**CMPS 4553 Survey of Computational Methods**

**Presentation Progress Report – Due Friday, Nov. 8**

**Project Team Members:** Yujin Yoshimura, Joshua Allen

**Project Title / Topic:** Simulation on spread of rice cultivation

**General Description:**

Rice is a crop that is widely grown in the world, especially in Asia. Rice can be cultivated either in a dry soil (upland rice) or in a paddy field (rice field). Rice fields have advantages over upland rice, such that rice fields allow continuous cropping of rice without replant failure, whereas upland rice has replant failure. The biggest obstacle for making paddy fields is securing large amounts of water. Some regions of Asia have climates with large amounts of rainfall due to the Tibetan plateau, which fulfills the requirements for rice cultivation. Rice is also a very efficient crop in terms of production per land area, which means rice cultivation can sustain a larger population than other crops. This explains why China and India have had huge populations historically.

This project will focus on simulating how rice cultivation started and spread in a region of Asia from ancient times.

**Completed:**

* Research on rice:
  + The actual history of rice cultivation.
  + Genetic subspecies of rice: indica and japonica.
  + The conditions and constraints for rice cultivation: climate, temperature, humidity, altitude, terrain, amount of water flow in river.
* Research on climate in Asia.
* Selection of a platform to perform simulation: NetLogo.

**In progress:**

* Creating a grid map of Asia on Excel as follows:
  + Latitude from 10°S - 50°N
  + Longitude from 70°E - 145°E
  + Each grid contains data about average temperature, altitude, annual precipitation.

**Not started yet:**

* Coding on NetLogo.

**References:**

Ricepedia  
<http://ricepedia.org/>

World Bank Data  
<https://data.worldbank.org/>

NOAA Climate.gov  
<https://www.climate.gov/maps-data>