INTRODUCTION

Mars’ polar ice caps experience seasonal sublimation, the process in which ice skips a liquid state, and moves directly from solid ice to gaseous vapor. Through geospatial analysis, we identify craters, observe geomorphology, then search for correlations with temperature and albedo to study the climate interaction between the surface and atmosphere in a search for liquid water.

METHODS

Our search for liquid water starts with using geospatial programs, ArcMap and JMARS, to identify craters from 1062 locations (60S – 90S), while maintaining records of geomorphological features, and observing high resolution imagery. Using Python with Thermal Emission Spectrometer (TES) data, we gathered temperature and albedo information that allows us to study the climate interaction between the surface and atmosphere. Finally we narrowed 351 possible High Albedo Events (HAE) to 75 HAE incracraters with anomalies.

WHAT WE LEARNED

Real world application and collaboration between physics, geology, geospatial and remote sensing fields. Using the Tracy Hall Computational Laboratory for this research has inspired students to pursue scientific research careers.

REFERENCES
