



Field Work in Remote Sensing Workshop

Date: July 3, 2016. **Location:** Guangzhou

Instructors: Prof. Qihao Weng, Indianan State University, USA
Prof. Zhenfeng Shao, Wuhan University, China
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A full day workshop will be provided aiming at the methods and techniques of obtaining “ground truth” data on land use and land cover (LULC) types and to verify the accuracy of LULC maps that are derived from satellite imagery. Various instruments, including an Unmanned Aerial Vehicle (UAV), ASD spectrometer, hand-held Global Positioning System (GPS) receivers and digital cameras will be employed to collect field data. Daily field logs are also exemplified to record observed LULC current states and to note possible evolution trends by integrating the data collected by UAV, spectrometry, and GPS-GIS-photos links. During the filed work, random samples along a transect will be investigated in Guangzhou. The field trip collects information on surface cover conditions, including: (1) building numbers, dimensions, density, construction materials, roof materials, street canyon orientation; (2) tree cover dimensions, density, species, grass, and shrubs; (3) impervious coverage, type (roads, driveways, pavements, parking lots, rooftops, etc.), nature (concrete, asphalt, etc.) and aging conditions; (4) open water (lakes, rivers, ponds, etc.); and (5) soils and bare ground (sand, earth, etc.). The field workshop will provide participants with methods for collecting and integrating valuable data sources from filed works for remote sensing image analysis. For participants who have never been to the Pearl River Delta, China, this trip will be their first time to witness the well-known water and soil conservancy technologies in the Delta, i.e., dike building, land reclamation, and dike-pond landscape (Weng, Q. 2007. A historical perspective of river basin management in the Pearl River Delta of China. *Journal of Environmental Management*, 85(4): 1048-1062).



Figure 1. Field data collection by a UAV

Pictures from the January 2016 field work are shown below:



Figure 2. Collection of spectral reflectance on farmland using an ASD spectrometer



Figure 3. Students used GPS-GIS-Photo linkage to validate impervious surface maps derived from Landsat images



Figure 4. Dr. Weng explained how the dike-pond landscape in the Pearl River Delta was formed and evolved over time

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