The VISualizing Terrestrial Aquatics Systems (VISTAS) project is an NSF funded collaboration among faculty and graduate students at The Evergreen State College (TESC), Oregon State University (OSU), and the H.J. Andrews Experimental Forest (HJA). The goal of VISTAS is to develop visual analytics to help scientists understand relationships among ecological processes at the same and different scales, develop new testable hypotheses, and explain research results. VISTAS’ scope is interdisciplinary in nature, combining computer science research and development, a broad range of ecological research domains, and social science inquiry to develop and evaluate software and visualizations for ecologists to utilize in their work.

The VISTAS project currently supports three graduate students, two here at Evergreen and one at OSU. Kirsten Winters, a PhD student at OSU, works with Denise Lach, heading up the social science component of the VISTAS’ project. Kirsten is currently interviewing our domain scientists, programmers and computer scientists in order to provide input to the development of the VISTAS software. Jerilyn Walley, a second year MES student, is completing her thesis work with Christoph Thomas, a professor in biomicrometerology at OSU. Their project, VALCEX (VALley Circulation EXperiment), involves developing a wind profile for a valley in the HJA using two sophisticated SODAR (Sonic Detection and Ranging) systems. I am also a second year MES student, and I work with Barbara Bond, former Lead PI of the HJA, and Scott Allen, a master’s student in ecohydrology at OSU, developing visualizations of ecologic and hydrologic phenomena in Watershed 1 and creating an accurate measure of canopy cover by comparing Leaf Area Index (LAI) with LiDAR (Light Detection and Ranging) measurements. The new measure of canopy cover would be used for modeling precipitation interception.

Along with our thesis work, Jerilyn, Kirsten and I are currently surveying six months of articles from leading research journals to assess what visualizations are currently being used by ecologists. This involves creating a visualization database, where we store our survey of the nine journals, roughly 1,300 articles and over 32,000 visualizations!

Working with the VISTAS project has provided Jerilyn and me with an amazing opportunity to perform and be a part of cutting edge research. The collaboration with OSU and the HJA has provided us resources and expertise that have enriched our MES theses. Currently in its first year, the VISTAS project is moving forward, and the next two years are sure to bring more excitement and further results.