

ISWIM NEWSLETTER

Message from the ISWIM president

Dear Readers,

Welcome to the third edition of our newsletter for 2018.

The International Society for Weigh-in-Motion (ISWIM) comprises three broad stakeholder groups, namely end users, researchers/ academics, and vendors. All of which have one fundamentally common dimension, namely awareness of the importance of mass information and its associated collection through dynamic systems be they on or in the road or within the vehicle.

It is pleasing to see that all three stakeholder groups are presented in this edition of our newsletter and representing the four corners of the globe.

I know it is particularly pleasing for the ISWIM Board to be able to offer scholarships to young persons who are starting in their chosen field. It is extremely pleasing with respect to the number of applications received that we will be honoured with younger members attending the International Conference for Weigh-in-Motion in Prague in May 2019.

Whilst on the subject of our forthcoming International Conference, I urge you to seriously consider attending and to promote the Conference within your organisation. This is not an annual event, this event occurs once every three to four years and deliberately so to capture significant milestones in the journey of Weigh-in-Motion. This year will specifically see a series of sessions specifically aimed at the end-users which will highlight the use of this technology which is critically important as knowing the mass of the vehicle has significant productivity and safety consequences.

I urge you to register for our conference in Prague (May 2019) and look forward to seeing you all there. Happy reading and as always available for a chat or a discussion through our LinkedIn Connection.

President – ISWIM
Chris Koniditsiotis

■ [Chris Koniditsiotis](mailto:ChrisK@tca.gov.au) | ChrisK@tca.gov.au

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New Young Researcher Award

This award recognises young tertiary level students from around the world who are making a contribution to the Weigh-in-Motion (WIM) field and are demonstrating a passion through their studies and possibly early professional life.

ISWIM will fully sponsor at least three recipients to attend the 8th International Conference on WIM (ICWIM-8) in Prague next year to present their work (poster paper or oral presentation), visit the exhibition, and further develop their industry knowledge and global network.

Applications have been received from a number of very qualified young scientists. The evaluation committee is currently reviewing the applications and will notify the winners in January 2019.

■ [Lily Poulikakos@empa.ch](mailto:Lily.Poulikakos@empa.ch) | Lily.Poulikakos@empa.ch

New Matching Algorithm between WIM and ANPR.

WanJi has developed a specific matching algorithm for WIM Direct Enforcement to guarantee a high matching rate between weight measurements and ANPR results. Traditional high-speed WIM system often only use loop detectors to trigger ANPR and match WIM result based on the vehicle passing time. This design has three major matching problems that will reduce the matching accuracy rate down to around 83%:

1. When a vehicle driving in the two lanes middle, the system could misinterpret it as two vehicles passing the system;
2. When two vehicles pass the WIM system together, the system could identify only one vehicle or mismatch the plate numbers;
3. When one vehicle follow another vehicle closely and pass the system, the system could only identify one vehicle and recognize only one plate.



Triple matching of WIM and ANPR result, China.

International Conference on Weigh-In-Motion, ICWIM8

The 8th International Conference on Weigh-In-Motion (ICWIM8) will be held in Prague, Czech Republic from 19-23 May 2019. After North and Latin America the conference comes back to Europe, and for the first time in Central Europe. ICWIM8 is organised by ISWIM and the Czech Transport Research Centre (CDV).

ICWIM8 will be held as a series of scientific and technical sessions, a few panel discussions and some "end-users' forums" where the end-users will get information about the best practices and the application of WIM data, and WIM vendors and consultants will present their solutions.

The conference is designed to address the broad range of technical topics related to heavy vehicles and weight and size measurement systems, providing access to current research and best practices, freight analysis, and related policy issues. It is a multi-disciplinary, inter-agency supported event..Its objectives are:

- Provide an international forum for WIM technologies, WIM standards, research, policy, operations and applications.
- Facilitate the meeting of manufacturers and users in an exhibition of WIM systems, sensors and related technologies.
- Review new developments since the last International conference ICWIM7, held in Brazil in 2016.

More information on the conference can be found at: www.is-wim.org/icwim8/

The new WanJi algorithm achieves a matching accuracy rate between plate number and vehicle weight of 99.5%. In the new system, at first the loop detectors only trigger signal for bar weighing sensor as well as send ending signal when the vehicle pass through WIM system. Secondly, the bar weighing sensor would generate specific identification number (ID) for each vehicle when the vehicle drives across the bar weighing sensor. The ID would be labeled in the plate recognition to guarantee matching result accuracy. The traffic agency could be more efficient and effective base on ID to achieve effective and legitimate weight direct enforcement..

■ **Zhao Zhao** | zhaizhao@wanji.net.cn

SATC-ISWIM Weigh-In-Motion Workshop

As part of the 37th annual Southern African Transport Conference (SATC) ISWIM has organized a Weigh-In-Motion Workshop. The workshop was held at the CSIR Convention Centre, Pretoria, South Africa on Thursday July 12th 2018. The objective of this Weigh-In-Motion workshop was to offer an international overview of the latest developments in the applications of WIM technology to a southern African audience.



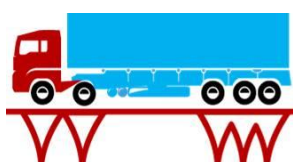
Speakers at the SATC – ISWIM Workshop, South-Africa

The programme consisted of a mix of presentations on the latest developments in the use of weigh in motion systems by key note speakers from South-Africa (SANRAL, Static Motion and CSIR) and around the world (Nmi (NL), Labtrans (BR), TCA (AUS) and Corner Stone (CH)). This was combined with concrete examples of successful implementations of WIM systems by a number of ISWIM vendors (Mikros (SA), IRD (CAN), Intercomp (USA), Kapsch (AU))

The workshop saw more than 50 participants mainly from South Africa and a number from other southern African countries.

■ **Rob Sik** | rob@mikros.co.za and

■ **Hans van Loo** | hans.vanloo.int@gmail.com



ISWIM
International Society for Weigh in Motion

ICWIM8, continued

Who should attend:

- Researchers in WIM technologies, WIM data analysis, vehicle-road or railway interaction and freight logistics.
- Manufacturers, vendors and users of WIM systems, data, or related equipments and services.
- Policy makers and agencies responsible for heavy vehicle operation and control, weight and size enforcement, road and railway infrastructures design, construction and maintenance.
- Agencies that use weight information to support freight mobility, safety and road pricing.
- PhD and post-doc students in freight transport and road infrastructures.

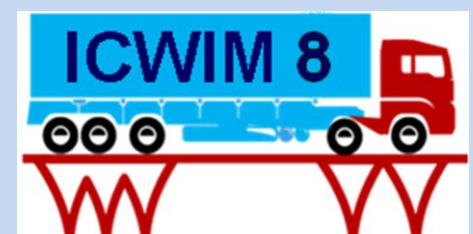
Registration type	Fee*
Delegate	€500,-
Student	€250,-
One Day	€250,-
Accompanying person	€150,-

*Early Bird, untill February 15th, 2019

More information on the conference can be found at:
www.is-wim.org

Or contact:

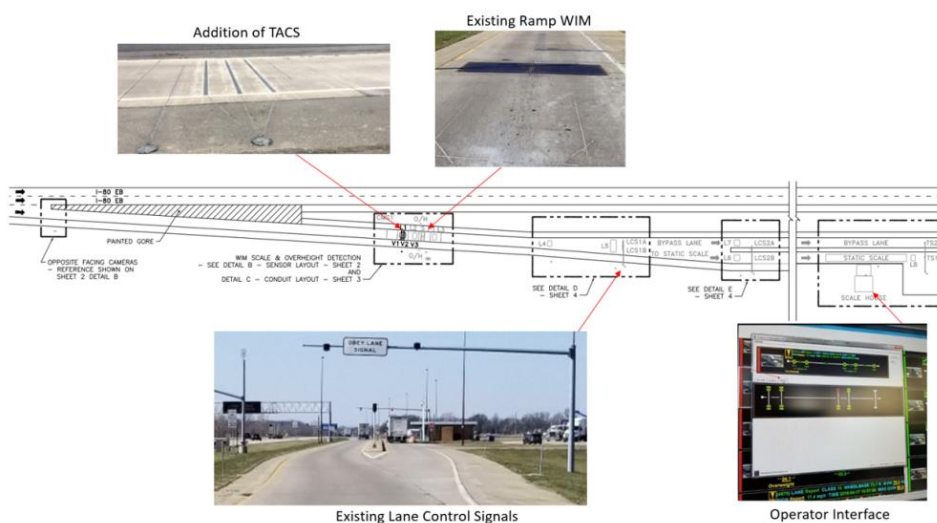
■ **Bernard Jacob** | bernard.jacob@ifsttar.fr



IRD implements WIM and TACS for IDOT, USA

International Road Dynamics Inc. (IRD) is helping Illinois Department of Transportation (IDOT) improve commercial vehicle safety at inspection stations in the state. IRD is integrating the Tire Anomaly and Classification System (TACS™) into existing weigh-in-motion systems to provide additional safety screening on weigh station ramps.

IDOT uses IRD's WIM systems in advance of their inspection stations and on the ramp approaching the static scales to screen for overweight vehicles. Trucks have the opportunity to bypass inspection at both locations ahead of the weigh station if their WIM weights are less than the maximum allowable weights. IRD's SLC WIM scales are used at the ramp location to maximize accuracy and ensure longevity of the systems.



IDOT Ramp WIM Components

Each commercial vehicle entering the ramp is screened using TACS. IRD's WIM software also displays tire types and highlights any anomalous tires, such as flat or missing tires, on the software display. Additionally, the software automatically controls signals to direct commercial vehicles with tire anomalies to report for inspection.

IDOT has been impressed with the performance of the system and presented the new technology for other agencies in the recently concluded 2018 Commercial Vehicle Safety Alliance conference.

■ **Rish Malhotra** | Rish.Malhotra@irdinc.com

TCA Type-approves first OBM systems

Australia's approach to OBM systems has been of significant interests to key representatives from international markets. TCA has received more than five applications for type-approval of OBM systems. During August, we type-approved two OBM systems from two separate suppliers: Loadmass Pty. Ltd. (www.loadman.com.au) and Tramanco Pty. Ltd. (www.tramanco.com.au). TCA congratulates both suppliers for being first with type-approved OBM systems.

Coming events

Intertraffic Mexico

Mexico City, Mexico

Nov..13-15, 2018

www.intertraffic.com

Gulf Traffic

Dubai, UAE

Dec. 3-5, 2018

www.gulftraffic.com

TRB Annual Meeting

Washington DC, USA

Jan 13-17 2019

www.trb.org

8th International Conference on WIM

Prague, Czech Republic

May 19-23 2019

www.is-wim.org

CVSA Annual Conference + Exhibition

Biloxi, Mississippi, USA

September 22-26, 2019

www.cvsa.org

PIARC, 26th World Road Congress

Abu Dhabi, UAE

Oct. 6-10, 2019

www.piarc.org

26th ITS World Congress

Singapore, Singapore

OCT. 21-25, 2019

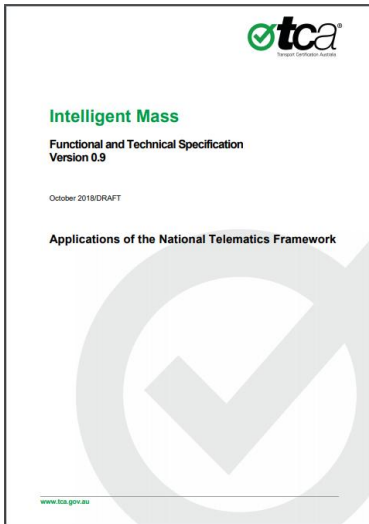
www.itworldcongress2019.com

If you know other WIM-related event please contact:

■ **Hans van Loo** | hans.vanloo.int@gmail.com



Building on the type-approval of OBM systems, TCA has also released the draft specification for a new Intelligent Mass application. The draft Intelligent Mass Functional and Technical Specification contains the performance requirements that need to be met by technology providers to deliver the application, as well as the interactions between participants, and TCA invites your comment.



Intelligent Mass also enables vehicle mass and configuration data to be linked with other telematics data (such as location, time and speed) for a range of purposes. OBM systems and intelligent mass are also leading to changes in the interaction between vehicles and Australia's road infrastructure.

By allowing reductions to bridge loading calculations, Intelligent Mass monitoring allows infrastructure managers to reengineer the 'use' of road infrastructure, without resorting to capital upgrades to bridge infrastructure.

At a network level, this has the potential to reshape access arrangements for higher productivity vehicles. Coupled with the ability to apply different levels of assurance, the Intelligent Mass application is intended to cater for a diverse range of stakeholders who need to manage vehicle mass loading by using telematics.

■ **John Gordon** | JohnG@tca.gov.au

Multiple WIM Site Testing in Argentina

As a manufacturer of scales and sensors, Intercomp Company appreciates the opportunity to work with different partners around the world integrating our weighing products. In Argentina, ATSA (American Traffic SA) recently conducted an evaluation of multiple WIM sites incorporating Intercomp sensors.



Traffic at Multiple Sensor WIM system, Argentina

Conducted over several days, a two-axle truck weighing either 14,200 kg or 16,690 kg (via static scales) was run over seven different WIM sites. Each site

ISWIM Vendors

Axtec

www.axtec.co.uk

Betamont

www.betamont.sk

Camea

www.camea.cz

Captels

www.pesage-captels.com

Cestel

www.cestel.eu

Cross

www.cross.cz

ECM

www.ecm-france.com

Haenni

www.haenni-scales.com

Intercomp

www.intercomp.com

IRD / PAT Traffic

www.irdinc.com

Kapsch

www.kapsch.net

Kistler

www.kistler.com

Mikros

www.mikros.co.za

Sterela

www.sterela.fr

TDC / Q-free

www.tdcsystems.co.uk

TE Connectivity

www.te.com

Traffic Data Systems

www.traffic-data-systems.net

WanJi Technology

www.wanji.net.cn

Wheelright

www.wheelright.co.uk

■ **Andy Lees** | andy.lees@tdcsystems.co.uk

■ **Hans van Loo** | hans.vanloo.int@gmail.com

experienced between 30-38 vehicle runs to gather a meaningful data set. All sites were of a two-sensor "data collection" configuration but also included cameras and remote monitoring functionality.

Intercomp is pleased to report site performance ranging from 3.65%-7.63% GVW (95% CI) and 5.23%-10.30% axle weights (95% CI). COST 323 B(10) performance is expected for two-sensor installs, and for this dataset and two-axle vehicle, all sites met B(10), 6 of the 7 met B+(7), and 4 of the 7 met A(5) performance.

Since many countries are looking to employ WIM technology in various applications and enact legislation, having access to successful in-country performance data will help facilitate WIM adoption in the future. If readers are attending Intertraffic Mexico during November 13-15th, Intercomp invites ISWIM members to visit booth 829 to view our WIM scales and sensors.

■ **Jon Arnold** | jona@intercompcompany.com

KiTrafic Statistics; WIM with subsurface sensor

At Intertraffic 2018 in Amsterdam Kistler presented the new WIM system KiTrafic Statistics to enrich count & classify data with weight information for cost efficient traffic data collection. The system includes the Kistler Data Logger in combination with the world's first subsurface quartz sensor, Lineas Compact, in a staggered layout.



The Lineas Compact subsurface sensors are based on the 20 years proven and unique Lineas quartz technology. The new sensors are installed 20 mm below the road's surface. This drastically increases the lifetime of the sensor.

Kistler's Lineas Compact subsurface sensor

First Lineas Compact subsurface sensors were already installed in Switzerland and in the USA. There, KiTrafic Statistics provides reliable GVW data with an accuracy of better than 15%.

Prior to these first effective road installations, Lineas Compact subsurface sensors successfully passed extensive qualification testing. Installed on a special test bed, Lineas Compact subsurface withstood load cycles representing more than five years of real traffic conditions. All specifications were also met at extreme temperatures of -40 to +80°C as well as during exposure to corrosive substances. In addition to Lineas, the world's most popular quartz sensor with more than 50'000 pieces installed in 50 countries, Kistler now provides its new Lineas Compact subsurface sensor as part of KiTrafic Statistics, the cost effective WIM system for various applications such as traffic counting, data collection and bridge protection.

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