

**THE GREAT MAYAN POPULATION COLLAPSE WITH TWO RESOURCES.** *Hye-Yon Yi, William Basener\**, Department of Mathematics, [hxy5267@rit.edu](mailto:hxy5267@rit.edu), [wfbasma@rit.edu](mailto:wfbasma@rit.edu)

There are many theories about the collapse of the Classic Mayan Empire. These theories include drought, depleting to the soil too quickly, war, lack of food to support the population, etc. The collapse of the Polynesian population of Easter Island was modeled using population-resource differential equations. We modify the model created for the Easter Island collapse to account for the two main resources the Mayans had available: maize and breadnut. The harvesting rate is formulated as an equation instead of a constant to represent the percentage harvested to feed the people from one year to the next. The standard discrete logistic equation, with the addition of the change in harvesting equation, creates a model leading to the appropriate collapsing results.