IKT and IRWA: Transatlantic Cooperation on Infrastructure

An IRWA delegation visits IKT (from left): Thomas Brüggemann (IKT), Mark Rieck (CEO of IRWA), Roland W. Waniek (Managing Director of IKT), Lee Hamre (then President of IRWA), Glenn Winfree (IRWA / Duke Energy), Bill Busch (IRWA), Bert Bosseler (Scientific Head of IKT), Sissis Kamarianakis (IKT)

The “I” in “IKT” doesn’t actually stand for “International”, but that’s not stopping anybody at the IKT from working with **partners from around the world**. One result of **cooperation** with the **International Right of Way Association (IRWA)**, an e-learning opportunity can now be booked and accessed on-line.

Cooperation on in-service further training

A new IRWA University **e-learning course** “Underground Infrastructure Panorama” has been developed jointly by IKT and IRWA . Interested parties from around the globe can book this

course either separately or as part of the **“IKT/IRWA International Underground Infrastructure Certificate”** course.

The emphasis is on highly topical **underground and pipeline-engineering** issues, on vegetation and infrastructure, electricity, district heating, gas, telecommunications and more. Six highly regarded speakers present their knowledge on the **development and management** of underground infrastructures and discuss the latest status of research and science in these fields. Three of the six modules are devoted to the focal topic of **vegetation and infrastructure**. The other modules serve to broaden and deepen knowledge of underground-infrastructure fundamentals, with emphasis on the work of system operators, and to examine **completed projects** from which much can be learned.

One of the six speakers for the “Underground Infrastructure Panorama”: Dr. Peter Lampret, of IKT

This unique new course is now on-line at the **IRWA University** website, and can be booked there: Underground Infrastructure Panorama

A profitable partnership

The partnership between IRWA and IKT has grown continuously during recent years. It is also becoming increasingly apparent

just how well the two organizations fit together. IKT stands for **practically orientated research** and well-founded knowledge in the field of pipe-based infrastructures in Europe, while IRWA, with its many thousands of active members around the world, is known for its **management know-how** and for its high-quality training and certification programs.

The International Right of Way Association (IRWA), headquartered in Los Angeles, USA, is a not-for-profit organization for experts in **infrastructure real estate**. Since its foundation in 1934, the IRWA has assisted specialists in acquiring, managing and transferring the **land and property rights** necessary for the construction and maintenance of infrastructure networks. Above all, the association offers facilities for **in-service further training** for its nearly 10,000 members from some fifteen countries. These courses are also open to non-members.
The IRWA website

IKT International Masters Course

At international level, IKT will be holding its two-day Masters Course in “Sewers and Pipelines – Construction, Operation and Maintenance” in Amsterdam and in Paris, during 2017. In this Masters Course, Prof. Dr.-Ing. Bert Bosseler, Scientific Head of the IKT, summarizes the central elements of his university lectures, supplementing them with relevant information from international standards.
19-20 April 2017 in Amsterdam
26-27 October 2017 in Paris
Program and registration (PDF)

Through our cooperation, IRWA and IKT's intention is to promote **management methods** and technical specifications for the **operation and maintenance** of underground pipeline infrastructures, to develop in-service further training opportunities in this field, and to support **global networking** of specialists from this industry.

Mutual commitment

Reciprocal memberships underline the commitment of both organizations. IKT members of IRWA include:

- Roland W. Waniek, Managing Director
- Prof. Bert Bosseler, Scientific Head
- Dr. Sissis Kamarianakis, Head of Further Training

Also IRWA is currently becoming a member of the **Industry Friends of IKT Association**.
Read more about the IKT support organizations:
IKT-Association of Industry and Services
IKT-Association of Network Operators

Face-to-face interchange

IKT Managing Director Dipl.-Ök. Roland W. Waniek at the annual IRWA conference 2016 in

Nashville

Regular **reciprocal visits** are planned, in order to intensify contacts. IKT Managing Director Roland W. Waniek recently spoke at the IRWA's 2016 annual conference in Nashville on the planned **installation of underground high-voltage lines** in conjunction with Germany's **energy turnaround**. As he noted, this project raises numerous technical issues, including how, for example, how construction can be carried out in a soil-conserving and environmentally safe manner, how **thermal insulation** and **resistance to root damage** can be assured, and how maintenance, rehabilitation and replacement construction can be organized.

Dr. Sissis Kamarianakis also spoke at the conference on innovative concepts for the grouping of various infrastructures for more efficient use of the underground space and for cost-savings – for example: **broadband cables installed in sewers**. Unanswered questions here concern operation, maintenance and rehabilitation. Another paper focussed on research into the technical feasibility of the **installation of underground cables** for transmission of green electricity across long distances. Dr. Kamarianakis had presented the concept and the contents of the joint on-line course one year previously, in San Diego, and also took a look into the future at more ideas for joint **IKT/IRWA training opportunities**.

Dr. Sissis Kamarianakis at the annual IRWA conference 2016 in

Nashville

In 2013, at the IRWA conference in Charleston, West Virginia, Prof. Bert Bosseler had already delivered a highly acclaimed paper concerning the challenges presented by the **restricted space available for underground infrastructure**. In 2014, he also spoke, in Hartford, Connecticut, on the German **energy turnaround** and its implications for infrastructure networks.
Representatives of IRWA have also been welcome guests at IKT in Gelsenkirchen, with **Lee Hamre**, the then president of IRWA, gaving a speech welcoming visitors to IKT's 20th anniversary celebrations. She was attending as a member of an **IRWA delegation** led by **CEO Mark Rieck**, which took part in the 2014 International Conference at IKT and contributed interesting addresses on various infrastructural topics.

IRWA's Right of Way Magazine

IRWA runs an **on-line archive** with articles on right of way topics in different languages – with an article by **Bert Bosseler** and **Bill Busch** on managing the crowded underground in the March/April 2015 issue available in English and an article by **Sissis Kamarianakis** on the installation of broadband cables in sewers in the January/February 2016 magazine available in English, Spanish, French and German.
Right of Way Magazine Article Archive

Bill Busch chaired the afternoon workshop.

Bill Busch, a leading IRWA representative, who co-initiated the contact between the IKT and the IRWA some years ago, gave an address on **vegetation and infrastructure**, and chaired the afternoon workshop. IRWA representative **Glenn Winfree**, of Duke Energy, spoke on the **operation of overhead power lines** and the management of trees along their routes.

Live transmission from San Diego to Gelsenkirchen

A special highlight of the International Conference was live transmission, via web-conferencing, of a paper by **Bill Rose** and **Vic Bianes**, of San Diego County Water Authority, on the effects of **tree roots** on large-diameter **drinking-water pipelines** – with 9,200 kilometers and nine time zones between the speakers and the audience!

Deidre Alves and Sissis Kamarianakis chairing the "Underground Infrastructure Panorama" e-learning module.

For the **filming** of the new "Underground Infrastructure Panorama" on-line training course at IKT last year, **Deidre Alves**, M.Ed., Vice President Professional Development, came from Los Angeles to direct and officiate jointly with Sissis Kamarianakis.

Interchange on other topics

The ever closer contact between IKT and IRWA will make it possible to exchange knowledge and ideas on many other topics in the future. Therefore IKT would like to request that **interested employees** of system operators and companies within the **IKT support organizations** to propose relevant **discussion topics** and to take part in the **exchange of ideas**. As Prof. Bosseler notes: “We look forward to our members’ **suggestions**!”
Read more about the IKT support organizations:
IKT-Association of Industry and Services
IKT-Association of Network Operators

IKT is widely networked, both in Europe and globally: IKT cooperation partners

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IKT-tested: Adapter Ring Makes old Manholes HGV-proof

AdapTEC adapter ring creates a stable connection between an old manhole cone with no anti-displacement securement and new-pattern compensation rings.

Sewer manholes in roads have a lot to put up with. They are exposed not only to vertical, but also to **horizontal loads**. For this reason, newer types of manhole cover are secured against **lateral displacement**. However, older types of manhole, with no such security, are still predominantly found in roads. For these, there is now an **adapter ring** available that is claimed to prevent displacement. **IKT has tested** this new solution.
Read more

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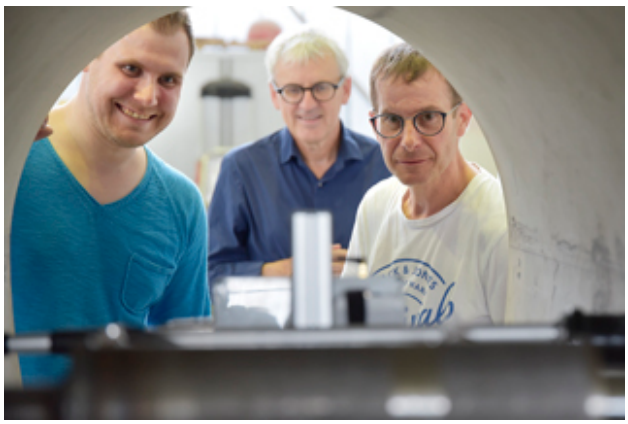
New Test System for Large Diameter Pipes – IKT Hands over a MAC System to Eau de Paris



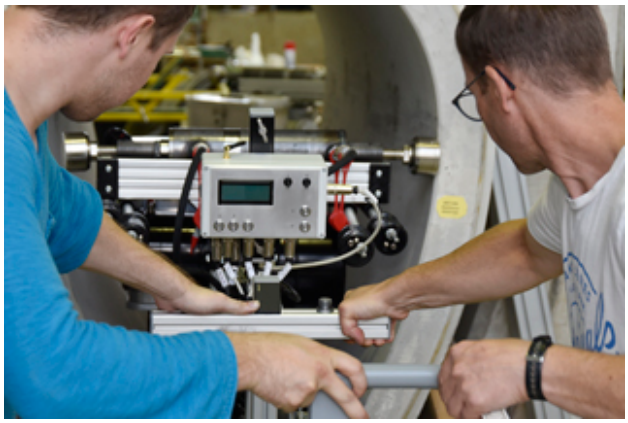
As pleased as Punch: Stefan Bretz, B. Eng. (left) hands over the Mini-MAC to Olivier Thépot (centre) and Jean-Philippe Meynier.

It was lucky that IKT scientist Stefan Bretz, B. Eng., was not required to sit still on this day – he would have been much too excited, because this was when he finally handed over to the customer the **MAC system** for testing the condition of large diameter pipes, which an IKT team has spent three years developing and several months building. And not to just any ordinary customer, but to **Dr. Olivier Thépot** of **Eau de Paris** (the French capital's water and waste-water management authority). As Bretz notes: "It has been a **great honour** to build a MAC system for the **inventor of the MAC** method".

Customised: an individual Mini-MAC

Paris already has a MAC, of course. However, that one was designed for very **large diameters**. Instead, the system

operator wanted another MAC system suitable for use in **DN 1000 to DN 1500** pipes. The French engineers also attached importance to acquiring measured data **accurate to the millisecond and the micrometer**. Furthermore, they required the whole system to **fit** neatly onto a standard **Euro-pallet**, with nothing protruding. IKT engineers Stefan Bretz and Frank Bersuck have realised these requirements in this new MAC version, fondly dubbed the “Mini-MAC”.



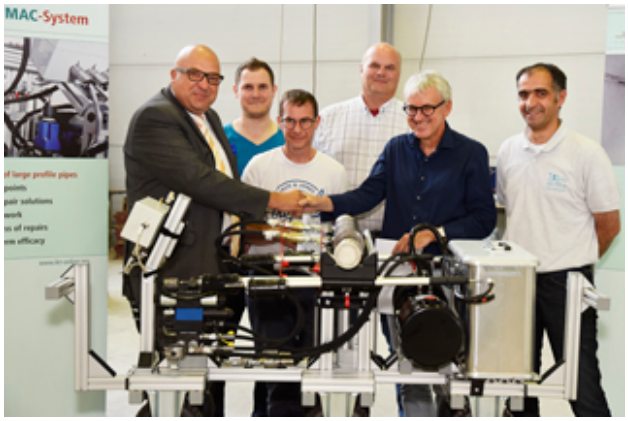
Bretz and Meynier loading the MAC system.

Olivier Thépot, MAC project manager at Eau de Paris and inventor of the MAC system, visited IKT with two of his co-workers during the morning for a **training course** on the use of the new **Mini-MAC unit**. Jean-Philippe Meynier and Laurent Martin will, in future, inspect the sewers of the city “de l’amour” using the new system.

Pressure is the key: how the MAC system works

The MAC method makes it possible to **identify weak points** in the pipe/soil system. In a series of **non-destructive tests**, the hydraulic cylinder of the MAC system applies sufficient force to the walls of the sewer to move them apart, in a **controlled** manner, by only a few tenths of a millimetre. **High-resolution sensors** measure the resulting deformation. This is so slight that **no damage to the sewer** can occur, but

nonetheless is sufficient to permit **calculation of the condition of the pipe** and the surrounding soil.



Hand-over of the MAC system: (from left) IKT Managing Director Roland W. Waniek, Stefan Bretz, Jean-Philippe Meynier, Head of Project Martin Liebscher, Dr. Olivier Thépot, Laurent Martin

Hand-over of the system took place in the afternoon and Stefan Bretz presented the thick **manual**. IKT Managing Director Dipl.-Ök. Roland W. Waniek and Head of Project Dipl.-Ing. Martin Liebscher were also there to congratulate Thépot, Meynier and Martin on their new **large-diameter inspection system**. The new MAC owners were extremely pleased with the **high-quality workmanship** of the unit, the intensive training course and the **high level of detail** contained in the manual. The day's definitive statement came from Jean-Philippe Meynier: "Every sewer is different, and the Mini-MAC now enables us to get to know each and every one individually and in detail".

Fits on a pallet: a compact unit

Stefan Bretz then helped stow the MAC in the cargo space of an Eau de Paris Kangoo Maxi. After which that vehicle disappeared away around the corner, complete with the MAC system – **destination: Paris!** So now our colleague Stefan Bretz can again sit calmly at his desk – most of the time!

Bye-bye IKT, Bonjour Paris: the Mini-MAC starts its journey.

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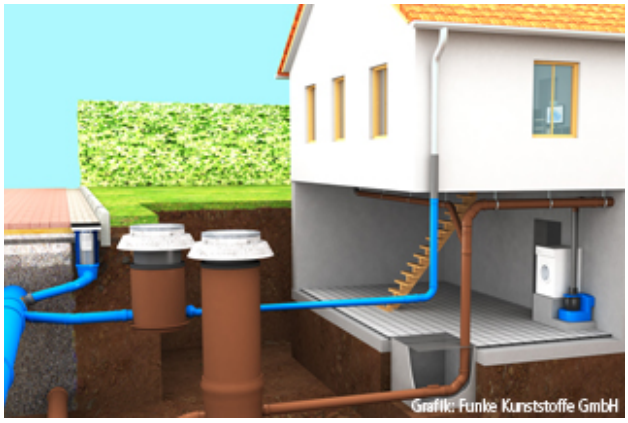
More than just Water-Tightness: Requirements for Private Site Drainage Systems



Site drainage system in accordance with generally accepted standards of technology

There are many **water management and operational targets** for wastewater systems which can be achieved only if **private site drainage** is included, as early as the conceptual planning stage concerning construction, operation and rehabilitation. This is legally supported by **identical technical requirements** for both private and public sewers in the German Water Management Act. Municipalities are therefore obliged to provide timely **information and advice** to site owners on both technical and legal requirements.

Water management needs to start at private sites

Neither legal nor technical codes of practice differentiate in principle between public and private sewers. This is true both

of **European requirements** and their specific expression in national legislation. What does this mean for site owners and for municipalities who bear **responsibility** for the disposal of wastewater? It is clear that more than just the water-tightness of the sewers is involved. The condition and functioning of the public and private network **as a whole** must be included and assured. Questions range from controlling the risk of **blockages** to the elimination of **illegal connections**, the prevention of **infiltration** and the avoidance of nuisance **odours**. Thus, it is clear that water management needs to **start at the individual site**.

Read more

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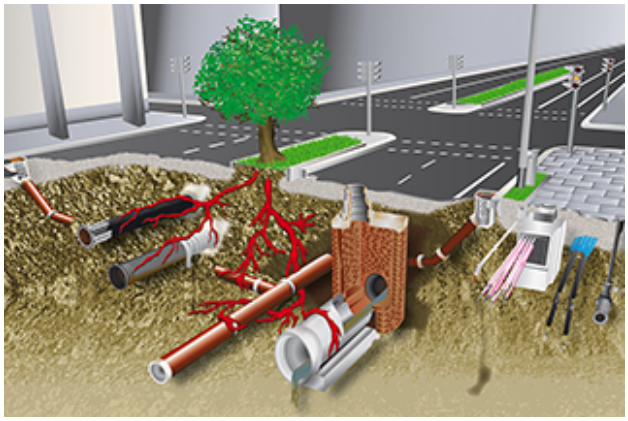
IKT International Masterclass “Sewers and Pipelines: Construction, Operation and Maintenance”



International Masterclass Sewers and Pipelines

Get the **experts‘ overview** of the major issues in sewerage and their **technical background**, refresh your existing knowledge, and get an update on **international developments** – at the IKT International Masterclass “Sewers and Pipelines: Construction, Operation and Maintenance”. The course is focussed on **sewerage**, however, it offers insights for other types of pipe networks as well.

Knowledge on university level

This course uses core elements from **university lectures** and a master course held by Professor Bert Bosseler, Scientific Director of IKT, supported by **case studies** and **research results** from IKT colleagues and updates from experts from **international standardization** committees at CEN and ISO. Contents of this masterclass are part of the curriculum at the Ruhr-University Bochum and Leibniz University Hanover, both being leading universities for civil engineering in Germany.

NEW: IKT International Masterclass “Sewers and Pipelines: Construction, Operation and Maintenance”

10-14 October 2016
Programme and registration

Discussing and networking on international level

Masterclass: Attend online via web conference or on site at IKT

You can attend the course **on site** at IKT in Gelsenkirchen, Germany or **online** via web conference. Online participants are given full access to all course contents and can communicate with speakers and other attendees during the course. You will have the opportunity to meet and **network with experts** from network operators, industry, science, research, and international standardization.

Key Subjects:

- Construction and installation of sewers and pipelines
- Operation, maintenance and rehabilitation of sewers and pipelines
- Testing and rehabilitation of large sewers and manholes
- Principles of asset management and smart community infrastructure

Optional exam with certificate

Prof. Bert Bosseler, Scientific Director ofIKT, shares his university lectures with the participants of the IKT Masterclass

The course is open to all professionals. Attendees can take an **optional exam** to receive a **certificate** of “Successful attendance of IKT’s Masterclass Sewers and pipelines: construction, operation and maintenance”. The certificate summarizes the course content, its role in university studies at German Universities and confirms the successful result for the attendee.

IKT Masterclass

10-14 October 2016
Alternative dates:
– 30 January - 3 February 2017
– 23-27 October 2017
Programme and registration

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Inspecting pressure sewer pipes: Potential, requirements and results

Test rig: IKT research on inspection and condition-surveying of pressure sewer lines

Pressure sewer pipes are well down a sewer operator’s list of their favourite parts of the network. Because there are **no inspection or maintenance ports**. Because the precise location of the pipe is often not known. Because **numerous bends** obstruct the flow. They can be found in practically all drain and sewer networks, but their characteristics and their special design confront sewer network operators with a **real challenge** when it comes to inspection and condition surveying.

Legal provisions

Pressure sewer lines are subject to the legal provisions

concerning **inspection** and **condition survey**, as defined for example in German federal states' regulations for self-inspection and **self-monitoring**. Sewer network operators frequently find themselves facing special challenges in implementing the required inspection work. High points and low points with no valves complicate draining and venting. There is a **danger of blockages** of the gravity system if pump operation is interrupted, with the potential for **back-ups** and flooding.

IKT research project

The IKT research project "Inspection and condition-surveying of pressure sewer lines and culverts", which was conducted by IKT jointly with more than twenty sewer network operators, found that **life-cycle observation** of pressure sewers is becoming ever more important. The main results provide sewer network operators and technology suppliers with better understanding of the requirements for **inspection technologies**, the performance of **water tightness tests** and the selection of **rehabilitation methods** for pressure sewer pipes. A qualitative **risk model** for prioritizing pipe-specific inspection, which is already being used by operators, is also discussed.

Research Project: Pressure Sewer Lines

Read the whole article with key research results (PDF, 7 pages)

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