

Citizen Science and Sustainable Mobility

Jan Wilkening, Albert Remke

Esri Deutschland GmbH, 52°North GmbH

Esri User Conference
2014-07-16

Content

- + **52°North**
- + **About Citizen Science & Sustainable mobility**
- + **The enviroCar platform**
- + **Cloud GIS as a means for communication and collaboration**

52°North – Open Innovation Network



- + **Open network with partners from industry, academia and public administration**
- + **Applied research in the field of Geoinformatics**
- + **52°North is the network's legal body and service center, non-profit**
- + **All results published as open source SW**



Citizen Science

„Citizen’s Participation in Scientific Research “

<http://caise.insci.org/news/79/51/Public-Participation-in-Scientific-Research/d,resources-page-item-detail>



Research Questions

Literature Theories Methods

Experiments, Observations, Measurements ←

Analysis, Interpretation Publication, Discussion





Mobility & Environment

Wissenschaft

Bürger

Verwaltung

Industrie

Research questions

+ **Citizens**

- > How's my driving style compared to others
- > What is the CO2 footprint of my driving compared to others
- > ..

+ **Scientists**

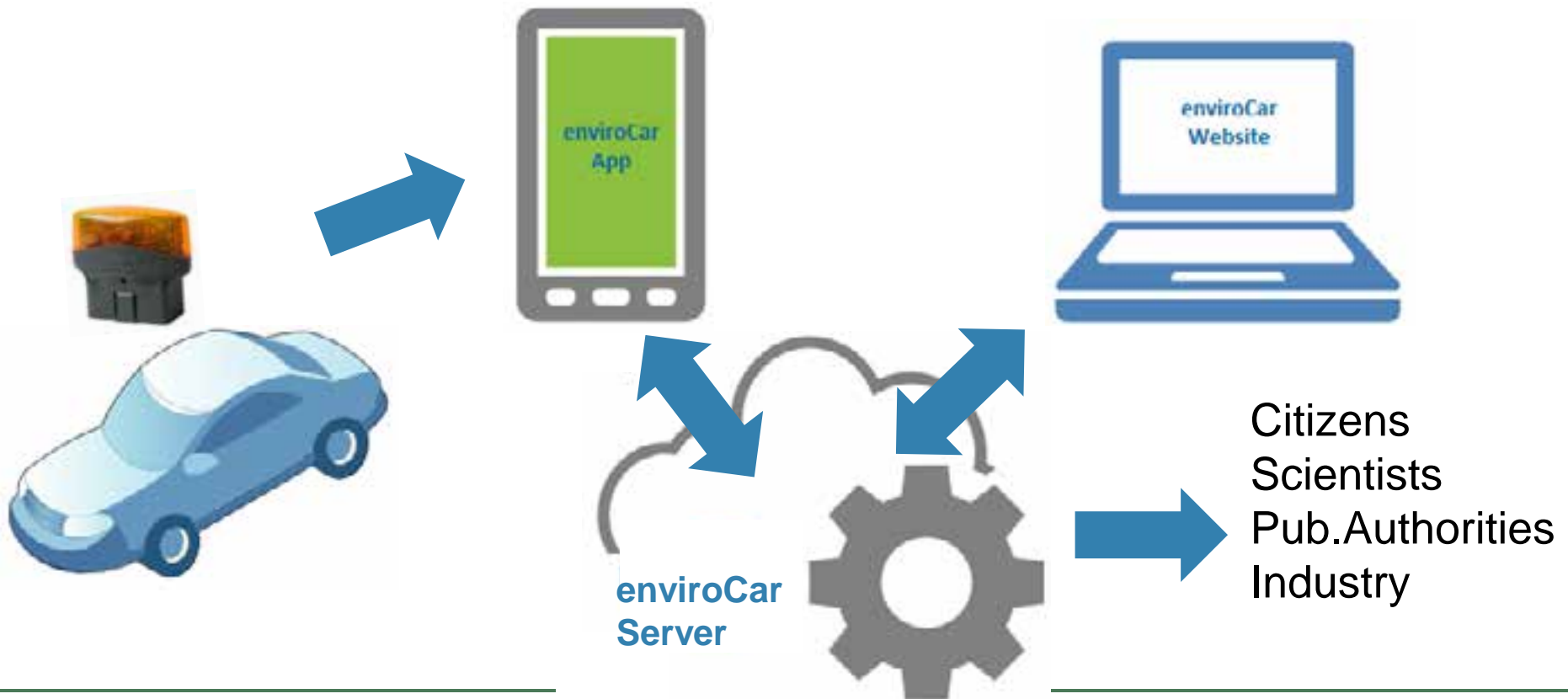
- > Which indicators for mobility and its environmental impact can be derived from VGI
- > How to model the quality of data when dealing with heterogeneous sources of information
- > ..

+ **Urban planners**

- > What is the actual quality of traffic flow in my planning area
- > What was the impact of changing traffic management for this road in terms of traffic flow, energy consumption and CO2 emission
- > ..

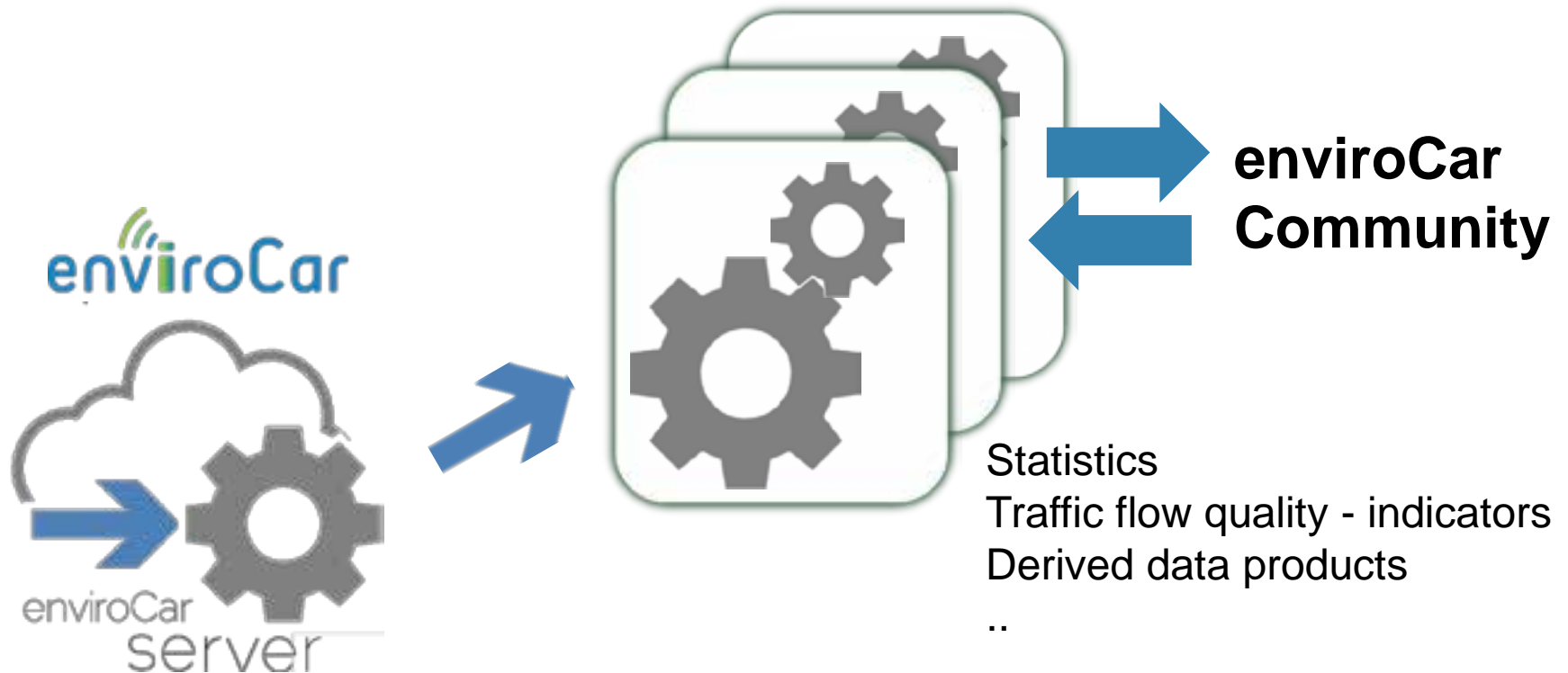
enviroCar Platform

collecting and sharing floating car data



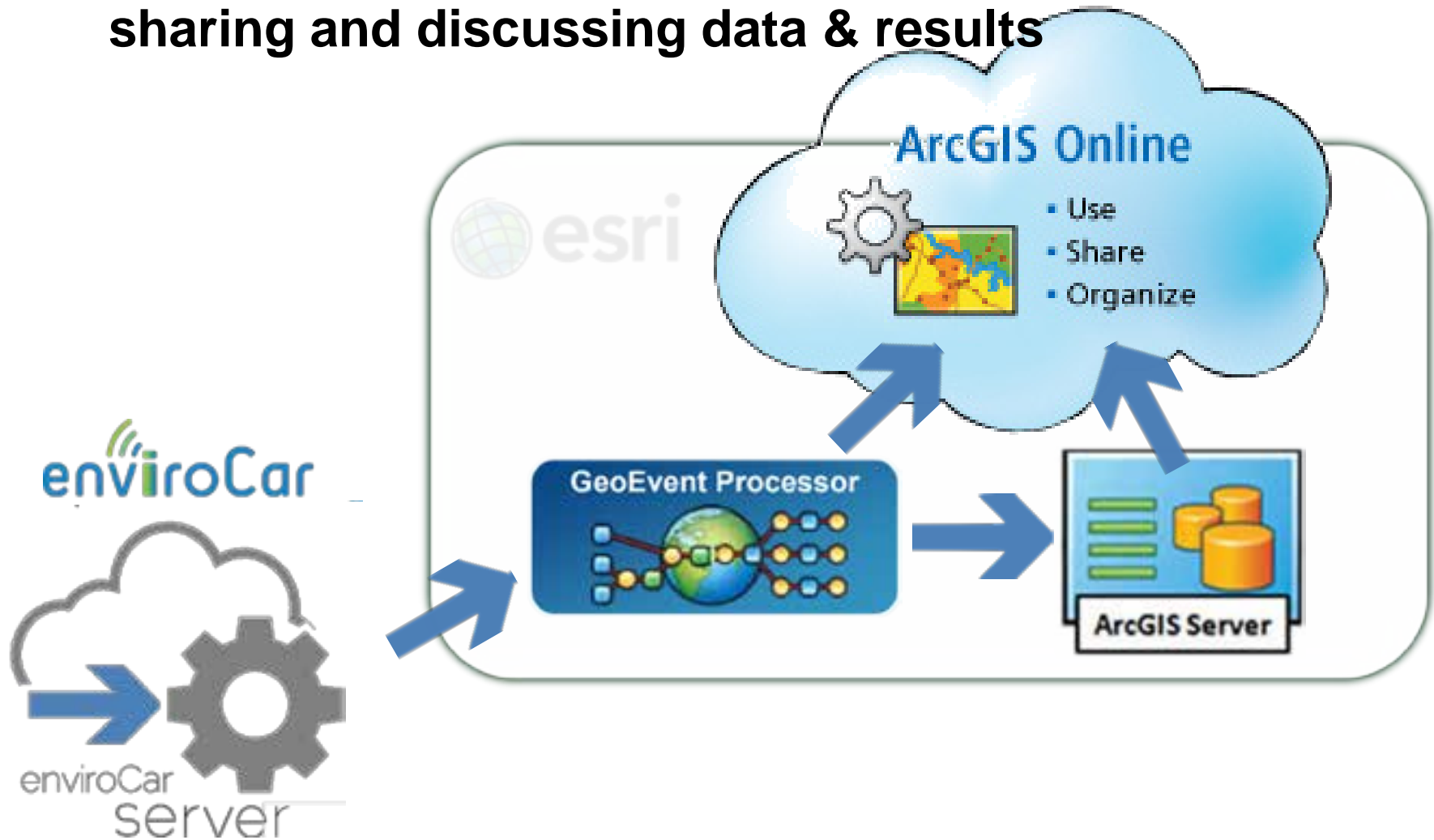
enviroCar Platform

sharing tools for data analysis



enviroCar Platform

sharing and discussing data & results



enviroCar WebSite



Tweets

Follow

enviroCar Project

@enviroCar
enviroCar API now
#CSV - making foa
for RDS envirocar
Eigand

52North Inc
@FiveTools

New next enviroCar
Tweet to @enviro

Be a Citizen Scientist

enviroCar - off we go!

It's an app - collect floating car data

It's an internet platform - share and analyze anonymized open data

It's a community - collaborate with other citizens, traffic planners and scientists worldwide!



enviroCar WebSite

The screenshot displays the enviroCar website interface. At the top, there is a navigation bar with links for 'About', 'My Profile', 'Maps & Statistics', 'Data', and 'Sign'. Below this, the user profile for Albert Remke is shown, including a photo of a metallic car head and the following details:

- First name: Albert
- Last name: Remke
- Gender: male
- Birthday: 1900-01-01
- Country:
- Language: de-DE
- Number of Tracks: 304 (1243)

The 'Overview' section for a track on Jan 31, 2014 at 9:39:20 AM, provides the following statistics:

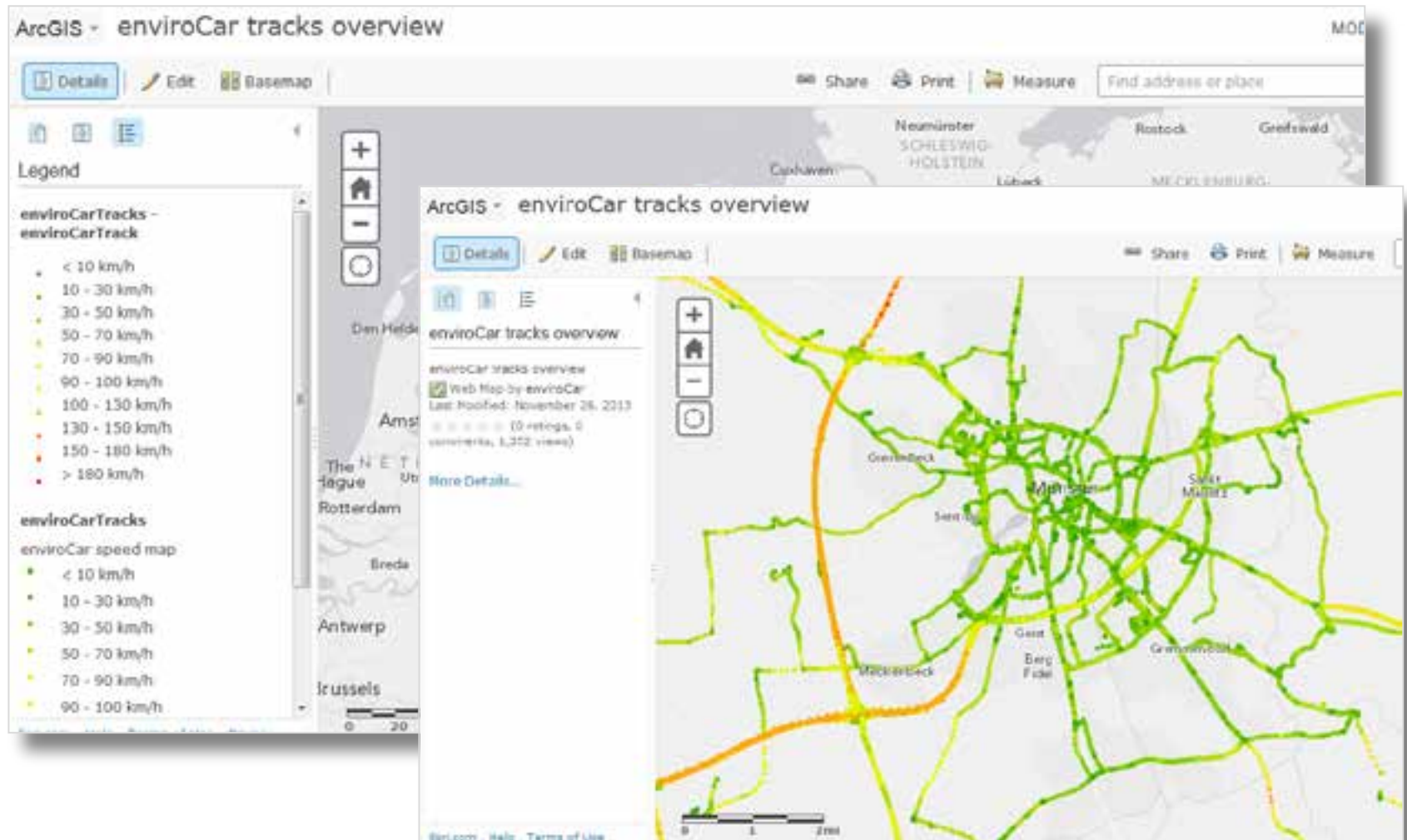
- Distance: 9.97 km
- Consumption: 40 l/100 km
- CO₂: 80 g/km
- Speed: 20 m/13 s
- Acceleration: 40 l/100 km
- Weight: 80 kg
- Time: 4 m.20 s
- Max Speed: 20 km/h

Below the statistics, there is a map showing the track route in a city, with a legend for speed ranges:

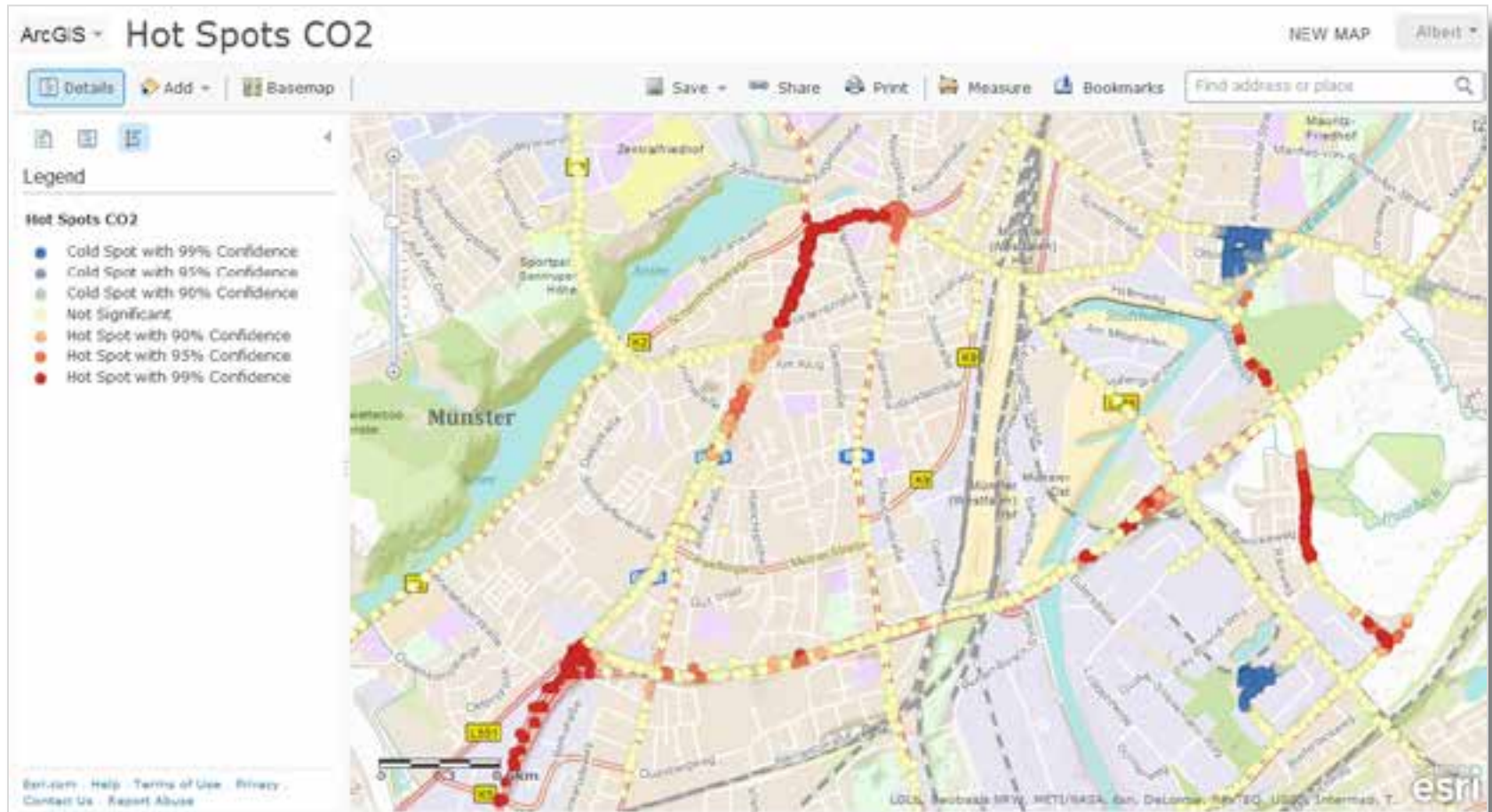
- 0-17 km/h
- 17-28 km/h
- 28-40 km/h
- 40-50 km/h
- 50-67 km/h
- 67-84 km/h

To the right of the map is a dual-axis line graph showing speed (left axis, 0-100 km/h) and consumption (right axis, 0-6 l/100 km) over time (09:40 to 09:55). A red horizontal line is drawn at 50 km/h. A callout box indicates a speed of 56 km/h at approximately 09:52.

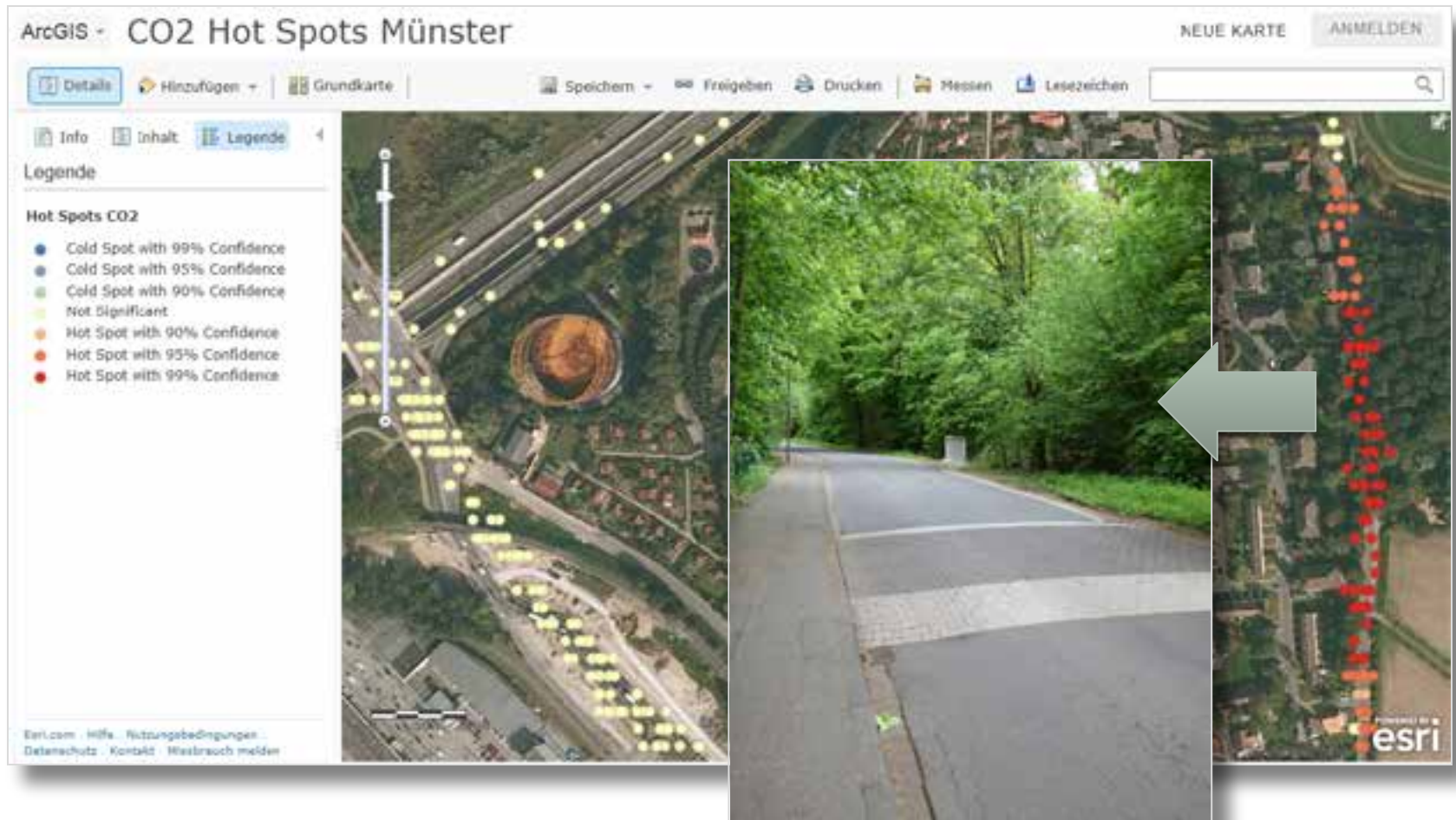
enviroCar Tracks



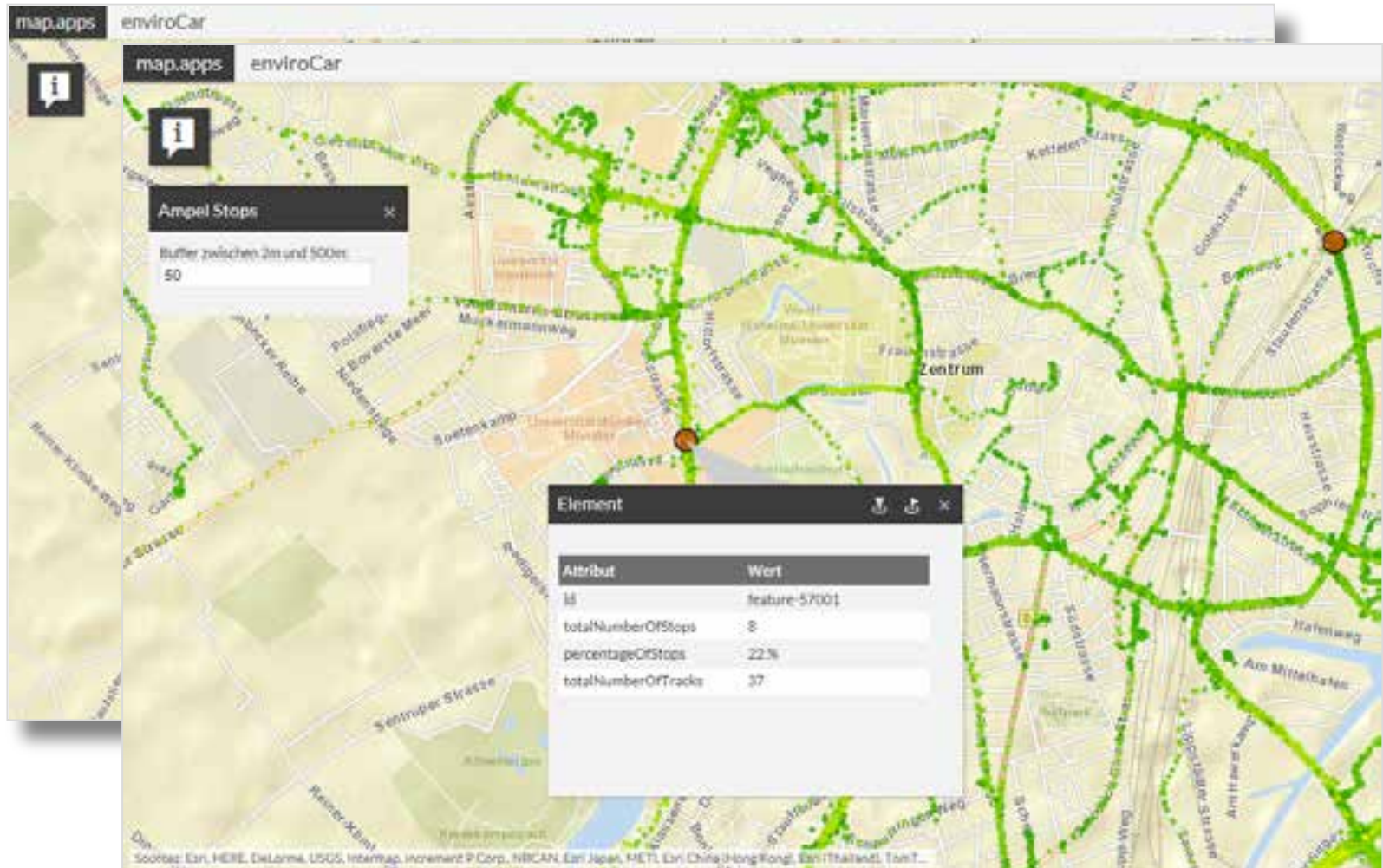
CO2 Hot Spots



CO2 Hot Spots



enviroCar - Citizen Data Portal



Further Roadmap

+ **Extending the eC platform**

- > Enhanced communication & collaboration support
- > Methods and tools for data quality management and data analysis
- > Extending further transport modes (public transport, bicycles, ..)
- ..

+ **Developing the Community**

- > Further improving the user experience (attractiveness, IOS, ..)
- > Networking with research groups and local authorities
- > Case Studies such as the Cologne Citizen Data Portal on mobility & environment
- ..

Further Information

- § WebSite - www.envirocar.org
- § Mail - enviroCar@52north.org
- § ArcGIS Online -
<http://52north.maps.arcgis.com>
- § Youtube –
www.youtube.com/watch?v=LTSuUEOfWa0

Thanks ..

enviroCar Partner

