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## Quantitative description of geochemical backgrounds of gold due to rock weathering in Jiaodong peninsula, China

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### Abstract

Geochemical backgrounds of trace elements can be described quantitatively on the bulk chemistry of the sample. Three weathering profiles developed over granite, granodiorite, and basalt respectively in Jiaodong peninsula, China are selected far from any ore-deposit areas to investigate the quantitative changes in gold distribution during weathering of barren parent rocks. Samples are collected from the topsoil downward to its parent rock in each *in situ* weathering profile. Contents of 12 major oxides, LoI (loss on ignition), and Au in each sample are analyzed. From parent rocks to their top soils in the *in situ* weathering profiles, three features are illustrated clearly. The first is that contents of Au increase gradually which indicates the enrichment behavior of Au due to rock weathering, the second is that values of WIG decrease gradually which reflects the increasing weathering degree, and the third is that ratios of  $\text{Al}_2\text{O}_3/\text{Ti}$  and  $\text{K}_2\text{O}/\text{SiO}_2$  show no clear variations in each profile but are remarkable different among profiles developed over different parent rocks. According to the documented equation form between contents of trace elements and their weathering indices (WIG,  $\text{Al}_2\text{O}_3/\text{Ti}$ , and  $\text{K}_2\text{O}/\text{SiO}_2$ ), an empirical equation is regressed on 50

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