N°5 - 10/2003

osmos NEWS

Editorial

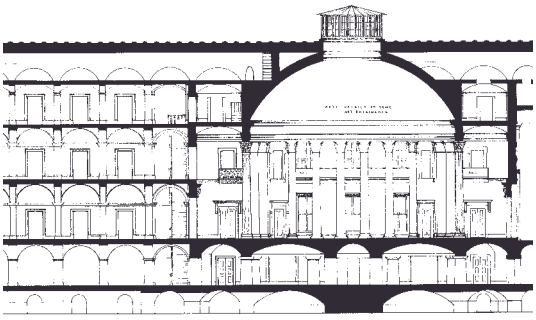
Urbitran joins OSMOS

Bernard Hodac, CEO of the OSMOS Group

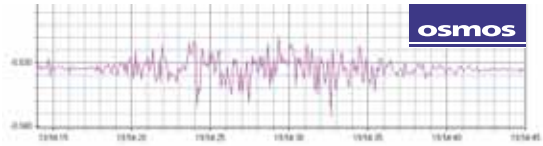
Once again, we are proud to welcome a new affiliate. Urbitran, a key player in urban infrastructure, was founded 30 years ago and is based in New York.

It will be adding a new essential service to its customers - the OSMOS structural monitoring.

OSMOS is constantly working on new applications. This month we are pleased to announce the commercial launch of our patented Weigh-In-Motion System that transforms any bridge into a scale, and should become a standard tool in any road traffic management system.



The way taken by the optical link cable on the rotunda is totally invisible.



Subway passage effect on Federal Hall foundations.

Latest News

Federal Hall National Memorial

Detail of an optical strand on angle.

Optical strand on the whole width of a lintel.

One of the 4 optical strands of the global tiltmeter.

Cabled X-Trigger as a crack meter.

A new Index in Wall Street: Delta L

Right in the heart of Wall Street stands Federal Hall, one of Manhattan's oldest buildings. It was on this very site that George Washington took oath in 1789. This impressive neo-classical construction was home to the first fiscal administration of the USA and today accommodates a National Museum.

The award to OSMOS of the contract to carry out the permanent structural monitoring of Federal Hall was the result of an international tender organized by US National Park Services and Einhorn Yaffee Prescott, the US engineering company.

Over the years, the numerous building projects around Federal Hall, as well as the construction of a subway passage very close-by in 1938, have caused subsidence to this solidly built edifice which in turn has led to structural damage on some interior walls of the building.

Discreet optical strands, one OSMOS Tilt Meter as well as ten Cabled X Trigged used as Crack Meters will enable immediate recognition of changes in the building's behavior at all times and will allow a timely intervention in order to prevent further structural damage.

Due to the discreet installation, the many visitors to one of the most significant historical institutions of the US will not even realize that Fed Hall is being monitored.

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NATIONAL PARK SERVICE

Church of la Souterraine

OSMOS raises the alarm

In May 2002, a visual examination pointed to an incline in the belfry of the Church La Souterraine.

The authorities, fearing that the foundations may not be solid enough, launched a tender to find a solution which was both technically and financially acceptable.

By May 2003, the church had been monitored for about one year when suddenly a significant change to its usual behavior occurred. The OSMOS safety system signaled a sudden move by the belfry towards a residential and commercial area and as a result seventy buildings were evacuated. During repair work, the monitoring system operated constantly in dynamic mode to get instant information about the newly gained stability and to make sure that the repair work was carried out with all necessary care. Thanks to OSMOS, the structural deformations were spotted in time.

By July 2003, two months after the event, the Church had been stabilized. The OSMOS monitoring of La Souterraine continues.

During repair work, the monitoring system operated constantly in dynamic mode to get instant information about the newly gained stability and to make sure that the repair work was carried out with all necessary care.

Miyagi landslide

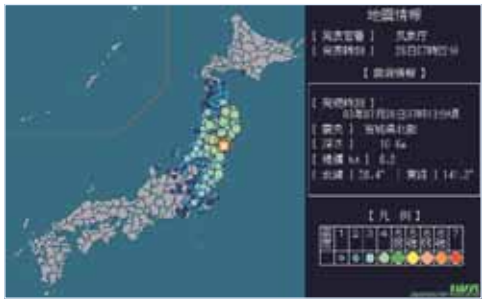
The monitoring is based on the OSMOS technology

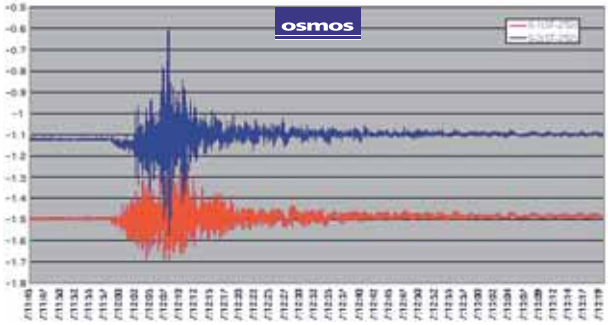
The capital of the Miyagi prefecture is located in the hills of North East Japan, close to the Pacific Ocean.

Because the area is subject to seismic activity, as well as to heavy rain, landslides occur frequently - presenting a constant danger to habitation and to a national road. The authorities in charge (Preservation of National Roads) decided to monitor the area.

JGC, the OSMOS licensee for Japan, equipped the zone with optical strands linked to the monitoring station.

This data is sent at all times via satellite to the contractor in order to enable the immediate triggering of alarms if necessary.





Earthquake of 07/26/2003.

Miyagi Prefecture

Murrtal Viaduct in Baden-Würtenberg

TÜV-OSMOS increases the longevity of the structure

Our licensee for Germany, the TÜV, was asked by the Government of Baden Wurtemberg to permanently monitor the Murrtal viaduct.

This viaduct was built in 1949 by the Allies. It was purposely a weak structure so that it could not bear the load of heavy military vehicles and was supposed to be replaced by a more solid structure in 2004. The recent increase in traffic makes monitoring a necessity in order to guarantee the safety of travelers. It also allows the intelligent managing of public finances as any damages can be spotted at an early stage. TÜV has installed 16 sensors on this bridge : Temperatures sensors, 4 Exlarge, 4 extensometers and 8 optical strands.

OSMOS-WIMS installed on the Viaduct of Murtall (See p4) Above, one of the WIMS sensors.

Monitoring station connected to the OSMOS Internet databank server.

Extensometer on an expansion join.

2 of the 4 Ex-large.

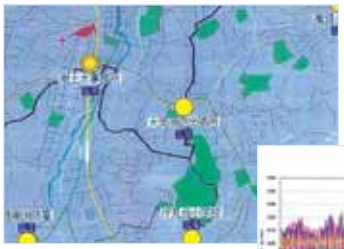
The Government of Baden-Würtemberg has chosen a solution that protects both bridge-users and taxpayers interests.

Yokohama giant TV antenna

Costly repair works avoided thanks to OSMOS

NTT Docomo, the leading Japanese mobile operator, wanted to install an additional parabolic antenna on the Yokohama TV Tower. This could have caused a stronger exposure of the structure to the action of wind. As the real impact on the structure was unknown, Yokohama TV Company might have had to fortify the new antenna expensively - which could have made the undertaking unprofitable.

JGC came up with an elegant solution. Four optical Extensometers were installed before the mounting of the additional parabolic antenna and the normal behavior of the tower was recorded. This old data is now constantly compared to the new data which is being recorded after the installation. This enables JGC to spot abnormal behaviour in time and to intervene if necessary. Thanks to OSMOS, expensive preemptive reinforcements were not necessary.



Earthquake effect on the giant antenna structure.

Installation of an optical extensometer by a JGC technician.

OSMOS WIMS

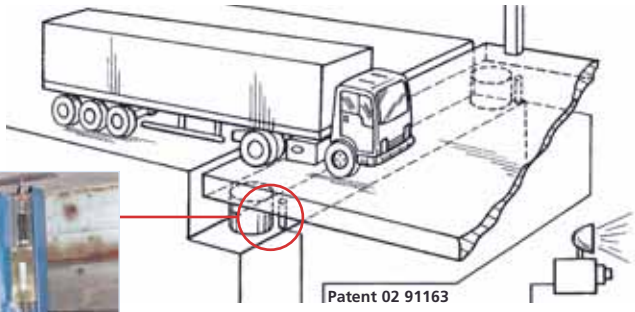
Capture moving loads on the road network every time

Dr. Jürgen Braunstein
Production and Development Manager

The OSMOS Weigh-in-Motion-System turns every bridge into a set of precision scales.

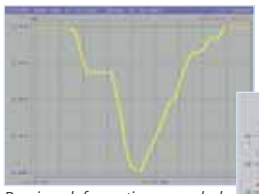
***A** lorry crossing a bridge is a very common sight. Unfortunately, it is just as common for the 40 tonne lorry to be well over the 20 tonne weight limit. The wear and tear on the road surface in such cases is not in proportion to that caused by lighter vehicles. Rather than 40 times as much, it is more like 9000 times.*

OSMOS WIMS sensor.



A vehicle drives across a bridge from the first line of bearings.

Thanks to the new OSMOS-Weigh-in-Motion-System (WIMS), every moving load can be recorded automatically as it passes over a bridge. And this is done without the need to stop or even slow down.



Bearing deformation recorded by the OSMOS sensor.

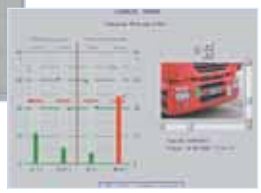
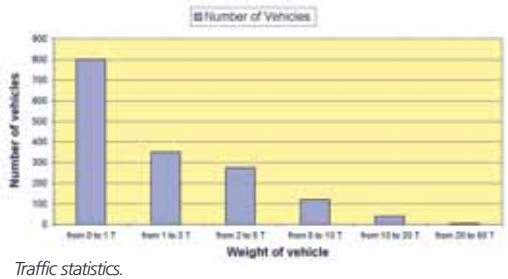
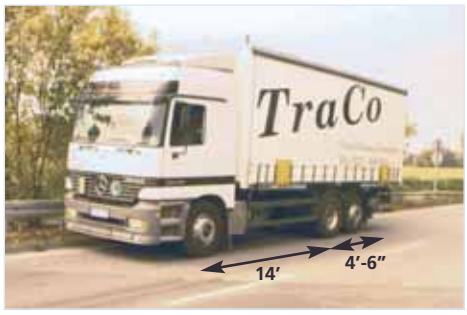


Image of the overweight vehicle.

In fact, the OSMOS-WIMS measures the direct force of the load on the bridge when a vehicle drives across it from the first line of bearings.One or more OSMOS WIMS sensors are mounted as near as possible to the bearings, no modification is necessary to the bridge and they can be installed without interrupting traffic. A CCTV camera connected to the monitoring station captures the image of the overweight vehicle.Fully automated operation is achieved by means of an off-site server which handles the data, calculates the key figures, sends out warnings and even allows the system to be remotely re-calibrated.



Traffic statistics.



Reference vehicule

This method, as reliable as it is simple, is only possible thanks to OSMOS WIMS sensors whose response times are close to the speed of light. This unique property is used to detect in a very short space of time the sudden variations in geometry undergone by the first line of bearings as each of the vehicle's axles passes over it.

As the phenomenon is completely linear, the system can be calibrated with a reference vehicle which establishes a relationship between the mass of the vehicle and the deformation recorded by the OSMOS sensor.The bridge is now a set of scales built into the road network.

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In brief

COPRA, an affiliate of OSMOS, has just brought off a deal with the Dunkirk Port Authority concerning the monitoring of a restructuring operation on a harbour basin. OSMOS News will report in detail on this operation in Newsletter N°7.

New OSMOS Affiliates

URBITRAN

Visit the Affiliates Area
www.osmos-group.com

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