Title: High Mountain Asia and Beyond: Regional Changes in Climate, Glaciers and Water Resources

Presenter: Batuhan Osmanoglu

This project aims to investigate the climate-glacier-hydrology system of the HMA region as a whole through remote sensing data and modeling results. We employ a four-pronged approach with remote sensing, climate dynamics, glacier change and hydrological modeling being the individual prongs. On the remote sensing side, we aim to deliver ASTER DEMs over glaciated regions, and calculate volume (mass) change where multi-year data is available. Debris and snow extent maps for the region will also be developed. The climate modeling will rely on coupled ocean atmosphere wave sediment transport model and will provide continuous output between 2004-2014 and 2050-2060 using multiple grid resolutions. A degree-day glacier melt model will be utilized to capture the impact of climate on the glaciers until 2100. The glacier modeling results will be calibrated using in-situ (WGMS, ICIMOD, etc) and geodetic mass balances as well as GRACE satellite observations. Finally, the water balance model will tie in the climate and glacier modeling results providing a capability to track glacier run-off through the drainage basins as river water travels from the glaciers to the ocean.