold Ridge volcanics a member of the Toni Formation, a sequence of volcanoclastic rudites and arenites with subsidiary pyroclastic and biogenic limestones. Mineralization occurs as dissemination in the volcanoclastic rudites mostly in the matrix and in some clasts and also as veining. The veins show a wide range in thickness from less than 1 mm to 12 cm and can never be traced over distances greater than about 10 m. They also show a bewildering range in attitude from flat lying to steeply dipping. The dominant group of near-vertical veins trending NNE-SSW and dipping steeply eastward. These veins at Gold Ridge are closely related to the pattern of jointing. The higher-grade ores are associated with the mm to cm size carbonate-quartz-base metal veins. Gold occur as native gold and as electrum (67-83 at. %) in pyrite, sphalerite, galena, chalcopyrite, and in quartz. Geochemical results show Zn-Pb has the best match with Au compared with Cu, Ca, Fe, S and As. The main ore formation stage formed at the temperature range of 240 to 280°C within log  $f_{S_2}$  range of -10 and -12.5 based on FeS content of sphalerite ranging between 2.8 to 4.8 mol.%. Gold is probably from a magmatic source as suggested by the sulfur isotope results ( $\delta^{34}S$  values) of -1 to -4 ‰.