# Comparison of the Origin-Destination Matrix based upon Log Files accessed by Route Searchers with that of Transportation Census Data

Conference on Advanced Systems for Public Transport

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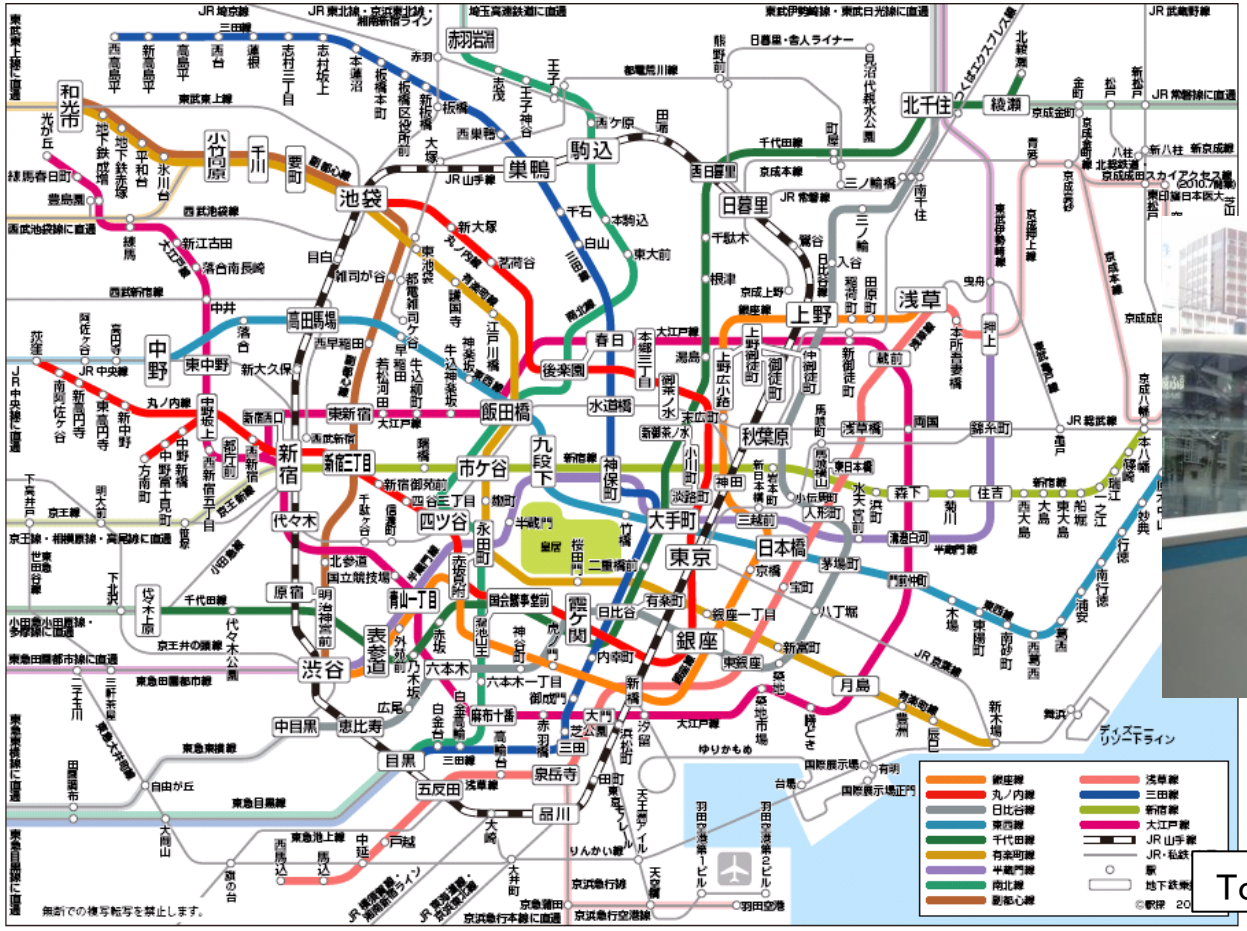
# INTRODUCTION

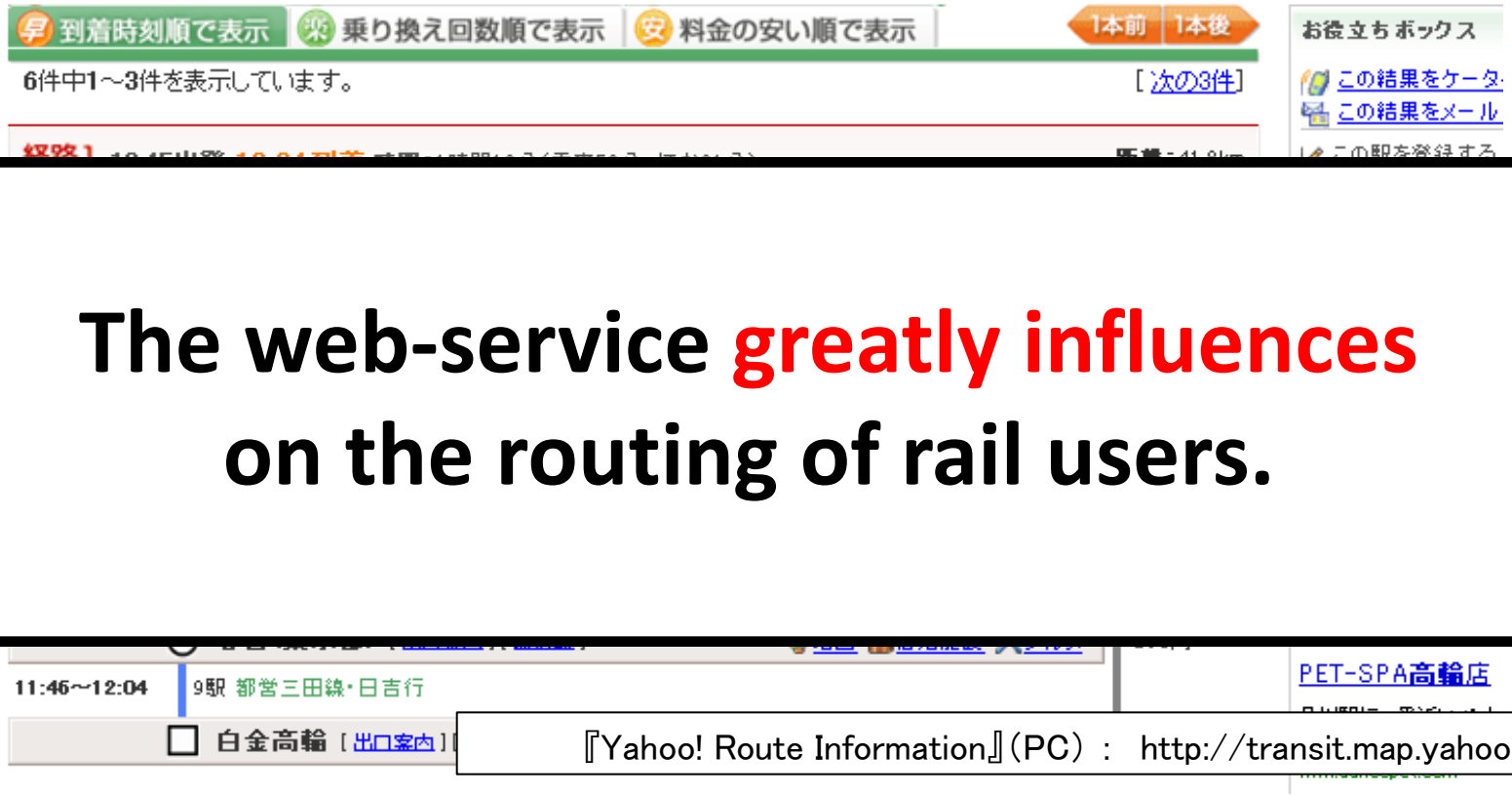
- The railway network in Tokyo metropolitan area is covered with one of the highest developed levels in the world.



Tokyo Metro : www.tokyometro.jp/

# INTRODUCTION

- The Internet has infiltrated many aspects of our daily life.
- The website becomes to be accessed by a large number of users.




**The web-service greatly influences on the routing of rail users.**

『Yahoo! Route Information』(PC) : http://transit.map.yahoo.co.jp/

# INTRODUCTION



The paper tries

(1) to collect individual data recorded in log files accessed by website users.

(2) to convert them into origin-destination (OD) matrix.

(3) to compare the OD matrix with that from the metropolitan transportation census survey.

(4) to discuss the differences in travel behavioral characteristics derived from both OD matrices.

# DATA PROFILE



## Yahoo! Route Information

- Yahoo! Route Information occupies top share in Japan.
- For each search record, the name of the departure and the arrival station, access date, priority of searching condition (time, fare, etc.), retrieval date, and attributes of user are described on the log files.

| | **Yahoo! Route Information (PC version)** | **Yahoo! Route Information (Mobile version)** |
|---|---|---|
| collected period | two-week | one-week |
| log files size | 110 million | 14 million |
| sample size | 14 million | 4.7 million |

# GENERATION OF OD MATRIX



- The OD matrix generated is arranged in order of the distance.

- Since the total amount of trips of the station OD matrix is different from that of the zonal matrix,

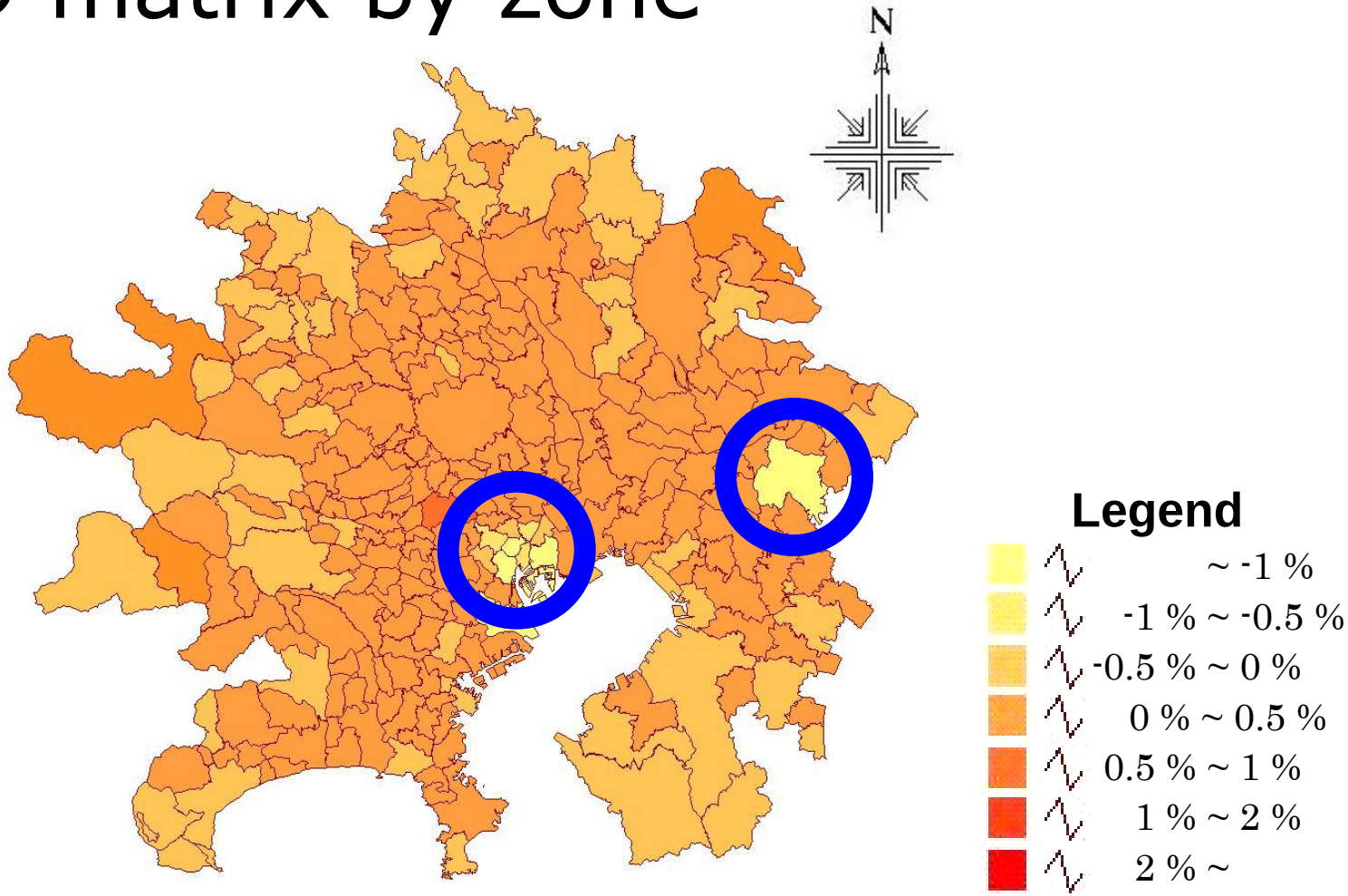
  the number of trips is converted to a rate.

**distant**

| | Tokyo | … | Ashika jima |
|---|---|---|---|
| Tokyo | | | |
| ⋮ | | | |
| Ashika jima | | | |

# GRAPHICAL COMPARISON

- OD matrix by zone




**(a) PC version**

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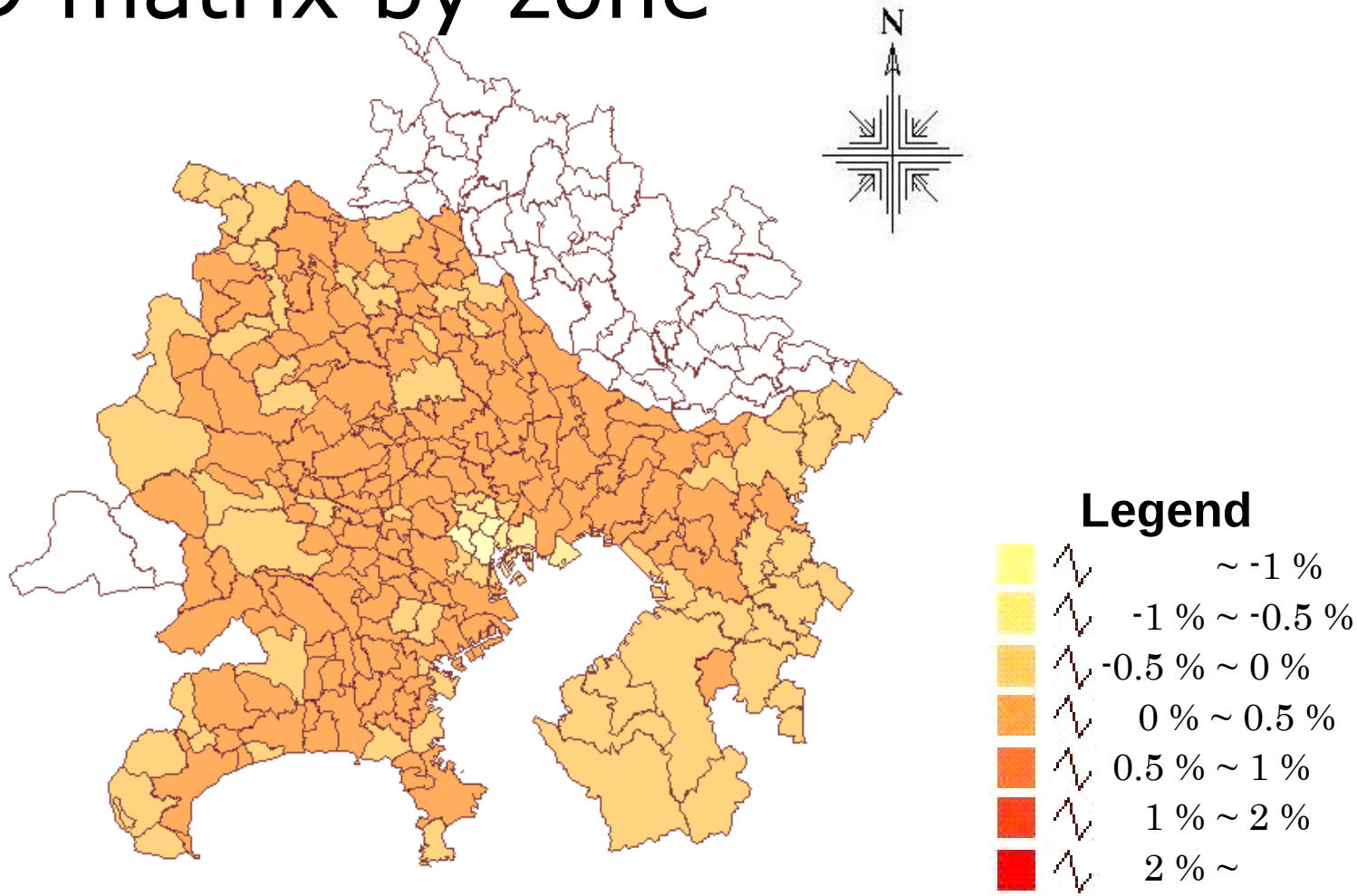
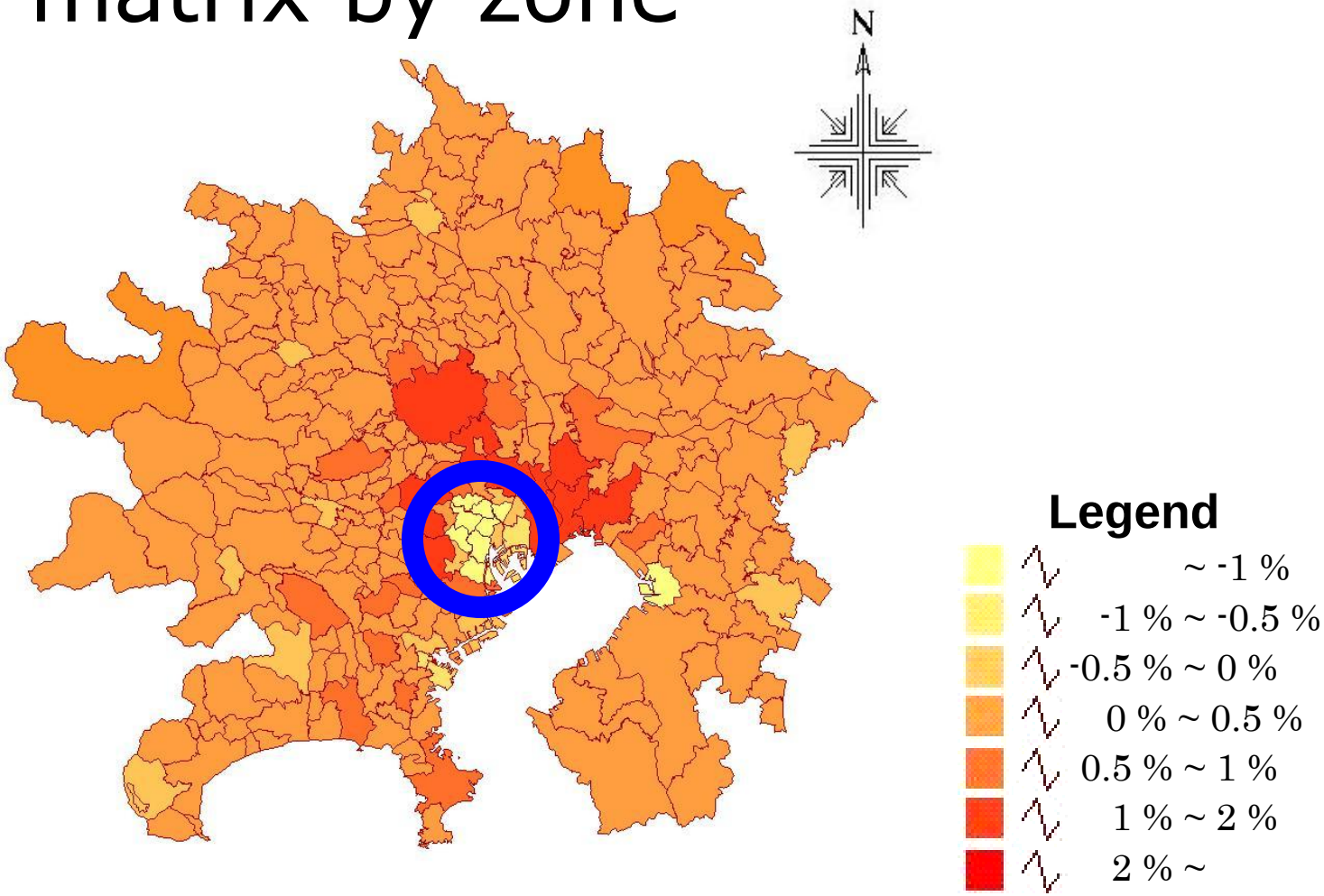



**(b) Mobile version**

# GRAPHICAL COMPARISON

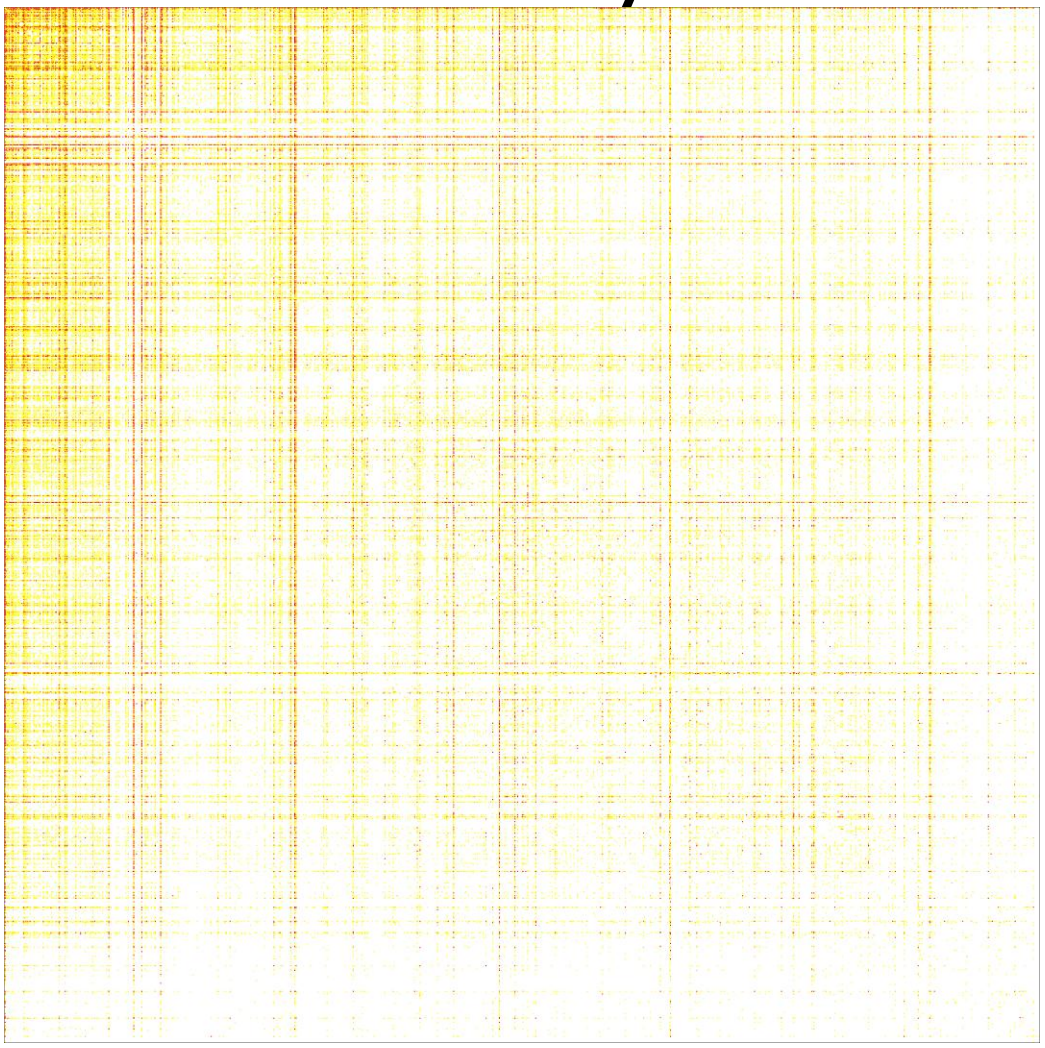
- OD matrix by zone




**(c) Census version**

# GRAPHICAL COMPARISON

- OD matrix by station



**Legend**

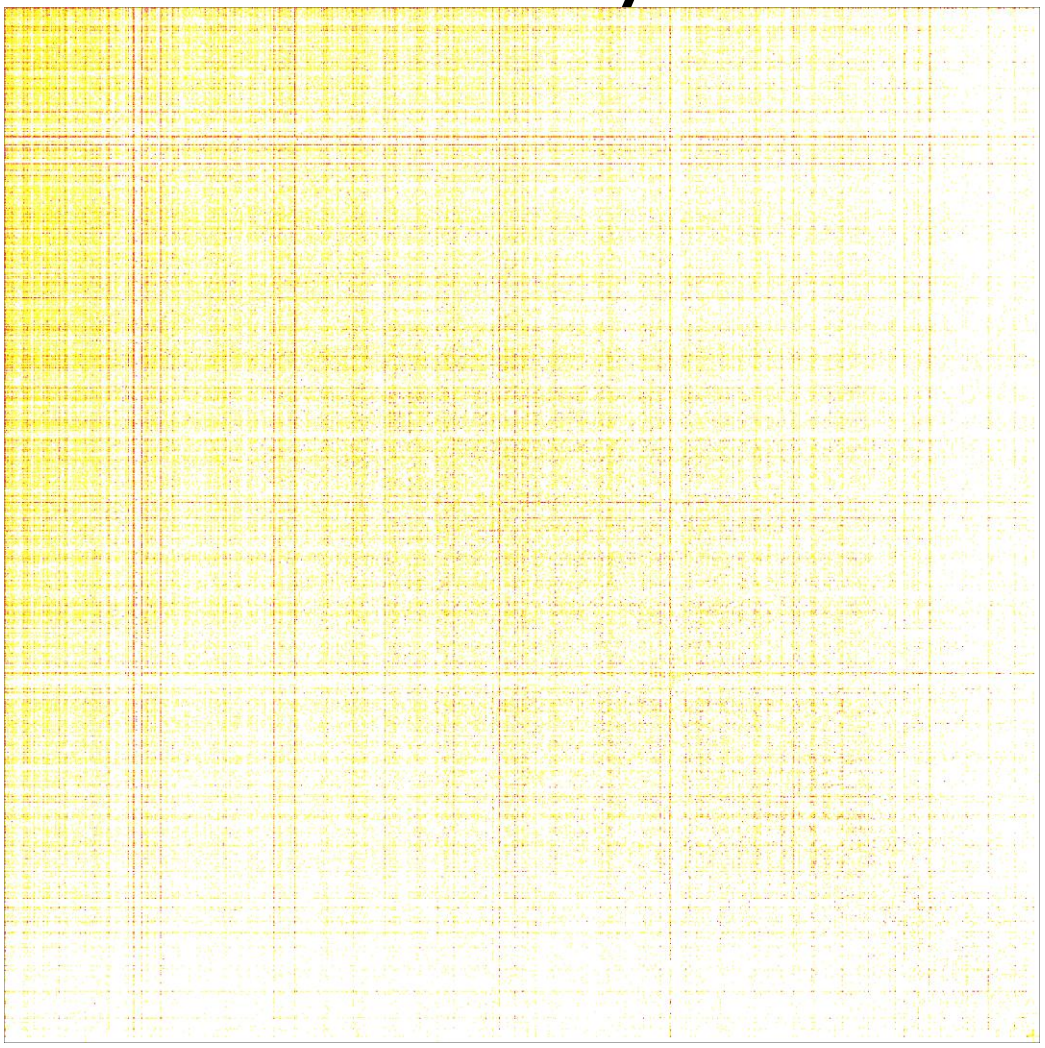
**[×10-5%]**

- 0.0~0.1
- 0.1~0.5
- 0.5~1.0
- 1.0~

**(a) PC version**

# GRAPHICAL COMPARISON

- OD matrix by station



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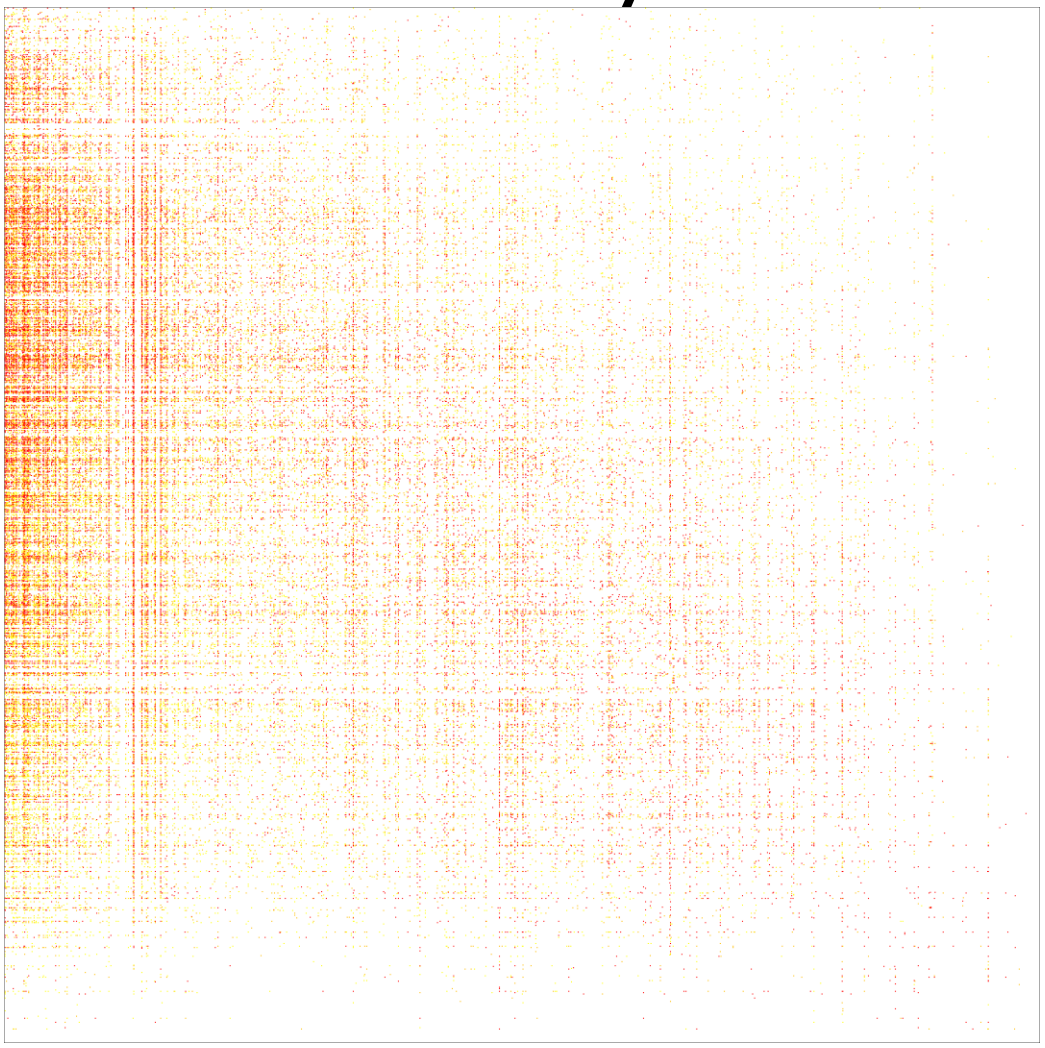

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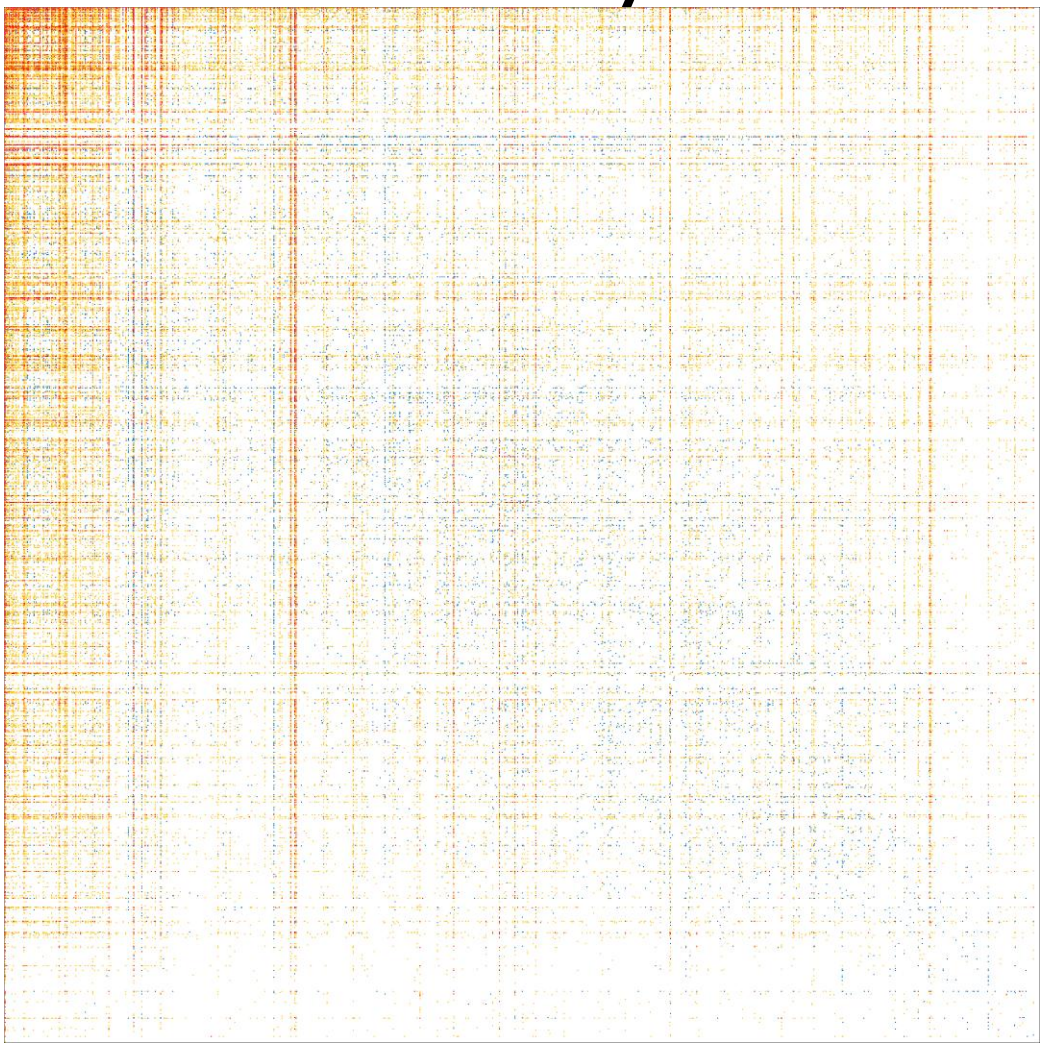

**Legend**

**[×10-5%]**

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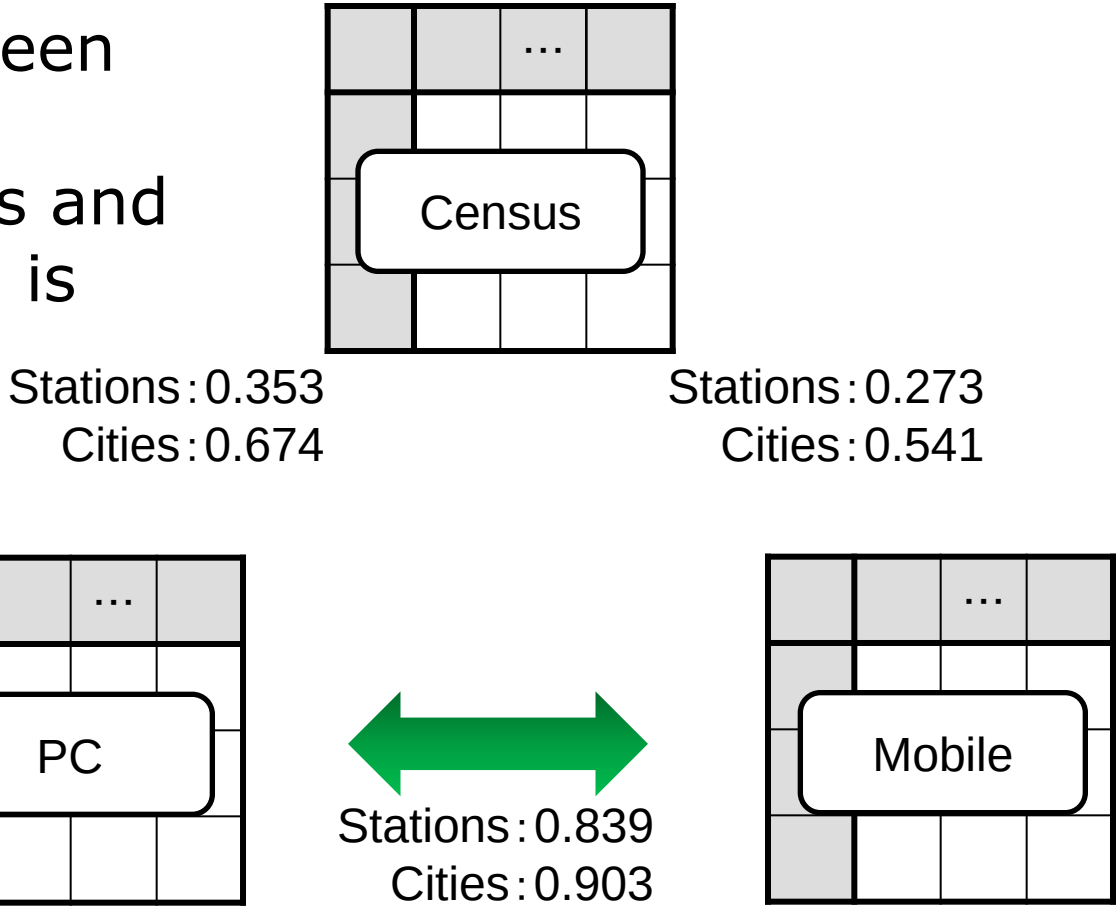
- 1.0~

**Difference in OD matrix between PC and mobile version**

# STATISTICAL COMPARISON

- The correlation between the mobile and the PC version is rather high.
- The correlation between the metropolitan transportation census and both Yahoo! versions is relatively low.



# STATISTICAL COMPARISON

- The people has a tendency to capture non-daily travels (e.g., leisure travel such as sightseeing and shopping).

- The PC version implies travel from the suburbs to the central part of Tokyo.
- The mobile version catches non-daily travel spreading out the metropolitan area.

# FINDINGS

- The paper collects the individual data recorded in log files accessed by website users, compares them with the transportation census.

- The paper also clarifies the differences among them from the viewpoint of both graphical and statistical comparison.

# FINDINGS

- It would be pointed out that actual travel behavior is identified from transportation census data supplemented by the route search log files.

- It would be also found that the website of route guidance may have the influence on railway user's route choice behavior in the future.