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Geoscience Academic Provenance: A Theoretical Framework for Understanding Geoscience Students' Pathways

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The demand and employment opportunities for geoscientists in the United States are projected to increase 23% from 2008 to 2018 (Gonzales, 2011). Despite this trend, there is a disconnect between undergraduate geoscience students and their desire to pursue geoscience careers. A theoretical framework was developed to understand the reasons why students decide to major in the geosciences and map those decisions to their career aspirations (Houlton, 2010). A modified critical incident study was conducted to develop the pathway model from 17, one-hour long semi-structured interviews of undergraduate geoscience majors from two Midwest Research Institutions (Houlton, 2010).

Geoscience Academic Provenance maps geoscience students' initial interests, entry points into the major, critical incidents and future career goals as a pathway, which elucidates the relationships between each of these components. Analyses identified three geoscience student population groups that followed distinct pathways: Natives, Immigrants and Refugees. A follow up study was conducted in 2011 to ascertain whether these students continued on their predicted pathways, and if not, reasons for attrition. Geoscientists can use this framework as a guide to inform future recruitment and retention initiatives and target these geoscience population groups for specific employment sectors.