



## **Chemical and typological characteristics of zircon as evidence for magma mixing/mingling in the H-type granitoids of central Anatolia**

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We studied morphological, chemical and growth characteristics of zircon crystals in H-type granitic rocks from central Anatolia, Turkey. Physical and chemical variations are recorded within the crystals during evolution of the H-type granitoids. Zircon is associated with biotite, plagioclase, quartz and allanite, and can mainly be classified into P- and S-type according to the Pupin classification, with rare G-, L- and J-types. Typology studies combined with cathodoluminescence imaging reveal the hybrid character of the central Anatolian granitoids, consistent with their geological and petrological features. Zircons generally have zoned euhedral to subhedral cores, but inherited and embayed cores also exist. Large scale, first order, and/or small-scale second order oscillatory zoning and effects of late stage recrystallization are present and multiple resorption zones are common. These resorption zones are characterized by sharp changes in crystal forms with decreasing Zr and Si, and increasing U, Th and REE+Y contents, as well as occasional increase in Hf, Sc, Ta, Ti, Ca, Al and Fe as detected by electron microprobe. We suggest that these multiple resorption zones are formed by transitory heating of the resident felsic magma due to mafic melt input to the magma chamber at the time of mixing and/or mingling processes of the H-type granitoids.