



## ***Methods for Graphing, Modeling & Forecasting Spatio-Temporal Land-Use Patterns in Sub-Districts with Application to Data from Southern Thailand***

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***4:00 pm - 5:30 pm***

***Room 130, The Australian School of Business, UNSW***

***Free entrance***

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## **Abstract**

**With the rapid and widespread development of geographical information systems (GIS) and data availability from Google Earth, accompanied by the continuing increase in the power, memory, and storage capability of computers, it is now quite feasible to analyze vast amounts of data.**

**Since 1982, the Ministry of Lands has recorded land-use for dozens of specified categories such as “transplanted paddy”, “rain forest”, “lowland village”, “mixed orchard” in hundreds of plots within every sub-district of Thailand. This database is updated every few years, and can provide a rich data resource for historians, property investors, environmental scientists, and planning agencies concerned with sustainable development of natural resources. However, the modeling and analysis of such data presents interesting challenges for information scientists, due to periodic boundary changes, spatial correlation between neighbouring plots, and lack of statistical theory.**

**We review ideas being developed by staff and students in PSU’s graduate program in Research Methodology, including GIS relational database structures, programs in R software for creating thematic maps, merging plots using data from periods with different boundaries, and novel methods for statistical analysis,. These methods are illustrated using land-use data from Na Thap sub-district in Songkla for years 1982 and 2000.**

**Key words: Land use data, GIS database, spatial data analysis, multinomial regression.**