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LA-ICP-MS Zircon U-Pb Geochronology of the Neoproterozoic Basement Complex of Wadi Baba Area, West-Central Sinai, Egypt; Implications to understand the Evolution of the Arabian-Nubian Shield

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Thirteen samples were collected from different rock units representative of the Arabian-Nubian Shield (ANS) in the studied area. Three intense magmatic activities were investigated and interpreted as early-orogenic, syn-orogenic and late orogenic magmatic events. These are represented by three rock suites; (1) Early-orogenic magmatic activity prior to orogenic metamorphism from 861 to 807 Ma, (2) Syn-orogenic grey and red granitic from 748 to 739 Ma, and (3) Late-orogenic dikes, grey and red granitic magmatic activities occurred between 613 and 535 Ma. Both of Syn-orogenic and Late-orogenic activities are represented as a series of granitic intrusions in each of which red granites form instead of grey granites along with increasing potash and changing into extensional environment conditions. Although no sample has pre-Pan-African age in average, zircons were very old with ages of 2273, 1755, 1241, 1003 and 989 Ma indicating being inherited from the island-arc nucleus or represent the age of the hornblende-rich xenoliths. On the other hand, zircons with 370, 411, 467, 474 and 489 Ma ages represent magmatic intrusion event occurred in the Ordovician-Devonian time which must be intense based on number of grains with this age.