

Morrow Mountain Metarhyodacite:

A comparison of a rhyolitic dome and a volcanic unconformity

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Abstract

New results based on cutting edge research, intensive modeling, and field mapping have led to novel hypotheses and confirmation of old ideas involving the Neoproterozoic-earliest Paleozoic Albemarle arc. This research is summarized and divided into two subgroups: a tectonothermal analysis of the Albemarle subgroup/Uwharrie Formation and a geochemical analysis of rhyodacite found in the Cid, Tillery, and Uwharrie Formations. Results are provided which support a system of rhyolitic domes and conventional stratigraphic interlayering based on two groups of geochemical magmatic links of rhyodacite that are found collectively throughout the region. This contradicts interpretations of an unconformity in the Uwharrie-Tillery contact point based on the possibly erroneous finding of fossils. In addition to summarizing novel data and hypotheses, a modern view of Carolina is taken focusing on the Carolina terrain.

Lithotectonic sequences are described geochemically and chronologically as results of thermotectonic events. A modern view of the older Hyco arc and the younger Albemarle arc is taken including U-Pb Zircon aging techniques which also lead to a more conclusive history of the Virgilina sequence.