Apr 20th, 11:00 AM - 2:00 PM

Preliminary Results of Radiohalos from Four Sites of Precambrian Minnesota Granite

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Radiohalo research is a relatively new area of scientific investigation, the significance of which has been shown by authors such as Snelling and Gentry. This study examines the prevalence of the radiohalos of polonium isotopes and uranium isotopes within biotite flakes generated by radioactive zircon crystals. The radiohalos result from damage caused by the emanation of hundreds of millions of alpha particles from the zircon crystals during the decay process. The samples were obtained from drill cores granted to us by the Drill Core Library in Hibbing, Minnesota. The Precambrian granite core sections were crushed and small biotite flakes picked out. The "Scotch tape" method was used to separate the many layers of biotite flakes which were then placed on glass slides and analyzed under the microscope. Center radiohalos were marked, taken a picture of using the petrographic microscope, measured, and logged. We prepared forty slides per sample with biotite flakes scattered across each slide. We found thirty-eight radiohalos total in MN-1; roughly thirty-five radiohalos total in MN-2A; five radiohalos total in MN-2B; and seventeen radiohalos total MN-3A. All of the radiohalos contain either holes or zircons at their center and majority appear to be made from polonium. These are initial results and further analysis will continue to be conducted. This study contributes to a larger study of Precambrian granite with a focus on Minnesota core samples.