**Geography 507: Seminar 7**

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Date: December 7, 2019

Fiona Couperthwaite’s presentation was on her work with olivine crystals. There were two main areas her presentation focused on including modeling factors and analytical factors. The analytical factors related to utilizing olivine crystals in this research included temperature and pressure, composition, the diffusion coefficient and the diffusion rates of certain elements. The modeling factors looked at included statistics, anisotropy, the speed of pressing and sample type, random selection and crystal shape uncertainties and growth.

The research looked at volcanic activity in a number of sites including Moana Lua and I believe samples from an eruption from the remote Reunion Island. My understanding was that this research was important for the speed of processing data and could help lead to faster ways to gain results. From the questions at the end I felt that maybe there was some questioning about the need of these methodologies but I had a hard time following the lines of questioning and may have misunderstood.

Two methodologies utilized in research related to olivine included X-ray microtomography and electron diffraction which tended to be too time consuming. X-ray microtomography is a fascinating method that is non-destructive and can be used to characterize microstructure in three dimensions at the micron level.