

*A Complex Thermal and Mechanical History in a Triassic-aged Dike, As Evidenced by Textural Analyses*

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Magmas generated at depth in the Earth are transported towards the surface via magma-filled cracks. These features are referred to as dikes. Historically, magmatic intrusions have been viewed as simple, single-event systems. More recently, this view has been challenged with detailed studies revealing that most igneous systems have complex histories. This study focuses on one mafic dike, part of the Central Atlantic Magmatic Province. In northeastern Georgia, a largish mafic dike associated with CAMP is exposed in the Keystone Blue Quarry. Quarry operations have removed granite, leaving behind the dike now exposed in 3-dimensions. Samples were collected at ~1 foot intervals across a ~17 foot thick section of the dike, near its center. From these samples, textural analyses have been performed. From these texturally analyses, the thermal history can be interpreted. Preliminary results indicate that the dike has an asymmetric thermal history. This cannot be explained via a simple, thermal model. Rather, a more complex history is necessary. It is suggested here that the dike grew through a number of pulses separated in time, with each subsequent pulse accumulating on the same side.