

1023-00-1100 **Hye Yon Yi*** (hxy5267@rit.edu), 211B Perkins Rd, Rochester, NY 14623. *Modeling the Spread of Smallpox in the Mayan Population with Excel*. Preliminary report.

Various theories exist concerning how and why the Mayan civilization collapsed around 800-900 A.D. Drought, war, famine, and disease are just a few. We do not have the evidence to prove these theories yet, but there is written history about the decrease of the Mayan population due to diseases such as smallpox, influenza and the measles after the Spanish arrived in Central America. There were approximately 7 million Mayan people when the Spanish arrived during the 1500s, and of that, about 90 percent of the Maya died from European diseases. Our goal for this project is to model the possible spread of smallpox in the Mayan population and take into consideration the migration of the people in a network of towns and the country. Our model differs from the S-I-R (Susceptible / Infected / Received) differential model because we incorporate geographic information and use delay differential equations. (Received September 25, 2006)