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## 2D Models for the evolving distribution of impact melt at the lunar near-surface

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Impact events on the Moon produce varying amounts of melt, which may be identified and radiometrically dated in lunar surface samples. Existing melt from previous impacts can be redistributed by the ejection process of subsequent events. It is possible to evaluate the amount of the impact melts, but the cumulative effect of the impact gardening process (i.e. excavating, burying, and re-excavating) has not been systematically studied. The purpose of this work is to refine the previous model into two-dimension (2D) where the lateral distribution of impact melt is recorded, and the age of melts within the evolving mixture is tracked.

Based on the 2D model, the lateral distribution of the melt with diverse ages is simulated. Using the observed distribution of melt ages in lunar samples and meteorites, one can discriminate between the possible scenarios of the lunar impact history. The record is also helpful for future lunar sampling, where choices must be made for sites to obtain samples from different impact basins, and to understand the mixture of melt ages observed at any one site.