



*Innovative Technologies for High-Speed Roads*  
*Moscow (Russia) - 13 October 2015*

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# Auditing Road at high speed

Luc-Amaury GEORGE,  
VECTRA, France

# Vectra in brief

- Devices and equipment manufacturer (under license of LCPC-IFSTTAR)



# Vectra in brief

- Road engineering with **own equipment**



15 devices



the new one (2015) : Multifunction Syman

# Network Level

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Survey to know and manage the network :

- To quantify network state
- To better plan
- To adjust maintenance policies

Need high speed devices, and the minimum is :

- Pavement distresses and deformation
- Picture of the road
- Skid resistance

# On the French toll Motorways

Syman



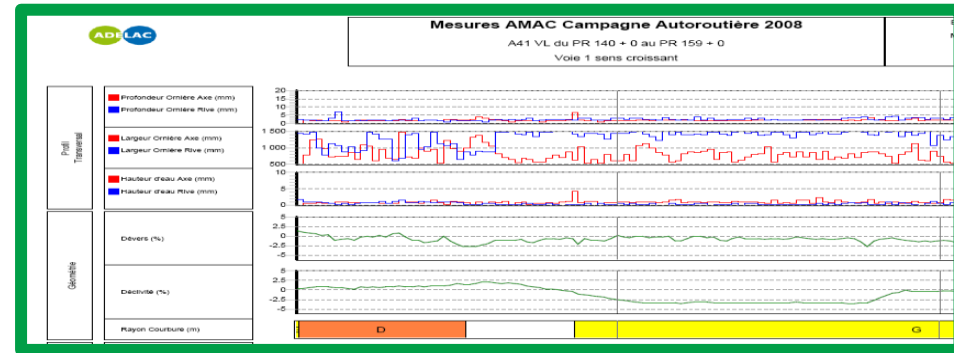
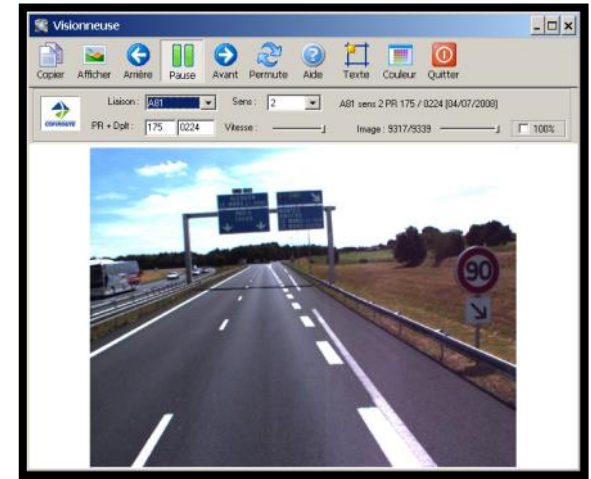
and Ecodyn

Scrim



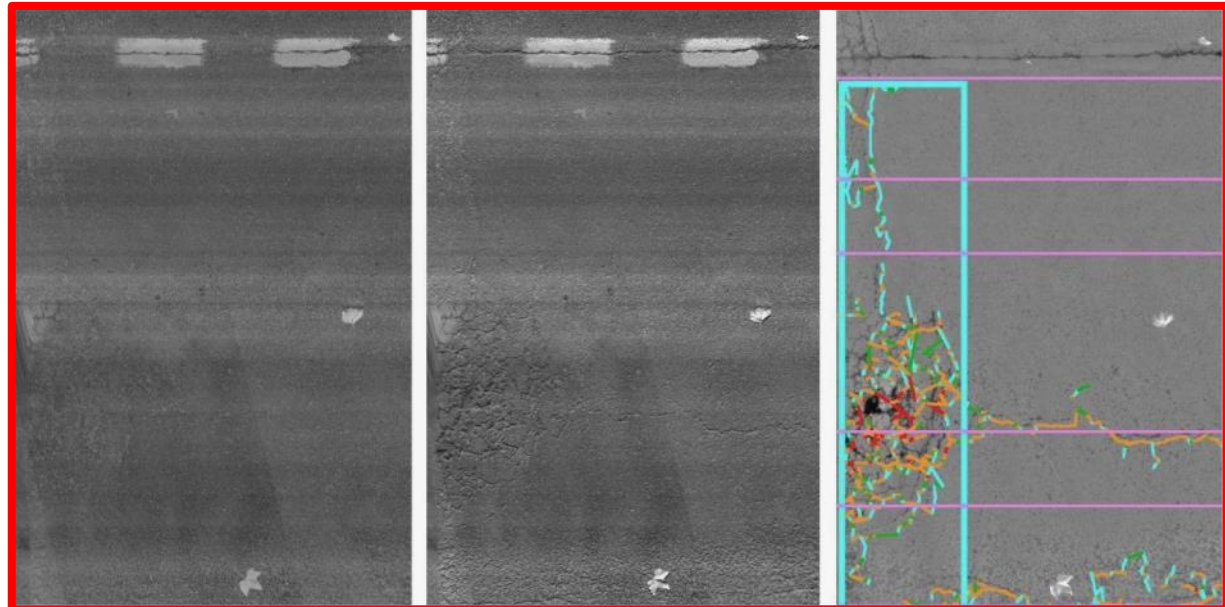
# What we do ?

- Data checking & interpretation
- Assistance to road owner
- Integration in PMMS
- Assistance to constructor



# Syman new (2015) multifunction device

- Distresses and transverse Profile by new 3D sensor (LCMS)
- long. profile (evenness) by laser,
- road imaging (picture data base),
- geometry,

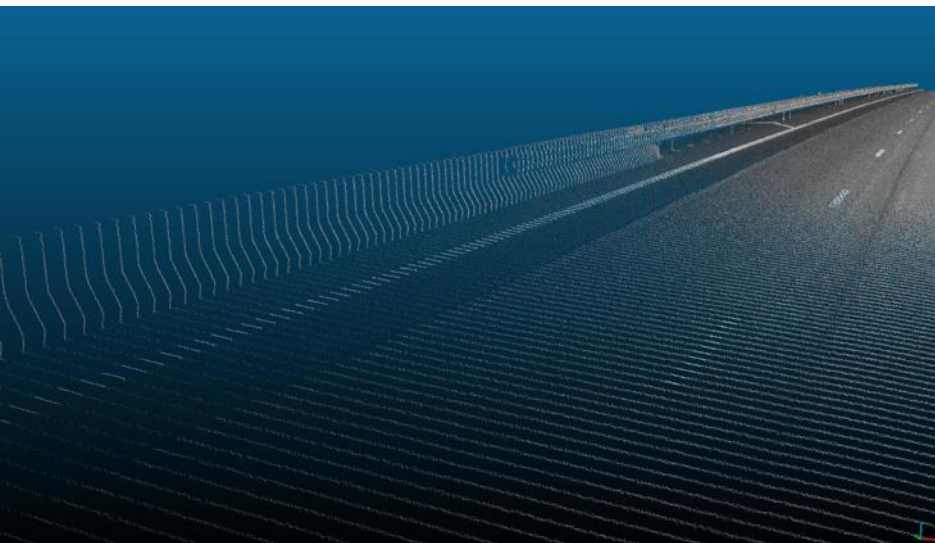


# And more with LIDAR 350 °

Whole transverse profile  
Height of safety barriers  
Bridge clearance

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At the traffic speed !





# SCRIM®

## SFC and Texture depth

Utility for road owner :

### Network Survey

- Skid resistance evaluation,

Work acceptance and initial survey.

- Control of wearing courses.



Speed 40 to 80 km/h  
usually 60 km/h  
Need water spaying

# ECODYN 1 & 3

## Road marking visibility

### Utility for road owner :

Survey of road marking,  
Work's acceptance.

### Uses and constraints:

- **No speed limit Ec3** (110 km/h Ec.1),
- 2 lines (Ec3) or 1 only (Ec1),
- Don't need protection,
- Sensible to weather conditions (no rain)

## ECODYN



# On others roads

ASTRA allows to measure or collect

- Data collection, or visual distresses
- Transverse profile (3.8m),
- Geometry,
- Road imaging (picture data base),
- long. profile & texture (option)

Differential GPS and  
length recording of course.



# Astra for regional roads



# And on others « roads »

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Skid Resistance of **runways**

& Operational measure  
in winter conditions



*Thanks for your attention*

[www.vectrafrance.com](http://www.vectrafrance.com)

# Appendix

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- Network level need high speed.

But

- Section level (Strengthening studies) need more data and other devices

# Section level

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Survey in order to maintain – short sections – works follow – needs more expensive data :

- Deflection
- Pavement description
  - Data base
  - Coring and GPR (pavement Radar)
- Distresses (done at network level)

High speed less useful here



# Deflection

## Utility for road owner :

- Strengthening studies –indispensable measure
- Pavement survey , evolution follow-up
- Detection of poor areas,
- Work acceptance and initial survey
- winter survey , weight limit during thaw conditions.



## Use and constraint

Heavy truck - speed (3.5 km/h),

Protection often needed

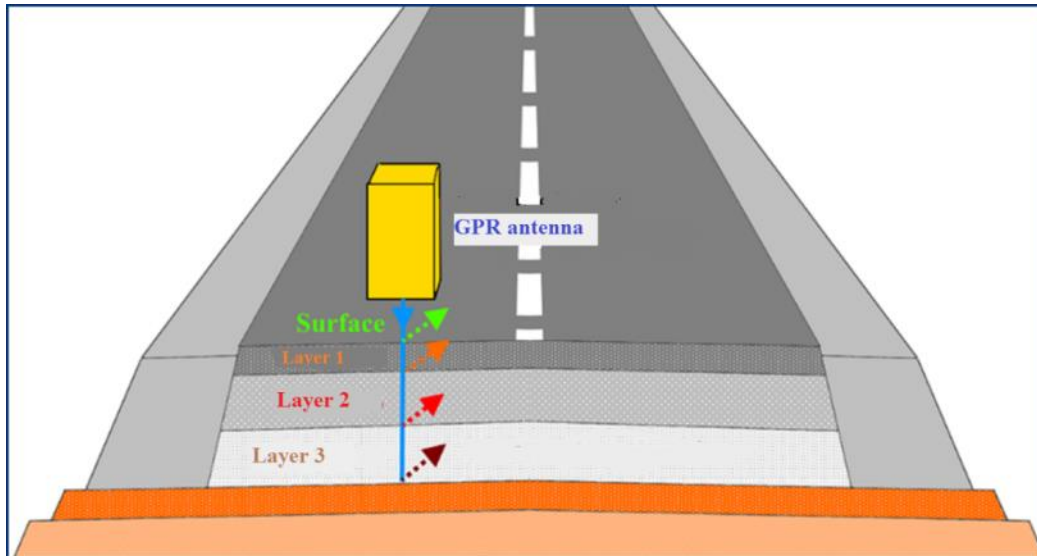
Pavement Temp. 5°C to 35°C

But insensible to weather conditions



# GPR

Continuous, nondestructive,  
measurement of layers thickness



Need some  
coring to  
calibrate



# GPR example

