

Gathering training-site data for land-use classification in Tsuchiura city

Duong Dang KHOI (Doctoral Program in Geoenvironmental Sciences)

1. Introduction: To interpret land-uses from Landsat data, gathering the training data is normally required to support in supervised classification procedure. GPS receiver is a useful device to help us in collecting field observation data used for defining reflectance signatures of land uses. The purpose of this project is to learn gathering of GPS based training data for the supervised classification procedure.

2. Method: This project is implemented as the following: *Step 1:* landsat data preparation. *Step 2:* Visualization of data: it aims to distinguish the

3. Land-use classification result

vegetation, soil and water in the entire region. *Step 3:* Implementation of unsupervised classification procedure: It aims to understand the dominant patterns of reflectance in the Tsuchiura city. *Step 4:* Identification of reflectance patterns by GPS based observations. *Step 5:* Land-use classification: Maximum Likelihood Classification procedure is used to classify land-use in entire city of Tsuchiura.

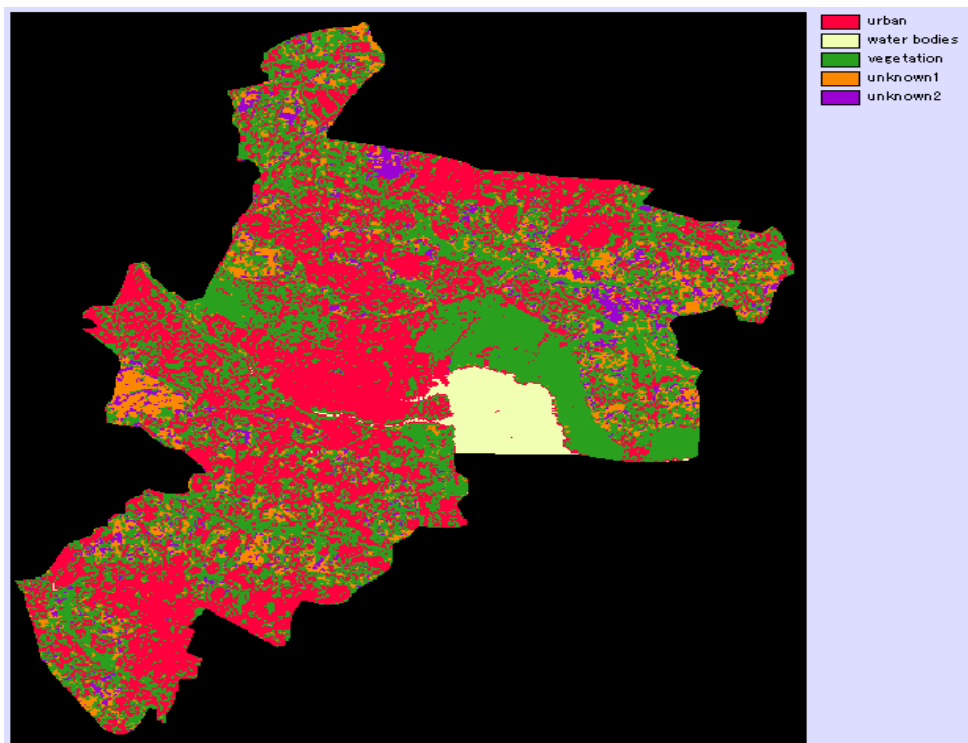


Figure 1: Land-use classification for the Tsuchiura city area

4. Conclusion: Land-use classification result shows that urban, water bodies, vegetation, unknown class 1 and unknown class 2 occupies 3,431.76 ha, 310.27 ha, 3,603.14 ha, 713.88 ha, and 387.36 ha respectively. It

recommended that further surveys are needed to classify unknown class 1 and unknown class 2. In addition, Kappa index is required to calculate to compare the actual land-use and this interpreted land-use map.