ROADIDEA

S-I-R-W-E-C

Cooperative web based routing database for trip planning, including dynamic weather integration

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www.roadidea.eu

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- One of the many ideas generated in the innovation process
- Applies to road users most exposed to weather
- Rain is common in Holland
- Resulted in a working service

Will I get Wet???

http://rain.roadidea.eu/route

Route rainfall prediction in Holland!

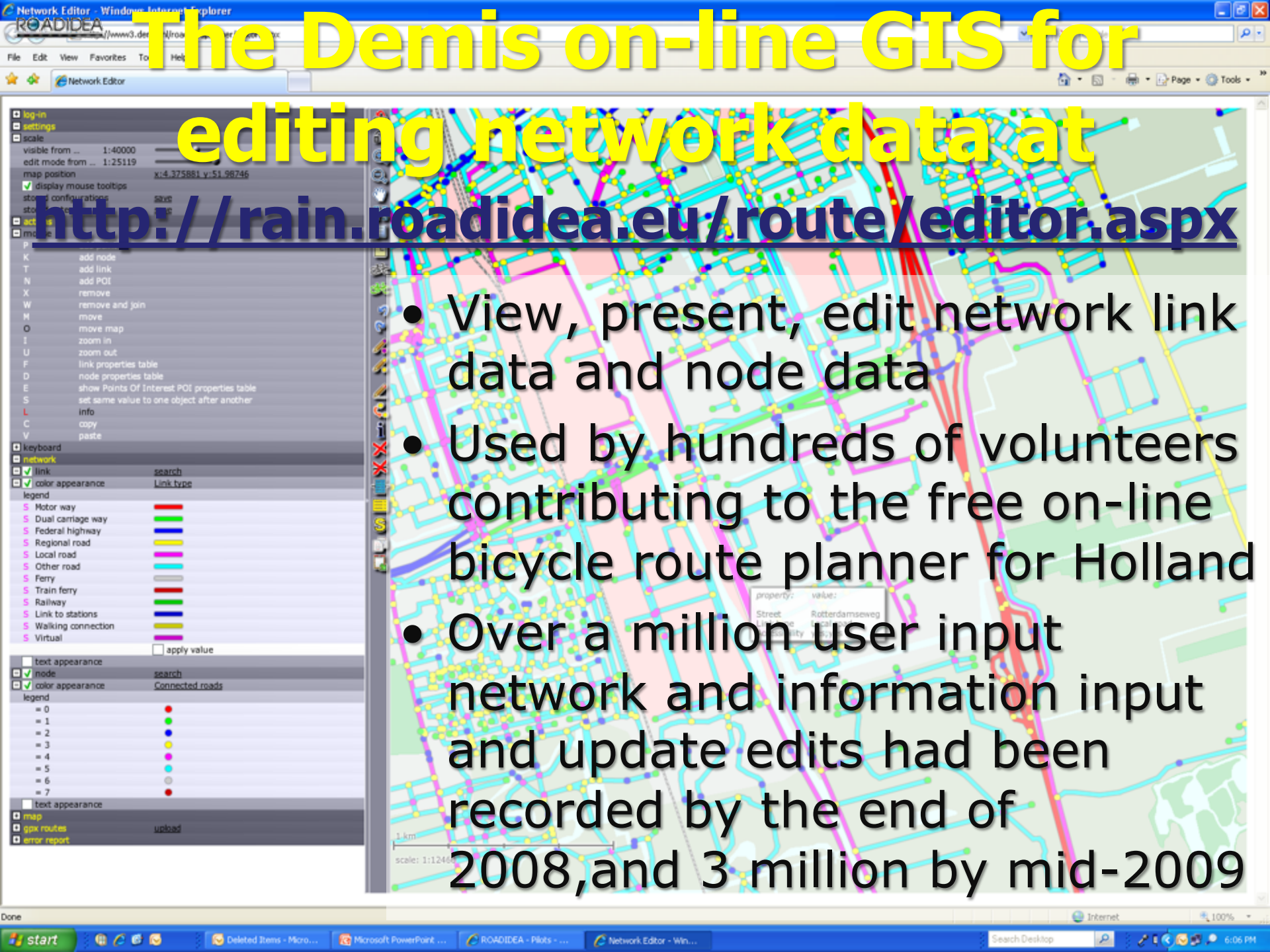
What are the key elements?

- Free radar rainfall prediction data from the Royal Dutch Weather Service KNMI
- A proven on-line trip planning system
- Free road network data www.OpenStreetMap.Org
- On-line GIS for continuous rider input to enhance this

Free road network data

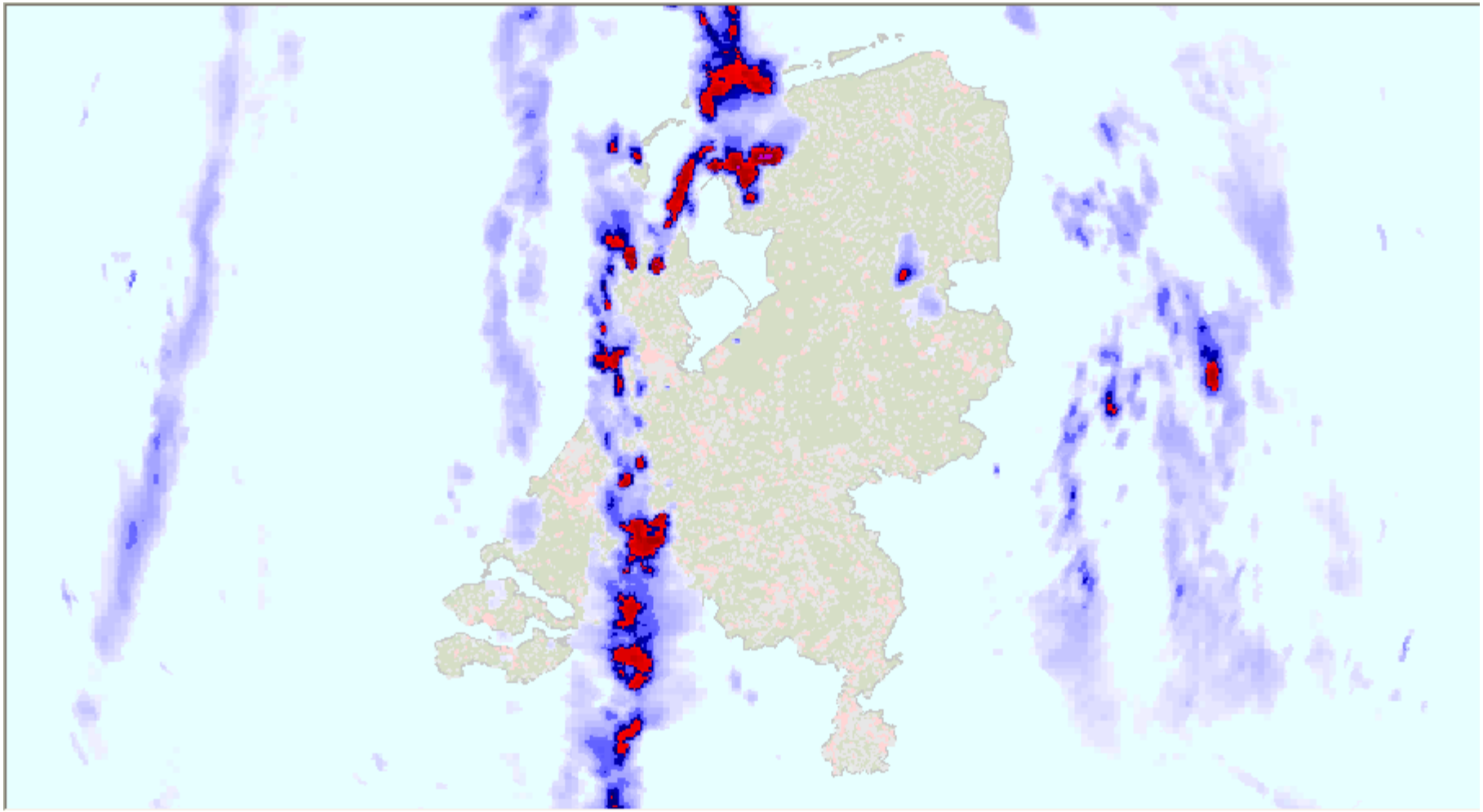
- www.openstreetmap.org provides free road network data. For the Netherlands this is based on a gift from AND (www.and.nl)
- Still for bicyclists and pedestrians the network topology and underlying data of the network links is not complete / good.
- How to solve this problem? ➔

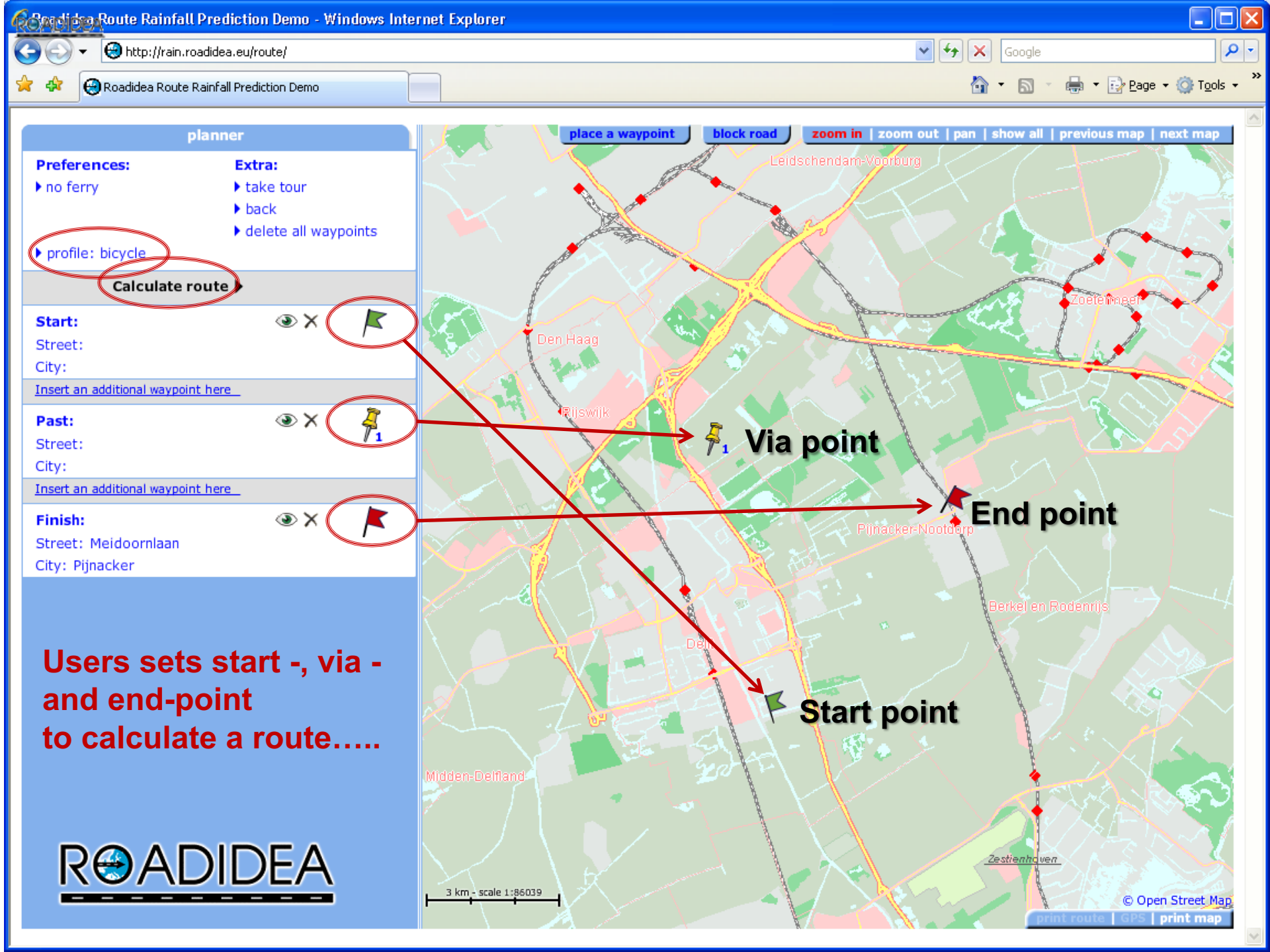
The Demis on-line GIS for editing network data at http://rain.roadidea.eu/route/editor.aspx

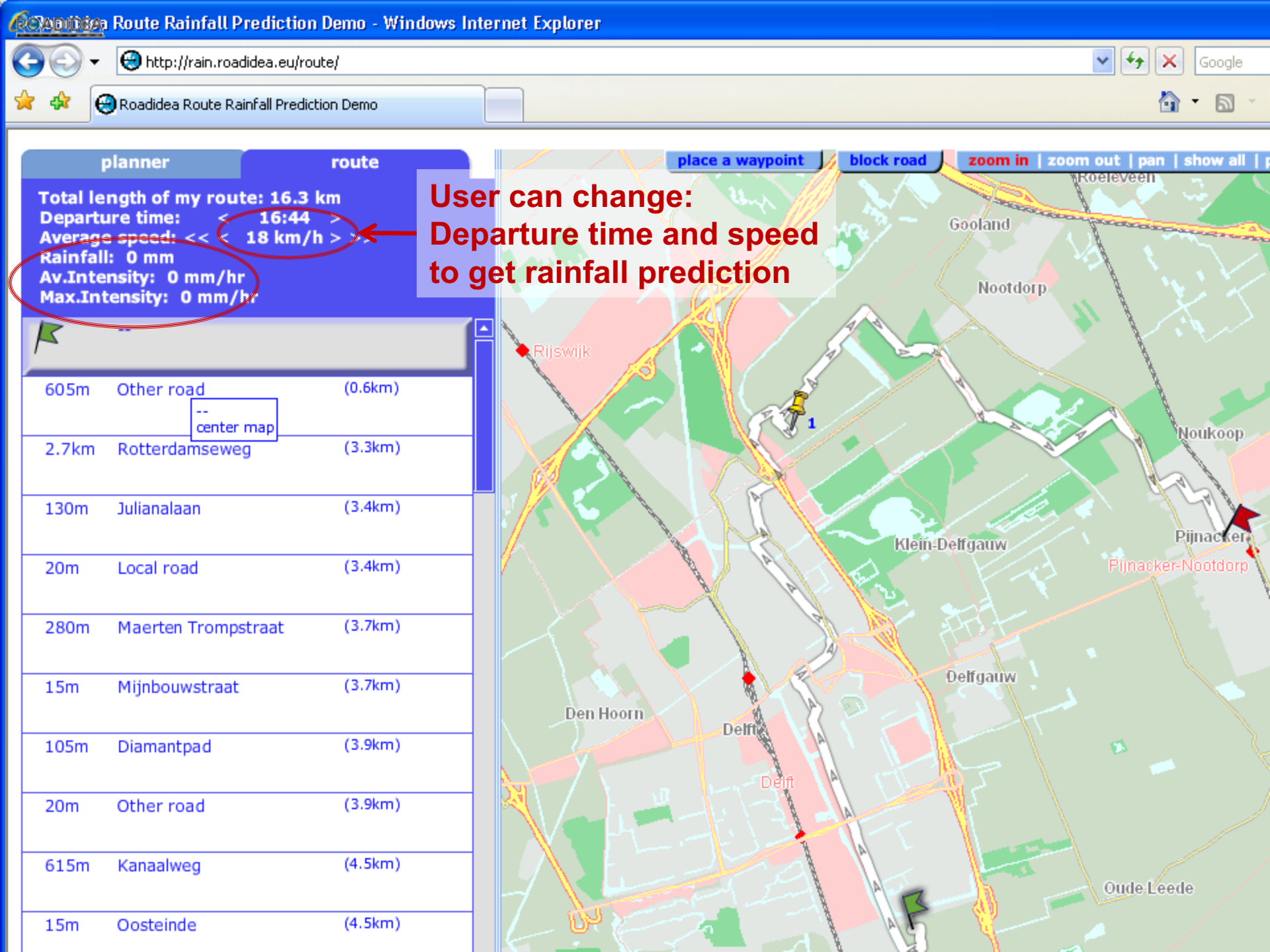


- View, present, edit network link data and node data
- Used by hundreds of volunteers contributing to the free on-line bicycle route planner for Holland
- Over a million user input network and information input and update edits had been recorded by the end of 2008,and 3 million by mid-2009

Live weather data www.knmi.nl
2 hour 1x1 km rainfall prediction
(free during the project, thanks to KNMI)




Roadidea Route Rainfall Prediction Demo - Windows Internet Explorer
http://rain.roadidea.eu/route/
Roadidea Route Rainfall Prediction Demo
planner
Preferences:
no ferry
Extra:
take tour
back
delete all waypoints
profile: bicycle
Calculate route
Start:
Street:
City:
Insert an additional waypoint here
Past:
Street:
City:
Insert an additional waypoint here
Finish:
Street: Meidoornlaan
City: Pijnacker
Users sets start -, via - and end-point to calculate a route…..
ROADIDEA
place a waypoint
block road
zoom in | zoom out | pan | show all | previous map | next map
Via point
End point
Start point
Leidschendam-Voorburg
Den Haag
Rijswijk
Zoetermeer
Pijnacker-Nootdorp
Berkel en Rodenrijs
Midden-Delfland
3 km - scale 1:86039
© Open Street Map
print route | GPS | print map


Roadidea Route Rainfall Prediction Demo - Windows Internet Explorer
http://rain.roadidea.eu/route/
Roadidea Route Rainfall Prediction Demo
planner
route
Total length of my route: 16.3 km
Departure time: < 16:44 >
Average speed: << < 18 km/h > >>
Rainfall: 0 mm
Av.Intensity: 0 mm/hr
Max.Intensity: 0 mm/hr
User can change:
Departure time and speed
to get rainfall prediction
605m Other road (0.6km)
-- center map
2.7km Rotterdamseweg (3.3km)
130m Julianalaan (3.4km)
20m Local road (3.4km)
280m Maerten Trompstraat (3.7km)
15m Mijnbouwstraat (3.7km)
105m Diamantpad (3.9km)
20m Other road (3.9km)
615m Kanaalweg (4.5km)
15m Oosteinde (4.5km)
place a waypoint
block road
zoom in | zoom out | pan | show all
Roeleveen
Gooland
Nootdorp
Rijswijk
Noukoop
Klein-Delfgauw
Pijnacker
Pijnacker-Nootdorp
Delfgauw
Den Hoorn
Delft
Oude Leede

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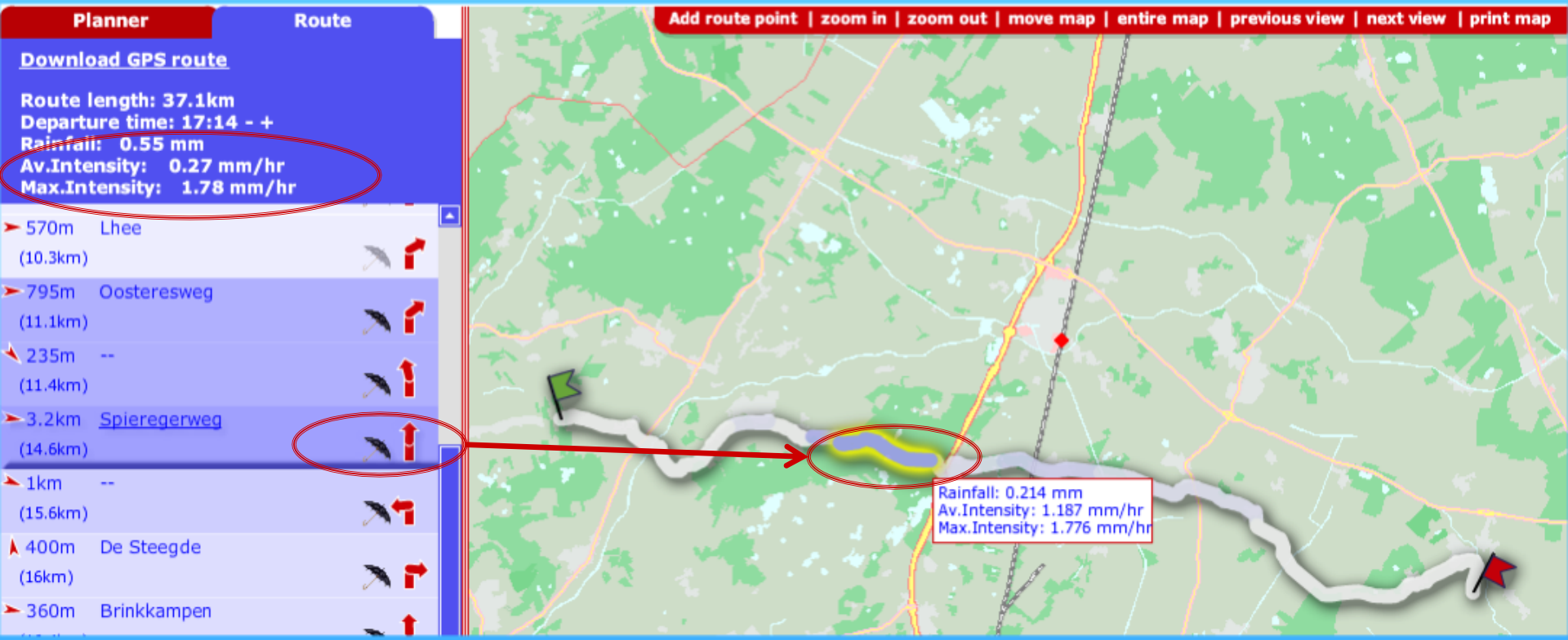
Example with rainfall, check out the umbrella's and colored route segments….



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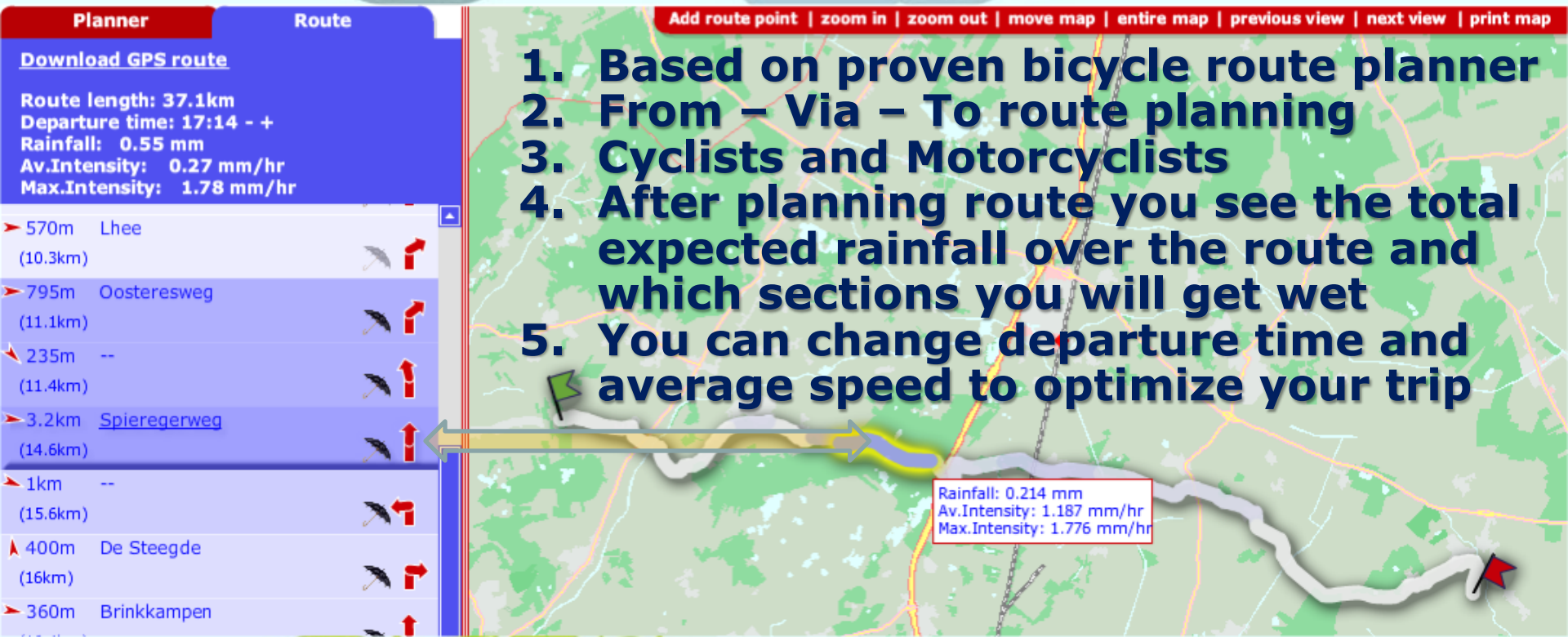
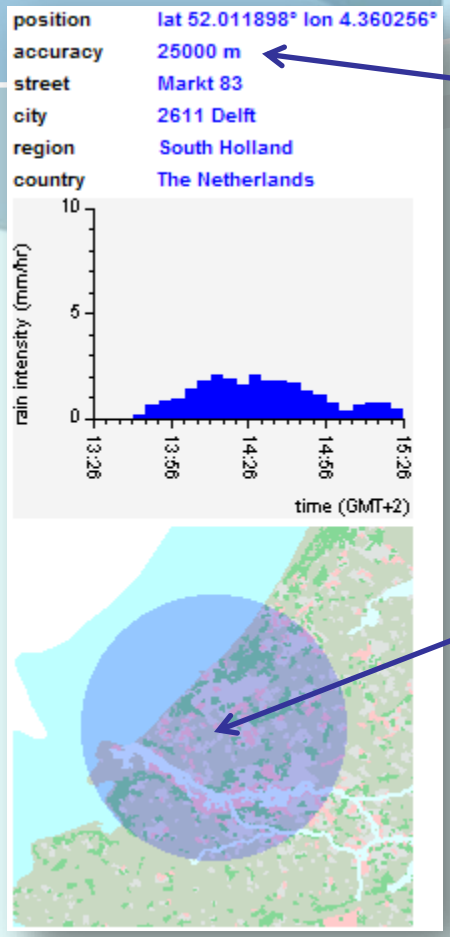
Example route rainfall prediction output (only for Holland)

http://rain.roadidea.eu/route



Example point rainfall prediction output in Holland)

http://rain.roadidea.eu/point



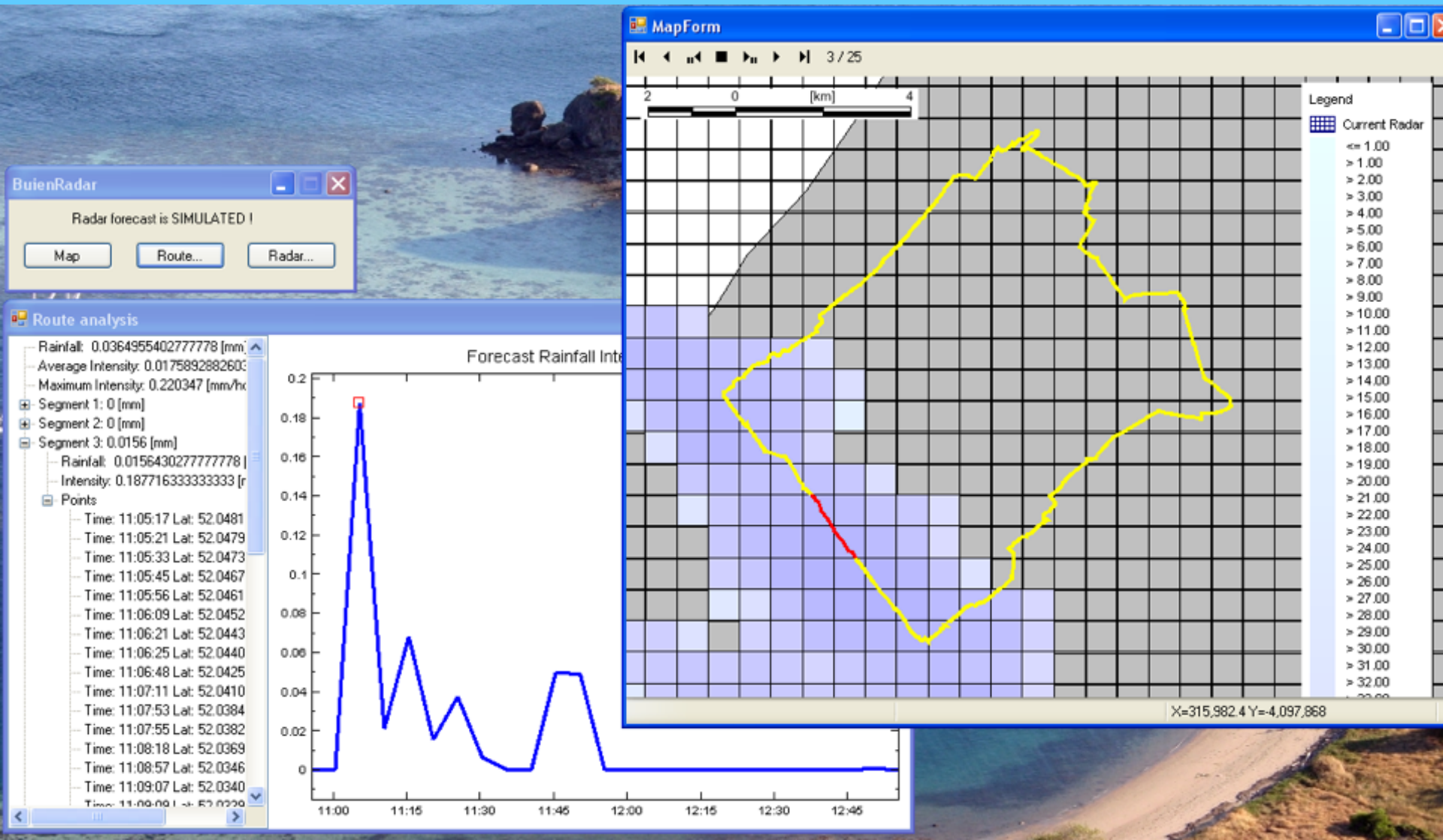
PC IP adress is not so accurate☺

Map shows location & accuracy

Route Rainfall Prediction Architecture

- Client-Server based
- KNMI Data feed in HDF5 format via FTP
- Radar rainfall prediction per 5 minutes, up to two hours ahead
- HDF5.NET software from the HDF group to process HDF5 files into a grid file per time period
- Planned route (location & time) is split in 5 minute segments
- For each segment the average rainfall is calculated by averaging the rainfall in the grid cells in which the route segment lies.

Test application: stand-alone Windows



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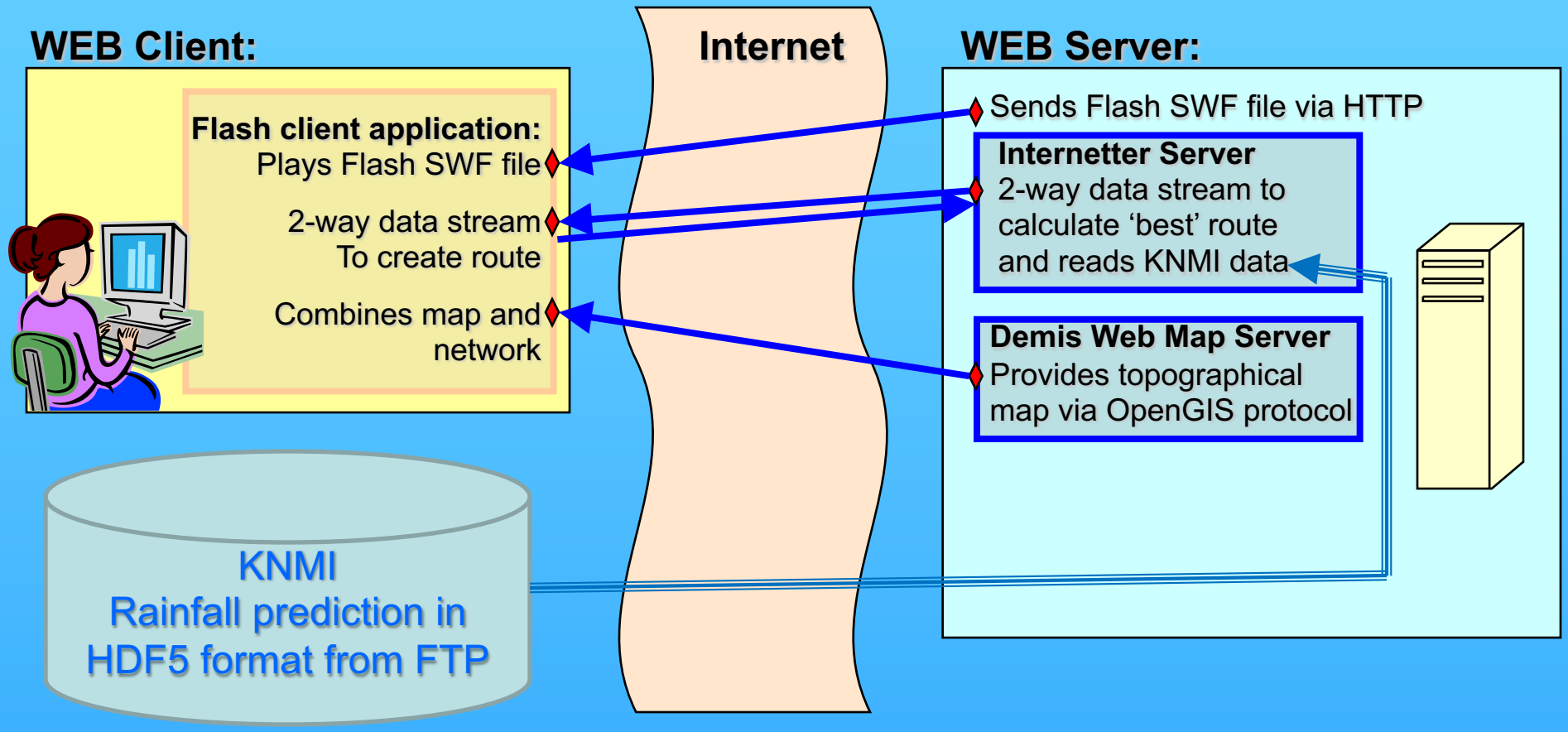
Route Rainfall Prediction Architecture



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CONCLUSIONS

ROADIDEA: Innovation potential of the European ITS sector

1. Creating a valuable service to end-users means a multi-disciplinary approach.
2. Bicycle Route Rainfall Prediction as a real service depends on having a free weather forecast as end users are not willing to pay?
3. Mobile point rainfall prediction: not much interest yet, is likely to change as people get used to this two-way kind of communication