





Climate and water monitoring solutions for municipalities and infrastructures

SustainableSolutionsMatch

Welcome!





Welcome & Introduction

Who's moderating?

Who's moderating?

Benno Weissner

ZENIT – Center for Innovation and Technology North Rhine Westphalia

Chair SG Digital

Chiara Soffietti

Camera di commercio di Torino FFN ALPS

Innovation and Sustainability
Advisor

Co-chair SG Digital

Who's organizing?











Sustainable Solutions Match



Sustainability in the Digital Sector

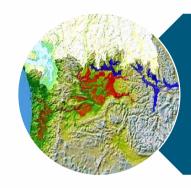
Digital tools and approaches with a positive impact on sustainability

- Digital asset management
- Optimised operation, predictive maintenance
- Optimised logistics (operations)
- Cyber physical systems (digital twin)
- Simulation of production and processes, product information,
- Digital planning
- Automated tracing/tracking (supply chains etc.)
- Automated sorting/quality control
- Digital platforms (e.g. for secondary materials)
- M2M / machine economy
- Artificial intelligence (data analytics/ machine learning etc.)

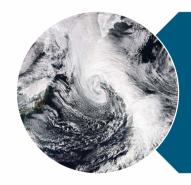




Session Agenda



This session will explore innovative climate and water monitoring solutions designed to support municipalities and infrastructure companies in addressing the challenges of climate change, water management, and infrastructure resilience. There will also be two municipalities presenting their experience in this domain.



Participants will gain insights into cutting-edge technologies, data-driven strategies, and case studies that demonstrate how monitoring systems can optimize resource management, enhance decision-making, and mitigate risks associated with extreme weather events and aging infrastructure.



Session Agenda

11.00-11.05 EEN Sector Group Digital Introduction - Benno Weissner - Zenit

11.05-11.15 Water and climate solutions: the experience of Torino Municipality - Città di Torino - Mirella lacono - Elena De Ambrogio - Italy

11:15-11:25 Addressing water and climate challenge in Burgas Municipality – Burgas Municipality - Georgi Sakaliev – Bulgaria

Companies Pitches 11.25-12.00

- 1. Al and satellite data based solution for climate risk assessment Eoliann <u>Eoliann A.I. Climate Resilience</u> <u>From The Sky</u> Federico D'Albenzio Italy
- 2. Intelligent Flood Models and Early Warning Systems of the Next Generation Floodwaive GmbH https://www.floodwaive.de/ Julian Hofmann Germany
- 3. Al for water resource management Okeanos Smart Data Solutions GmbH https://www.okeanos.ai Benjamin Mewes Germany
- 4. Data logger for sewer and water shaft Microtronics Engineering GmbH https://microtronics.com/en/ Stefan Pfeffer Austria
- 5. Aquatic drones in water management: applications for water quality monitoring, ecology scans and inspections of infrastructure Indymo https://www.indymo.nl Rui Pedroso Lima The Netherlands
- 6. Water Prediction in Rural Areas Ambling Ambling Sergio Miguel Galán Spain
- 7. Aerosol monitoring for a better understanding of Climate impact from municipalities and industries Grasp, https://www.grasp-earth.com/grasp-open/ Eliot Llopis Spain



Welcome & Introduction

Some suggestions for the session

- Mute Policy: Please remain muted unless speaking to avoid background noise.
- **Q&A Time:** After each pitch, there will be 1–2 minutes for questions. Please use the chat to ask questions. We will also leave another 10-15 minutes at the end for any further questions.
- Session Recording: This session won't be recorded.
- **Time management**: The 2 municipalities have 10 minutes for their presentation. Pitchers will have 5 minutes, please keep track of your time. We will inform you if 5 minutes have passed.
- **Technical Issues:** If you encounter issues, use the chat to notify the host.



Municipalities Presentations

Time to meet the municipalities!

N. 1 Città di Torino Mirella lacono









Water and climate solutions: the experience of Torino Municipality

City of Turin

Ing. Mirella Iacono
Environment and Ecological Transition Department





Turin among the "100 Net-Zero Cities 2030"





MISSION GOALS

- Support 100 European cities towards climate neutrality by 2030
- Make these cities centers of innovation that can serve as models for other European municipalities that will have to achieve the same goals by 2050

THE MAIN STAGES OF THE PATH TO DECARBONIZATION:



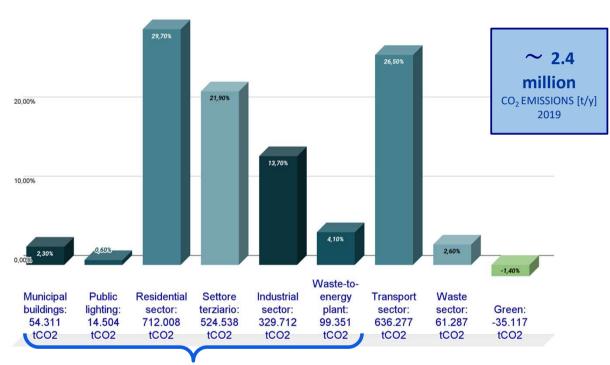








The Climate City Contract of Turin



STATIONARY ENERGY



Sustainable Solutions Match





The Climate City Contract of Turin



ACTION PLAN



13	STATIONARY ENERGY	
8	TRANSPORT	
3	WASTE	
4	AFOLU	
3	ENERGY SYSTEMS	

3 LEVELS OF ENGAGEMENT

6 SIGNATORIES

16 MAIN PARTNERS

60 **SUPPORTERS**

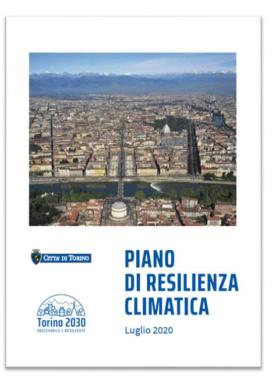


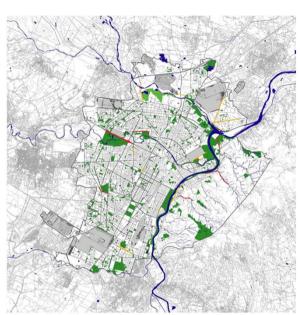


The Climate Resilience Plan

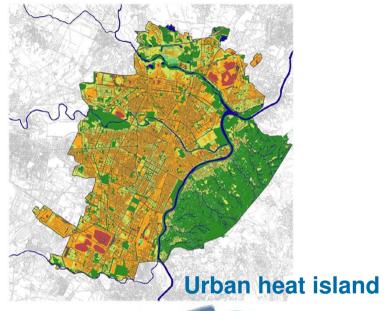


GOAL: Reduce the impacts deriving from climate change for the territory and for citizens





The stretches of road that are most often subject to flooding









Draining parking

Before the transformation

Work in progress

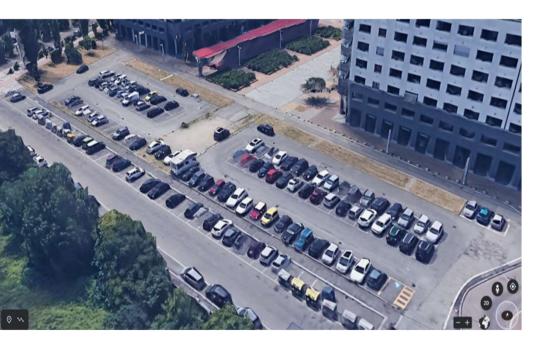






Draining parking

Before the transformation





- sqm of asphalt removed: 4888
- sqm of draining surface: 3281
- square meters of green area: 1828
- **70** trees and **3380** shrubs







Green track

Before the transformation

Work in progress







Green roof

Before the transformation









Aeroponic greenhouse

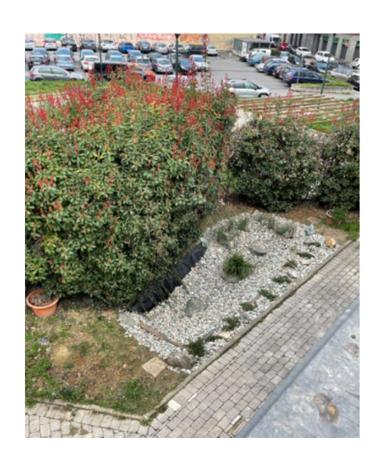








Rain garden









Green wall

Before the transformation













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Thanks for your attention

Mirella lacono
Città di Torino
melchiorinamirella.iacono@comune.torino.it













Municipalities Presentations

Time to meet the municipalities!

N. 2
Burgas Municipality
Georgi Sakaliev









Integrated Smart Climate Risk Management System



Burgas Municipality

Georgi Sakaliev

Chief expert Strategic development





Enhanced technological capacity of Burgas Municipality for climate change risk management.

□ A network of stations equipped with smart sensors located across the territory of Burgas Municipality collects data on water levels, precipitation amount and intensity, and other meteorological parameters, as well as environmental parameters and 24-hour video surveillance fused into Smart Burgas integrated urban platform.





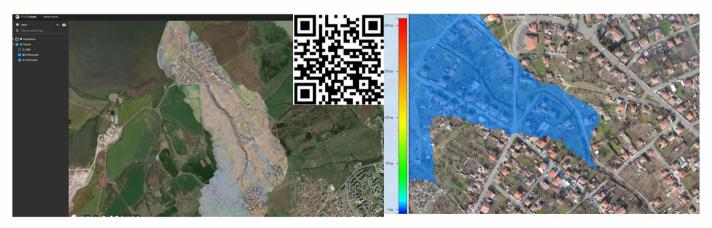






Study of Flood Threat and Risk in Burgas Municipality

- □ All risk susceptible areas within the municipality are surveyed through laser scanning and photogrammetry.
- ☐ Models and simulations of flood waves are developed reflecting all possible crisis scenarios to identify potentially affected areas.
- Based on the analysis, suitable locations are identified for autonomous water level and climate monitoring stations installation.



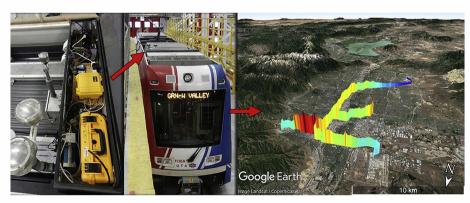




What else is needed to enhance the climate resilient city management?

A climate atlas is planned to be developed, incorporating the collected data and information about the relevant climate risks (UHI, flooding and air pollution).

☐ Improve the air quality monitoring potential with an integrated smart air monitoring system - network of mobile sensors measuring PM2.5, PM10, NO and NO2 parameters









Why the integrated smart system approach is important?

- ☐ Smart Monitoring Infrastructure
- □ Data-Driven Decision Making
- ☐ Public Engagement & Accessibility

Sustainable impact?

- ☐ Improved Flood Risk Management:
- ☐ Climate Resilience & Environmental Protection
- ☐ Economic & Social Benefits

Integrated smart flood risk management system

isuv.smartburgas.eu







Who would benefit most from this solution?

- ☐ Local Community and Residents
- ☐ Municipal and Government Authorities
- ☐ Businesses and industries

Integrated urban platform SmartBurgas

smartburgas.eu









Cooperation and partnership?

- □ Public authorities with identical climate challenges;
- ☐ Technological companies solution providers in climate change related area;
- ☐ Research institutes



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Book a meeting with: Burgas Municipality

Georgi Sakaliev Chief expert Strategic developmentBurgas Municipality















Pitch Presentations



Time to meet the innovators!

Pitch 1
Eoliann
Federico D'Albenzio











Climate Risk Intelligence

Al-Powered Satellite Data for Risk Management in the Infrastructure Sector

Federico d'Albenzio Senior Business Developer

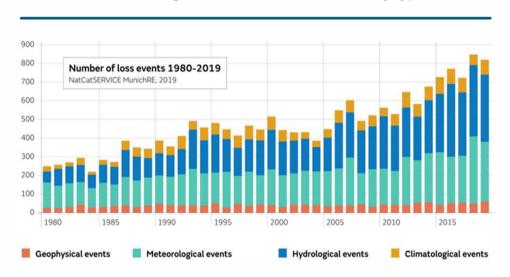






Climate change and urbanization are increasing natural disasters, making them extremely volatile

Number of global loss events 1980-2019, by type



Source: UK Metereological Office and MunichRE, 2022

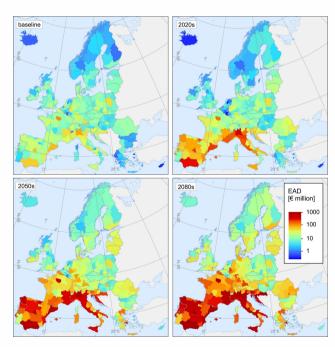
More than **313 B\$** of losses due to natural catastrophes in 2022







Expected annual damage on critical infrastructure will increase, especially in southern countries



Source: Escalating impacts of climate extremes on critical infrastructures in Europe, Elsevier, 2018;

Scenarios of expected annual damage (EAD) from climate risks. In 2080, **37 Billion Euros** of potential damages





We need to adapt our methodologies to keep pace with a constantly changing climate

FROM





Poorly informing risk scores

Business as usual Infrastructure

TO



Al-powered, proprietary causeeffect models



Full geographical coverage, consistent and scalable methodology and frequent update



Vulnerability metrics to measure asset-specific damage

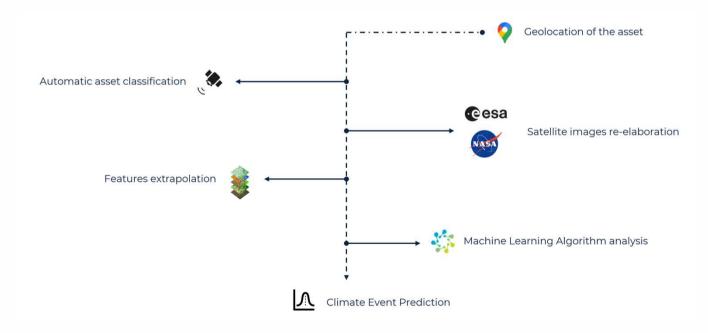
Informed mitigation and expansion investments







Eoliann leverages the power of satellite data and Al to provide climate-proof predictions of risk exposure









Our software returns a probabilistic assessment of events' intensity and impact for every European location



Analysis on points or lines



Asset-type specific analysis



Resolution up to 30 m

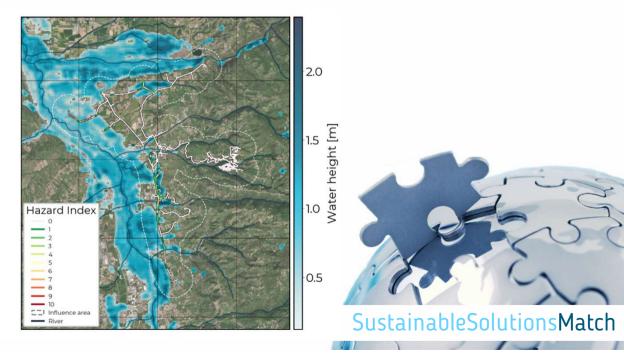


Different Return Periods



2025 - 2050

RCP 2.6 4.5 8.5







Eoliann is a benefit corporation, with the goal of helping businesses to **quantify** the probability, intensity and impact of climate events.

Our Main Customers & Partners in the Infrastructure Sector











Institutional network



















NOV 2024-NOV 2025

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Senior Business Developer Eoliann f.dalbenzio@eoliann.com















Pitch Presentations



Time to meet the innovators!

Pitch 2
Floodwaive GmbH
Julian Hofmann









Intelligent Flood Models and Early Warning Systems of the Next Generation

FloodWaive Predictive Intelligence GmbH

Dr.-Ing. Julian Hofmann CEO & Co-Founder

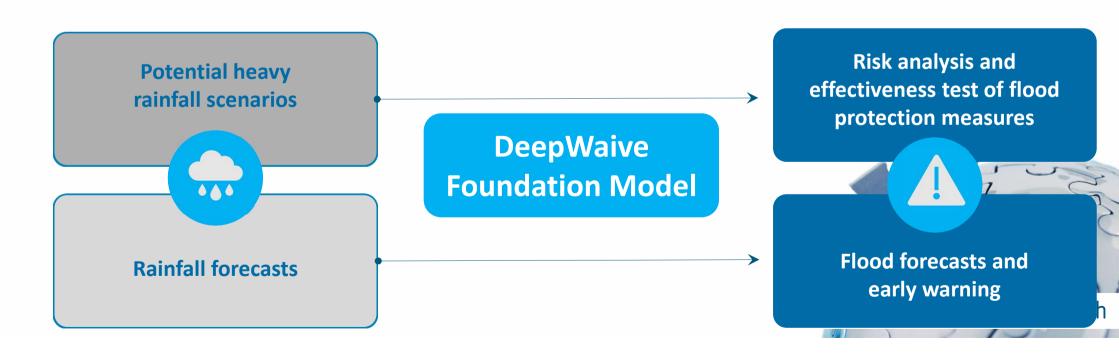






Unified Solution for Risk Analysis, Mitigation & Early Warning

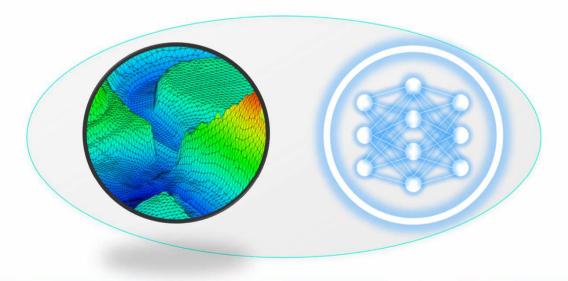
Empowering cities and infrastructure operators to turn climate data into actionable flood protection for holistic risk management





Up to One Million Times Faster than Traditional Flood Models

We are merging physics-based flood models with advanced AI for unprecedented performance and near-instant insights



Short Computation Time

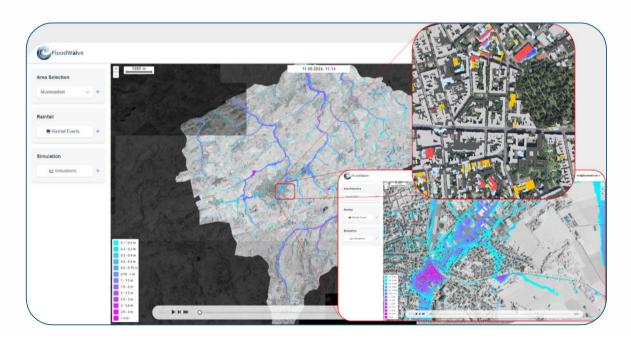
High Model Accuracy High Scalability





Risk Analysis & Forecasting: A Service for Sustainable Impact

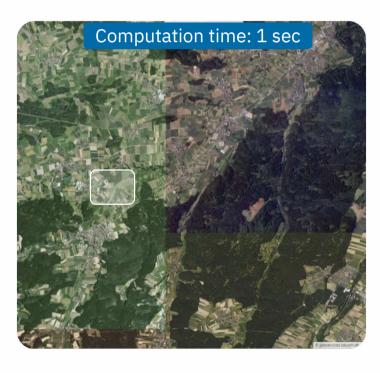
- **1. Minimal Resource Footprint**: No on-site sensors needed | **2. Plug & Play Integration**: Easily merges with existing GIS
- 3. Proactive Damage Prevention: Reduces repair costs, lowers environmental harm, and protects communities







Customers of Our Al-Powered Flood Analytics



Products:



Rapid Risk Analytics Dynamic Evaluation of Flood Measures

AI FloodCast Impact-based Flood Forecasting and Early Warning

Customers:



- Municipalities
- Engineering
- Industry



- Ministry
- County
- Industry



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Looking Beyond New Customers: Ideal Cooperation Partners

- Research & Academia
 Co-development of AI and hydraulic modeling; scientific validation and joint publications
- Technology Providers
 Sensor/data system integrators, cloud/IT specialists for robust, scalable solutions
- Policy & Regulatory Bodies
 Collaboration for shaping flood management guidelines and sustainable planning policies
- NGOs & Environmental Groups
 Joint awareness campaigns, broader impact, and engagement with local communities
- Infrastructure & Engineering Firms
 Integrating flood resilience into existing or new construction projects



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Dr.-Ing. Julian HofmannCEO & Co-Founder
FloodWaive Predictive Intelligence GmbH
hofmann@floodwaive.de







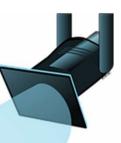








Pitch Presentations



Time to meet the innovators!

Pitch 3
Okeanos
Benjamin Mewes









Solution title

Okeanos Smart Sensor Solutions

Mewes, Benjamin CEO







Introduce your sustainable solution

Okeanos.VIVID is a highly innovative solution that stands out due to the integration of multiple data sources. It is the only system that combines soil moisture, radar precipitation, and local water level measurements to provide hyperlocal flood forecasts for previously unmonitored smaller water bodies and flow sections.







If relevant, give further details on the technology/process

In case the prior slide was sufficient to explain your solution, please just remove this page

Unlike traditional flood systems that focus on major rivers, this system offers forecasts for smaller water bodies that are typically not covered by official flood monitoring networks.

Unmonitored Rivers and Urban Streams: Particularly vulnerable to flash floods and sudden inundation. This system addresses the gap by issuing early warnings for at-risk sections.

Fine-Scale Prediction Models: Analyze and combine multiple data sources to provide reliable forecasts at the municipal level.

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Describe your solutions differential value and sustainable

impact

Hyperlocal inunadation mapping in real time for several applications.



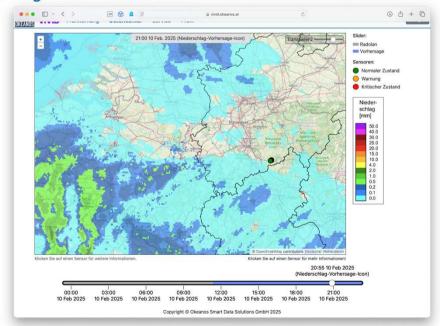




Market/Target audience - Who can apply your solution?

- Municipalities and regional authorities

- Industrial sites







Sustainable and circular innovation needs good networks along the whole value chain. What kind of cooperation partners would you like to connect to beyond finding new customers?

Cities, Councils, etc.



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Benjamin Mewes CEO

Okeanos Smart Data Solutions Benjamin.mewes@okeanos.ai













Pitch Presentations



Time to meet the innovators!

Pitch 4
Microtronics Engineering
Stefan Pfeffer







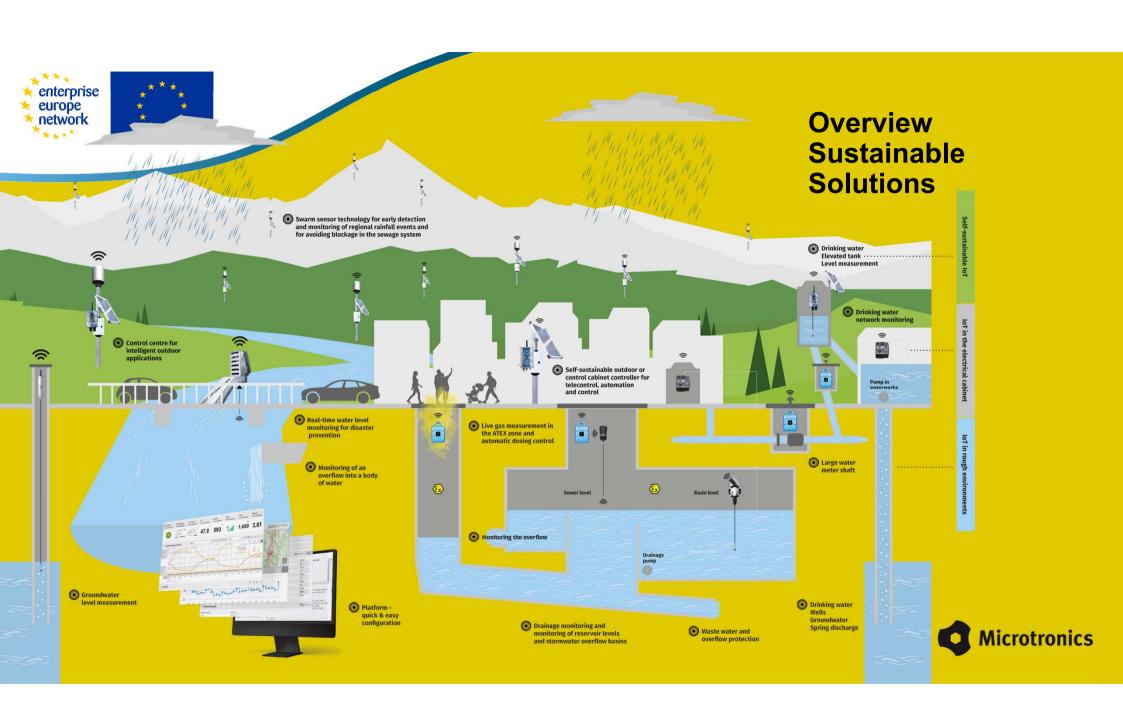


Decision-grade data: Data loggers for sewers and water shafts

Microtronics Engineering GmbH

Stefan Pfeffer *Managing Director Finance*







Sensors

Microtronics devices

Microtronics platform

Control system connection & process system technology

e.g.











Ecosystem





Decision-grade data

- From small to large-scale applications
- Above-average battery life
- 10 second measurement interval
- Worldwide data transmission
- Interface to AI/SCADA systems





Target audience

- Municipalities
- Infrastructures
- (Waste) water management
- Energy sector









Cooperation partners

- Organisations that rely on decision-grade data
- Partners
- End customers







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Book a meeting with: Microtronics

Stefan Pfeffer

Managing Director Finance Microtronics Engineering GmbH

stefan.pfeffer@microtronics.com





















Pitch Presentations



Time to meet the innovators!

Pitch 5 Indymo Rui Lima









indymo.

Aquatic drones in water management: applications for water quality monitoring, ecology scans and inspections of infrastructure

Indymo

Rui Lima

Researcher, General Manager

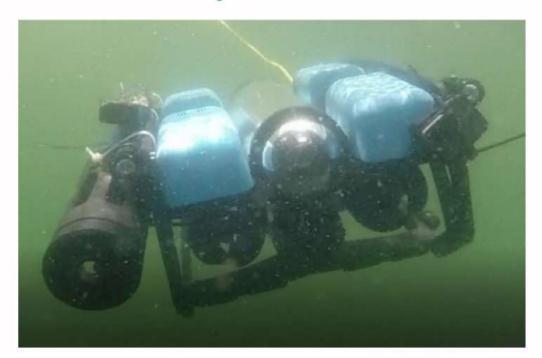








Revolutionizing Water Monitoring with Aquatic Drones





SustainableSolutionsMatch



Innovative Dynamic Monitoring

We offer innovative monitoring services using affordable, cutting-edge aquatic drones, designed to collect underwater images, and water quality data. We make multi-dimensional spatial data collection and underwater inspections accessible to a wide range of organizations.





Discovering new insights in your water system

Water systems are critical to human and ecological survival. With climate change and urban development these systems are changing faster than ever. Therefore, there is an urgency of better and dynamic monitoring methods and technologies.

SustainableSolutionsMatch





- Pioneer in the use of underwater drones for environmental studies
- SME, with 10 years of experience in aquatic robotics R&D and in exploring promising applications in the water sector
- Research-driven, with strong link to education institutions
- Active in international projects since 2017 (Indonesia, Perú, Mali, Myanmar, Vietnam, Denmark, Portugal)
- · Located in Delft, The Netherlands

Why innovative dynamic monitoring solutions for water quality?



European and national regulations require extensive monitoring to assess the water quality and ecological status of water bodies

Grab Samples are the most common monitoring method:

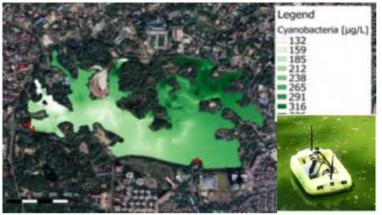
- Single point in time
- Posterior testing/analysis in a laboratory
- Several points can be combined to reflect the overall condition of a water body
- Time consuming and not cost-effective

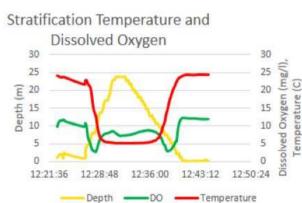
Urgency to develop (cost)efficient monitoring methods and tools to support informed water management decisions, enhance understanding of water systems, and refine hydrodynamic models.



Aquatic drones at the service of water professionals!

Water quality: mapping, stratification profiling and collection of water samples





Inspections (quays, culverts/pipes)



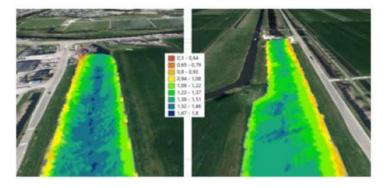
Ecological observations







Bathymetry



Different vehicles and sensor configurations

Underwater and surface vehicles, or a combination (e.g. support vessels system, communication relay)



To collect multi-dimensional datasets and imaging of underwater environments

- Autonomous navigating capabilities, waypoint missions
- Remote control via 4G/LTE communication,
- Underwater positioning and communication systems
- Sonar, underwater GPS and DVL technology
- Adaptive navigation algorithms (based on measured data)

Underwater drones (ROV)









Size / Weight

Payload capacity

Maneuverability

Water disturbance/noise

Autonomy (battery)

Ease of setup in the field

Size / Weight

Payload capacity

Maneuverability

Water disturbance/noise

Autonomy (battery)

Ease of setup in the field

Size / Weight

Payload capacity

Maneuverability

Water disturbance/noise

Autonomy (battery)

Ease of setup in the field

Size / Weight

Payload capacity

Maneuverability

Water disturbance/nois

Autonomy (battery)

Ease of setup in the field

Autonomous surface vehicles (ASV)







Portability

Payload capacity

lutonomous

Range

Heavy duty / Robust

Reel for camera/sensor

ortability

Payload capacity

Range

Autonomous

Not suitable for rivers/streams

Bathymetry mappin

Portability

Payload capacity

Range

Autonomous



Lightweigh



Operation beyond line of sight

Any sensors/cameras/devices can be fitted in our drones

Water Quality Sensors

Parameters:

- Turbidity
- Dissolved oxygen
- Electrical conductivity
- Chlorophyll-a
- Blue/green algae
- pH
- Pressure/depth

Imaging technologies

- RGB low light cameras
- Multibeam Side-Imaging
- Flood light system

Other systems and tools

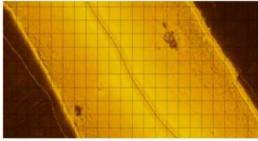
- Manipulator robotic arm
- Samplers (water)
- Navigation instrumentation
- Extended payload and battery capacity

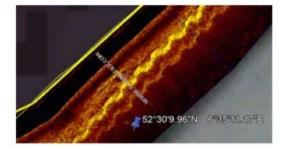




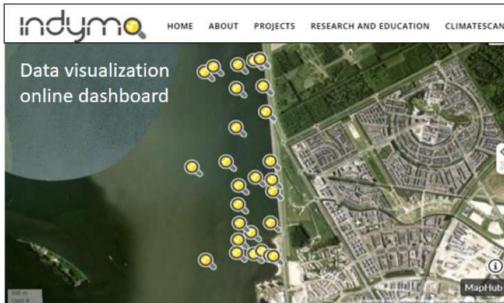












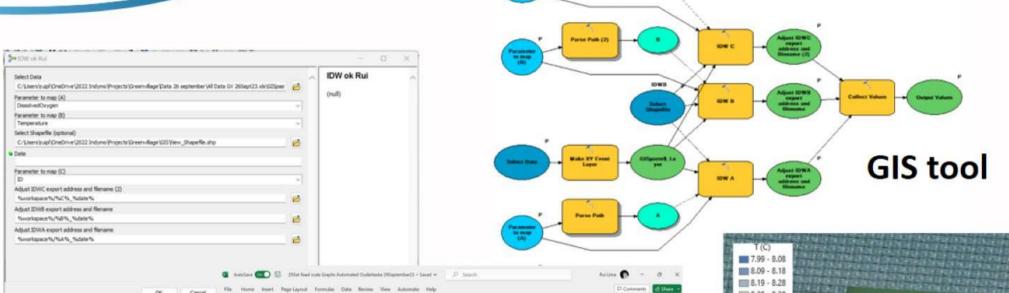




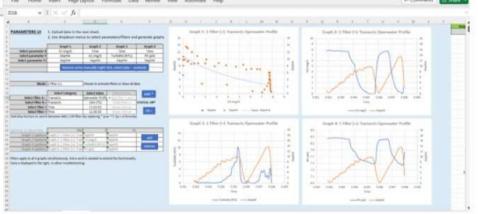


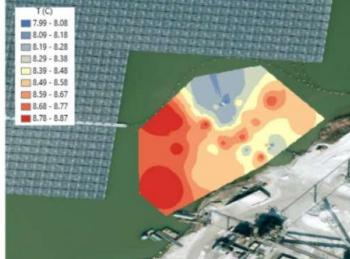
Data processing tools and automation





Optimization of data processing and map generation





Competitive and flexible solutions to address challenging tasks



Tailored Solutions

Custom sensor integration based on each project's specific data collection requirements.



Adaptability

Flexibility to modify sensor configurations as project needs evolve.



Scalability

Suitable for applications ranging from shallow water mapping to river monitoring and large-scale ecological research.



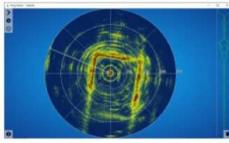


















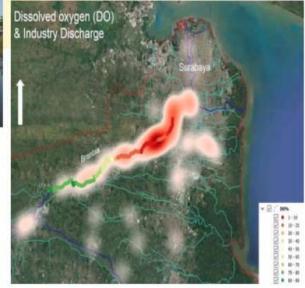
International Projects

Baseline studies and monitoring of water quality

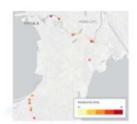
Field campaigns in Indonesia, Mali, Vietnam, Peru, Myanmar.

- · Monitoring with drones learn local challenges and potential for implementation
- Monitoring with apps (test strips and phone app)
- Monitoring of large areas using sensors on boats / ASVs



























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~^



Book a meeting with: INDYMO



Researcher, General Manager Indymo Rui.plima@indymo.nl













Pitch Presentations



Time to meet the innovators!

Pitch 6

Ambling Ingenieria y
Servicios
Sergio Miguel









Water Prediction Models based on Artificial Intelligence

AMBLING INGENIERÍA Y SERVICIOS

Sergio Miguel R&D Leader







Our solution enables real-time water consumption prediction through advanced data analysis and machine learning models.

This approach optimizes water resource management, reducing losses and improving operational efficiency.

The technology is highly adaptable to different environments and sectors, from urban supply to industrial network management, facilitating informed and sustainable decision-making.

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Our solution combines IoT sensors for real-time monitoring with predictive models based on artificial intelligence.

These models analyze consumption patterns, weather conditions, and other key factors to generate accurate forecasts.

This technology helps companies and administrations prevent leaks, optimize water distribution, and improve demand planning.





Our solution stands out for its ability to provide highly accurate predictions, enabling the minimization of water waste and improving water management efficiency.

Measurable Sustainable Impact:

- Reduction of water losses in distribution networks by up to 20%.
- Improvement in supply planning efficiency by 30%.
- Decrease in energy consumption associated with water pumping and treatment.





Our solution is designed for:

- Water cycle management companies
- Public administrations and infrastructure operators
- Industries with high water consumption
- Smart cities and urban sustainability projects

All these entities can benefit from more efficient water management, reducing costs and minimizing environmental impact.

SustainableSolutionsMatch



We seek collaborations with:

- Research centers and universities specializing in water technologies and sustainability.
- Technology companies and IoT sensor providers.
- Governments and public entities interested in improving water efficiency.
- Software companies for integration with infrastructure management platforms.



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Sergio Miguel

R&D Leader Ambling Ingeniería y Sevicios S.L. smiguel@ambling.es













Pitch Presentations



Time to meet the innovators!

Pitch 7
Grasp Earth
Eliot Llopis









Aerosol monitoring for a better understanding of Climate impact from municipalities and industries



GRASP Earth

Eliot Llopis
Head of Communication







Aerosols direct inference on Climate impact

- Aerosols affect surface temperature, precipitation, and extreme weather.
- Policymakers in municipalities should include aerosol impacts in NDCs and NAPs.
- As with GHG, global collaboration is needed for pushing aerosol integration in climate plans.

World Health Organization. (2021). WHO global air quality guidelines: Particulate matter (PM2.5 and PM10), ozone, nitrogen dioxide, sulfur dioxide and carbon monoxide. Geneva: World Health Organization. https://www.who.int/publications/i/item/9789240034228







Current Aerosol monitoring limitations

1. Model-based solutions

- a. What? Use generalized environmental models
- b. Positive: Cover gaps from ground sensors data, extending the coverage.
- c. Negative: It is based on assumptions. May inaccurately estimate pollution levels by 30-50% missing small but significant emission sources.

1. Ground-based solutions

- a. What? Use of ground stations to capture real data
- b. Positive: Data is accurate
- c. Negative: Expensive method, limited scalability. Covers less than 5% of a city's area. Usually complemented by low reliable low-cost sensors and models based on assumptions.

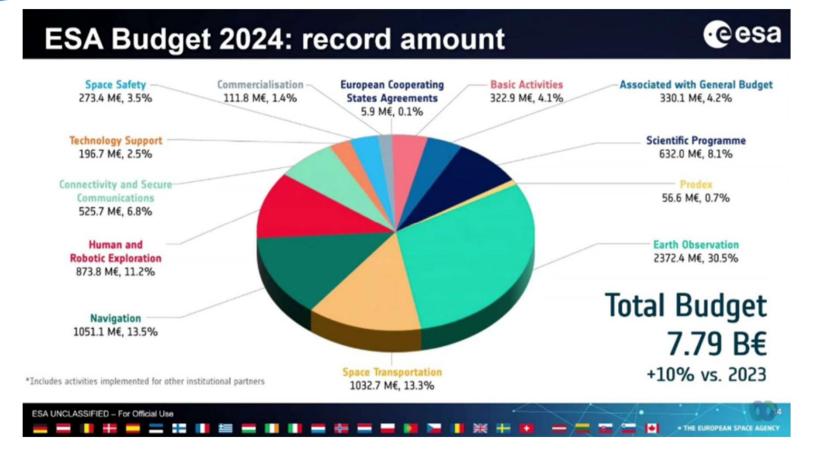








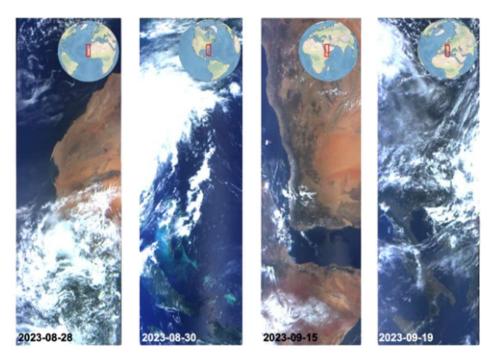
Space is the answer

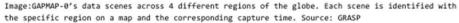




Our mission





















cnes









The outcome

COVERAGE

100% global and spatial full atmospheric column coverage. No assumptions

Rol

Up to 70-75% cheaper than existing methods with a very high Return on Investment.

RELIABLE

Based on 30 years of atmospheric r&d and proven Space technologies.





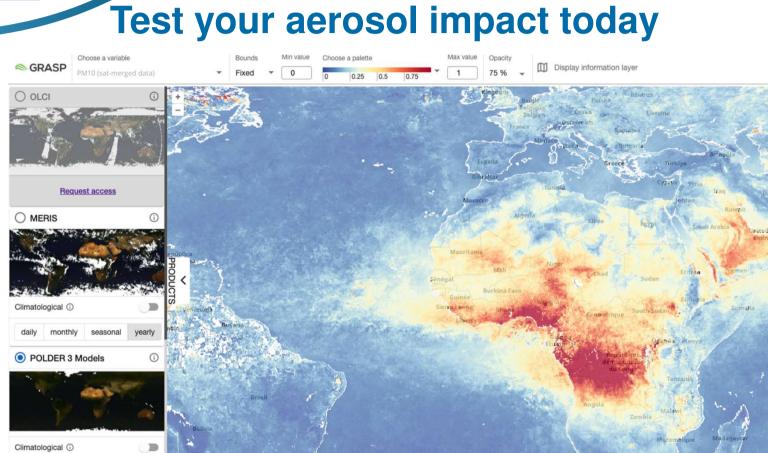












#EENCanHelp















Book a meeting with: **GRASP Earth**

Eliot Llopis Head of Communication eliot.llopis@grasp-earth.com











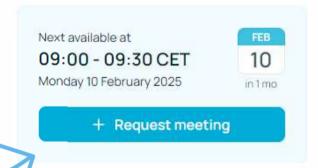




Closing Remarks

A big thank you to all pitchers and attendees! We appreciate your participation today.

If you'd like to connect with any of the pitching companies, please use the matchmaking tool to **book a meeting!**



Need support? Enterprise Europe Network is here to help!

Reach out to your local Network partner:

https://een.ec.europa.eu/local-contact-points



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×

Thank you!

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