

## Dating impact events with shocked zircon: insights from the Sudbury impact crater, Ontario, Canada

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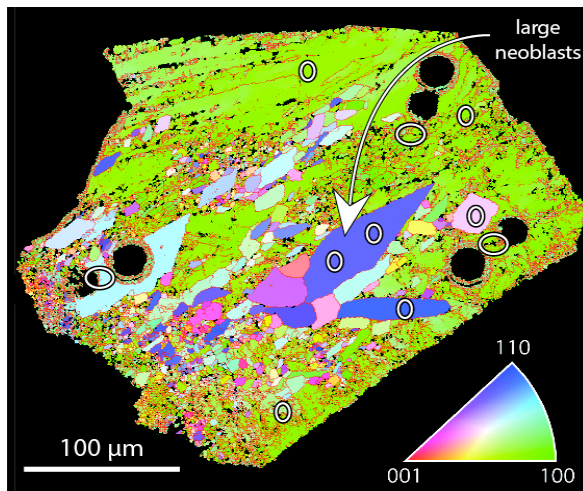
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Despite zircon's wide geochronological utility, dating impact events with shock metamorphosed zircon has proven difficult. Here we present a study that advances impact event chronology with an example of shocked zircon from the Sudbury basin, whose age was precisely known before. We report the first terrestrial occurrence of large, impact-aged neoblasts up to 100  $\mu\text{m}$  in dimension from a site other than Vredefort (Fig. 1) – indicating that easily datable neoblasts may be a more widespread feature than previously thought. We also applied SIMS U-Pb age mapping to areas of small neoblasts, demonstrating this technique as a potentially powerful tool in acquiring impact ages for other craters where large neoblasts are absent.



**Figure 1:** Electron Backscatter Diffraction (EBSD) map showing myriad large and small neoblasts in a single shocked zircon from Sudbury. Black circles are LA-ICPMS analytical pits and ellipses highlight SIMS U-Pb analytical sites.