ROADIDEA

WP3

Methods and model development

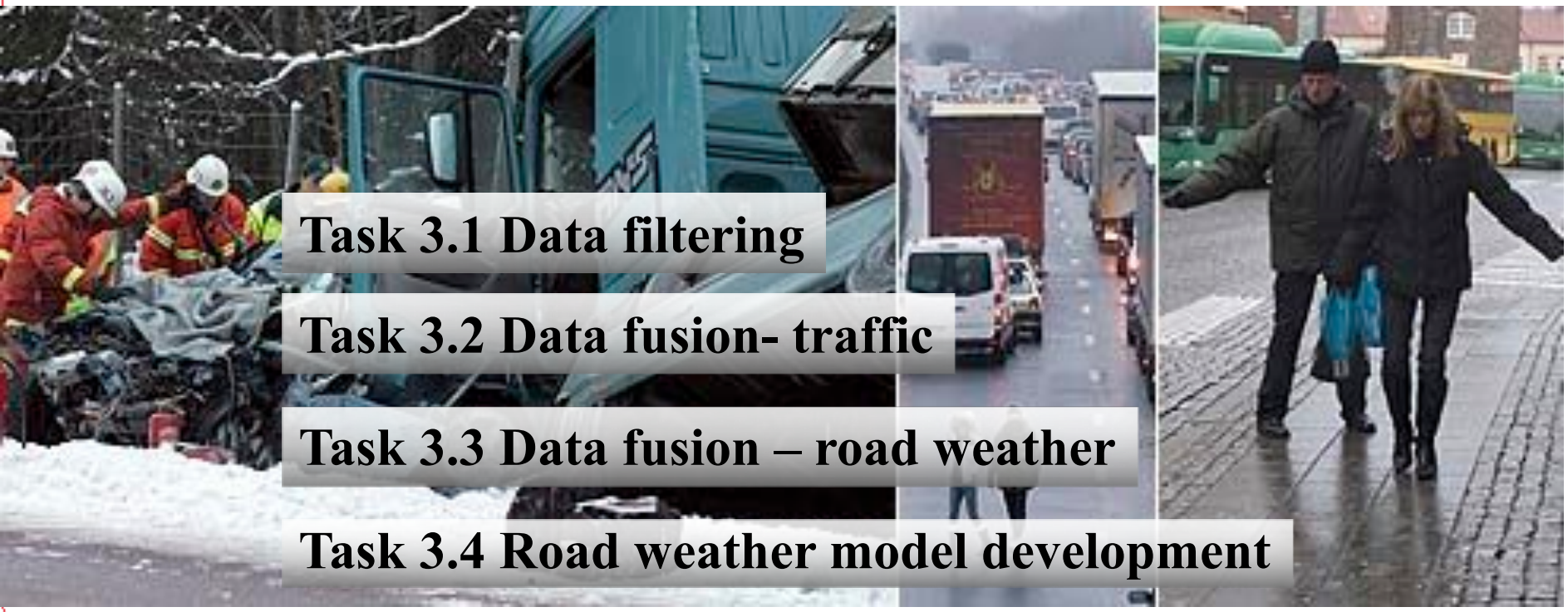
Jörgen Bogren, Torbjörn Gustavsson WP3, Klimator

Ph.D, Assoc. Prof, Dep of Earth Sciences Göteborg University, Sweden

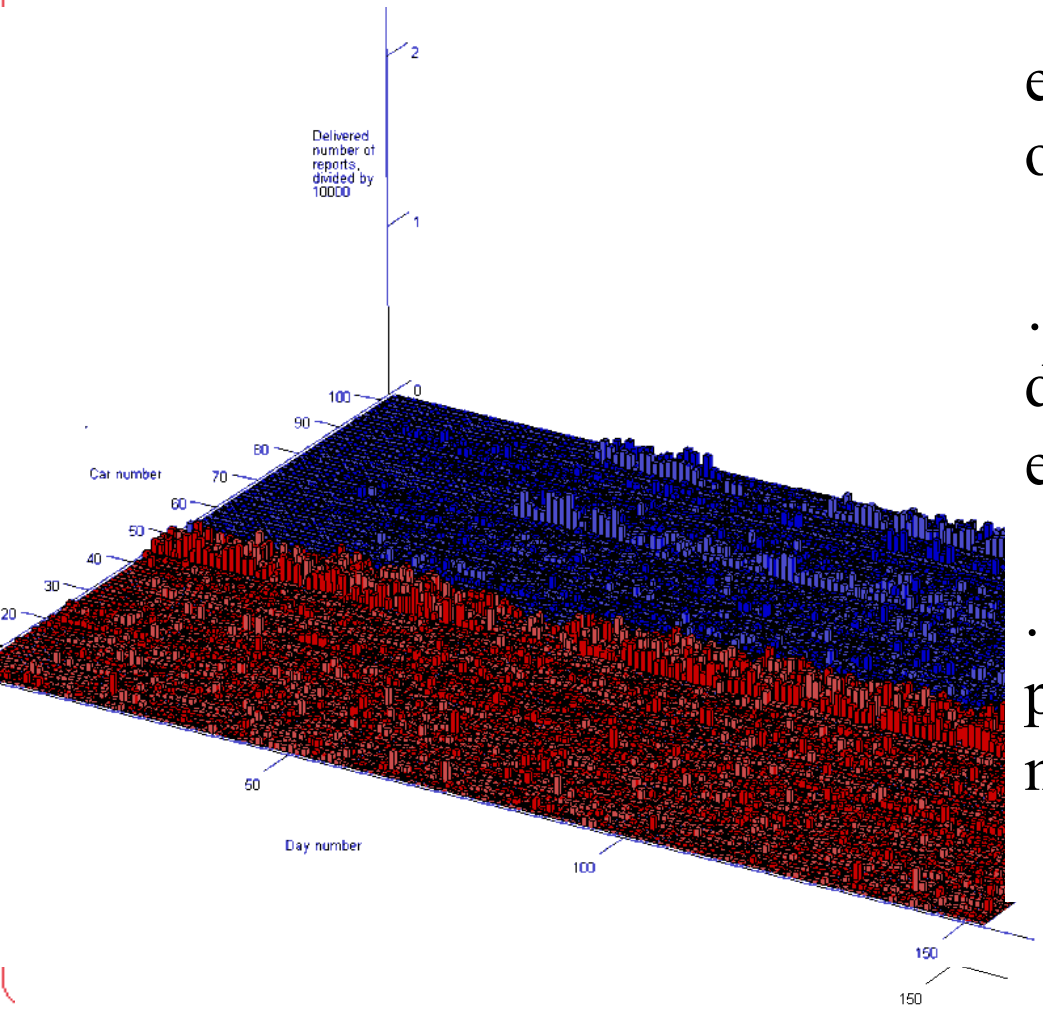
S-I-R-W-E-C

Objectives of WP3

… through combination of different data sources develop models…



First year results



WP3.1 Data filtering

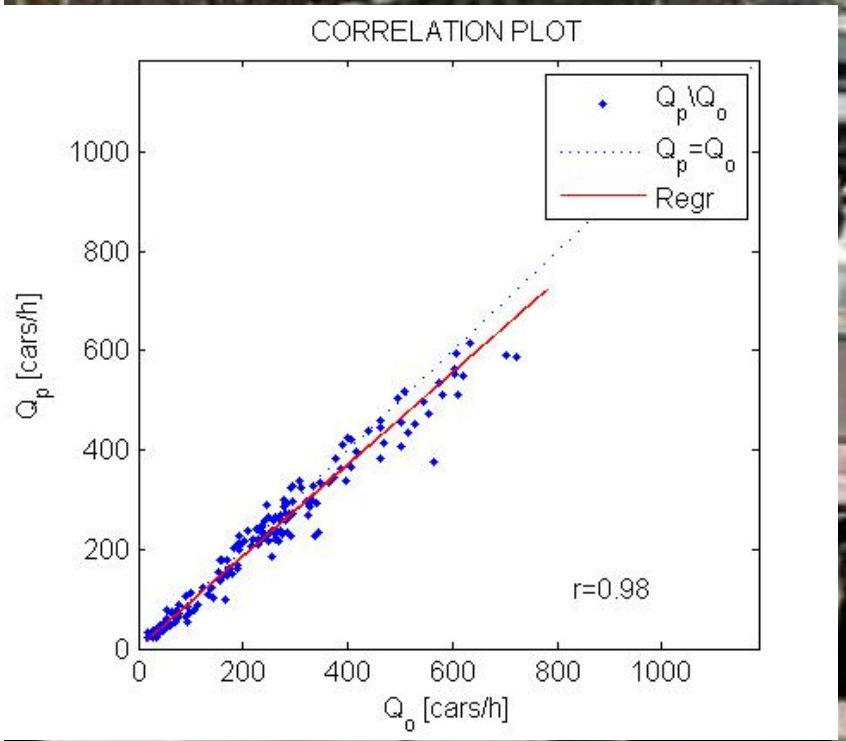
….minimize the impact of errors and noise in raw data on succeeding analyses….

….deals with methods for detection and correction of errors in given data….

….algorithms to evaluate the performance of those methods…

First year results

WP3.2 Data fusion- traffic



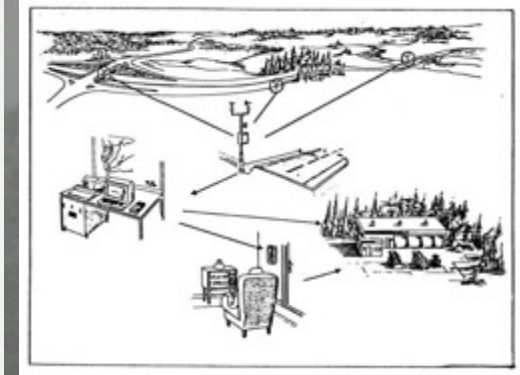
….deals with data fusion….

..refers to a group of data analysis that involves treatment of data of different kinds, from different sources….

….use filtered data as input to algorithms, which are developed to model and predict traffic characteristics….

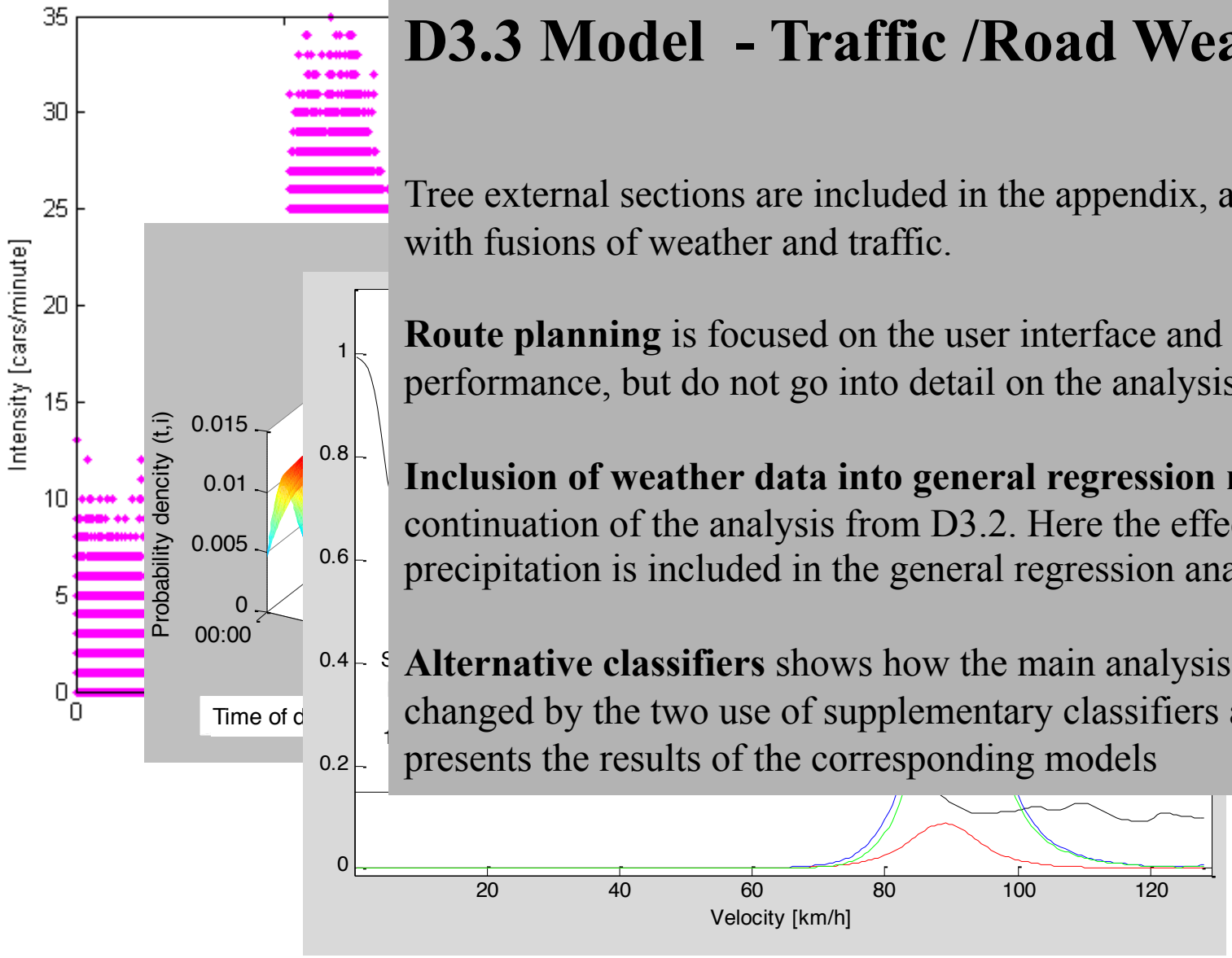
Second year results
WP 3.3 Data fusion - weather

A new innovation is to use the information about variations in traffic to detect effects by weather elements for example precipitation or slipperiness.



.... combine weather information with other data source is an especially challenging task....

D3.3 Model - Traffic /Road Weather



Tree external sections are included in the appendix, all dealing with fusions of weather and traffic.

Route planning is focused on the user interface and performance, but do not go into detail on the analysis.

Inclusion of weather data into general regression model is a continuation of the analysis from D3.2. Here the effect of precipitation is included in the general regression analysis.

Alternative classifiers shows how the main analysis can be changed by the two use of supplementary classifiers and also presents the results of the corresponding models

S-I-R-W-E-C

Second year results
WP 3.3 Data fusion - weather

The C!

The analysis shows that weather has an obvious impact on traffic and also that it is possible to build a model with the ability to recognize the weather (with weather history), which affects traffic in a negative way.

Results of WP 3.4
Road weather model development

…models are developed to calculate the prevailing road conditions

…. give information/warnings to road users

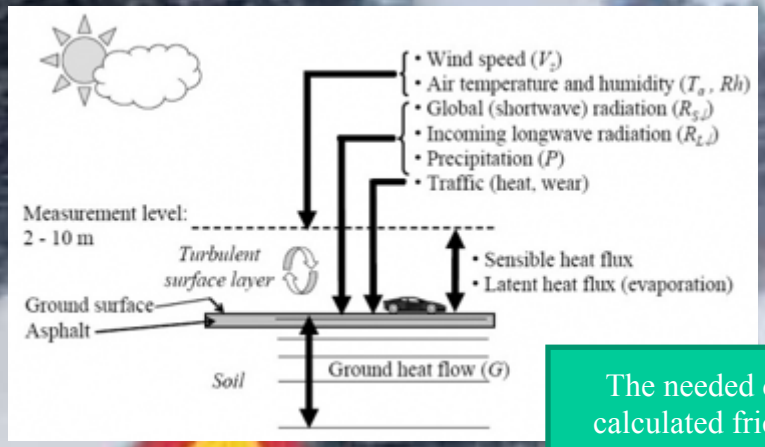
…implemented for test and for comprehensive evaluation and fine-tuning.

- PULP FRICTION
- FOG WARNING

Results of WP 3.4 Road weather model development

PULP FRICTION

The Model



The needed data for calculated friction are road surface temperature and the thickness of water/ice/snow on the surface.

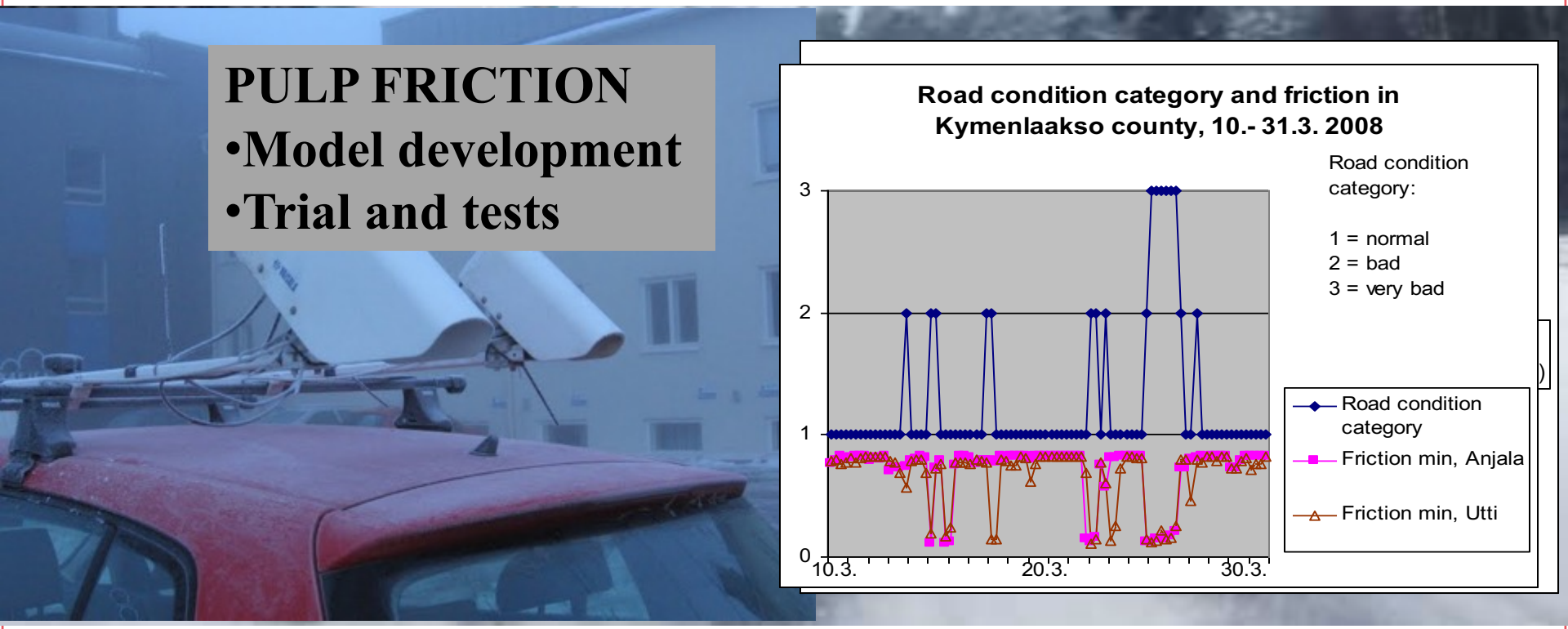
The friction formula is divided into three categories:

1. ice and/or snow on the surface
2. water on the surface
3. dry and clear road surface

The friction formula equations are:

1. A x f (Snow_mm + Ice_mm) + B x T_road + C
2. D x Water_mm + E
3. 0.82

Results of WP 3.4
Road weather model development



PULP FRICTION
- **Model development**
- **Trial and tests**

Results of WP 3.4
Road weather model development

FOG WARNING

FOG WARNING

Results of WP 3.4

How to construct a fog alert product?

The exact definition of the products coming from this fog model is not the main goal of WP3, but is rather to be pursued in WP6 for the pilot and WP8 for the evaluation. Nonetheless, a brief outline of what the fog alert products could look like is given here. The output of the fog model consists in four 2-D fields, one for the probability of fog (POF) and the probability of severe fog (POSF), along with the respective dependability.

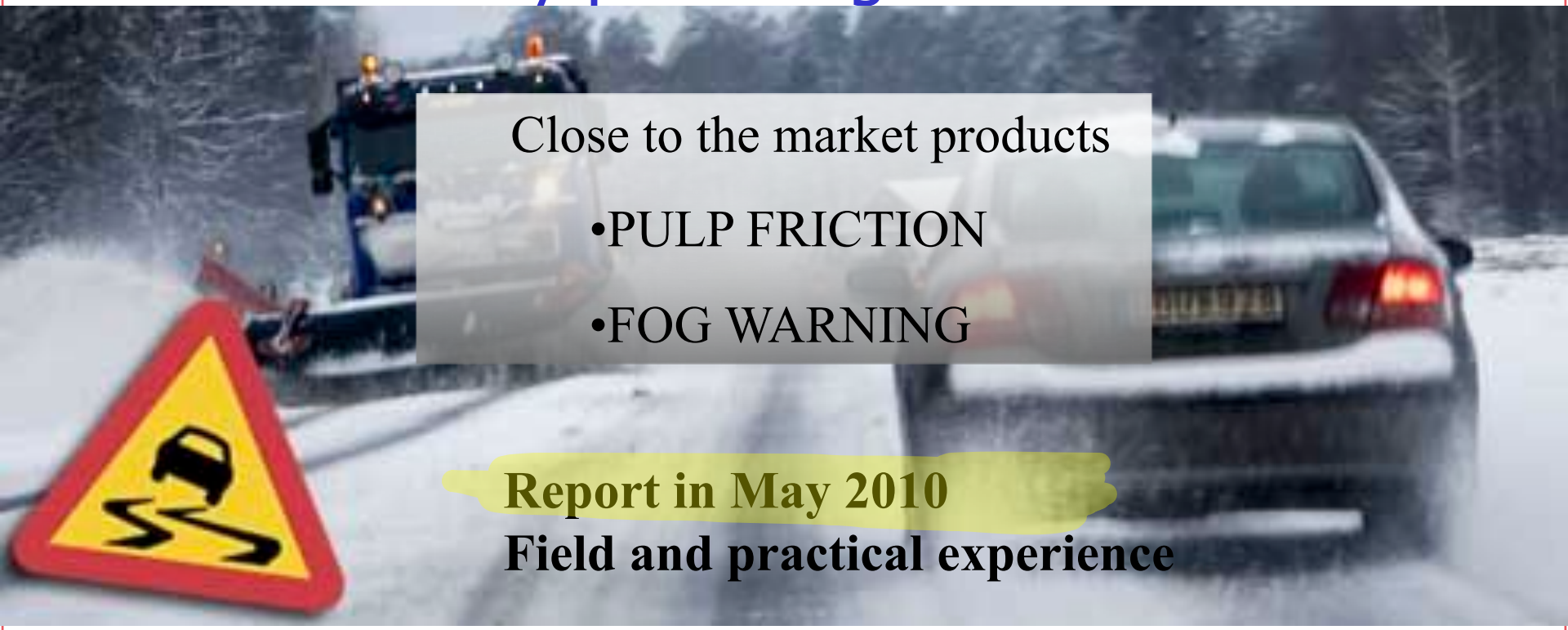
The palette of possible end user-geared products includes:

•Fog risk map with 80%, 50%, and 30% of POF/POSF interpreted as there 'will be' (80), 'can be' (50), 'will not be' (30) fog/severe fog; the maps can be smoothed as fit in order to have a graphical appeal;

•Fog risk map (as before), but with dependability information somehow overplotted; such a product would need to be discussed and fine-tuned with the end users;

•Fog risk map (as before) with additional information on the spatial characteristics of the fog, i.e. widespread fog, fog organized in banks.

Results of WP 3.4
The **C** !
Very promising indeed!



Close to the market products

- PULP FRICTION
- FOG WARNING

Report in May 2010

Field and practical experience

Thank You for your attention!

Contact information

Jörgen Bogren

jorgen.bogren@klimator.se

http://www.roadidea.eu/