位置情報付きのビックデータ（パーソントリップ調査）を Web-GIS でハンドリングする
Handling Spatial Big Data (Person Trip Survey) with Web-GIS

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(1) Motivation：

Thanks to the advances in geospatial data collection methods and communication devices, we can nowadays collect, store and integrate large amounts of data with GPS and GIS technologies, including mobile phone log data, real-time weather information, person flow data, etc.

(2) Data and Method：

We discuss the handling of large-scale public transport survey data ("Big Data") with Web-GIS to store, retrieve and analyze these sources to online geospatial information users in a timely manner. Although some studies show the estimation of real-time person flow or movement using mobile log data, Wi-Fi Internet access and location-based services, some personal information such as gender, age group, occupation, purpose of trip, etc. are still lacking due to privacy issues and a short-coming of collection methods. We have constructed Web-GIS called "Interactive Persontrips Data Browser and Analyzer", which utilizes geospatial technologies to handle Person Trip Survey (PTS) data, a large-scale transportation fact-finding public survey in the Tokyo Metropolitan area. By integrating modern geospatial technologies such as GIS, GPS and Wireless Networking, these PTS data were converted into Origin-and-Destination data by OD Estimation and Route Identification method and stored in Comma Separated Value CSV files (People Flow Project, CSIS). Due to the estimation of every minute for 24 hours of about 600,000 persons' movement, these OD data are huge and a big challenge to spatial information users to extract, manipulate and integrate with other GIS data.
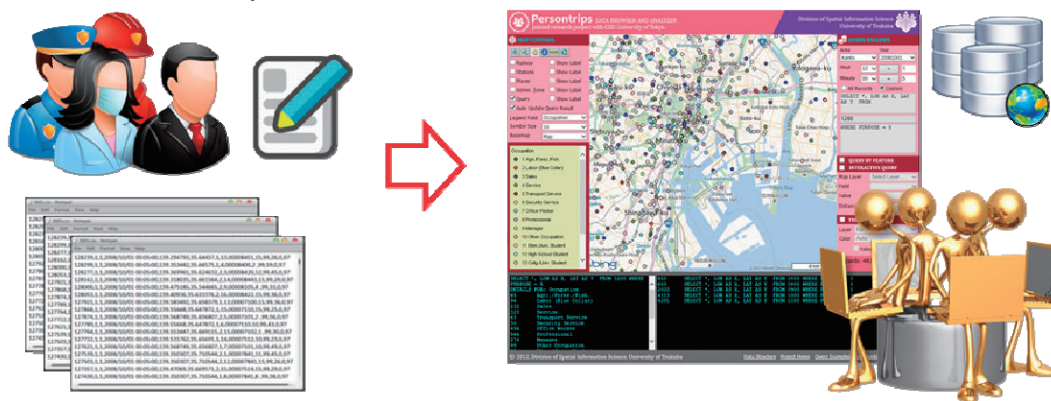
(3) Result：

We have constructed a Web-based GIS system to query, analyze and conduct thematic mapping of OD data and make the decision interactively. Tools for overlaying, buffering and mesh analysis are also available. Moreover, the analysis results can be recorded and exported for further analysis.

(4) Prospect：

We hope this Web-based GIS interactive mapping and decision-making system will help transportation planners, public facility managers, social scientists, human geographers, market retailers and any other spatial information users to improve their work in planning, management and research issues.

(5) Acknowledgement：

URL: http://land.geo.tsukuba.ac.jp/persontrips/

Fig 1: GIS embedded online browser and analyzer for person flows