Alteration assemblages and geochemical signatures associated with the Phoenix unconformity-related uranium deposit, Athabasca Basin, Saskatchewan

**Introduction**

The Athabasca Basin is home to the world's highest-grade unconformity-related uranium deposits and accounts for about 70% of uranium production globally (Spring Point & Mortgage, 2010). The deposits are hosted within shear zones or fracture zones in a highly altered basement of the Athabasca Group sediments (Hattori, et al., 2012). These shear zones or fracture zones are typically associated with intense alteration surrounding Phoenix, which was explored by the study and is herein compared to areas away from the Phoenix deposit.

**Alteration in the vicinity of Phoenix Zone A**

Morphological expressions of alteration assemblages are similar to those reported for other unconformity-related deposits (Acebo et al., 2005). A typical example is the unconformity-related deposit (URD) at Phoenix, which shows a... 

**Alteration of the Baseline Zone A**

Clay concentrations in the sandstone range from complete replacement in certain, minor mineralized areas to... 

**Whole Rock Geochemistry**

- **Clay concentrations** in the sandstone range from complete replacement to minor.
- **Clay minerals** are dominated by illite/muscovite.
- **Illite/muscovite** is more widespread throughout the sandstone than... 

**Acknowledgments and References**