After formation, SPA surface materials became a mixture of:
- Original SPA floor rocks
- Reworked SPA material from interior basins
- Exogenous material

Different starting point from Apollo sites – SPA floor is the substrate, remote sensing sees unique geochemical signature.

Ejecta and mixing models (Haskin et al. 2003, Petro & Pieters 2004) show ~20% of SPA regolith is foreign – but much of foreign material will be cold ejecta, not impact-melt rocks.

Reference dataset: Age (A) of 7 basins
- ± oA represents the range in real ages for a single event (e.g. slow cooling)

Model dataset: 2000 impact-melt rocks apportioned according to the calculated melt fraction at the model site
- Assigned a sample age from within the normal distribution oA
- Assigned an uncertainty (U) associated with laboratory measurement

Model results (so far)
- Reference: 2000 particles
  - S1: large oA small U
    - Discretized
    - False subpeaks
  - S2: large oA large U
    - less discretized
    - Masks events with small AA
  - S3: small oA small U
    - Only needs a few hundred samples
  - S4: higher Pmelt from non-SPA basins
    - younger basins become more apparent

Conclusions and future work
- Still needed:
  - "noise" from young, local events
- a statistical test by which individual impact event ages can be assigned to groups of samples, such as a simple signal-to-noise threshold or fit to a normal distribution function
- SPA floor impact melt exists at interior landing sites and will be the dominant impact-melt rock type in any sample
- Corroborating information (petrology, elemental composition, regional context, RS) is important to correct interpretation
- Even if it wasn't recognizable by geochemical or petrologic means, dating of a few thousand impact-melt fragments is still likely to statistically yield the age of the SPA basin.