



Activity report PIARC Committee TC 4.2 Road/Vehicle Interaction

Bjarne Schmidt - Chairman of TC 4.2

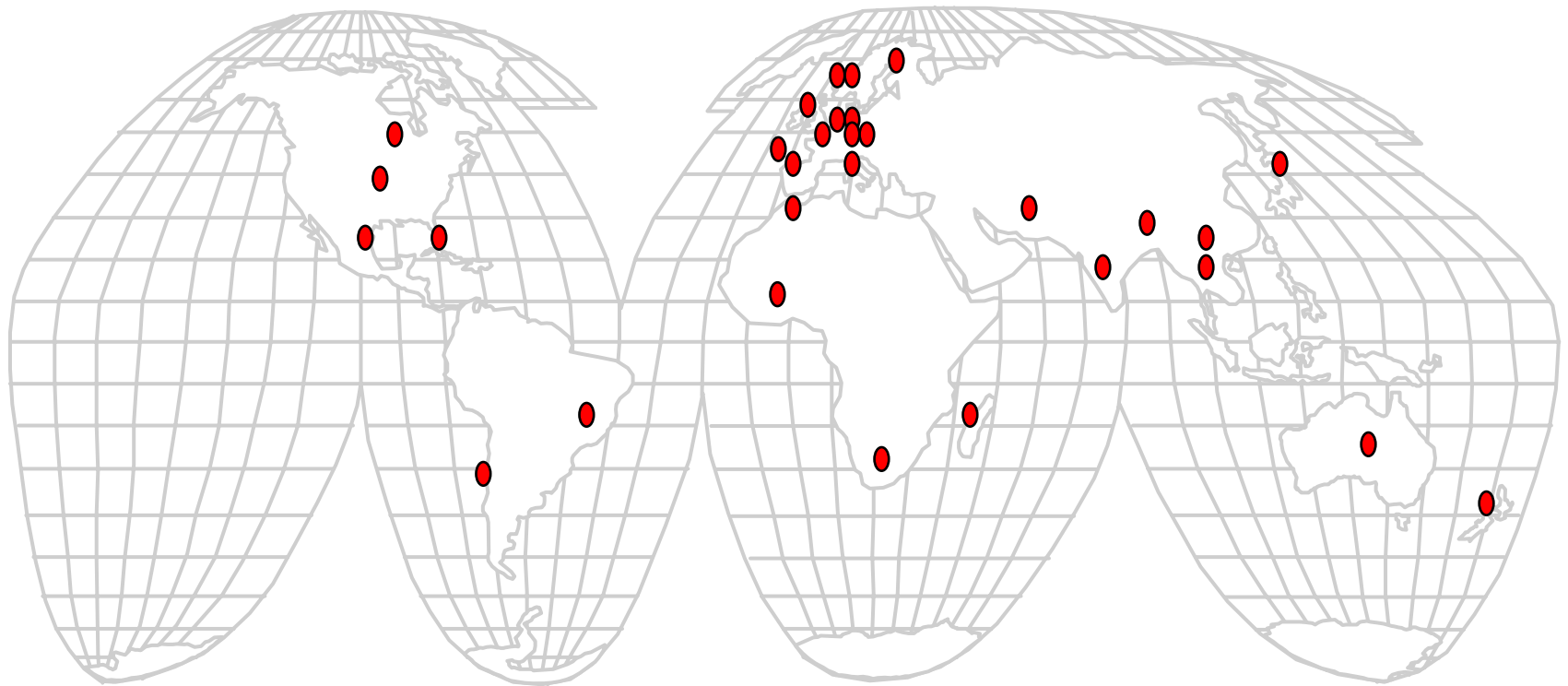


- **TC 4.1 Management of Road Infrastructure Assets**
- **TC 4.2 Road/Vehicle Interaction**
- **TC 4.3 Road Pavement**
- **TC 4.4 Roads, Bridges and Related Structures**
- **TC 4.5 Earthworks, Drainage and Subgrade**

PIARC Technical Committee TC 4.2 – Road/Vehicle Interaction

2004 - 2007

47 Members, 8 Corresponding members, 14 Associate members



The meetings of TC 4.2

Paris (France)	4 – 5	May	2004
Toronto (Canada)	10 - 11	June	2004
Washington DC (USA)	6 -7	January	2005
Rome (Italy)	6 - 7	October	2005
Bamako (Mali)	23 - 24	February	2006
Quebec (Canada-Quebec)	9 - 10	August	2006
Madrid (Spain)	19 - 20	March	2007
Paris (France)	17	September	2007

- **4.2.1 Having a 20 to 30-years vision of developments in vehicle and road pavement characteristics**
Review the possible evolution in private cars and trucks and impact of these changes on desirable characteristics for pavements
- **4.2.2 Reducing road noise**
Review new developments in vehicles, tyres, pavements and their interaction allowing to envisage a significant reduction in road noise
Harmonise methods to characterise road noise
- **4.2.3 Improving the description of pavement surface characteristics**
Continue the work on texture and skid resistance
Continue the work on automated cracking survey devices
Review recent practices in the use of surface condition measurement for acceptance of road works

Working group A:

Trends in vehicle-road interaction monitoring for design and management

Working group B:

Road Traffic Noise Emission

Working group C:

Continued Work on Texture, Skid Resistance and Evenness

Working group D:

Automated cracks measurement and unpaved road distress survey equipment

Working group E:

Advanced Road Works Acceptance Methods and Criteria

Working group F:

Organising the seminar for DC and CIT countries in Mali



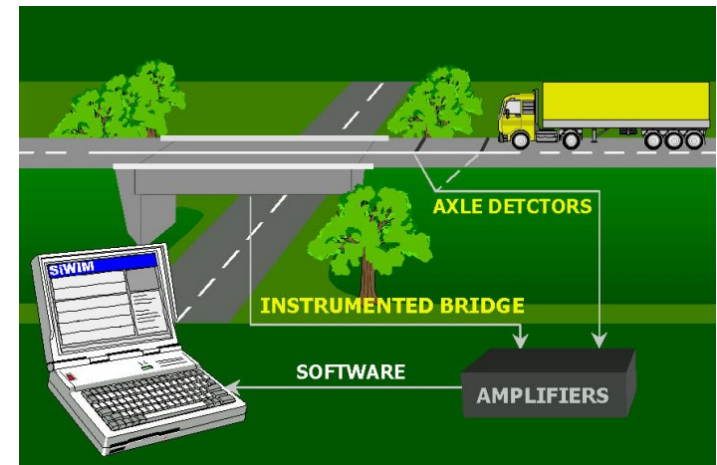
Working group A: Trends in vehicle-road interaction monitoring for design and management

Leader: *Dr Francesca La Torre, Italy*

The issue has been tackled focusing on two aspects:

- How are vehicles changing with respect to their influence on pavement design and management and where will they be in 20 to 30 years
- How can pavement managers keep track of these changes and consider them in pavement design and maintenance activities

Working group A: Trends in vehicle-road interaction monitoring for design and management



Working group A established two activities to address the different aspects

- For solving the issue on vehicle changes Working group A has organised a workshop, to be held on Thursday, September 20, involving vehicle, trucks and tyre manufactures, road managers, pavement designers and researchers.
- To have a clear picture of what are the tools and devices available or under development an inventory database has been set up by WGA.

Working group B: Road Traffic Noise Emission

Leader: *Mr. Manfred Haider, Austria*



- **Developments**
Review the recent developments and future prospects in vehicles, tyres and pavements influencing road traffic noise emission.
Establishing a state of the art of traffic noise reduction technologies at the source, identifying research needs, as well as identifying and recommending new promising global noise reduction strategies.
- **Harmonized measurement methods**
Review the current noise measurement methods,
Recommendation on strategies for their harmonisation
Support the integration of methods to achieve a standardised set of tools to characterize road traffic noise.

The work of Working group B raised the following questions

- International comparable acoustic road surface classifications
- Long-Term performance of low-noise road surfaces
- Adaptation of low-noise road surfaces to specify tyre and vehicle types
- Impact of noise emission reduction on the overall noise pollution as shown by noise maps
- Integration of acoustic parameters into road monitoring, maintenance and management

Working group C: Continued work on Texture, Skid resistance and Evenness

Leader: *Mr Ramesh Sinhal, United Kingdom*



➤ PIARC tyre specification

To secure the availability, reproducibility and proper use of the PIARC reference tyre for skid resistance testing

➤ Skid resistance and texture

To provide guidance on managing skid resistance: equipment comparisons, calibration methods, interpretation and use of results

➤ Evenness

To provide guidance on longitudinal and transverse evenness measurements and assessment



Working group C: Continued work on Texture, Skid resistance and Evenness

- PIARC tyre specification

- 1) Procedures to be followed prior to using a new tyre
- 2) Precautions to be taken when storing the tyres

The work of securing the quality of the PIARC test tyres are done by a special user group set up by TC 4.2. The user group has met 6 times during this term.

- Skid resistance and texture

For skid resistance and texture, strategies for managing surface condition to limit skidding accident, measurement techniques, relationship between skid resistance and accident, treatment options, cost effectiveness

- Evenness

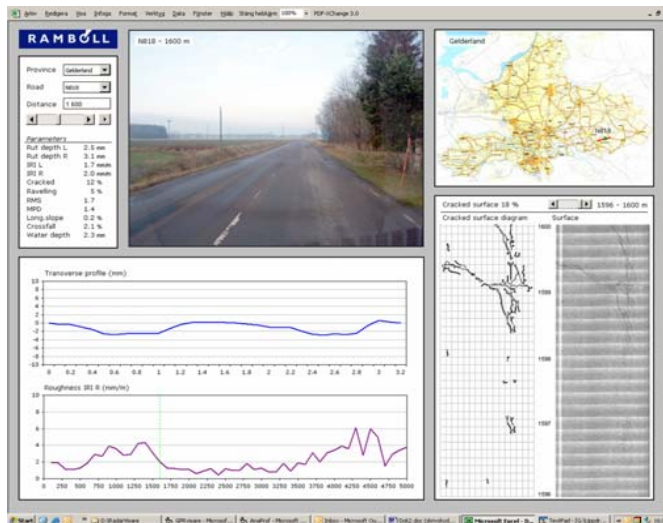
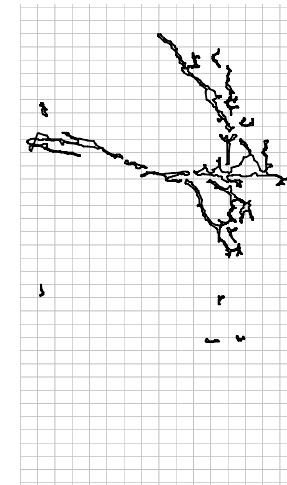
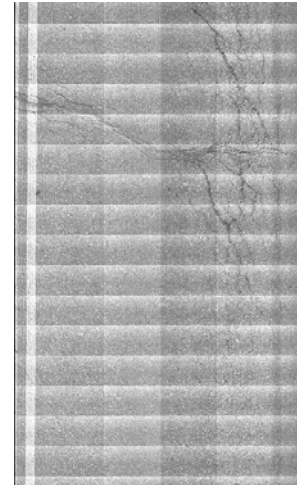
For evenness, strategies for managing evenness, influence of evenness, measuring techniques, interpretation and indices, treatment options, cost and benefits of managing evenness

Working group D: Distress measurements

Leader: *Mr Michel Boulet, France*

- Inventory of the methods to detect, to identify and to precisely describe roads cracks etc. with the aim to increase the reproducibility of their measurements
- Setting up a method or procedure to assess and to clarify the crack automated measuring devices with respect to their reliability (bias and repeatability)
- Inventory of the methods to characterise and to record surface distresses on unpaved roads, and of the appropriate survey equipment

Working group D: Distress measurements



Automated crack detection two reports from TC 4.2 WGD

ÉQUIPEMENTS AUTOMATISÉS
DE RELEVÉ DE LA FISSURATION
DES CHAUSSÉES -
ÉTAT D'AVANCEMENT
DANS LE MONDE

AUTOMATED PAVEMENT
CRACKING ASSESSMENT
EQUIPMENT -
STATE OF THE ART

01.08.8

Can be downloaded
from PIARC web site

Yet to be published

EVALUATING THE PERFORMANCE OF AUTOMATED
PAVEMENT CRACKING EQUIPMENT

Second Draft

WORLD ROAD ASSOCIATION (PIARC)
Technical Committee C1 + 2 on the Interaction Vehicle/Road

Updated: February, 4, 2007

WG-D Methods and equipment for inspecting unpaved roads

Report: Survey of monitoring methods for unpaved roads



- ❖ Far most commonly road of the world
- ❖ Often serve as primary roads between countries
- ❖ Primary routes for global commerce

However:

They do not always receive the attention they deserve from decision-makers





WG-E Advanced Road Works Acceptance Methods and Criteria

Leader: *Dr. John Emery, Canada*

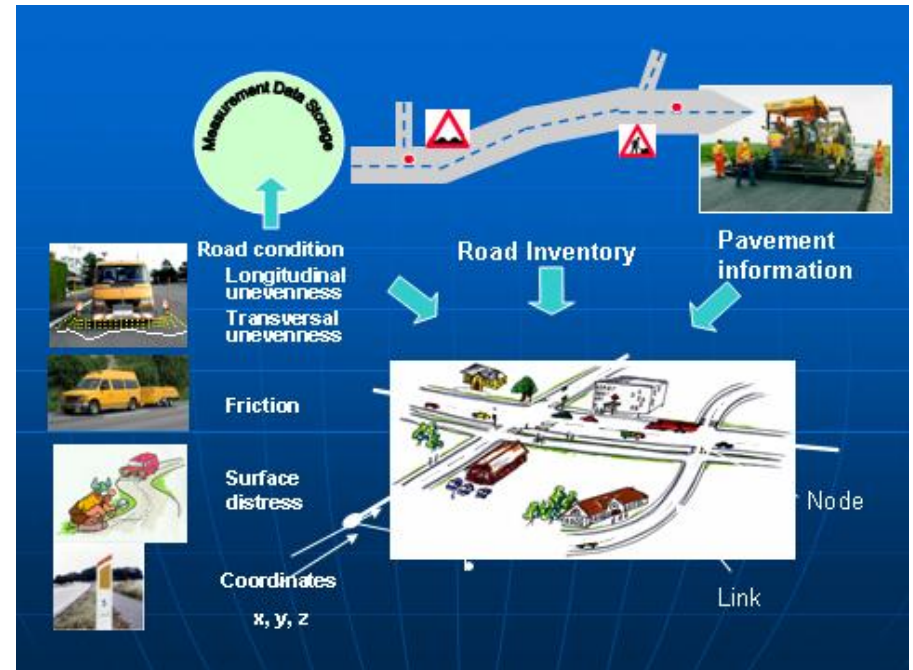
- Review of current practice
- Performance-based surface condition measurements
- Acceptance of road works and monitoring

WG-E Advanced Road Works Acceptance Methods and Criteria

Focus has been:

Performance-related surface condition measurements for parameters typically used for acceptance of road construction and maintenance, both short term and long term as Performance based contracts .

It includes measuring methods, methodology, quality and reporting.



Symposia and seminars

Fifth International Symposium on Surface Characteristics June 6. to 11. 2004 in Toronto Canada

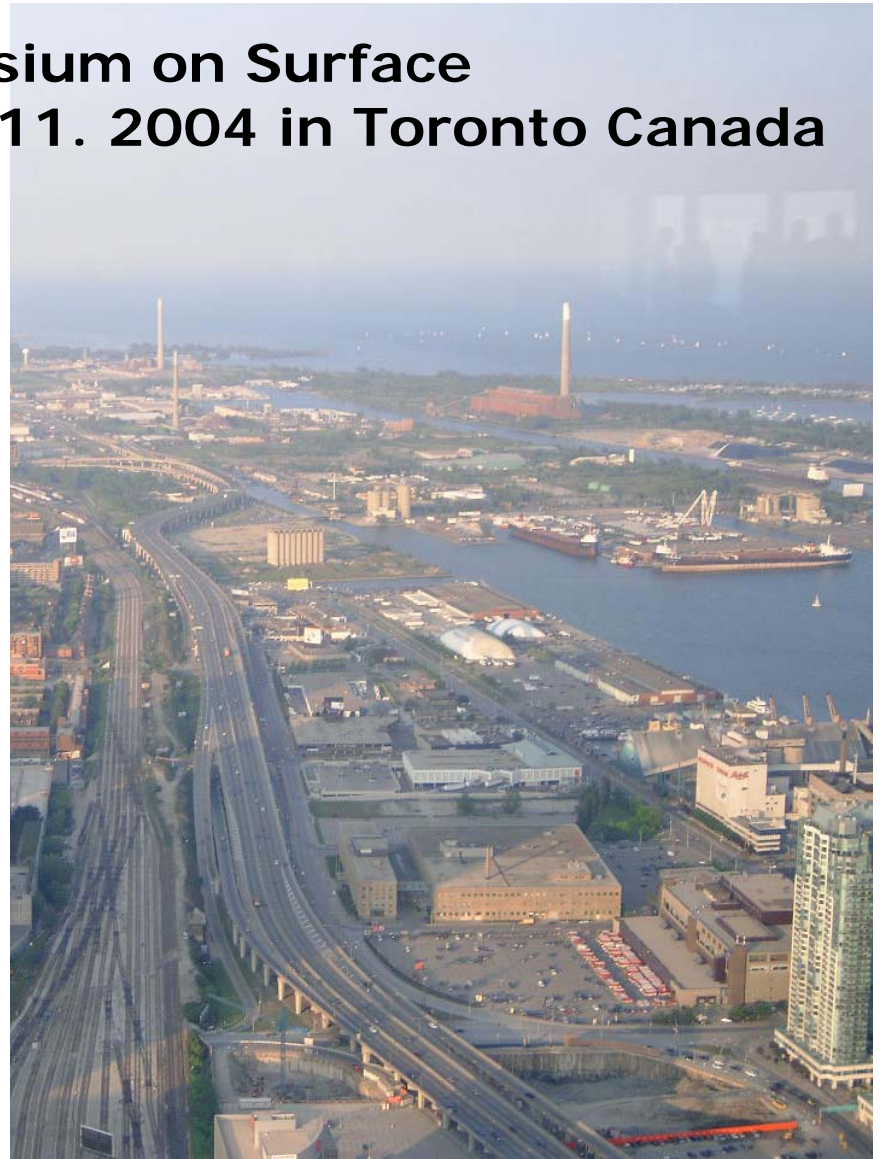
196 participants from 32 different countries

93 papers and presentations were given

Key issues:

Surfacing, Tyre/pavement response, achieving evenness, porous asphalts, airport pavements, making the best use of PIARC second international experiment EVEN

A preprint CD is still available from Jemery@jegel.com



Symposia and seminars

International Seminar Bamako, Mali, February 21 – 24 2006

Monitoring and Managing Paved and Unpaved Roads

100+ participants from Africa, Asia, North America and Europe

The program included:

Paved Roads

Unpaved Roads

A discussion workshop



Symposia and seminars

**International workshop on automated detection of pavement cracking,
Laval University, Québec Canada, August 13, 2006**

44 participants from 22 countries

The program included 13 presentations covering the following topic areas:

- Methods for detecting and quantifying cracks and other distresses from a standard perspective
- Current development in processing and analysis technologies – from the designer's
- Evaluation and qualification procedures for measuring systems

Symposia and seminars

WORKSHOP

Impact of Emerging Vehicle, Pavement and Monitoring Technologies on Road Vehicle Interaction: where will we be in 30 years?

Thursday 20th September 2007, ROOM 343

The workshop is in two parts:

From 9:00 – 12:00 – a closed session for invited experts

From 14:30 – 17:30 – an open session for WRC attendees

The issues to be discussed are:

- Effect on design and loading
- Effects on safety and road/vehicle communication
- Effects on pavement management and monitoring

Symposia and seminars

Coming up in October 2008 in Slovenia:

[english | français | espanol]

6th symposium on pavement surface characteristics



Association mondiale de la Route
World Road Association
National Committee
PIARC Slovenia

SURF 2008

SURF 2008 | EXTENDED Call for Abstracts

Portorož, Slovenia, Europe
21-23 October 2008

ABOUT THE SYMPOSIUM

Every 4 years PIARC organizes an international symposium on pavement surface characteristics for roads and airfields, so called SURF events. The first symposium was held at State College,



TOPICS

WHO SHOULD ATTEND

Individuals and representatives from:

Firms and Industry:

- Pavement Management Firms
- Road and communication infrastructure providers
- The automotive and tyre production industry

<http://www.surf2008.si/>

Production

Title	Publication	Author
5 th Symposium on Pavement Surface Characteristics	Surf 2004 Preprint CD	SURF 2004 Committee
Inventory of monitoring techniques for loading, speed, stress in motion, vehicle counts	PIARC Technical report	Members of TC 4.2 WG A
Road Traffic noise emission, Recent developments and future prospects	SIIV, Palermo	Members of TC 4.2 WGB
The Hermes project - A new Reference Devise	SURF 2004	M. Gothié
Specification for a standard test tyre for friction coefficient measurement of a pavement surface: smooth test tyres	www.piarc.org/fr/publications/rapports/	M. Gothié
Specification for a standard test tyre for friction coefficient measurement of a pavement surface: Ribbed test tyres	www.piarc.org/fr/publications/rapports/	M.Gothié
Use of PIARC test tyres for the characterization of skid resistance	Route/Roads 330	M. Gothié
PIARC test tyres representativity	Route/Roads 334	M. Gothié
PIARC test tyres	Paper for WRC	M. Gothié
Review of UK skid resistance Policy	Route/Roads 326	H. Viner R. Sinhal and T. Perry
Guidance on managing skid resistance and evenness	Paper for WRC	Members of TC 4.2 WG C
Guidance on managing skid resistance and evenness	Route/Roads January issue	Members of TC 4.2 WG C
Evaluating the performance of Automated Pavement Cracking Equipments	Technical Report	Members of TC 4.2 WG D
Survey of methods of monitoring unpaved roads	Route/Roads	Yves Provencher
Performance Indicators for Asset Management	Paper for Paris, 2007	J. Emery
Performance-based Surface Condition Indicators for acceptance of Roads Works and Transportation Asset Management Activities	Technical Report	Members of TC 4.2 WGE