THE FULLY NETWORKED CAR

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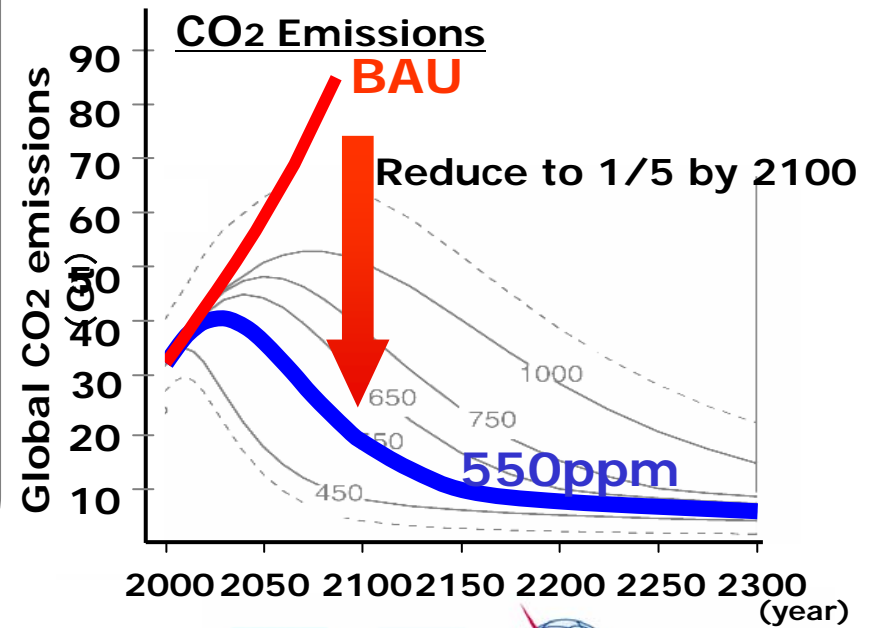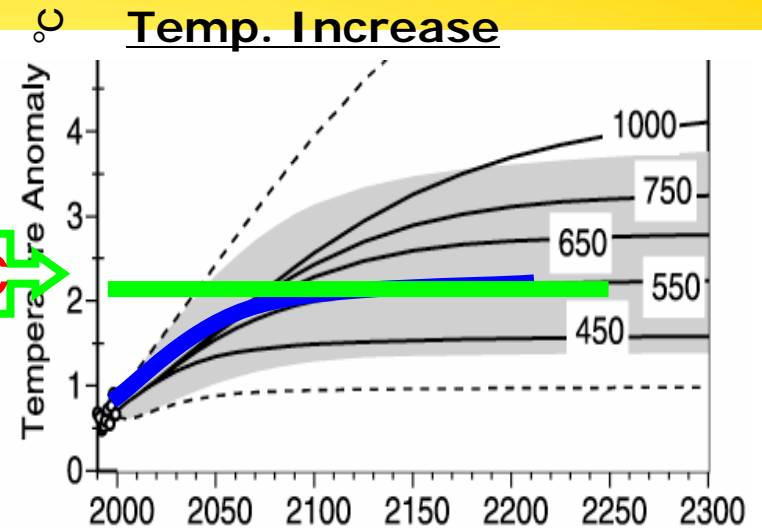Belgian Branch

Geneva, 5-7 March 2008

Potential Global Warming Scenario

Theory (from IPCC report)

Average global temperature will increase up to +2℃ on the basis of BAU

↓

Atmospheric CO2 concentration must be stabilized under 550 ppm level

Source) IPCC 3rd Assessment Report

**The Fully Networked Car
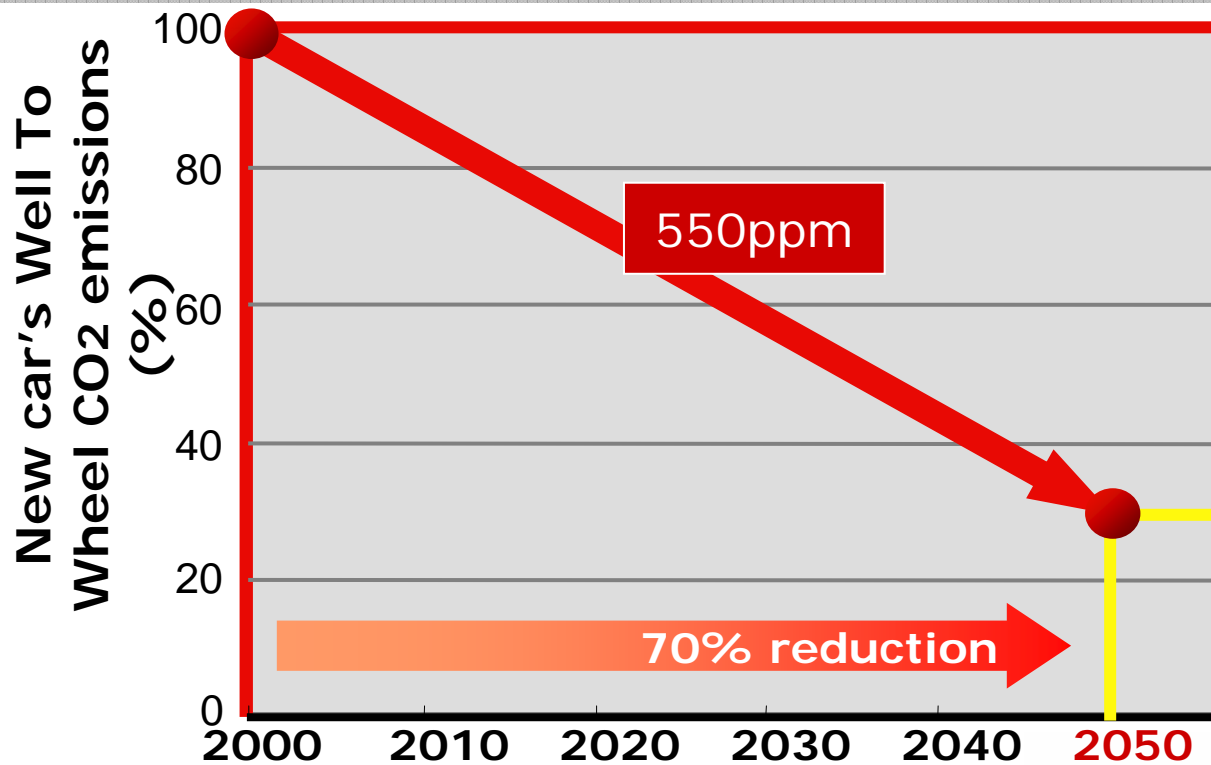Geneva, 5-7 March 2008**

℃ **Temp. Increase**

+2℃

CO2 Emissions

BAU

Reduce to 1/5 by 2100

550ppm

2000 2050 2100 2150 2200 2250 2300
(year)

Long Term Goal for Reducing CO2

To stabilize atmospheric CO2 concentration below 550ppm (according to IPCC report*), CO2 emissions from all new vehicles must be reduced by 70%

New car's Well To Wheel CO2 emissions (%)

100

80

550ppm

60

40

20

0

2000 2010 2020 2030 2040 2050

70% reduction

* IPCC 3rd Assessment report

ISO IEC ITU International Telecommunication Union

Approach to ambitious goal "70% CO_2 reduction"

Traffic
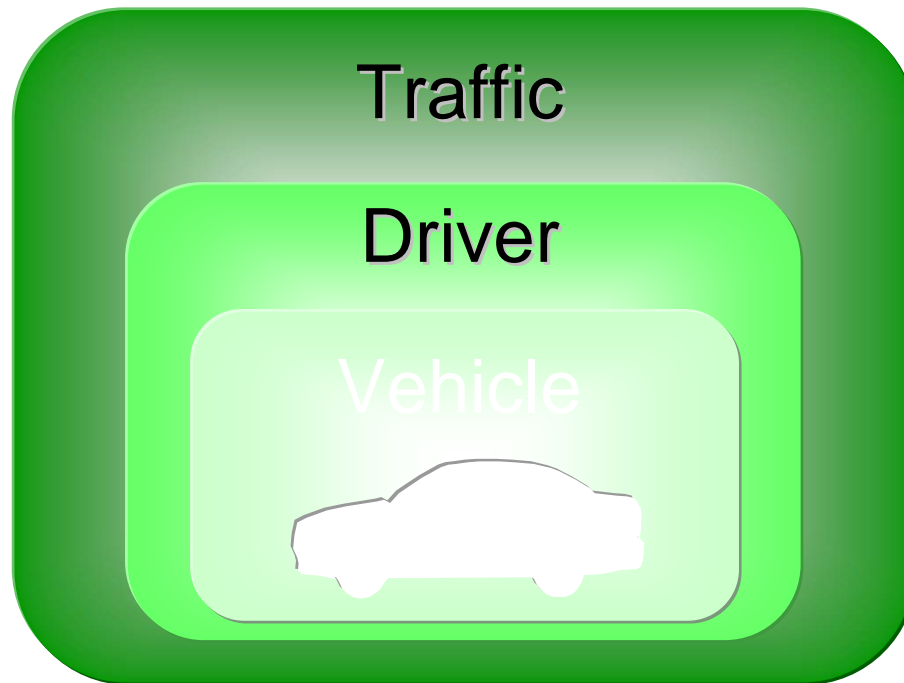
Driver

Vehicle

3. Improve fuel economy by Transportation system

2. Improve fuel economy by Driver

1. Improve fuel economy by Vehicle

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Two modes in fuel consumption

Fuel consumption ratio

[km/l]

smooth flow

congestion

(B)Eco-drive advice

(A)Eco-route

Average Trip Speed [km/h]
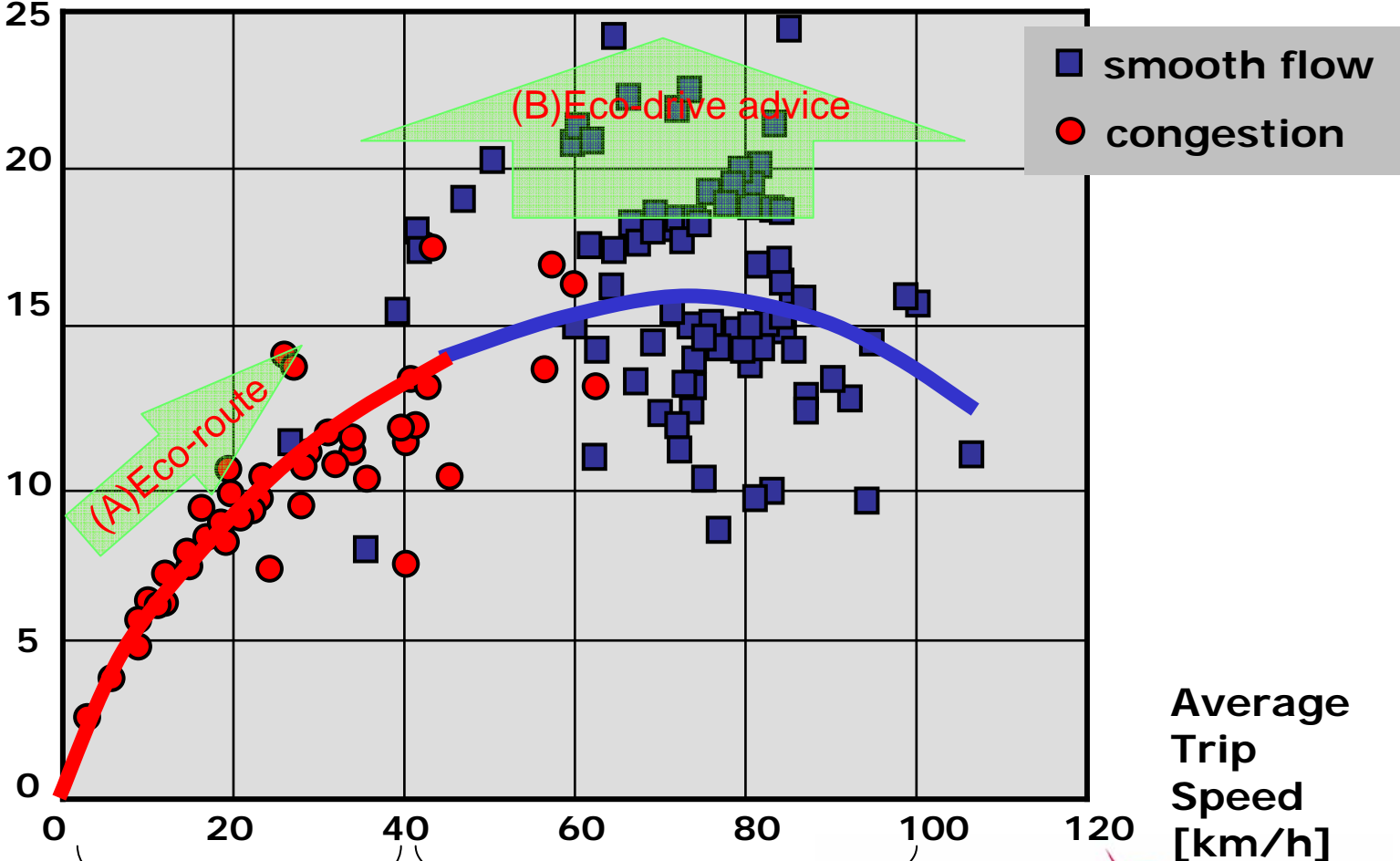
The Fully Networked Car

depends on trip speed

depends on drivers

Fuel consumption depends on trip speed
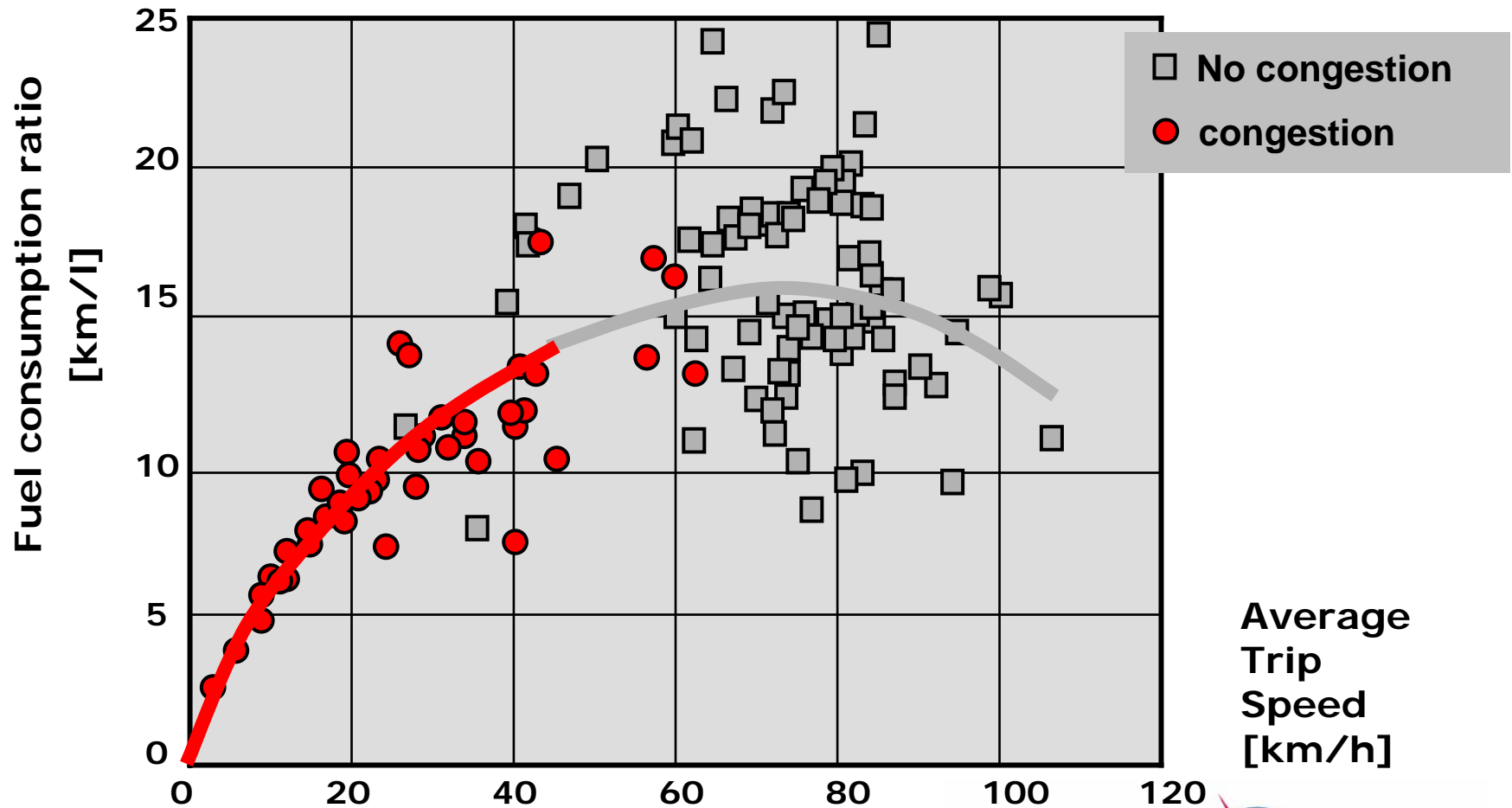
Increasing trip speed improves fuel consumption
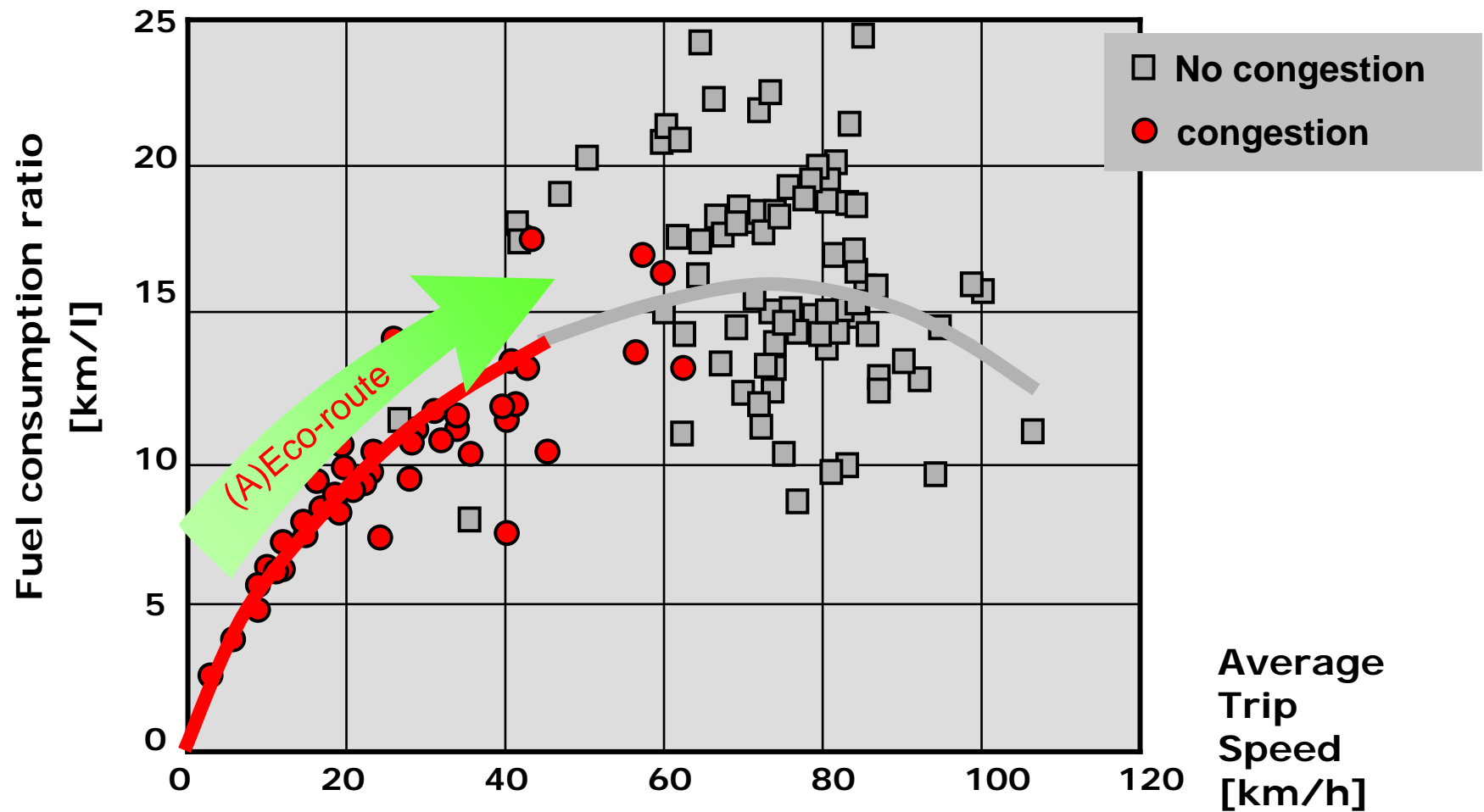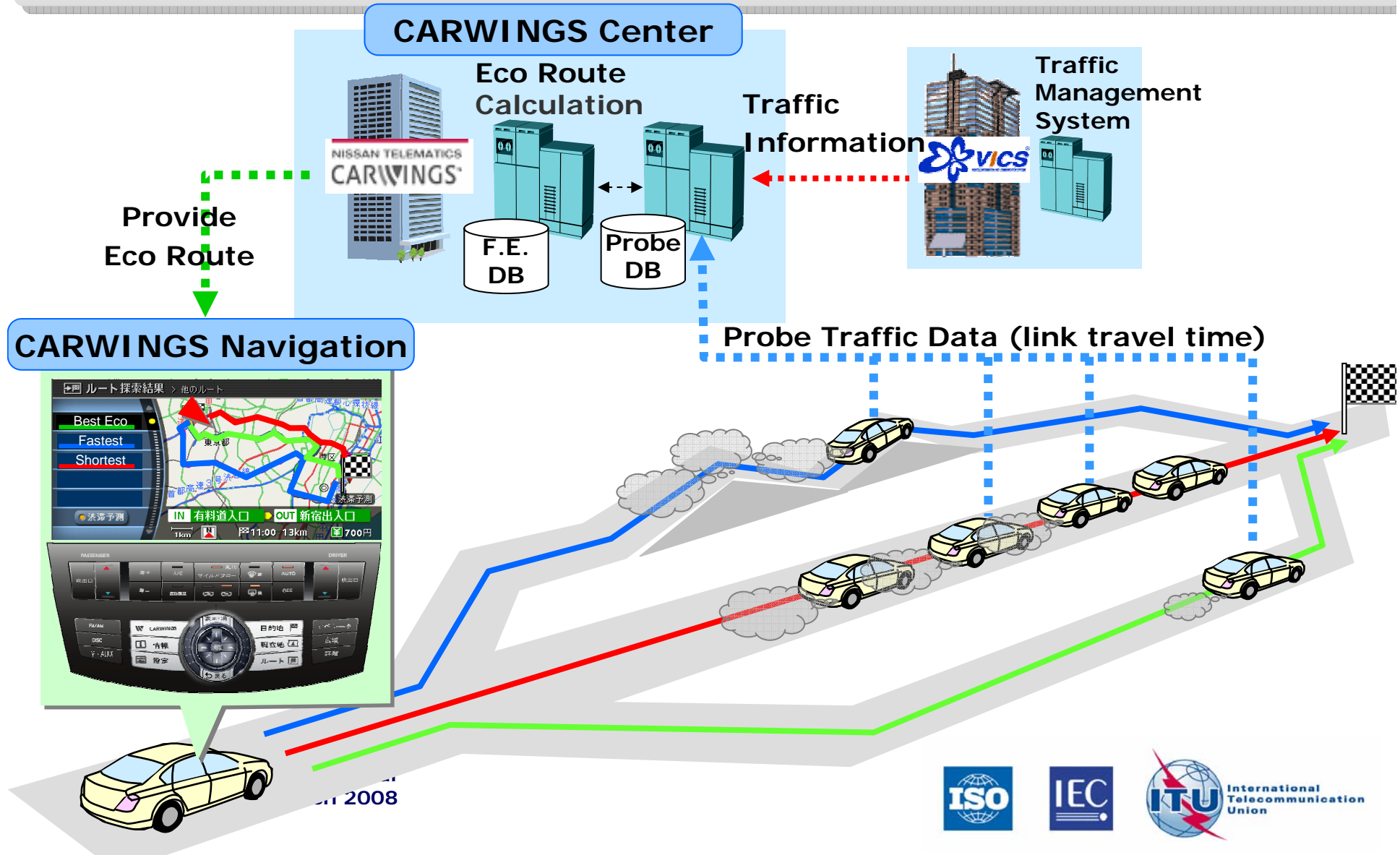
(A)Eco Route Guidance with probe link travel time

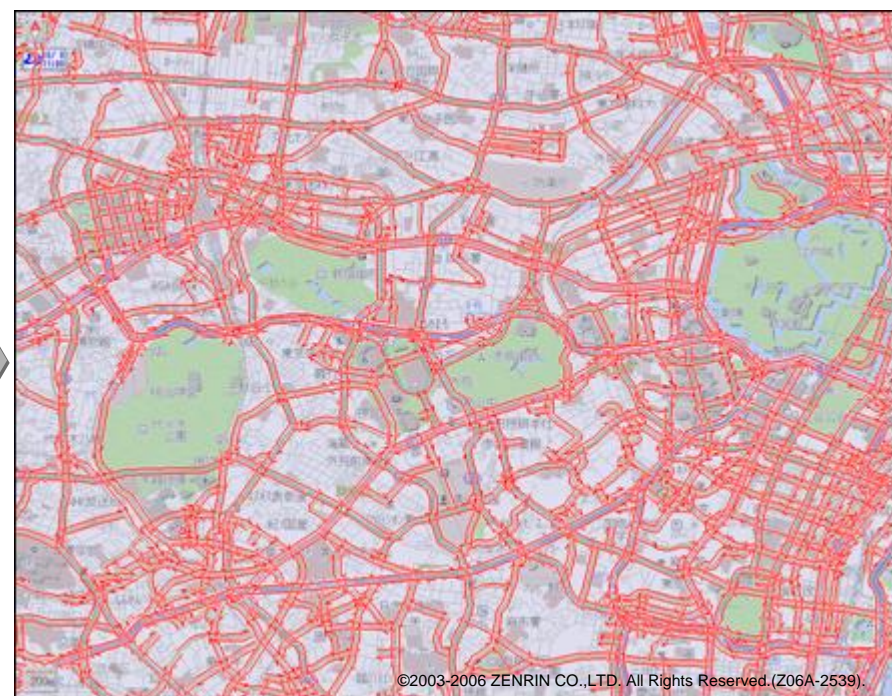## Eco Route guidance with probe link travel time

■ Probe cars expand spatial coverage of traffic information.

■ necessary for Eco Route calculation
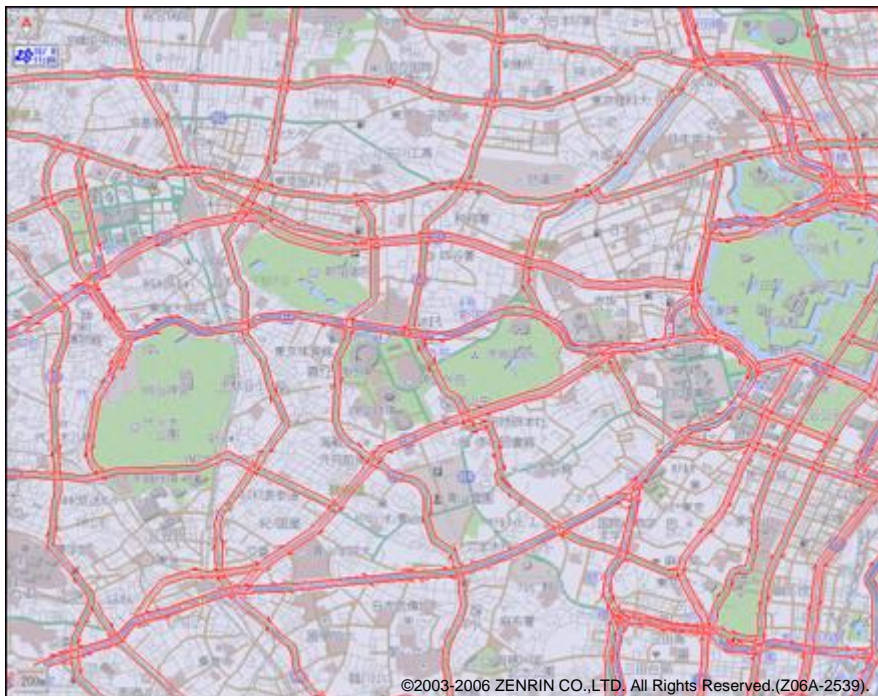
Traffic information by roadside sensors

Traffic information with probe cars

SKY PROJECT

60 % more Traffic information in Yokohama

Road length (km)

1600
1500
1400
1300
1200
1100
1000

60% increase

SKY probe

VICS

Before SKY | 06 Nov | Dec | 07 Jan | Feb | Mar | Apr | May | Jun | Jul
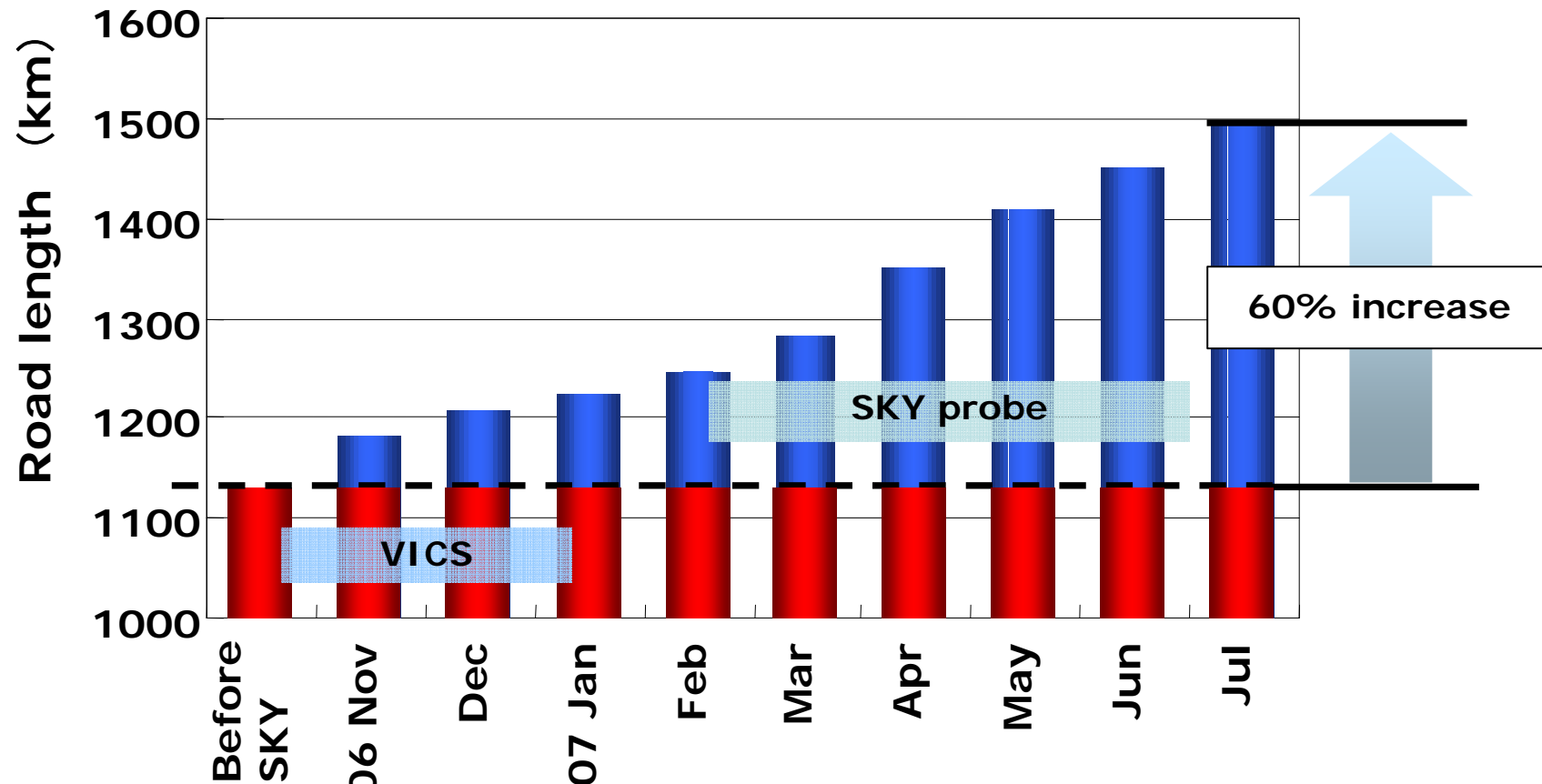
Road length with traffic information

ISO   IEC   ITU International Telecommunication Union

SKY PROJECT

Travel time reduced by 20% by probe data

GOAL

with VICS

probe & VICS

without information

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START

【Example: actual course】

average travel time （min）

65

11.9%

20.3%

60

9.5%

55

50
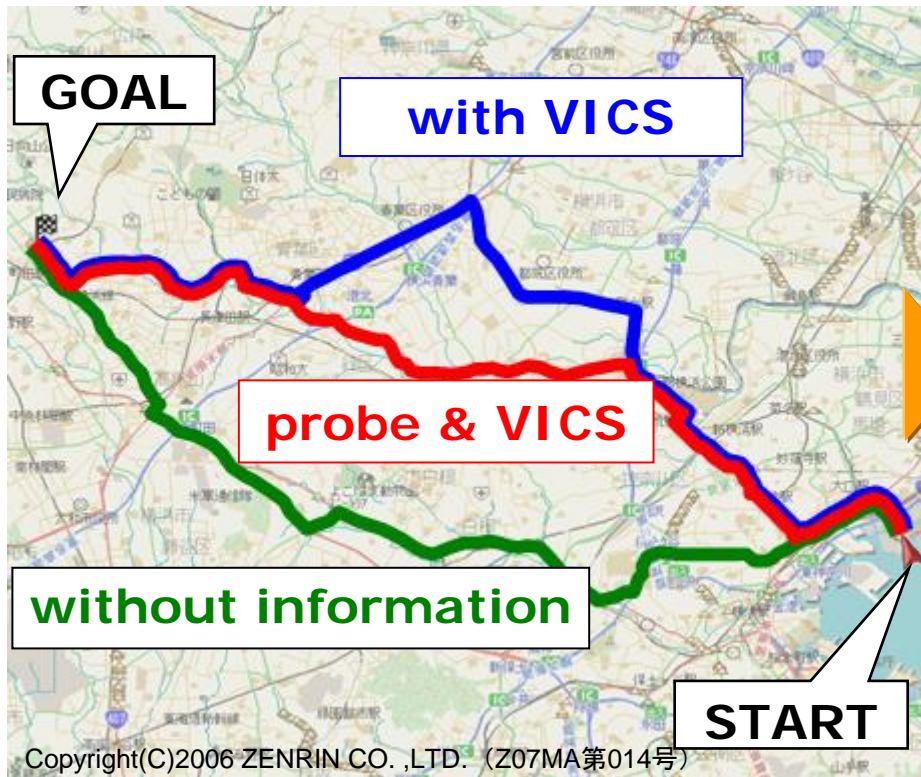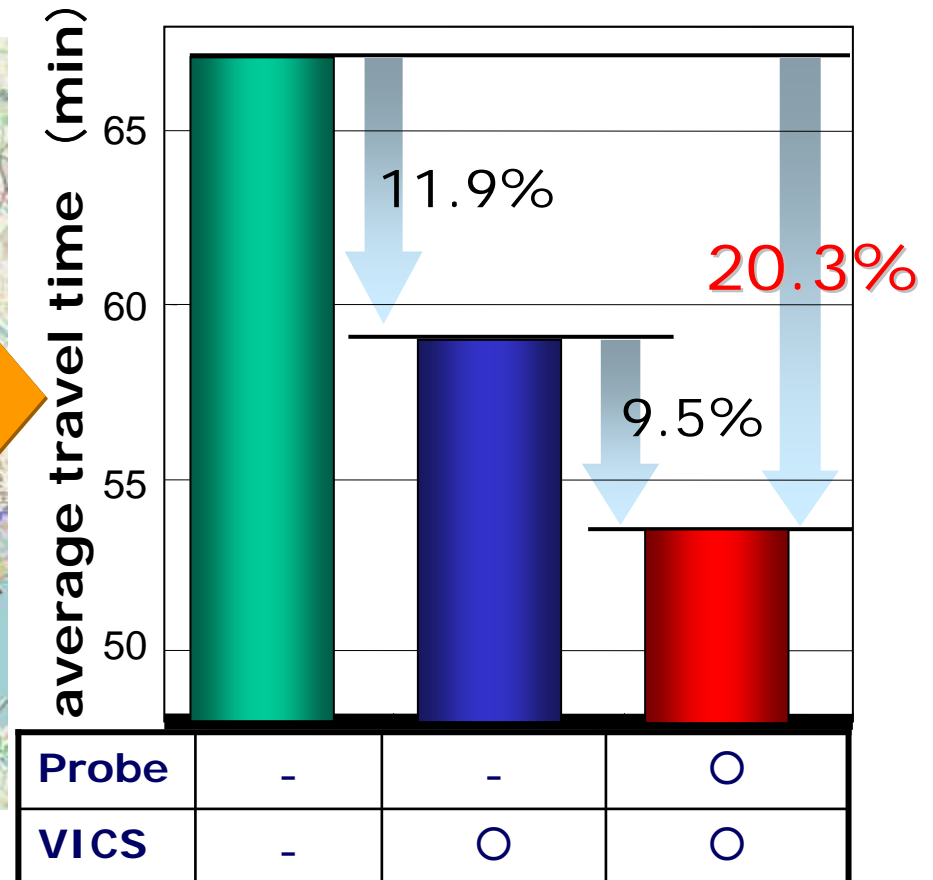
Probe	-	-	○
VICS	-	○	○

【travel time reduction】

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SKY PROJECT

average speed: approx. 26% up
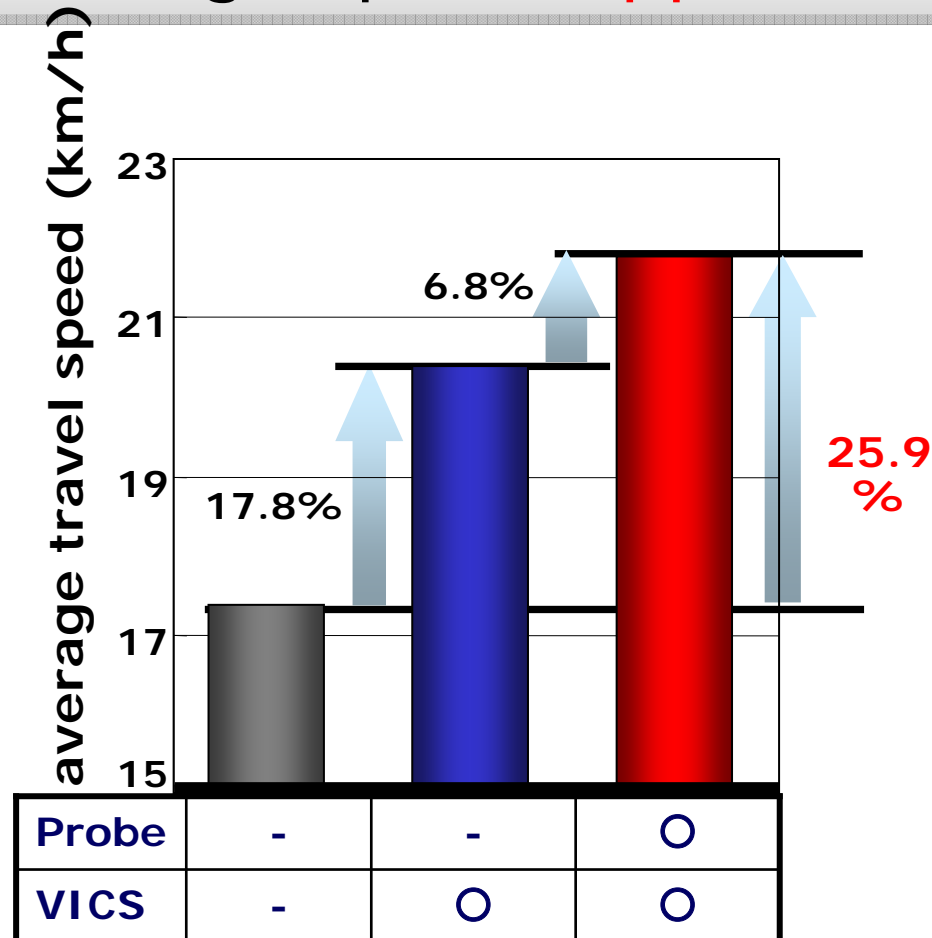
Improvement of trip speed

Probe	-	-	O
VICS	-	O	O

SKY PROJECT

CO_2 emission：17% reduced

Probe	-	-	〇
VICS	-	〇	〇
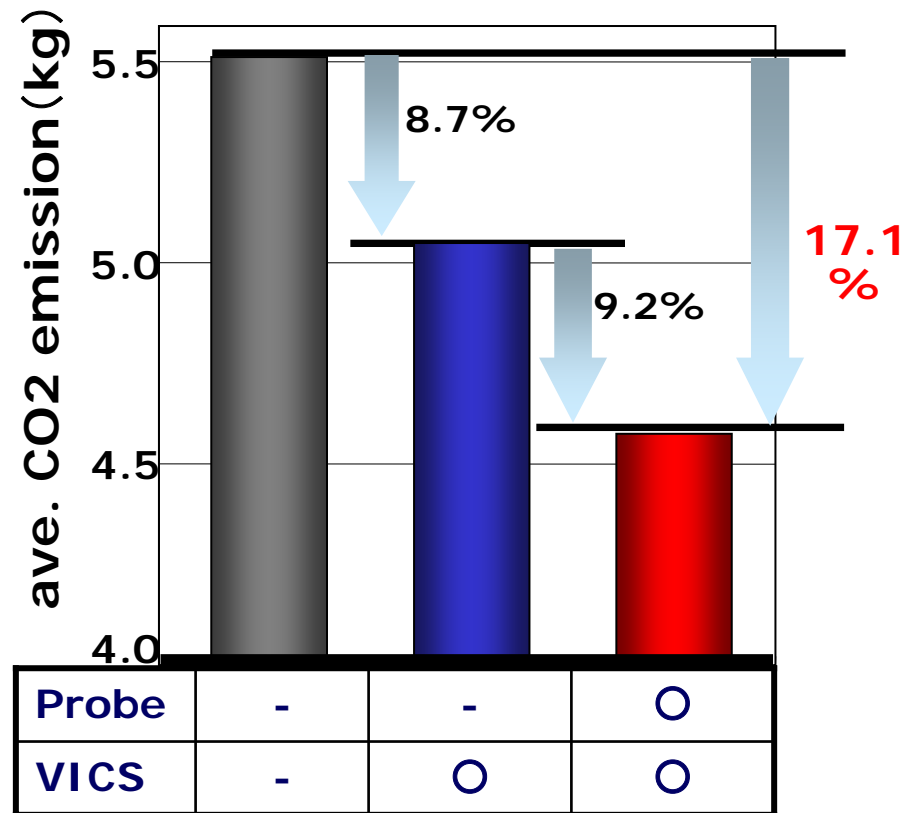
Reduction of CO2 emission

2 modes in fuel consumption

(B)Eco-drive advice

■ No congestion
○ congestion

Fuel consumption ratio [km/l]

Average Trip Speed [km/h]

depends on drivers

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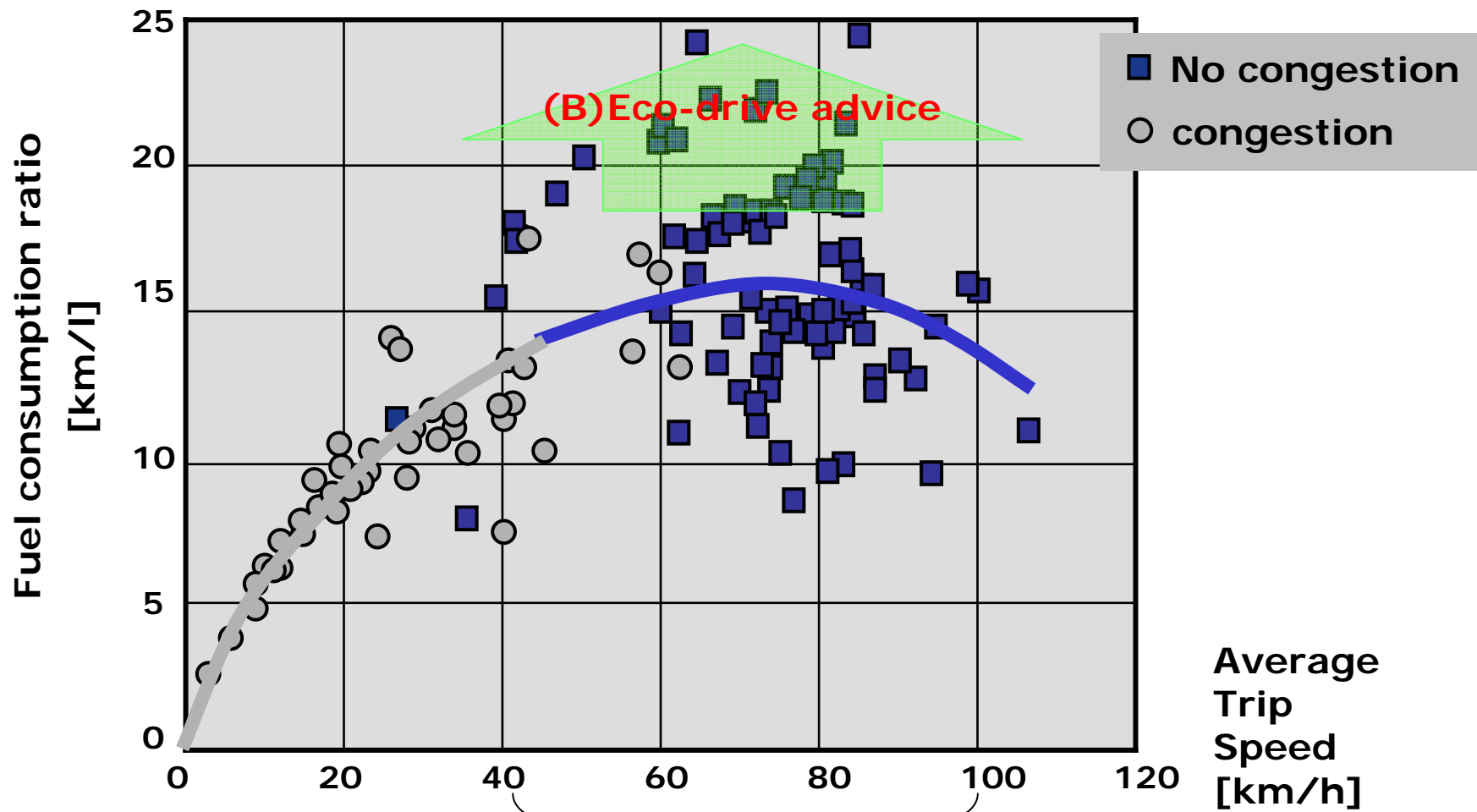
Potential Possibility of Eco-driving

Actual fuel consumption varies by driver.
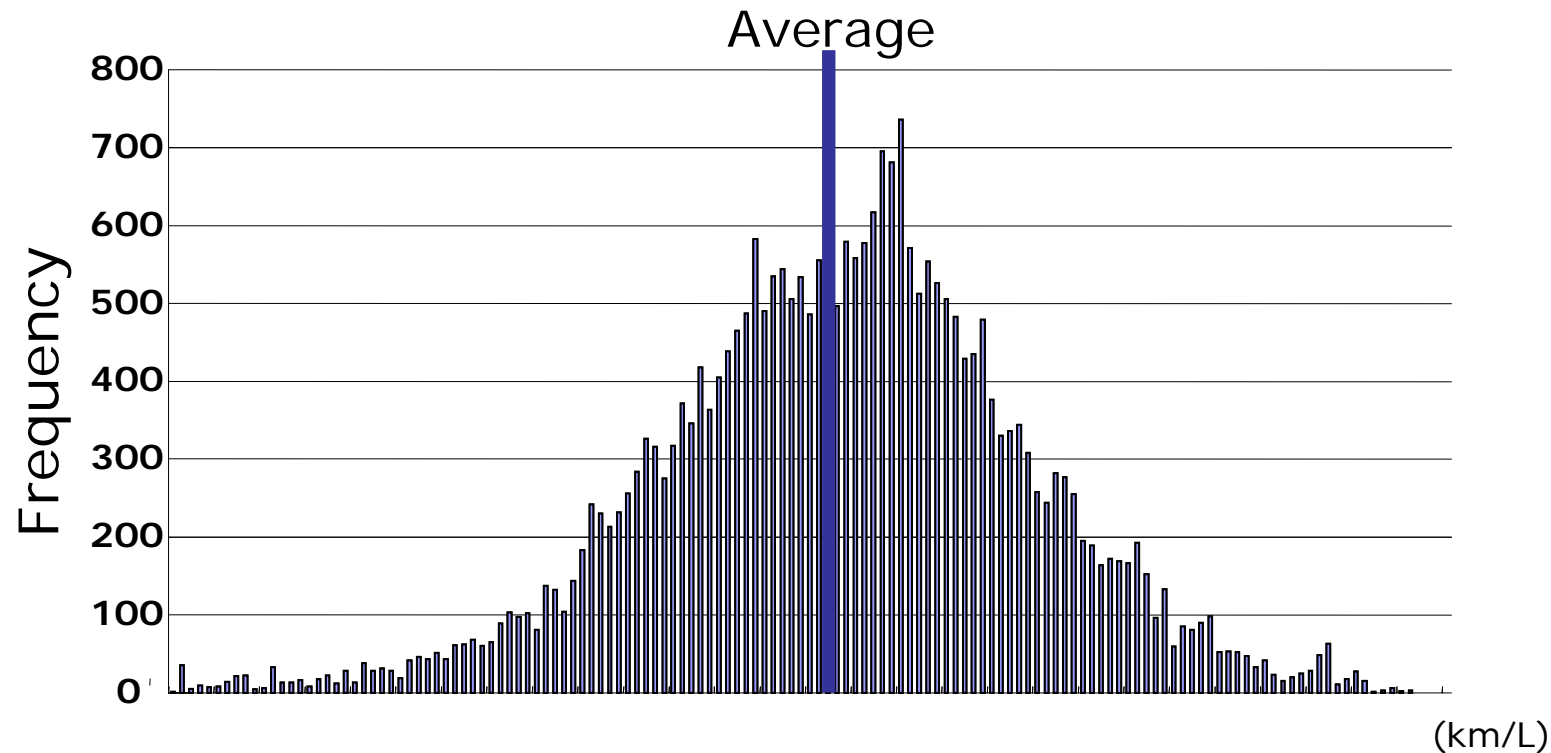
Actual fuel consumption

(example of compact cars)

(B)Eco-driving Advice System
(started in January, 2007)

To improve driving behavior

Eco-driving

Key point
maintain motivation
for cycle turning

Step	Description
情報 22:34 / 223.5 km / 平均燃費 15.5km / リセット / 燃費履歴 表示	1) Drive with Eco-meter
Actual fuel efficiency and CO2 emission / 傾向 燃費 16.0 km/ℓ / 2円/km 節約	2) Check the result at CARWINGS website
Fuel efficiency ranking / 年間 21,800円節約 平均燃費 15.8km/ℓ / プラチナ シルバー ブロンド / Gold Rank GOLD / ECOポイント：700エコポ	3) Compare the result with other drivers in the same model
Driving advice / アクセル一定で加減速の少ない運転を	4) Receive advice for improvement based on the result

**The Fully Network...
Geneva, 5-7 March**

Fuel consumption improved by 18%