ABSTRACT

TITLE:	New Insight Into the History of the Chicago Basin Stock from U/Pb Zircon Age Constraints, Needle Mountains, Southwestern Colorado
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ABSTRACT: The Chicago Basin stock (CBS) is a porphyritic granite hosted by Mesoproterozoic granite in the Needle Mountains of southwestern Colorado. Previous studies have interpreted the timing of emplacement as Oligocene or Miocene, and have documented extensive molybdenite mineralization of this stock. New U/Pb analyses on zircons from a sample at the core of the CBS reveal three zircon populations. Some of the crystals analyzed are ~1.4 Ga xenocrystic zircons contributed by melting and incorporation of the adjacent Eolus Granite. The most abundant fraction of zircons yielded an age 28.09 0.36 Ma while a smaller population defined an age of 9.1 , 0.5 Ma. No distinct core to rim variations were determined in any of the zircons. The ~28 Ma emplacement corresponds to widespread regional magmatism and volcanism from 29-27 Ma related to caldera eruption. The ~9 Ma population of zircons is similar in age to fission-track zircon age previously recorded in the CBS. The Miocene zircons correspond to emplacement of small volume granitic stocks across the western San Juan Mountains some of which are also related to molybdenite mineralization. These data imply that the Chicago Basin stock was a site of at least two different events that either involved multiple generations magma emplacement or an Oligocene pluton overprinted by Miocene veins and hydrothermal alteration.