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Geochemical Characteristics and Petrogenesis of Adakites in the Sikhote-Alin Area,
Russian Far East

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Abstract

Adakitic rocks of the Sikhote-Alin area were emplaced during two main periods: the Cretaceous (132–98 Ma) and Eocene (46–39 Ma). These rocks primarily occur in the Khanka Block and, less commonly, in the Sikhote-Alin Orogenic Belt. The adakitic rocks record the following chemical compositions: $\text{SiO}_2 = 57\text{--}74\%$, $\text{Al}_2\text{O}_3 = 15\text{--}18\%$, $\text{Na}_2\text{O} = 3.5\text{--}6.1\%$, $\text{K}_2\text{O} = 0.7\text{--}3.2\%$, $\text{Na}_2\text{O}/\text{K}_2\text{O} = 1.1\text{--}3.9$, $\text{Sr}/\text{Y} = 33\text{--}145$, and $(\text{La}/\text{Yb})_{\text{N}} = 11\text{--}53$. The HREE and HFSE in these rocks are remarkably depleted. The Early Cretaceous adakites record $\varepsilon \text{Nd}(\text{T}) = -1.0$ to $+3.2$ and $I_{\text{Sr}} = 0.7040$ to 0.7090 , and the Eocene adakitic rocks record $\text{Nd}(\text{T}) = -2.0$ to $+2.2$ and $I_{\text{Sr}} = 0.7042$ to 0.7058 .

Adakitic features suggest different modes of magma generation; a comparison of the Sr/Y and La/Yb ratios and geochemical data on Harker diagrams between the two periods of adakitic rocks reveals differences in their petrogenesis. The Cretaceous

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