

Geochemical markers for Copper Mineralization in the Dinkidi Alkali Cu Deposit, Northern Luzon, Philippines

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The late Oligocene to early Miocene Dinkidi deposit found in Nueva Viscaya, northern Luzon, Philippines, is a multiphase intrusive complex which exhibits both silica-undersaturated and silica-saturated styles of alkalic porphyry mineralization. With nearby prospects in line for exploration, this study highlights the possible utility of major and trace element geochemistry as chemical vectors for mineralization in this rare type of deposit. Drillcores and surface samples acquired from the open pit mine revealed the lithology of the porphyry stock to be mostly made up of moderately altered andesite to medium-coarse grained diorite, monzonite, and monzodiorite hosting the potassic and propylitic alteration zones. The suite of rocks collected from prospect areas vary in alteration intensity and lithology from fresh andesite to argillized syenite, trachyte, and nepheline phonolite. Using trace element ratios and bivariate diagrams, copper enrichment is observed to be associated with more evolved rocks having lower rare earth element content. These geochemical traits associate the development of copper fertility to the process of magmatic differentiation.