



Topic

Surfaces – Contact & Interface

Laboratory

Environmental Assessment, Safety and Eco-conception

Department Planning, Mobility and Environment

Key points

- multi-scale analysis of roughness.
- interdisciplinary research (tribology, mechanics, statistics) associating experiments and modelings.
- consideration of change of scales (laboratory/road, measuring devices/real vehicles).

Aims

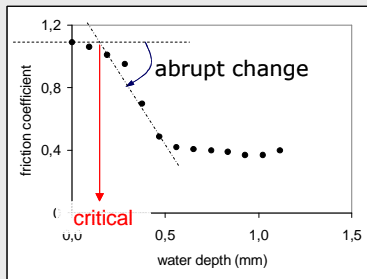
- understand and model phenomena related to contact, friction, wear and lubrication.
- develop applications to improve user's safety, optimize road maintenance and innovate road materials.

Research areas

- lubrication at tire/road interface: mechanisms, influencing factors.
- weather and road wetness.
- skid resistance evolution: traffic and climate actions.
- surface characteristics and rolling resistance.

Understand and model ...

Thin film traction



Variation of friction with water depth – Determination of a critical water depth.

Wear, vol. 302, 2013



... to develop

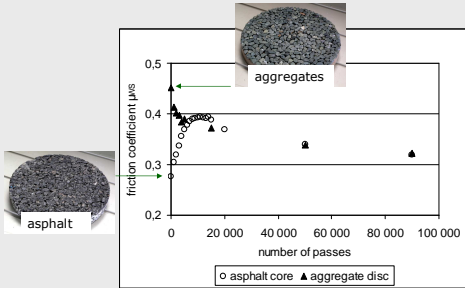
Driver information system



Experiments on RD786 (department of les Côtes d'Armor).

National project SARI/IRCAD (PREDIT, 2005-2009)

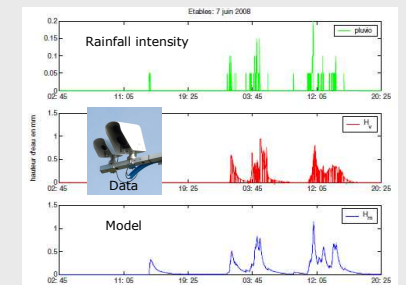
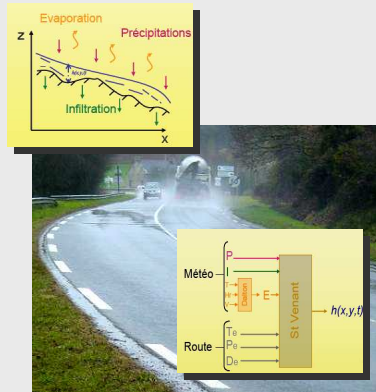
Polishing



Skid resistance evolution due to polishing: simulation in laboratory using the Wehner/Schulze machine.

Wear, vol. 263, 2007

Weather and road wetness



Prediction of water depths during and after the rain.

Int. J. Pavement Engineering, vol. 13, 2012

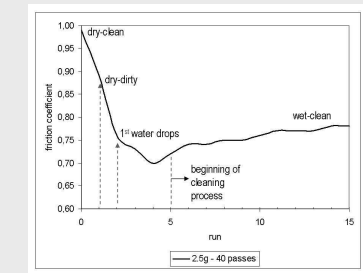
On-board friction estimation



Braking test on the reference test tracks at Ifsttar Nantes.

Patent Ifsttar-Renault (submission in 2013)

Contaminants



Laboratory test reproducing the variation of skid resistance of a contaminated surface before/after rainfall.

Int. J. Tribology Engineering, 2014

Harmonization of skid resistance measurement methods



Comparison of European friction measuring machines on the reference test tracks at Ifsttar Nantes.

European projects TYROSAFE (2008-2010) ROSANNE (2013-2016)

Collaborations



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