

Research Trends and Results

Utilization system of probe information collected via ITS spot

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(Key word) Probe, Utilization system, ITS spot

1. Collection of Road Traffic Probe Data

ITS spots allocated centrally at about 1,600 points all over Japan along the highways starting in 2011 year receive transmitted probe information (travel record, etc.) on the road side using vehicle loaded ITS Spot-compatible car navigation system (sold starting in 2009 year) corresponding to ITS spot. With this system large amounts of data can be collected at low cost when ITS Spot-compatible car navigation systems become common. Also to monitor and provide highly accurate road traffic information, efficient and an upgraded low cost road management operation can be realized because records of travel speed can be collected by broad range and in zone unit.

2. Development for prototype of utilization system

National Institute for Land and Infrastructure Management is currently developing an utilization system which allows facilitated data collection and display using Road Traffic Probe Data and integrated probe information (Integrated group composed of Road Traffic Probe Data and private sector probe data) intending to allow road administrators to monitor road condition, etc.

We have developed a prototype system operable as standalone selecting following functions considering the needs of road administrators, feasibility, and accumulated data amount, and practicality at trial runs as the initial year referring to the operation of road administrator.

(1) Time-space diagram writer

This is the function that displays pattern diagrams on screen (Figure) together with outputting the summary result of average travel speed classified in a specified route zone (DRM link) and time zone in report format. Applications for quantification of effects through ex-post evaluations (reduction in travel time, etc.) is expected.

(2) Required travel time tabulator

This is the function to output summation of average required time classified into a specified route zone (DRM link) and time zone in report format. Applications in project effect evaluation, etc. can be considered.

(3) Sudden acceleration and brake area mapping

This is the function that displays emerged areas of sudden acceleration (back and forth acceleration), traveling direction, and size (ranked color coding) in specified area. Application is considered in cases such as extraction of place where traffic safety measures are required (areas where rapid deceleration frequently occur), and traffic safety measure effect (comparison of abrupt deceleration frequency before and after countermeasure taken).

3. Improvement of probe utilization system

Trial use of the prototype system was implemented by road administrators and comments were recorded. With the result of the comment reviewing such needs as "Improvement of operability", "Summing of data in each month or in each prefecture" and "Summing of data classified by Standards for reference road section for traffic surveys", etc. were requested.

Based on these requests we are promoting system improvement to realize a usability improved system such as an internet applied system and operability improved system, and responding to wide range applications by selecting given summary zones (DRM and Standards for reference road sections for traffic surveys).

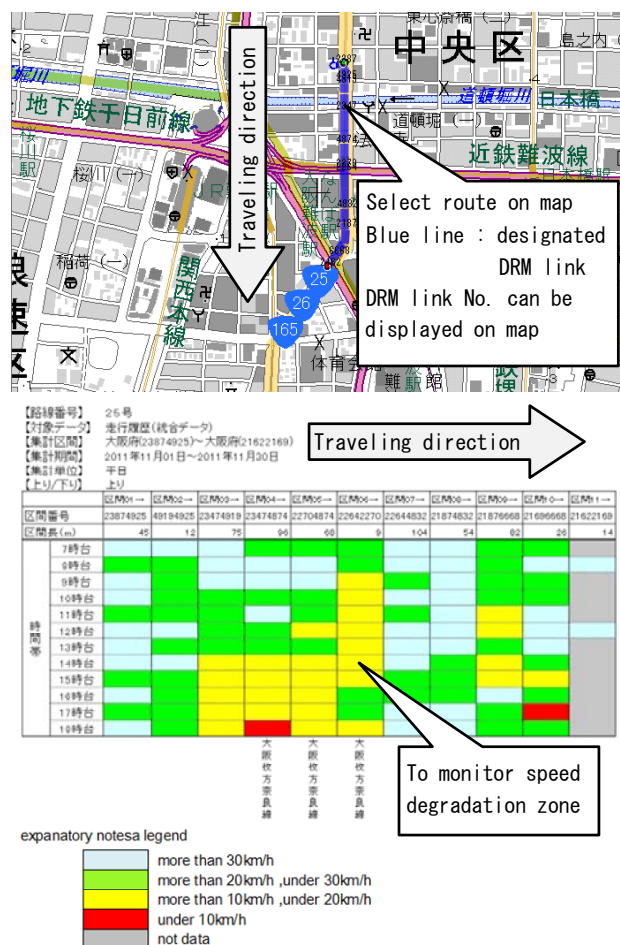


Figure Output example of time-space diagram writer