

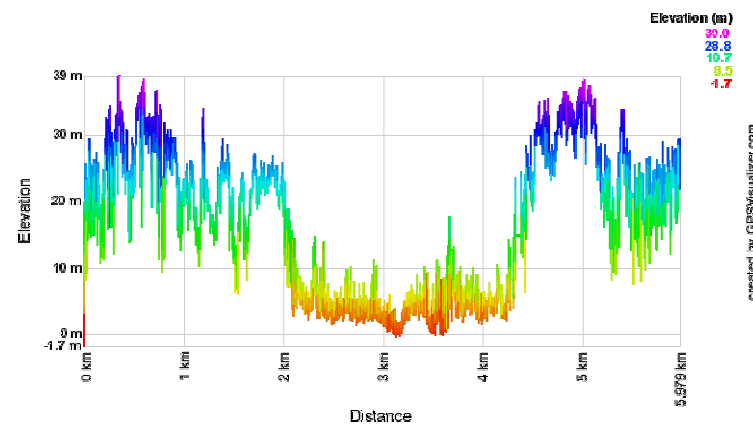
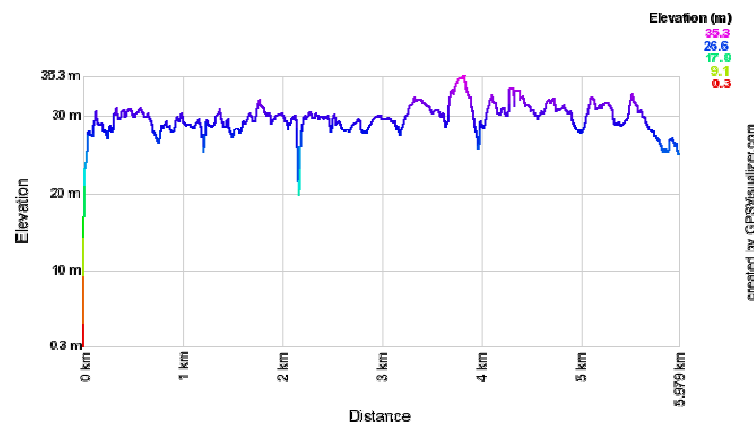
- 1. Present status of drive tests
- 2. Results being extracted from present drive tests
- 3. The new approach (additional sensors)
- 4. Results being extracted from new approach
- 5. Pros / cons of new approach
- 6. Film of new approach
- 7. Discussion
- 8. Disclaimer



1. Present status of drive tests

Purpose of drive test systems:

- Monitoring of radio station characteristics
- Direction finding and location
- Field-strength and signal quality measurements according to ITU recommendations
- Coverage and benchmarking, f.e. Quality of Service (QoS) measurements of mobile communication networks

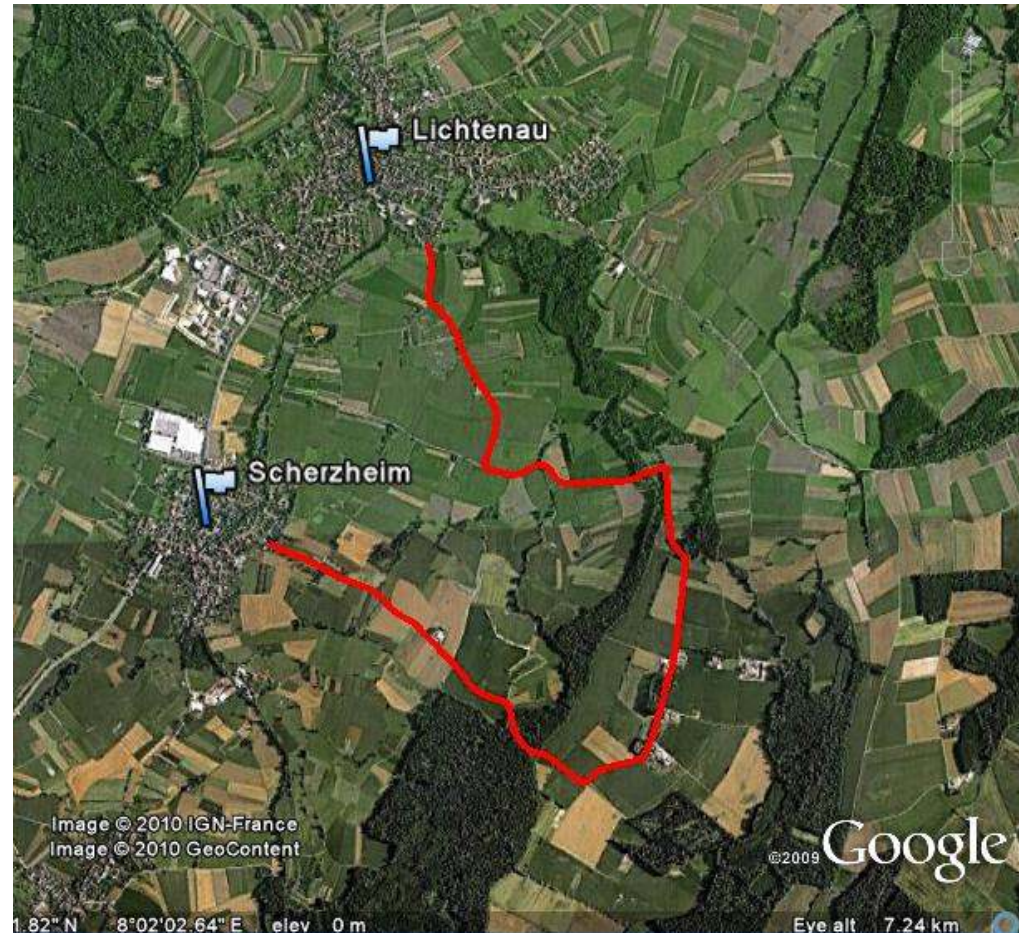


2. Results being extracted from present drive tests

Results of present drive tests:

- Measured data
 - ▶ Quality of service
 - ▶ Field-strength
 - ▶ Line of Bearing
 - ▶ Location of transmitter
 - ▶ Coverage

- Location of vehicle
- Direction of vehicle



3. The new approach (additional sensors)

By posting additional data:

- Weather-sensor:
 - ▶ Temperature / Humidity
 - ▶ True wind-speed and -direction
 - ▶ Pitch and roll
 - ▶ Barometric pressure

- Video data:
 - ▶ Geo-tagged pictures
 - ▶ Video streams



4. Results being extracted from new approach

Additional results from new approach:

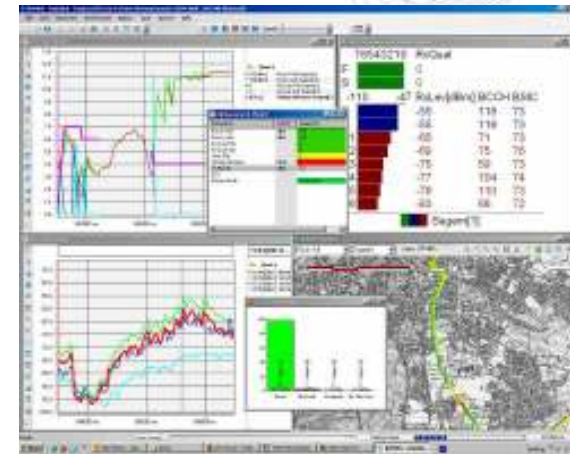
- Data related to weather (sensor) and surrounding (video)
 - ➔ Judgement of measurement results (plausibility)
 - ➔ Optimization of coverage models (plants, buildings, cars)
 - ➔ Reduction of GPS inaccuracy (f.e. height by pressure)
 - ➔ Pre-planning of repetitive measurements (seasons)
 - ➔ Extraction of changes between repetitive campaigns



5. Pros / cons of new approach

- Pros:
 - ▶ Repetitive campaigns can be compared
 - ▶ Influences can be „seen“ on pictures
 - ▶ Changes in surroundings are obvious

- Cons:
 - ▶ Additional sensors are needed
 - HD video camera
 - Weather sensors



6. Film of new approach

STMAREplay

Select Data Sources:

Enable/ Disable: Measurement data Imaging Data

Eventtime:

Koordinaten (Lat,Long):

Airtemperature:

barometric Pressure:

Level:



Parameter der Fahrt

Speed: km/h

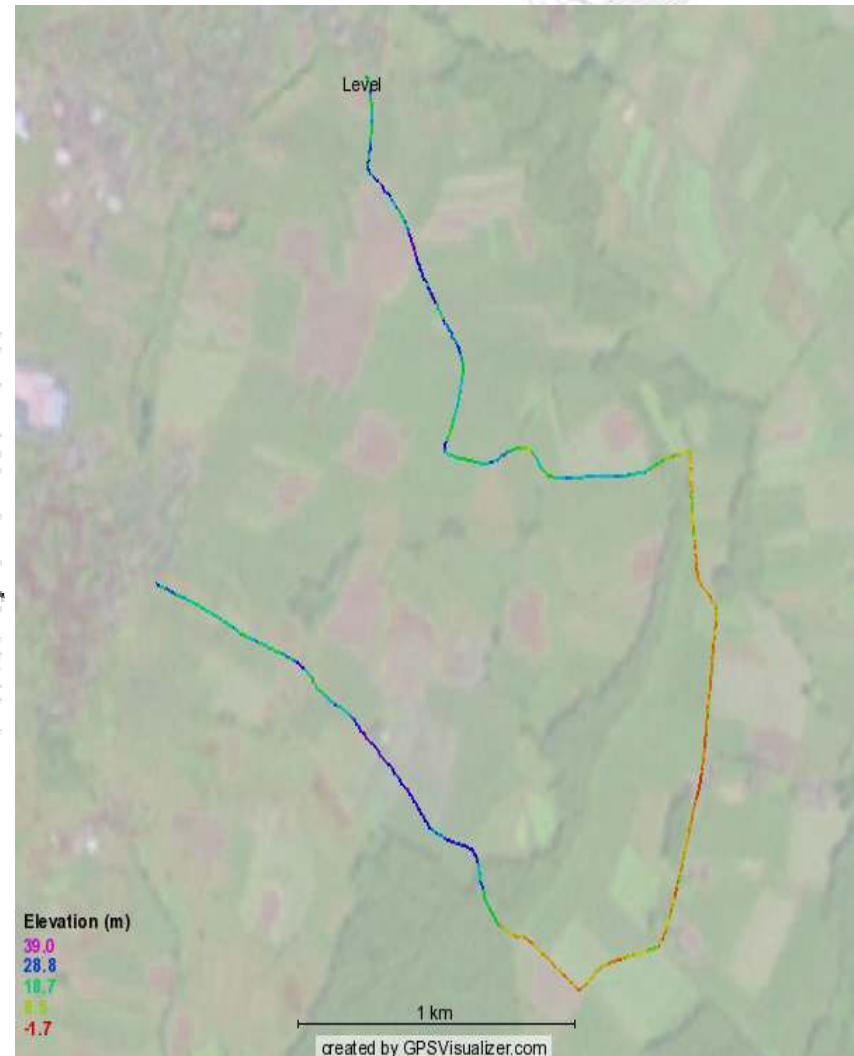
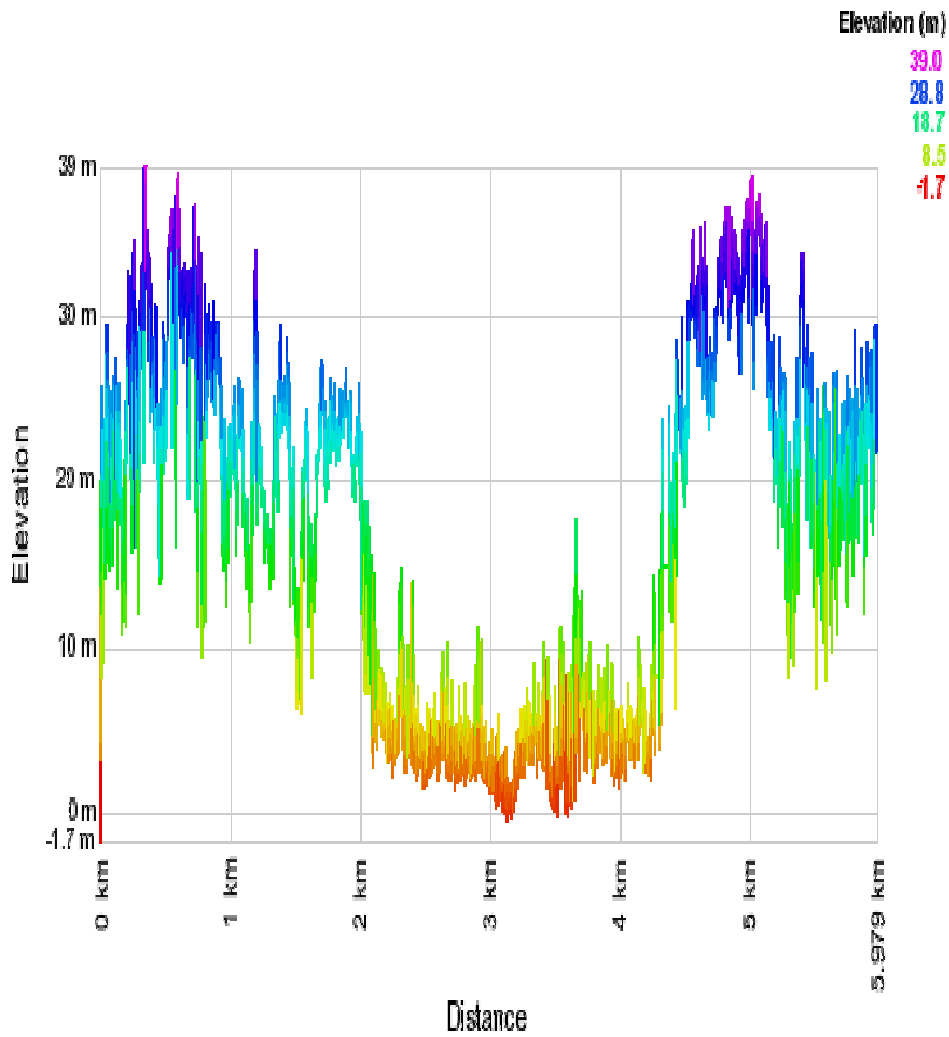
Frames:

Initial Systemtime: _videotruer_eventtime:

Systemtime: _videofalse_eventtime:

ticks elapsed:

7. Discussion



Thank you for your attention!

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