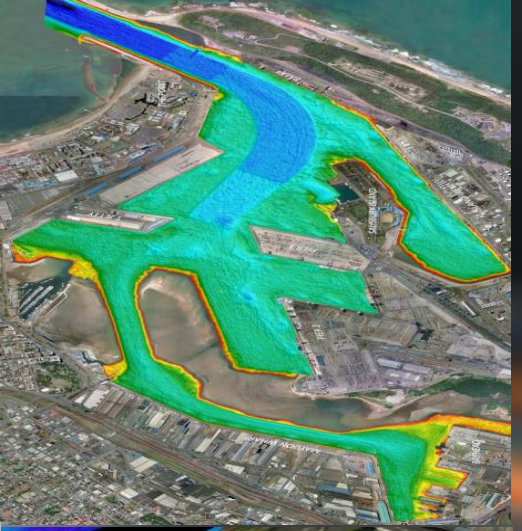
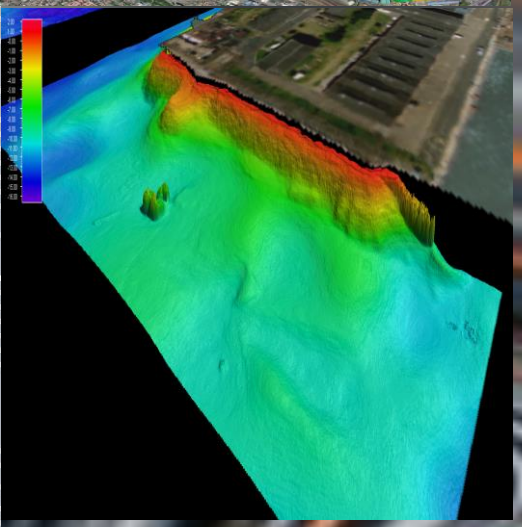
OBSCAPE

ENVIRONMENTAL OBSERVATIONS

Contents





OUR HISTORY

Our mission is to make high quality, environment observations easy.

Obscape have been Developing, manufacturing and supplying real-time systems for environmental observations for over a decade.

The company formed as a result of a 5-year collaboration between South Africa-based Enviromap and Netherlands-based H-Max, both of which have extensive experience in marine and coastal monitoring. Faced with the high costs and limitations of conventional measurement equipment, the company's founders were inspired to experiment with developing their own sensors and devices.

LOCATIONS

Obscape B.V. is registered in the Netherlands Offices:

- **Rijswijk - Programming & Distribution**

- **Durban**

Manufacture & Sales (For local projects we trade under Enviromap Pty Ltd)

CORE VALUES &DESIGN PHILOSPHY

Easy-to-use, Robust and Reliable Real-Time Monitoring Equipment

Our instruments are designed to be easily installed, compact, robust and low maintenance.

Designed For the Field

The small size and integrated telemetry and solar power make our instruments very easy to use and deploy.

Clients Should want to CHOOSE OBSCAPE because our devices are:

- **Affordable**
- **Easy to use**
- **Real-time**
- **Wireless**

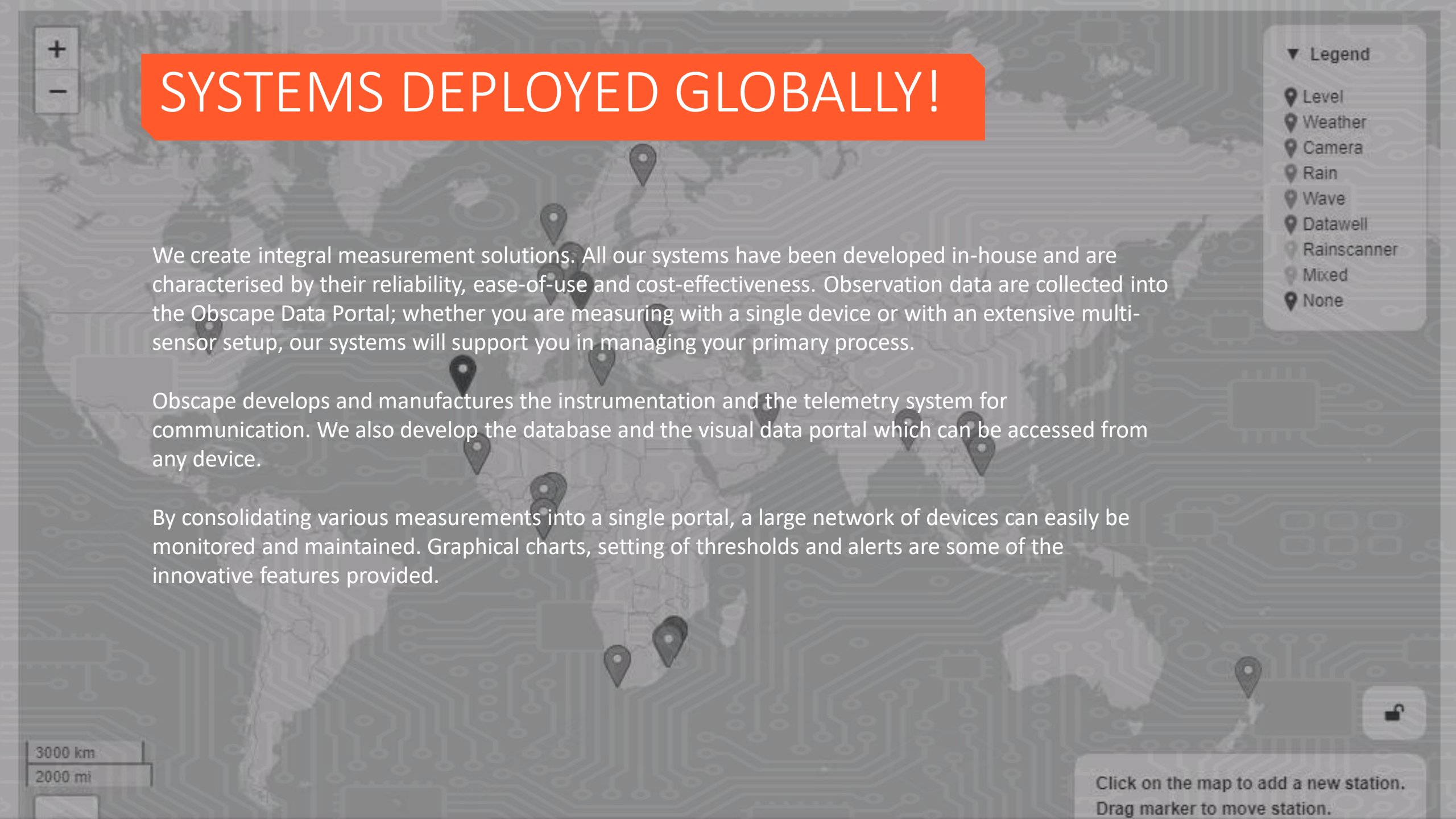
Obscape Data Portal: No Charges & Integration into your Database.

Unrestricted license for the data portal is included free of charge with the purchase of all your Obscape equipment

Personalisation & Customisation.

Capacity to bespoke engineer & design to meet your project spec requirements

SYSTEMS DEPLOYED GLOBALLY!



We create integral measurement solutions. All our systems have been developed in-house and are characterised by their reliability, ease-of-use and cost-effectiveness. Observation data are collected into the Obscape Data Portal; whether you are measuring with a single device or with an extensive multi-sensor setup, our systems will support you in managing your primary process.

Obscape develops and manufactures the instrumentation and the telemetry system for communication. We also develop the database and the visual data portal which can be accessed from any device.

By consolidating various measurements into a single portal, a large network of devices can easily be monitored and maintained. Graphical charts, setting of thresholds and alerts are some of the innovative features provided.

CAPABILITIES

- Electronic Design
- CNC Manufacturing
- PCB Assembly
- Programming of Firmware & Backend
- Testing Facilities
- Field Work

CLIENTS

Van Oord

MARINE CONTRACTORS

IKEA SIEMENS

IMEDEA

THE OCEAN CLEANUP

BONNICI

TU Delft
Delft University of Technology

UNIRI

Van Oord
Marine ingenuity

Aqua Vision
Hydro-& Oceanographic Consultancy

Ciel & Terre

Caledonian MacBrayne

DEME
Dredging, Environmental & Marine Engineering

Boskalis

provincie ZUID HOLLAND

GEOTRON

AquaVision Engineering

VASTINT

DJN Jan De Nul GROUP

PORT of BURGAS

Oregon State University

ETHEKWINI MUNICIPALITY

MYANMAR MARITIME UNIVERSITY

CORE PRODUCTS

AVAIBLE TO ORDER

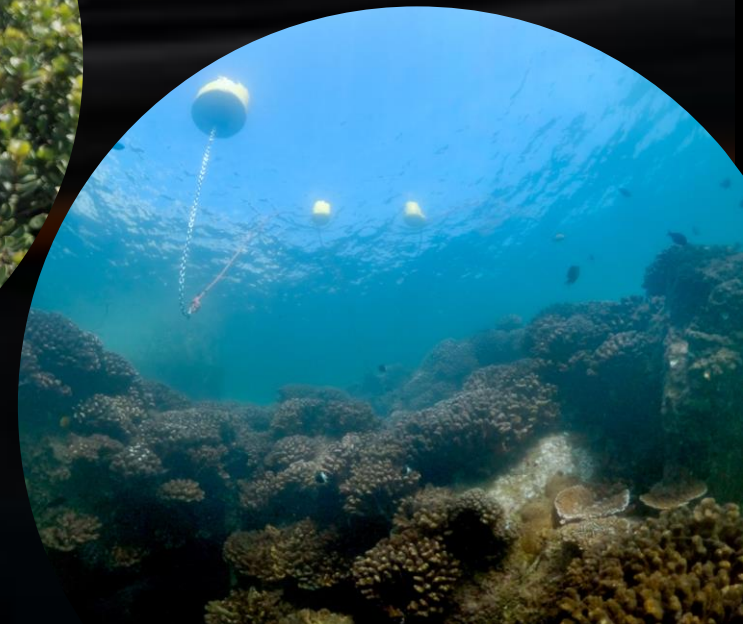
- Level Gauge
- Time-Lapse Camera
- Rain Gauge
- Weather Station
- Wave Buoy
- Data Portal

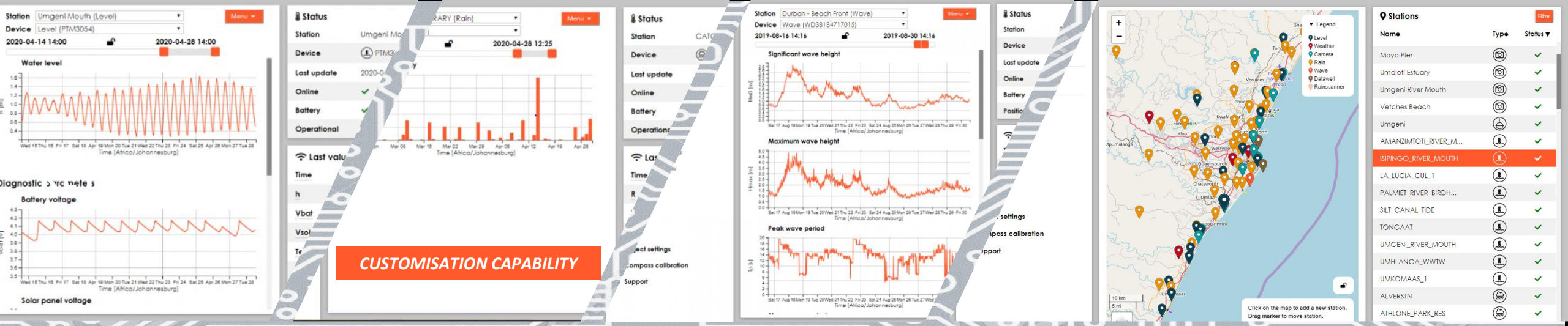
IN DEVELOPMENT

- Water Quality
- Air Quality Flow
- Stream Flow

SOME OF OUR CUSTOMISATION DESIGNS

- Acoustic Monitoring for Oil & Gas Pipelines
- Real Time LIDAR Profiling
- Thermal Image Monitoring for Factory Stacks

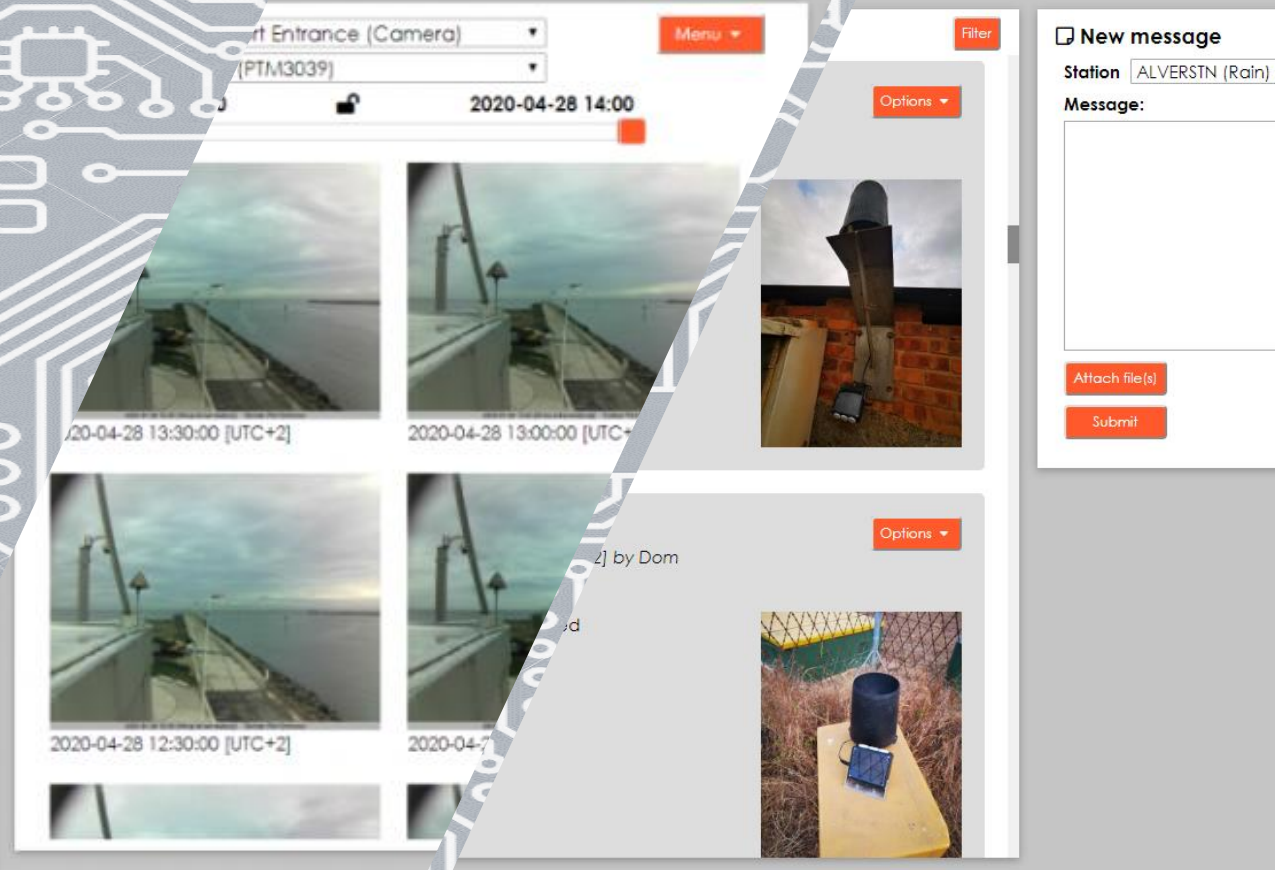




DATA PORTAL

- *REAL-TIME DATA* & MONITORING ALERTS
- *REPORT GENERATION & INTEGRAL DATA MANAGEMENT*
- DATA FORWARDING & MAINTENANCE LOG
- *WHITE LABELLING*

DATA PORTAL LINK



CUSTOMISATION CAPABILITY

HIGHLY ACCURATE RADAR
WATER LEVEL MONITORING

LEVEL GAUGE

KEY FEATURES

- *INTEGRATED* **LOGGER**
- *INTEGRATED* **TELEMETRY**
- *INTEGRATED* **POWER**
- *INTEGRATED* **SENSOR**

SD LOGGING

- REAL TIME SETTINGS FROM PORTAL
- OVER THE AIR FIRMWARE UPDATES
- OPEN API & POST OPTIONS
- CELLULAR (3G, 2G) OR SATCOM
- ROBUST ACETAL HOUSING
- SINGLE LI-ION 18650 BATTERY
- MULTIPLE MOUNTING OPTIONS
- INTERNAL ACCELEROMETER
- INTERNAL BAROMETER

APPLICATION AREAS

- *CULVERTS*
- *DAMS & LAKES*
- *RIVERS*
- *HARBOURS*

TIME LAPSE CAMERA

Obscape's Time-Lapse Camera is a robust, fully wireless solution that delivers time-lapse images to your desktop in real-time. It allows you to have a look at your area of interest remotely.

KEY FEATURES

- *INTEGRATED* LOGGER
- *INTEGRATED* TELEMETRY
- *INTEGRATED* POWER
- *INTEGRATED* 5MP RESOLUTION

APPLICATION AREAS

- Catchment Areas
- Stormwater Outlets
- Construction Sites
- Marine & Estuarine Ecosystems
- Waste Water Treatment Plants

The Time-Lapse Camera is completely wireless. Power is supplied through built-in solar panels, while images are transmitted in real-time using a 3G GSM connection. Its wireless nature makes the camera very suitable for monitoring of remote areas, such as construction sites, beaches and nature reserves.

WEATHER STATION

Obscape's Weather Station is a robust and user-friendly device which combines Obscape's Power and Telemetry Module with an industry-standard weather sensor

- Comprehensive weather data
- Completely wireless
- Real-time data
- Solar powered

APPLICATION AREAS

- **Catchment Areas**
- **Stormwater Outlets**
- **Construction Sites**
- **Marine & Estuarine Ecosystems**
- **Waste Water Treatment Plants**

KEY FEATURES

- ***INTEGRATED*** **LOGGER**
- ***INTEGRATED*** **TELEMETRY**
- ***INTEGRATED*** **POWER**
- ***INTEGRATED*** ***WEATHER SENSOR***

CUSTOMISATION CAPABILITY

WAVE DROID

KEY FEATURES

INTEGRATED **LOGGER**

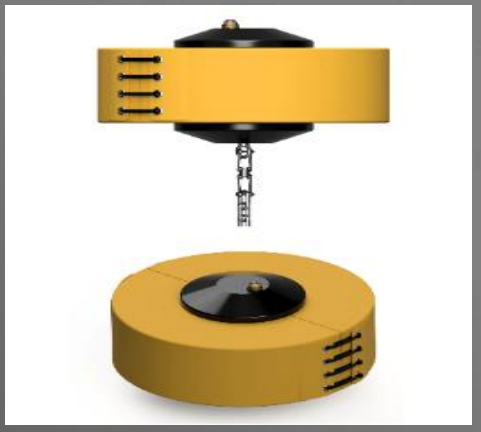
INTEGRATED **TELEMETRY**

INTEGRATED **POWER**

INTEGRATED ***SATELLITE***

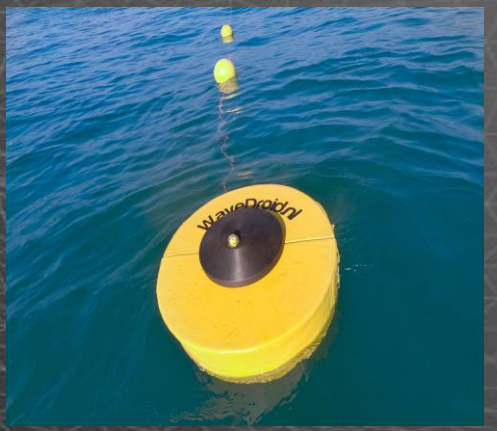
APPLICATION AREAS

- Marine & Coastal engineering
- Oceanographic research
- Environmental monitoring
- Work compliance monitoring

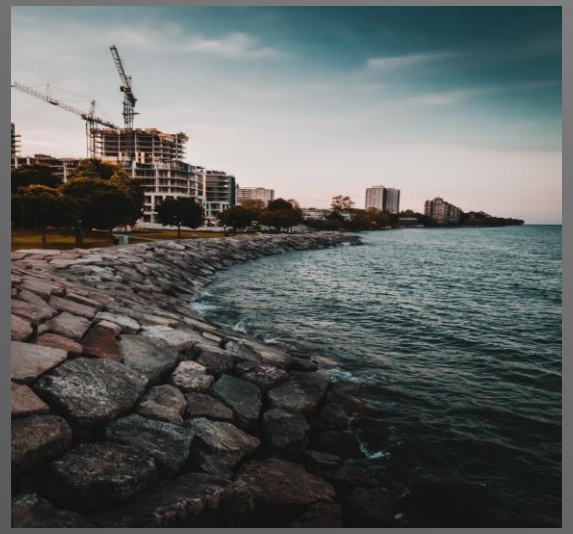
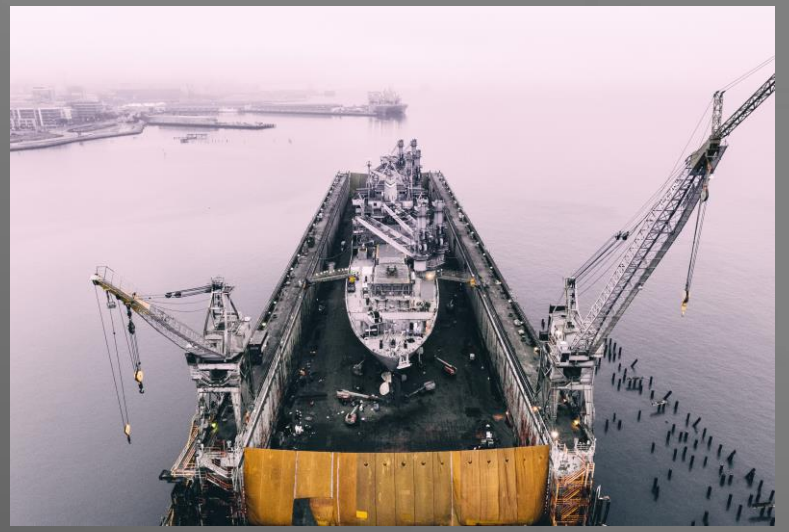


- Real-time data (GSM & Satellite)
- Bulk wave parameters & Directional wave spectrum
- Online WaveDroid Data Portal with integrated GPS position & watch circle

CUSTOMISATION CAPABILITY





- Dredging & Trenching
- Offshore Power Generation
- Coastline & Marine based Construction
- Ports & Nautical
- Marine & Estuarine Ecosystems

Coastal & Offshore Sector

Coastal & Offshore Sector

Obscape's WaveDroid and remote telemetry monitoring systems have been designed and proven to meet the demand of high accuracy operation and 24/7 real-time data reporting on extreme coastal and offshore environments.

Metocean conditions (winds, waves and climate) constantly shape our coastline & affect open sea conditions. By utilising remote powered telemetry devices to monitor ports, nautical operations and offshore construction can be conducted. This enables increased safety and productivity, while also providing more accurate reporting for coastal and offshore ecosystems.

The ability to forecast the required hydrological and atmospheric criteria has become essential, therefore monitoring and reporting on these dynamic characteristics is vital.

Coastal & Offshore

Market: Offshore Power Generation

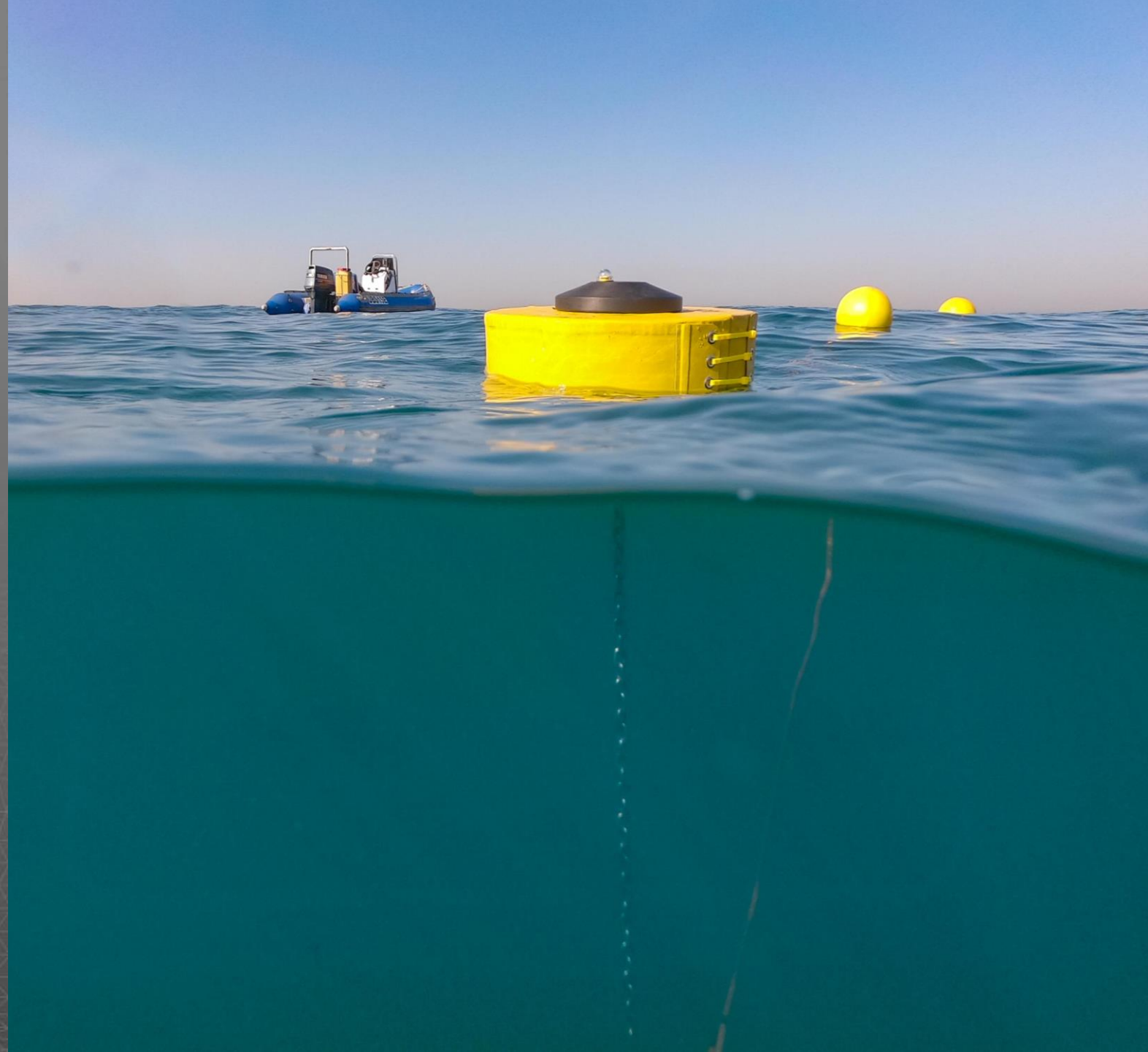
Depolyment of Obscape Wave Bouys & Data Portal to monitor & measure Water Quality, Tides, Waves & Turbidity for safe Dredging & Trenching operation & environmental conditions.

Examples of our clients within this field:

A West African government has commissioned our client; a well established Belgian dredging company; to monitor wave conditions off West Africa with more than 10 OBSCAPE WaveDroid buoys to determine workability at their coastal nourishment project site.

OBSCAPE Devices:

- Click Here: Obscape WaveDroid
- Click Here: Obscape Portal



Coastal & Offshore

Market: Offshore Power Generation:

Installed Offshore wind capacity is predicted to expand rapidly worldwide. Offshore wind speed data collected from sources from our wave buoys will report data from remote sensing satellites & can be assessed for viability of offshore wind farm location & turbine placement.

In addition Offshore Wind Farms, Oil Rigs & FPSO Real Time Environment Monitoring; are used to assess conditions prior to crew safe deployment.

Application Example:

Offshore Wind Farm Wave Buoy depolyment, FPSO & Oil Rig Monitoring of Subsea mooring-lines and bottom-mounted frames

Examples of our clients within this field:

Our client, a prominent Swedish company; monitors wave conditions at a windfarm in the Gulf of Bothnia, Finland, to determine safe working conditions for their vessel-based maintenance operations.

- OBSCAPE Devices:
- Click Here: Obscape WaveDroid
- Click Here: Obscape Portal

Coastal & Offshore

Market: Coastline & Marine based Construction

To assist you withstanding the forces of nature; data reporting from Obscape Devices & Dataportal can confirm tide levels, waves and wind which assists in the design construction of Marine & Coastline structures.

In addition, these Marine & Coastline structures are often constructed with the help of ships, Most of these operations can only be performed if the waves, water level and wind stay within acceptable limits. With the Obscape WaveDroid workability conditions can be monitored with measurement systems in order to manage the construction process.

Application Example:

Time Lapse Camera, Tide Gauge & monitor for safe Platform installation, decommissioning and subsea pipeline.

Examples of our clients within this field:

A Dutch marine surveying company measures the wave climate at the Eemsdijk in The Netherlands with 6 WaveDroid buoys to determine design conditions for a dike reinforcement. The project was commissioned by the Dutch government (Waterschap Noorderzijlvest).

- OBSCAPE Devices:
- Click Here: Obscape WaveDroid
- Click Here: Obscape Portal

Coastal & Offshore

Market name: Ports & Nautical

Obscape assists with the monitoring & reporting of Man Made Enclosed Water Areas, Harbours, Moles, Breakwaters, Quays, Dry Docks, Floating Docks, Naval Bases, Berths & Terminals. OBSAPE has developed innovative Solutions to assist port operators, pilots, tug boat masters and marine managers with making informed decisions. Our solutions are designed to increase safety and efficiency of marine operations in ports and harbours.

Through our powerful web portal, we provide a robust easy to use platform to access, monitor and manipulate weather information at a high resolution domain for port operations.

Application Example:

Port Operations & Monitoring .

Examples of our clients within this field:

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OBSCAPE Devices:

- Click Here: Obscape WaveDroid
- Click Here: Obscape Portal

Coastal & Offshore

Market name: Marine & Estuarine Ecosystems:

We help with reporting of Estuary coastal areas where the saline waters of the ocean meet with fresh water from streams and rivers. Obscape reports on Estuarine habitats which are usually very productive because of the accumulation of nutrients from fresh water runoff. These zones are breeding habitat for a variety of species. In addirtion our Estuary deployed devices can also confirm sheltered natural harbour areas for ocean going ships & can be used for the reporting of cooling of water discharged from power generations

Application Example:

Water Quality, Tide Level & Time Lapse Monitoring of Estuaries, Lagoons & Beaches for Environmental Agencies & Government Authorities to gauge; the health of Ecosystems & Sediment Coastal Erosion.

Examples of our clients within this field:

Obscape was commissioned by a South African Environmental Authority to monitor water quality at iSimangaliso Wetland Park; to analyse the chemical, physical and biological properties of the water as indicators of the health of aquatic environment of this World Heritage Site which is an exceptional natural environmental EcoSystem. Because of the rich biodiversity, unique ecosystems and natural beauty occurring in a relatively small area; water quality is vital to ensure a rich & healthy species diversity and ongoing speciation.

OBSCAPE Devices:

- Click Here: Obscape WaveDroid
- Click Here: Obscape Portal




WATER & ENVIRONMENT SECTOR

Water & Environment *are important for our environment, economy and livelihoods.*

Methods to monitor this have many functions from reducing floods to producing clean water and food for domestic, industry and agricultural uses.

Our waterways also provide important habitat for many animals and plants.

Wastewater treatment plays a vital role in maintaining hygiene & sanitation and delivering clean drinking water to urban, suburban, and rural populations. By monitoring Municipal wastewater treatment plants filter and disinfect sewage, stormwater, and other wastewater, Monitoring can assist to ensure that effluent is safe to discharge to public waterways

MARKETS:

- Construction
- Smart Cities
- Waste Water Treatment
- Catchment Management
- Stormwater Management
- Environmental Monitoring
- Industrial Production & Processing

WATER & ENVIRONMENT

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Treatment Plants monitor various water quality parameters throughout their processes to ensure that treatment is both effective and efficient.

The supply, installation and monitoring of complete Automation, Detection and Monitoring systems for Commercial and Industrial applications wide variety of industries and operations. From Bulk Gas Distribution, Chemical Storage Facilities and Manufacturing Pants to Commercial Kitchens and Domestic Complexes. Remote Monitoring is the biggest advantage to using Telemetry Devices.

Turn Key; Automated Notification and Warning is an important reason for most of our clients opt to install our systems. From the single Environmental Consultant receiving an email warning them of a critically high levels of Ground Water to the major Construction entity, receiving early warning and notification. We can help avoid catastrophe & costly downtime .

WATER & ENVIRONMENT

The science of telemetry and computer networking have made it possible for researchers to access data in real-time. Real-time hydrological data such as, rainfall and temperature, make it possible for researchers to analyse and determine what influences daily observations will have on the environment.

South African is a country of approximately one million square kilometres in area of which 95% receives less than 900mm of annual rainfall. - *ref: USING REAL-TIME HYDROLOGICAL DATA SD LYNCH, NL LECLER and RE SCHULZE; Department of Agricultural Engineering University of Natal.*

Real Time Monitoring will allow the researchers in the hydrological sciences to assist mankind in the prevention of disastrous floods and droughts. The acquisition of real-time rainfall data will be of great to able to simulate results to the present time allow researchers to link their model, directly via telemetry, to up to the minute hydrological data of soil moisture status, crop water requirements and flood-warning indicators over southern Africa

Water & Environment

OBSCAPE Devices:

- Click Here: Obscape Portal
- Click Here: Obscape Level Gauge
- Click Here: Time Lapse Camera
- Click Here: Weather Gauge
- Click Here: Obscape Rain Gauge

Market: Construction

As urban space building continues to expand to accommodate a growing global population, there remains a real need to quantify and qualify the impacts of urban space on natural processes. The expansion of global urban areas has resulted in marked alterations to natural processes, environmental quality and natural resource consumption. The urban landscape influences infiltration and evapotranspiration.

Urban hydrologists have increasingly focused on the water-quality implications of the expanding urban area and have sought to find ways of mitigating the risk of degradation to water bodies and their in-stream habitats (Walsh et al. 2005, O'Driscoll et al. 2010, Fletcher et al. 2013). The generation of runoff from urban surfaces can carry a suite of contaminants including heavy metals, major nutrients (e.g. sodium, nitrate and phosphorus), litter and rubber residue from roads (Tong and Chen 2002). Obscape provides assistance in its capacity to quantify & report on these dynamics across a varied landscape at contrasting scales.

Application Example:

Novel design & construction strategies are widely implemented in new urban developments, to control runoff & improve water quality. Our Portal data monitoring capabilities combined with devices such as the the Water Level Gauge, Rain Gauge, Weather Station & Time Lapse Camera can assist in the design & during construction phase in Urban Environments.

Water & Environment

OBSCAPE Devices:

Click Here: Obscape Portal

Click Here: Obscape Level Gauge

Click Here: Time Lapse Camera

Click Here: Obscape Rain Gauge

Click Here: Weather Gauge

Smart Cities:

In March 2012 the global population exceeded 7 billion people for the first time, representing a doubling of the global population in less than 50 years (United States Census Bureau, 2012). It is estimated that more than 55% of the global population live in cities and that 394 of the world's cities have a population that exceeds 1 million inhabitants (UN 2011). By the year 2050, the United Nations predicts global population will be 9.8 billion people.

Populations are surging from rural areas to urban areas; with an estimated 70% of the global population living in cities by the time we reach 10 billion human beings, according to the Population Reference Bureau.

A larger portion of the population will inhabit the same cities we live in today; where Air Quality and water, availability, treatment & quality are already stressed. To support this explosion of population density, cities around the globe are going to require major improvements to infrastructure and efficiencies.

OBSCAPE can assist in a complete TurnKey approach to monitoring Water Resources & Air Quailty, and the infrastructure systems involved in its sourcing, treatment and delivery. In addition OSCAPE systems can Report stressed areas in Urban Infrastructre in Real Time; therefore forecast where improvement in water infrastructure is required. This can include important areas such as reservoir and groundwater supply, to improve efficiencies across water-related disciplines. As an example, Water World cites predictive capabilities of flood mapping when looking at historical flood data paired with real-time and predicted weather and precipitation data.

Water & Environment

OBSCAPE Devices:

Click Here: Obscape Portal

Click Here: Obscape Level Gauge

Click Here: Time Lapse Camera

Click Here: Obscape Rain Gauge

Click Here: Weather Gauge

Waste Water Treatment:

In developing countries, more than 80% of domestic wastewater is discharged untreated, polluting rivers, lakes and coastal areas. Aging infrastructure, an expanding population and stringent regulations combined with a diminishing supply of available fresh water is significantly straining Municipalities capability to provide clean, safe potable water.

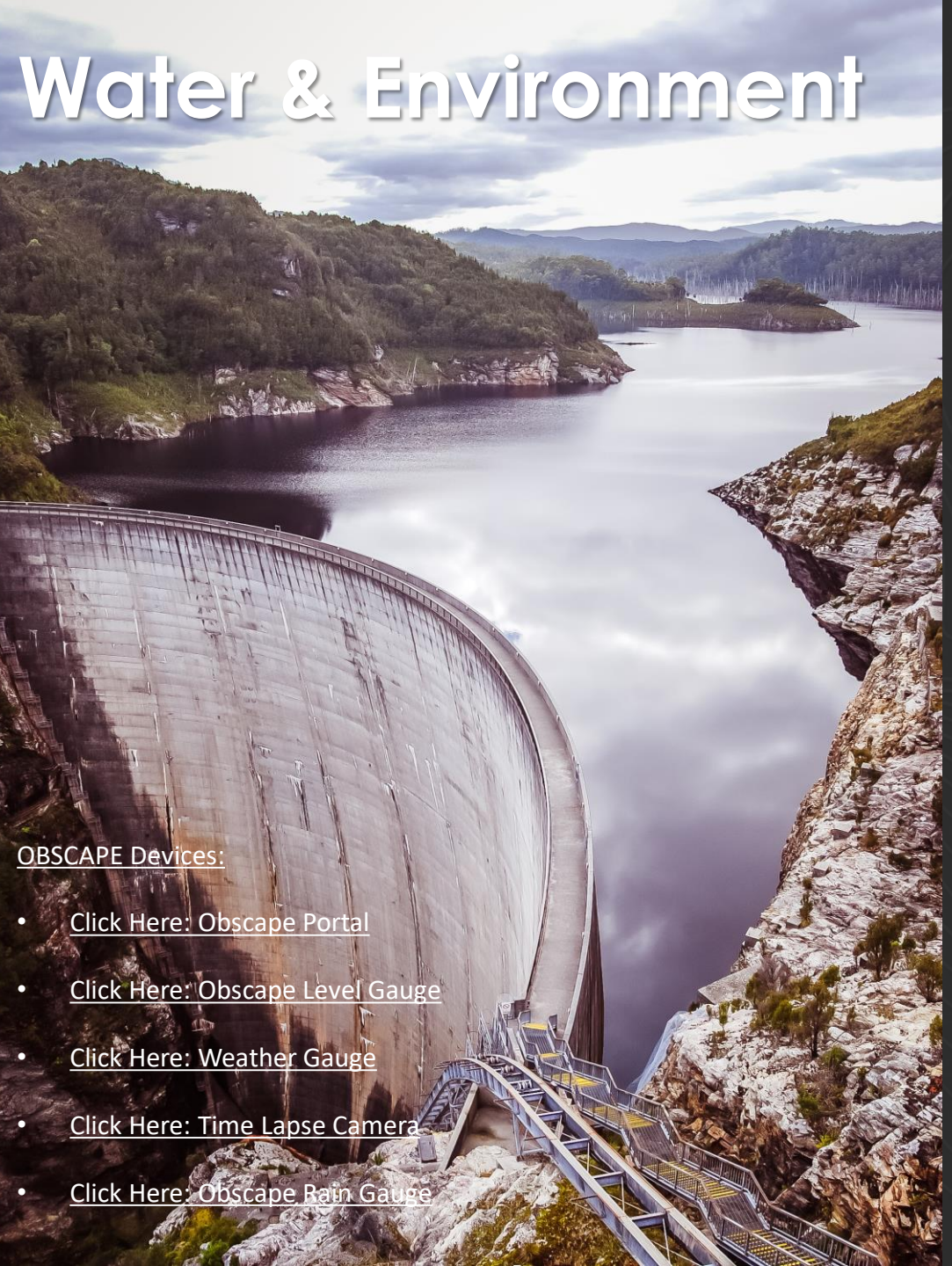
South Africa already has 7 million people without access to water requiring an additional 26 billion liters annually.

Obscape works closely with local government to identify strained & underutilised resources.

Application Example:

Local Government Water treatment solutions are to re-source, recover and reclaim high quality drinkable and process water from wastewater, seawater, ground or surface water. A precious resource that needs to be monitored at Reservoirs & Treatment Plants. There is a requirement for water treatment plants to be more automated, making Obscapes Telemetry observations ideal to monitor the decentralised operations, & during seasonal demand or emergencies.

Water & Environment



OBSCAPE Devices:

- Click Here: Obscape Portal
- Click Here: Obscape Level Gauge
- Click Here: Weather Gauge
- Click Here: Time Lapse Camera
- Click Here: Obscape Rain Gauge

Market: Catchment Management:

Catchment management requires resource management which aims to effectively and efficiently monitor naturally occurring water within catchment areas. Data reporting on an area or region which 'catches' the rainfall runoff flows with reference to a point on a river or drainage system is vital for water resource management.

Application Example:

Water Level Gauges, Time Lapse Cameras & Weather Stations can be integrated for catchment management, to record & confirm the environmental condition of land, water, and biodiversity which cannot be achieved in isolation from each other & therefore requires multiple, deployments & Remote telemetry types with accumulated reporting to one Data Portal

Examples of our clients within this field:

Our Client, a local Government Coastal, Stormwater and Catchment Management Department has assigned Obscape to assist with reporting on catchment management which includes monitoring & reporting on flood risks to houses, industrial and commercial properties. Confirm water data by managing and monitoring developments in urban river corridors and wetlands as important natural features within the urban landscape; for the purpose of promoting multi-functional, sustainable use of river corridors and drainage systems.

Water & Environment

OBSCAPE Devices:

- Click Here: Obscape Portal
- Click Here: Obscape Level Gauge
- Click Here: Time Lapse Camera
- Click Here: Weather Gauge
- Click Here: Obscape Rain Gauge

Market: Stormwater Management:

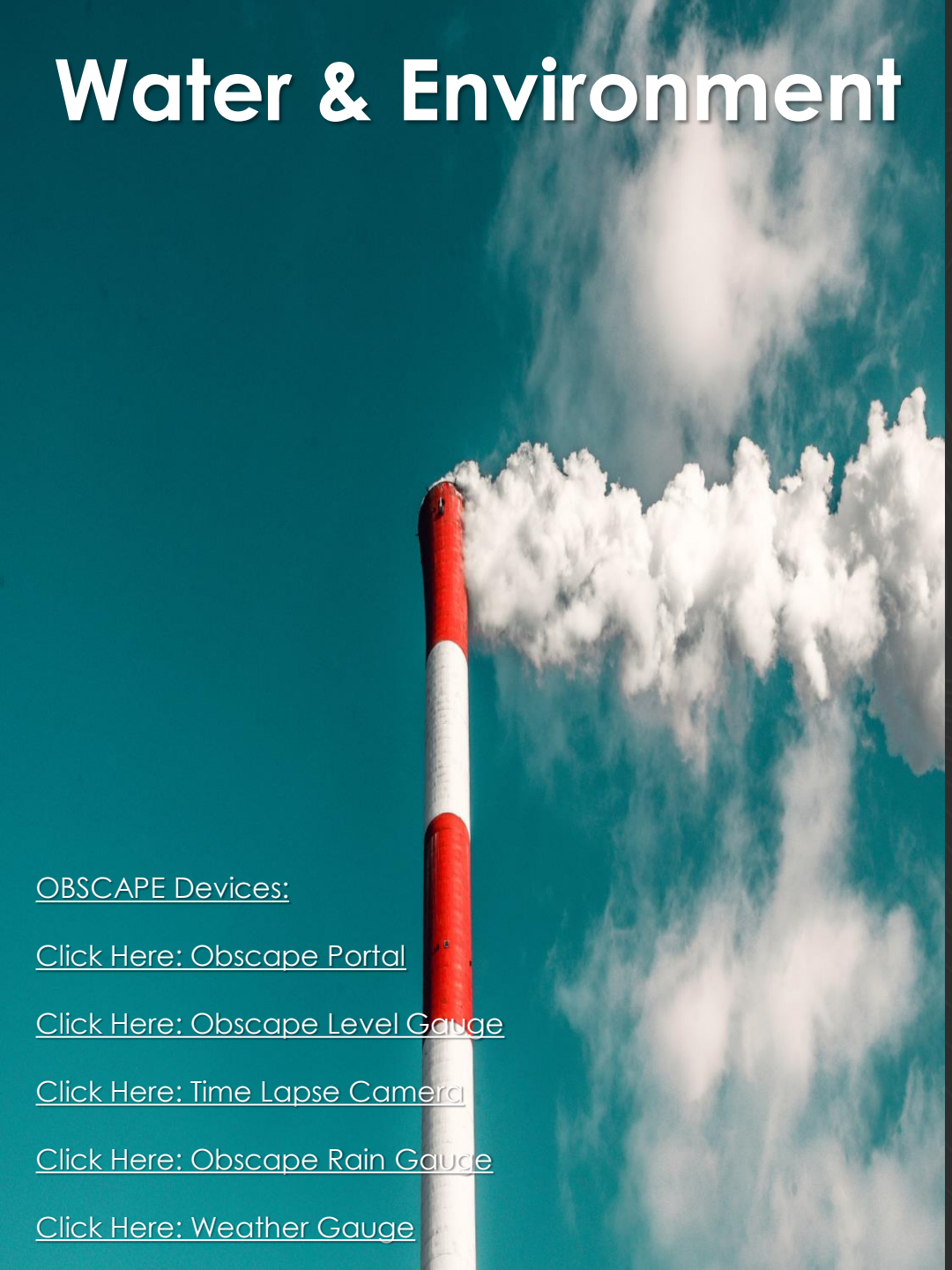
Stormwater management is the effort to reduce runoff of rainwater or melted snow into streets, lawns and other sites and the improvement of water quality, according to the United States Environmental Protection Agency (EPA)

Stormwater infrastructure helps to transfer vast quantities of water and wastewater across urban areas. Urban hydrology & natural hydrological water flow can combine & lead to an additional influx of water and contaminants to natural water systems. Obscape monitors & reports on the health & safety of both Ecosystem & Urban environments.

Application Example:

Impermeable surfaces such as pavement and roofs prevent rain from naturally soaking into the ground within urban and built-up areas. Storm drains, sewer systems and drainage ditches are designed to safely & efficiently remove this runoff. However blocked, overflowing systems can cause flooding, erosion, turbidity, storm and sanitary sewer system overflow, and infrastructure damage. Combined reporting from Time Lapse, Water Level Gauges , Rain Gauges, & Weather Gauges into our powerful & easy to use portal enables our clients to monitor & forecast these events.

Water & Environment



OBSCAPE Devices:

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Click Here: Obscape Level Gauge

Click Here: Time Lapse Camera

Click Here: Obscape Rain Gauge

Click Here: Weather Gauge

Market: Industrial Production & Processing

Over the past few years, Internet of things has aimed each consumer in almost every industry. This has been empowering businesses to embrace industry 4.0. for providing smarter services with smart factories. Industries have now realized that the fast increasing data has increased productivity by detecting problems in the system resulting in better decisions in production reporting system and management and thereby driving better business management.

Obscape can assist in all industries, production material reporting and management.

Application Example:

Remote Production Monitoring enables a regular Inspection. Obscape enables our customers to scrutinize their factory output, confirm specifications and identifying outliers.

Water & Environment

OBSCAPE Devices:

Click Here: Obscape Portal

Click Here: Obscape Level Gauge

Click Here: Time Lapse Camera

Click Here: Obscape Rain Gauge

Click Here: Weather Gauge

Market: Environmental

Recent years have seen an increased focus on the importance of compliance with new or evolving environmental protection legislation, leading to ever greater collection of environmental data to help inform robust decision-making and monitor compliance. Obscape have developed their Monitoring systems as a result of this need to gather information in the safest and most cost-effective manner. This includes collection of data using remote systems with the information transmitted back to the user without need to repeatedly visit a site. Our remote telemetry methods can improve the efficiency and quality of environmental data gathering. we strive to recognise the merits and suitability of each environment to the chosen application. By installing an Obscape Monitoring device we guarantee a great investment and low running costs, reliability, resilience, operator ease of use installation & operation, data accuracy, quality assurance quality control and data security.

Application Example:

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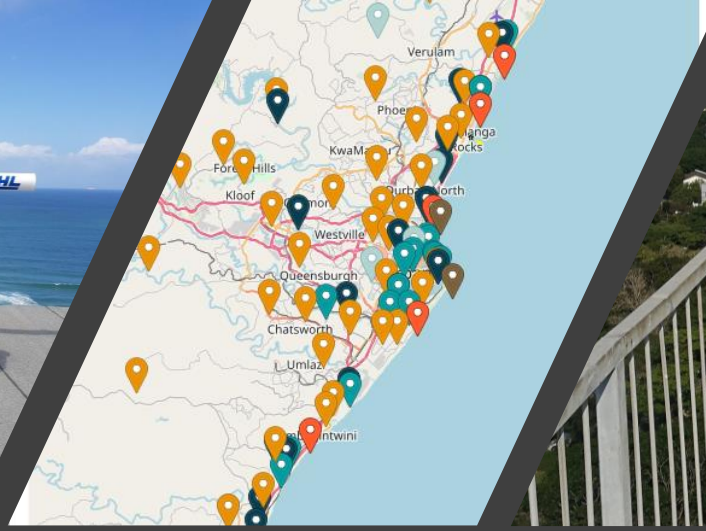
Additional Examples of Water & Environment Uses

POWER STATIONS, HYDROELECTRICAL PLANTS: Precise meteorological data are a prerequisite for weather-dependent overhead line operation, for short: dynamic line rating (DLR). Some network operators are already using it to optimize their power grids and exploit the capacities of their lines. Measurement of wind direction and speed, captures temperature, humidity, and air pressure, with built-in pyranometer CMP3 for measuring solar radiation.

HEALTH CARE: Wireless Medical Telemetry Service (WMTS) will play a major role in the healthcare segment. The market is expected to show tremendous growth in the automation industry (manufacturing and process control), vehicle (telematics, transportation and logistics), and retail segments. Retail is being deemed as a potential market and will show major developments in the coming years, despite smaller market size

Power Production: Oil & Gas Refineries & Power Plants consists of a number of complexes, each comprising a central gathering platform having a computer based telemetry master with remote terminal units (RTUs) in outlying unmanned platforms around the central platform.

Obscape Complete Device monitoring & Portal Reporting systems offers obvious advantage of not having to send professional personnel to the Site to examine the atmospheric conditions for the purpose of safe operation & maintenance. It enables every level of management to access to data regarding future operation planning, testing, or further evaluation of the maintenance schedule. It can also be beneficial in allowing external contractors access to the system to examine the before making a commitment to deploy for onsite repairs.



- Beach Surveys - Monthly
- Offshore Mapping
- Estuarine Surveys - 12
- Wave Buoys - 4
- ADCPs - 5
- Rain Radar - 1
- Wave Radar - 1
- Tide & Level Gauges - 50
- Rain Gauges - 60
- Weather Stations - 10
- Time Lapse Cameras - 40
- Real Time Water Quality - 17
- AIS Data Logging
- LoraWAN Gateway
- Offshore Weather Station - 1

eTHEKWINI PROJECT

OBSCAPE

ENVIRONMENTAL OBSERVATIONS