



OTT HydroMet provides valuable insights for experts in water and weather applications to help protect lives, the environment, and infrastructure.



# INCREASING ENVIRONMENTAL DEVELOPMENTS

call for experience and competence



## Increasing Population

Access to clean water,  
pursuit of self-sufficiency  
in developing countries



## Extreme Weather

Need for monitoring  
more parameters,  
more locations, more often



## Ecological Awareness

Demand for renewable  
energy & smart cities



## Technological Innovation

More remote sensing,  
IoT and data availability

# AGENDA

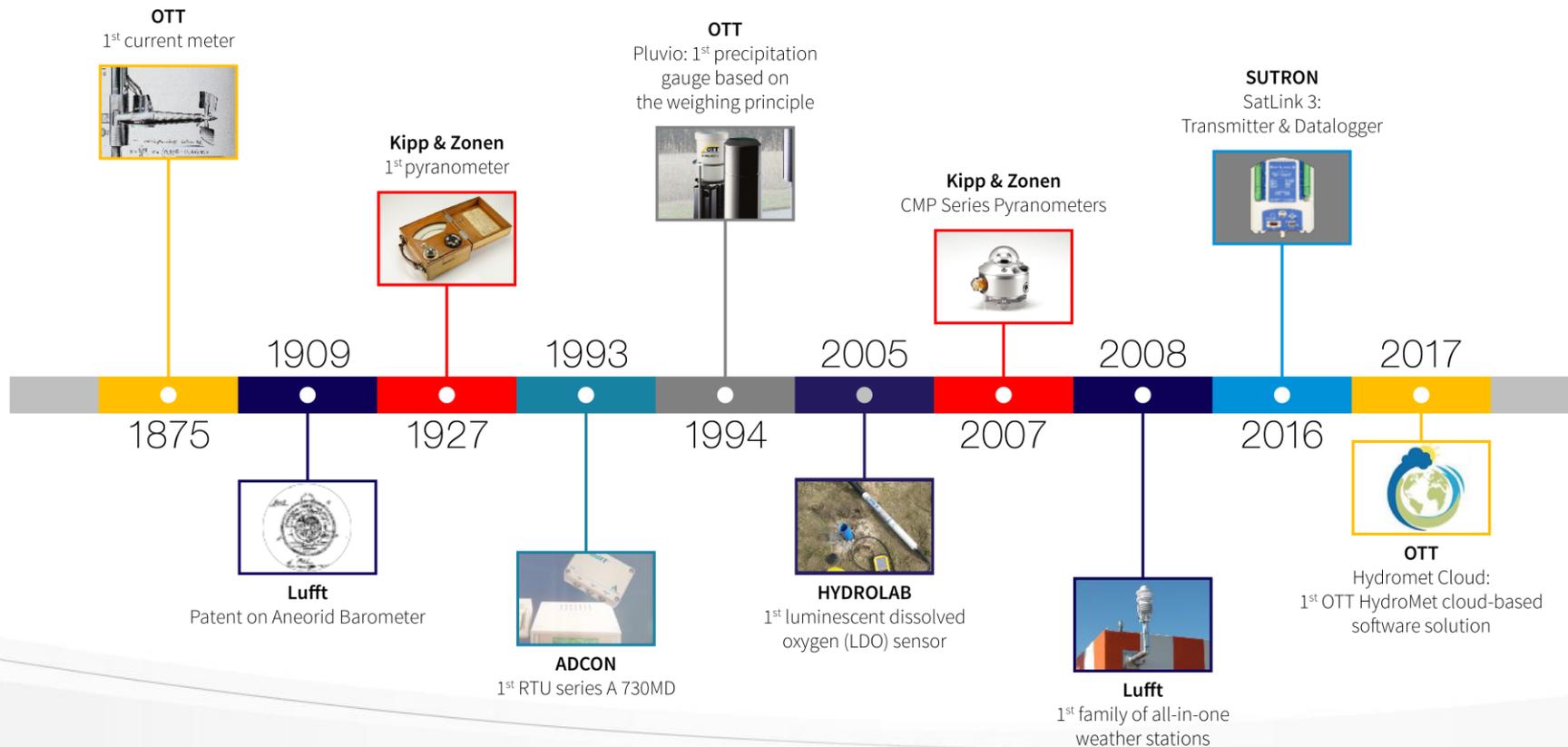
- 4 ○ WHO WE ARE
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# WHO WE ARE



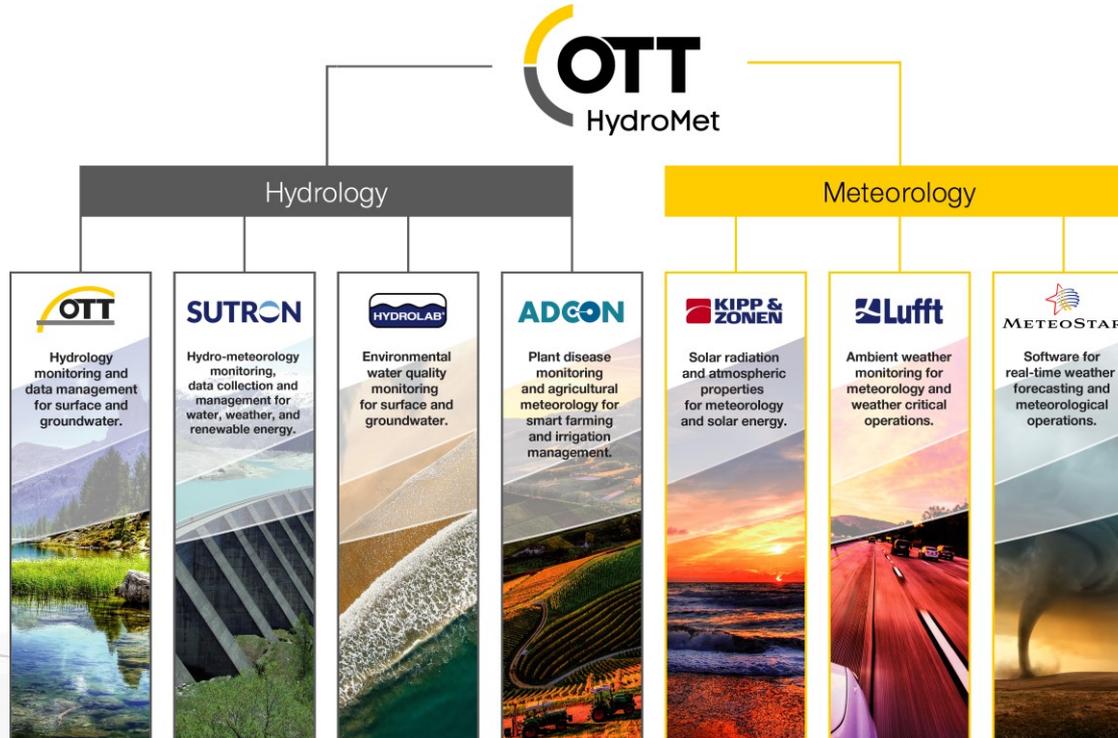
# OUR EVOLUTION

## History and milestones of OTT HydroMet



# MEASURING THE WORLD'S WATER CYCLE AND SURFACE WEATHER

Through a range of brands to offer complete hydrologic and meteorologic solutions that serve to monitor and protect the environment and lives.



# BROAD RANGE OF HYDROMET APPLICATIONS

Climatology



Meteorological Observations



Renewable Energy



Agricultural Meteorology



Surface Water Quantity



Flood Warning



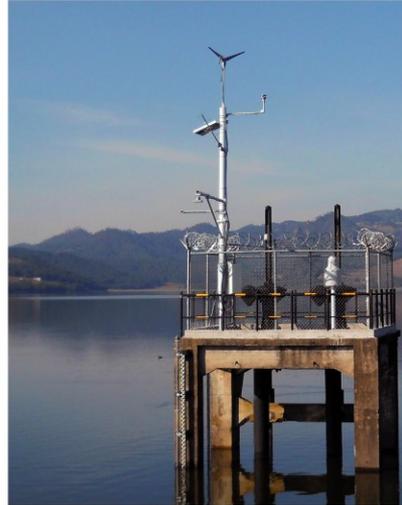
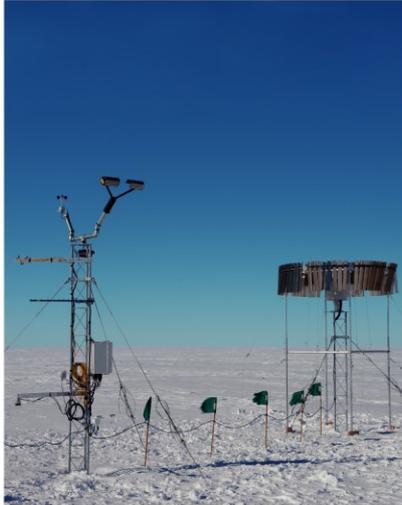
Groundwater



Water Quality



# EXPERIENCE & EXPERTISE IN METEOROLOGY



## Climatology

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Ambient weather, cloud height, snow depth, precipitation for long term monitoring

## Meteorological Observations

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Sensor to system solutions: highest precision for meteorological forecasting

## Renewable Energy

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Informing key decisions for solar and wind research, resource and performance monitoring

## Agricultural Meteorology

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Precision farming, smart agriculture, plant disease monitoring

# EXPERIENCE & EXPERTISE IN HYDROLOGY



## Surface Water Quantity

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Water level, flow and precipitation monitoring with remote communication and data solutions

## Flood warning

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Water level and precipitation monitoring, alerts and data solutions

## Groundwater

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Short and long-term water level monitoring

## Water Quality

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Spot checking and long-term continuous monitoring

A scenic photograph of a sunset over a calm lake. A large, leafless tree stands in the middle ground, its silhouette dark against the bright, golden sun. The sun is partially obscured by the tree's branches, creating a lens flare effect. The sky is filled with large, dramatic clouds, some dark and some illuminated by the setting sun. The water in the foreground is still, reflecting the colors of the sky and the tree. The overall mood is peaceful and serene.

**WHY CHOOSE US?**

# LEADING TODAY, INVESTING IN TOMORROW

Providing trusted insights into water and weather



**Strength and expertise from over 500 years of combined experience**

in environmental monitoring

**Commitment to innovation**

to realize economic & environmental sustainability



**Generating reliable data**

throughout the entire water and weather cycle



**Making informed decisions**

from reliable data and insights

**Going beyond only providing solutions**

by partnering with our customers

**Sustaining networks anywhere**

through local presence supported by leading global organization

# OUR INNOVATION LEADERSHIP

Partnering with customers. Developing integrated solutions.



With the combined R&D strength and application expertise from seven brands, OTT HydroMet sustains leadership across the water and weather data value chain.

- **Intelligent hydrologic and meteorological sensors**  
delivering reliable, maintenance-free measurements using latest optical and radar technology
- **Seamless data collection and transmission systems**  
for collecting and disseminating critical data from remote locations using satellite, radios and secure mobile - IP communication
- **Scalable data and network management solutions**  
for accessing and publishing data and alarms, and maintaining monitoring network remotely
- **Modeling and decision support software**  
for prediction and early warning of hydrologic or meteorological events, and crop-disease

# OUR GLOBAL NETWORK

From local to global - we'll make your project happen

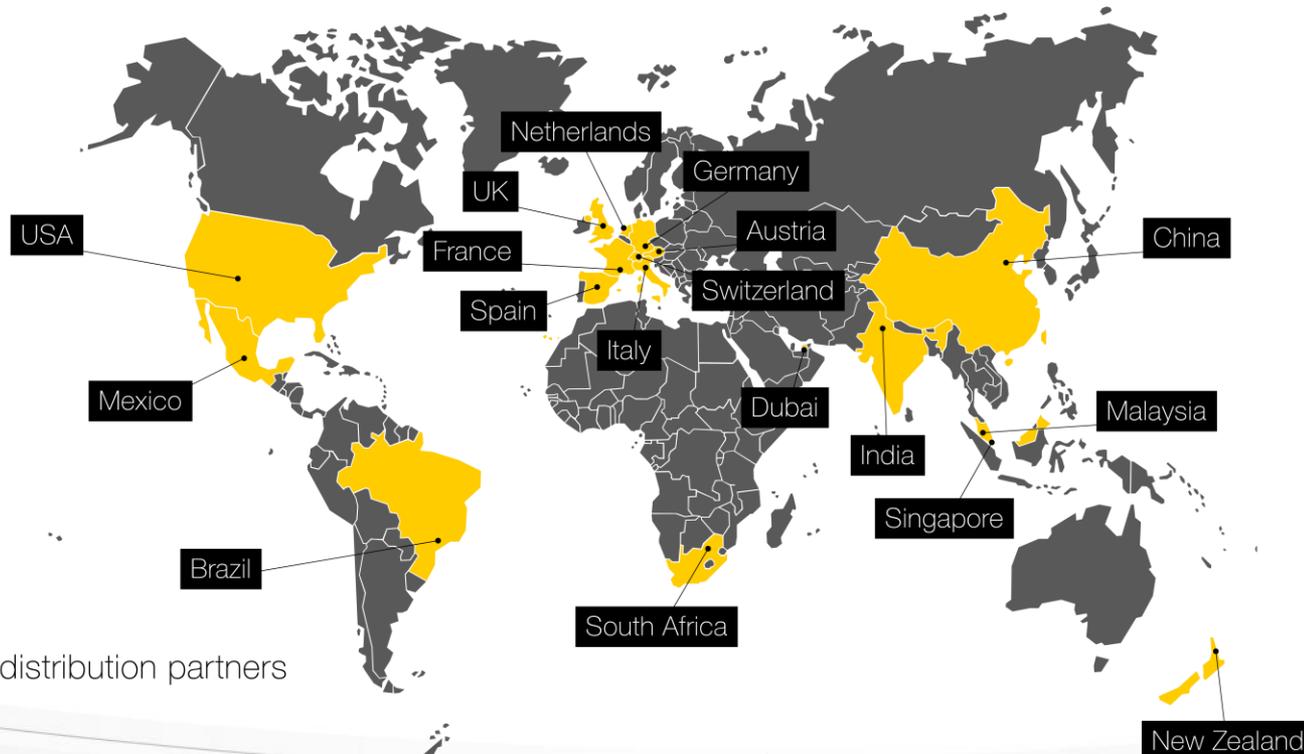


OTT HydroMet offers complete solutions for customers all around the world - no matter the size of the project



# AROUND THE WORLD

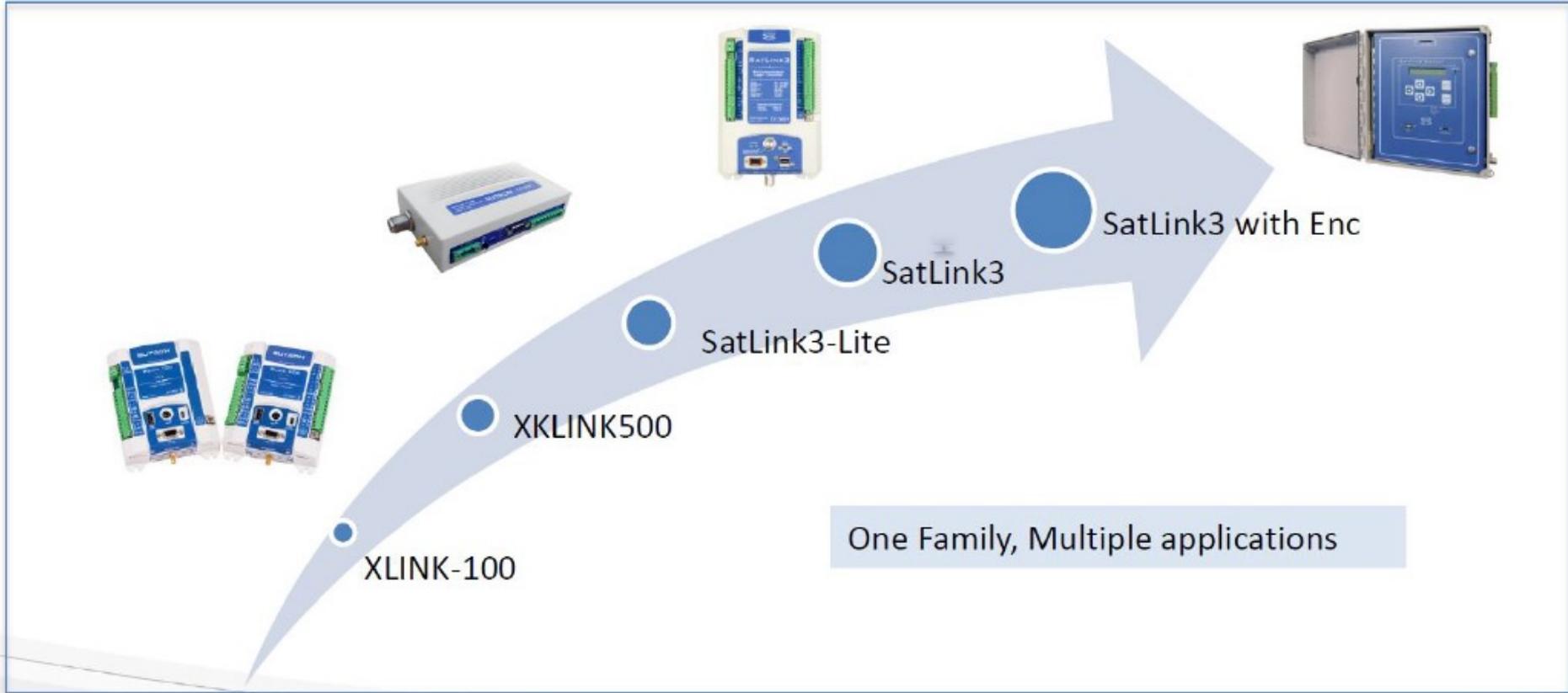
OTT HydroMet has offices in 18 countries, plus distribution partners in more than 90 countries, all around the world.



- OTT Hydromet offices
- Represented through distribution partners

# DATA LOGGERS

# SATLINK 3 FAMILY



# NEWEST MEMEBER SATLINK3 LITE

## ○ SatLink3 LITE

○ Designed for stations with simple applications and GOES only telemetry (Surface Water, Ground Water, and Met Stations)

- Built-in Internal memory (no SD card required)
- 3 year Warranty
- 32 Measurements
- Dual Independent SDI-12 Ports
- Tipping Bucket Input
- Supports Wi-Fi
- Uses Link Comm, no learning curve



# SATLINK3 VS SATLINK3 LITE COMPARISON

Full featured Transmitter/Logger (SL3-1).  
Capable of triple redundant communications



Transmitter only (SL3-XMTR-1)



SL3 in Enclosure with Display  
SL3 in Enc with no Display



SatLink3 LITE



Option modules

Iridium

Cellular

Programmable Voltage

Reference

# SATLINK3 VS SATLINK3 LITE COMPARISON



Use the SatLink3 Modem WEBMAN

# SATLINK3 VS SATLINK3 LITE COMPARISON

Advanced Selection Guide

## SUTRON SatLink3 vs SUTRON SatLink3 Lite



Feature	SatLink 3	SatLink 3 Lite
Uses geostationary/meteorological satellites for transmitting data.	✓	✓
Connectivity via SDI-12 sensors and a dedicated Tipping Bucket and Modbus Slave.	✓	✓
Compatible with SUTRON LinkComm software to configure stations and view/process data.	✓	✓
Can support additional telemetry methods Cellular or IRIIDUM satellite via plug in modules, which allow for near real-time data transmission.	✓	✗
Can support data redundancy as well as two-way communication (remote site access and configuration) via plug in modules.	✓	✗
Capable of future upgrades or expansions on telemetry or measurement types for long-term, ever changing monitoring needs.	✓	✗
Supports customization through Python scripting.	✓	✗
Supports multiple analog and digital channels, Modbus Master and Slave interfaces.	✓	✗

# STATION SETUP WITH GEO ANTENNA

- Typical site installation using the omni directional GEO antenna



A scenic landscape photograph of a lake at sunset. The sun is low on the horizon to the right, casting a golden glow across the sky and reflecting on the water. In the background, there are silhouetted mountains and a church with a tall spire on the left. The foreground shows the calm water of the lake.

# EXAMPLES OF SUCCESS

# PROJECT 1

## DAM SAFETY & WATER RESOURCE PLANNING PROJECT

A modern hydrology monitoring network in the Indian Ocean



# PROJECT FACTS

## Dams Safety and Water Resources Planning Project Sri Lanka

### Overview

- Ministry of Sri Lanka
- More than 120 Hydromet stations
- Timeframe 2012–2016
- Flood warning, irrigation, hydro power



### Product Scope

- Operational decision making in water resources management
- Flood forecasting, flood and drought frequency analysis and mitigation
- Operation of dams and water infrastructure in extreme hydrological events
- Seasonal water allocation planning



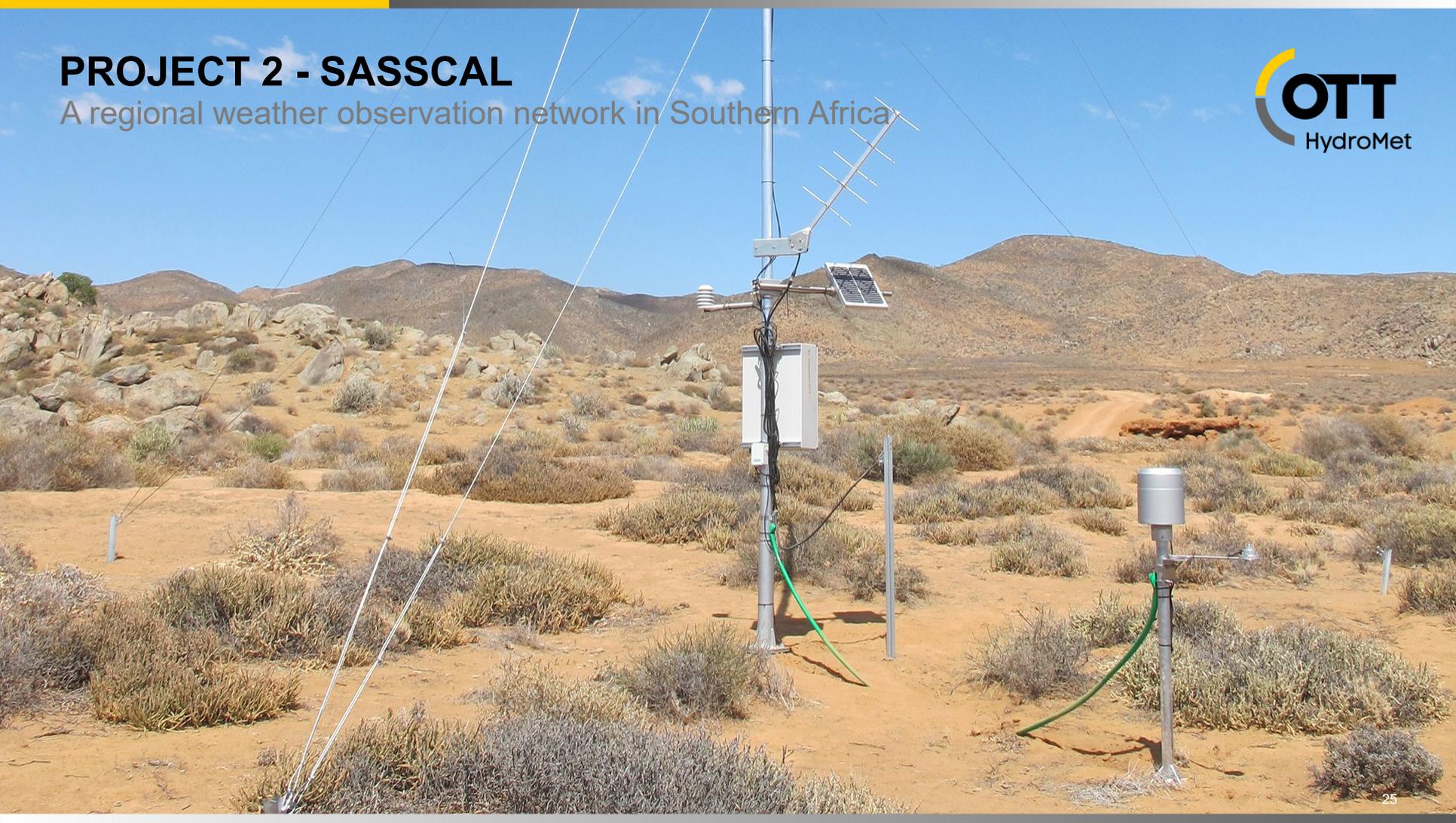
### The OTT HydroMet Solution

- End-to-end solution: from sensor to decision support
- Main turnkey supplier
- Project management
- Site survey & site design
- Civil works, commissioning
- Partner responsible for local services and IT equipment



# PROJECT 2 - SASSCAL

A regional weather observation network in Southern Africa

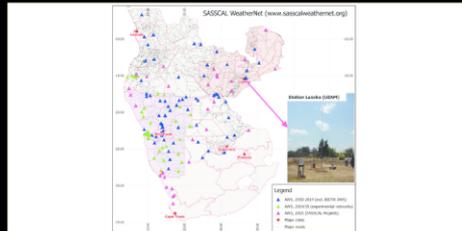


# PROJECT FACTS

## SASSCAL WeatherNet

### Overview

- Regional Science Service Centre in Southern Africa
- More than 160 AWS stations (ADCON: 102 stations)
- Timeframe 2013–2015
- Consistent and freely accessible data on a regional scale



### Product Scope

- Regional weather observation network
- Assessments on flash flood generation, sedimentation, fog
- Homogenization of information over the region
- Up-to-date technologies
- Support for research activities, stakeholders and various interest groups



### The OTT HydroMet Solution

- Installation, operation and maintenance of AWS
- Development, implementation, hosting and maintaining a web-based data access facility (open access)
- Data storage, back up and provision
- Service support



# PROJECT 3

Road weather information network in Michigan, USA



# PROJECT FACTS

## Advanced Road Weather Information System (ARWIS)



### Overview

- Upper Peninsula, Michigan
- Timeframe 2013–2015
- 20 new stations



### Product Scope

- 20 new ARWIS systems (ice warning)
- Cloud Concept: all data visible for users 'in the cloud'
- Data integration in MDOT MDSS



### The OTT HydroMet Solution

- Open system architecture (open interfaces, intelligent sensors, easy integration of sensors from other manufacturers)
- WS200, WS300, R2S and other sensors
- Pavement sensors
- SmartView3 software
- Continuous support and training



# PROJECT 4: DWD/KNMI

Ceilometers for governmental networks of  
DWD in Germany and KNMI in the Netherlands



# PROJECT FACTS

## Cloud height sensor

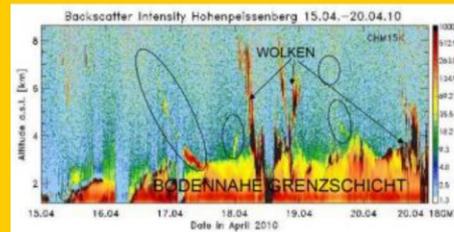
### Overview

- Dutch Royal Weather Service (KNMI) and Deutscher Wetterdienst (German Weather Service, DWD)
- Timeframe 2015–2019
- Cloud height sensor capable of measurements up to an altitude of 15 kilometers
- KNMI: 50 devices on- and offshore; DWD: more than 100 devices



### Product Scope

- Renewal and expansion of existing measurement network
- Data for customer group such as civil and military airport managers, flight weather consultants, users of environmental measurement technology, climate researchers
- Research on atmospheric particle distribution
- Determination of mixing layer depths
- Optimization of weather forecast models



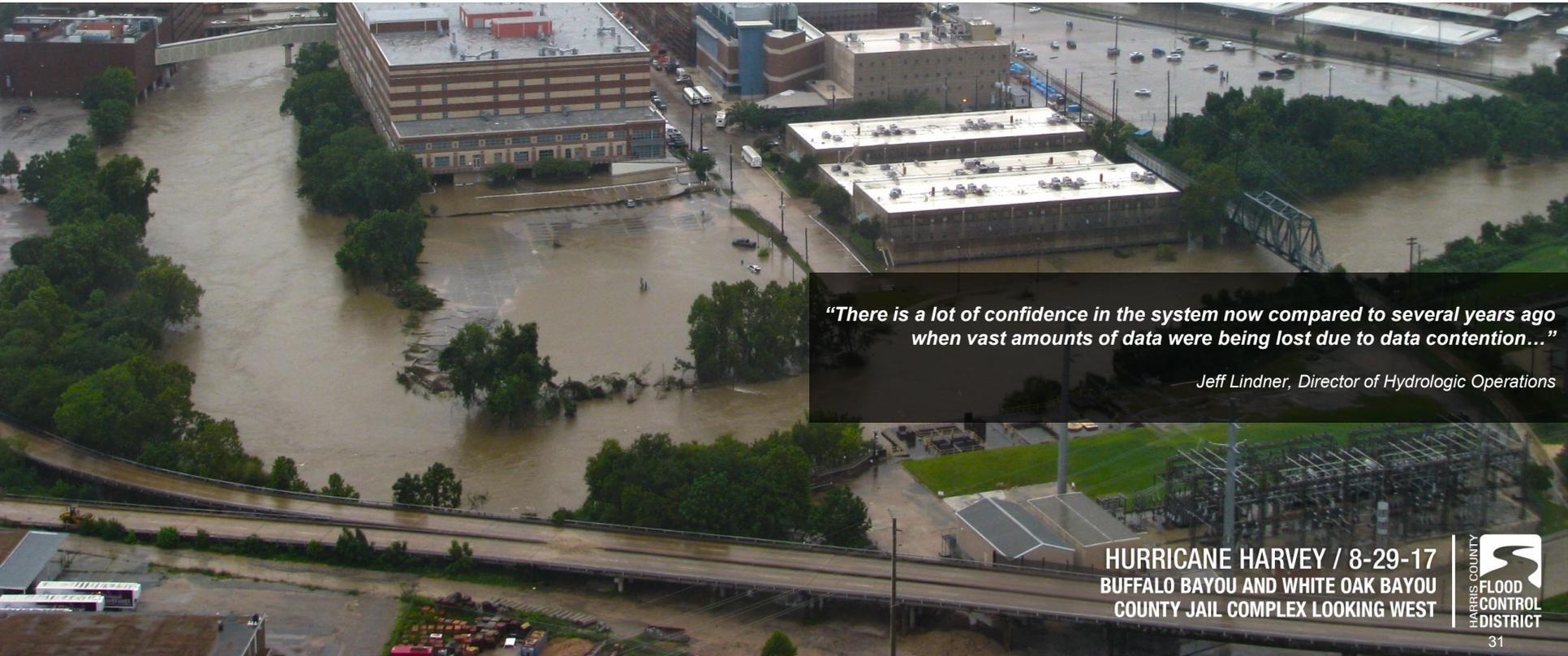
### The OTT HydroMet Solution

- Installation of Lufft CHM 15k



# PROJECT 5

Urban flood warning: Hurricane Harvey



*“There is a lot of confidence in the system now compared to several years ago when vast amounts of data were being lost due to data contention...”*

*— Jeff Lindner, Director of Hydrologic Operations*

**HURRICANE HARVEY / 8-29-17**  
**BUFFALO BAYOU AND WHITE OAK BAYOU**  
**COUNTY JAIL COMPLEX LOOKING WEST**



# PROJECT FACTS

Harris County, TX, USA



## Overview

- Harris County Flood Control District partnered with OTT HydroMet to expand network
- 22 watersheds and 1500 miles of open channel drainage network
- 13 stations in 1982
- 153 stations in 2017
- 19 include OTT HydroMet RLS, 38 include OTT HydroMet CBS
- Measuring flood warning, precipitation, and water levels



## Product Scope

- Expand real-time network and install sensors in creeks and bayous
- Accurate, reliable data for government authorities, the media, and the general public
- Flood warning system for emergency management authorities
- Better protection of life and property during episodic events



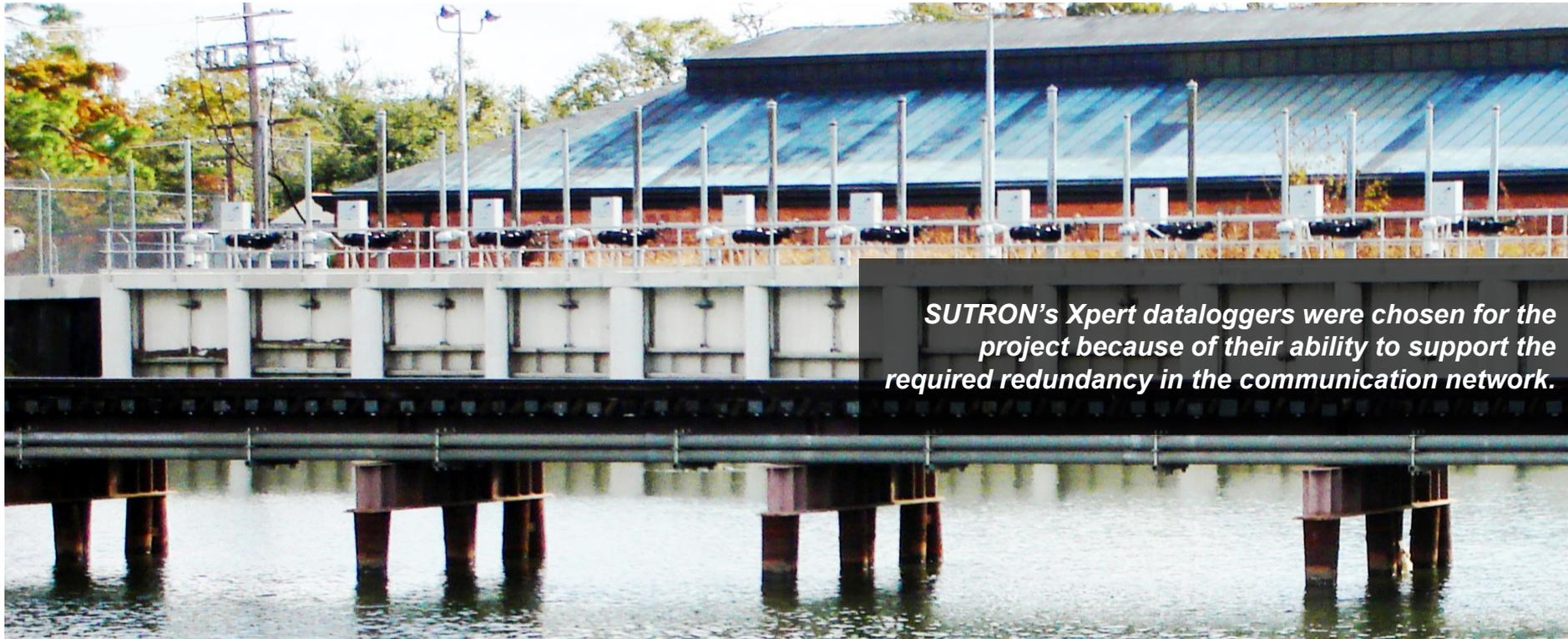
## The OTT HydroMet Solution

- OTT Radar Level Sensors (RLS) and Compact Bubble Sensors (CBS) installed
- Use non-contact measurement techniques to be unaffected by rising flood waters
- Measure water level (rate of rise) and precipitation (intensity and accumulation)
- Data transmitted in real-time to Harris County Flood Warning System website
- Fewer data gaps



# PROJECT 6

Critical infrastructure monitoring: post hurricane Katrina



*SUTRON's Xpert dataloggers were chosen for the project because of their ability to support the required redundancy in the communication network.*

# PROJECT FACTS

New Orleans, LA, USA



## Overview

- Army Corps of Engineers partnered with OTT HydroMet for monitoring stations
- 17<sup>th</sup> Street, Orleans, & London Canals in New Orleans
- Started in 2006, continuing with ongoing maintenance
- 12 OTT HydroMet stations
- Water level, rain, barometric pressure, wind speed/direction, air temperature, relative humidity



## Product Scope

- Need for communication redundancy and remote monitoring
- Visibility of water level conditions in New Orleans main drainage canals
- Operation of the canals
- Monitoring and operation of interim pump stations
- Monitoring and control of the pumps, gates, and structures connecting the canals to Lake Ponchatrain



## The OTT HydroMet Solution

- OTT HydroMet provided installation, testing, and training for 12 new water monitoring stations, plus battery and solar power for equipment and fiber converters
- Xpert dataloggers support redundancy and varied data collection intervals through multiple communication paths:
  - Fiber-Optic cable
  - GOES satellite
  - Iridium satellite



# IN A NUTSHELL

# REASONS TO WORK WITH US

Our expertise – your benefits



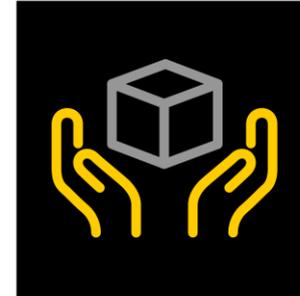
- OTT HydroMet has the most know-how regarding **all aspects of the water cycle and surface weather**, with more than 580 years of experience in the industry
- We offer **sustainable and stable solutions** – you can benefit from extremely durable products and services that contribute to protecting the environment and human lives
- We offer **full solutions** of instrumentation, software and support
- We offer **worldwide expertise and a global network** – around the world, our local contact teams and highly trained experts are there to support you



INTEGRATED SOLUTIONS



SUSTAINABILITY



PRODUCTS & SERVICES



PROTECT  
YOUR INVESTMENT



580 YEARS  
OF EXPERIENCE



EXPERTISE & PRESENCE  
WORLDWIDE

# Insights for Experts