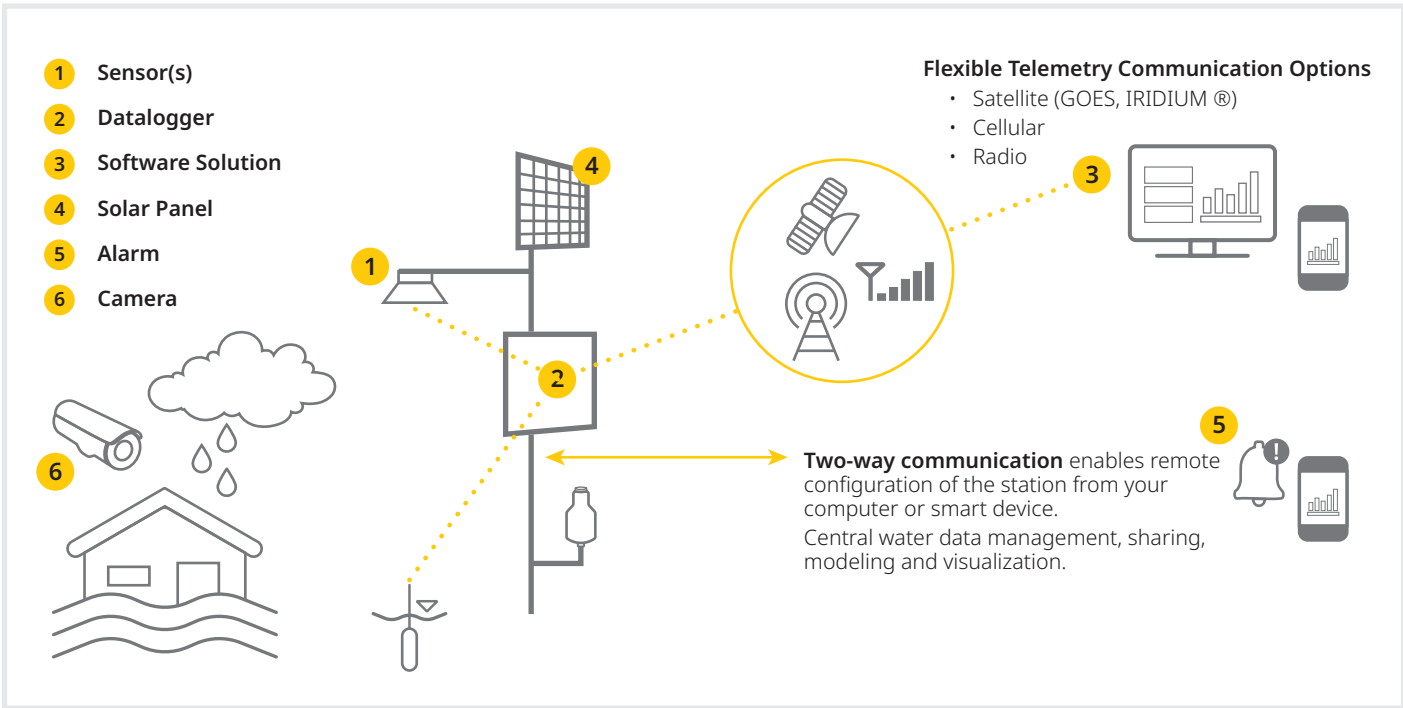## ELEMENTS OF A FLOOD MONITORING STATION

Access to local real-time data is vital in flood management as it provides information for rain, water levels, and stream flows to anticipate floods and make informed decisions during events. Additional information, such as images transmitted from measurement sites and available on your phone or browser, can provide important context on the conditions. This informs actions to deploy resources and proactively protect valuable infrastructure from high water and extreme rain events.

With remote data collection from flood monitoring systems, you can set rain intensity or water level thresholds to trigger actions, like SMS alerts, to enhance preparedness. After the flood, data informs future planning, floodplain map development and maintenance levels at specific sites. Communicating actionable data to emergency responders, officials, and the public informs key decisions, ultimately protecting lives and property.

1. Sensor(s)
2. Datalogger
3. Software Solution
4. Solar Panel
5. Alarm
6. Camera

Flexible Telemetry Communication Options
· Satellite (GOES, IRIDIUM ®)
· Cellular
· Radio

Two-way communication enables remote configuration of the station from your computer or smart device.
Central water data management, sharing, modeling and visualization.
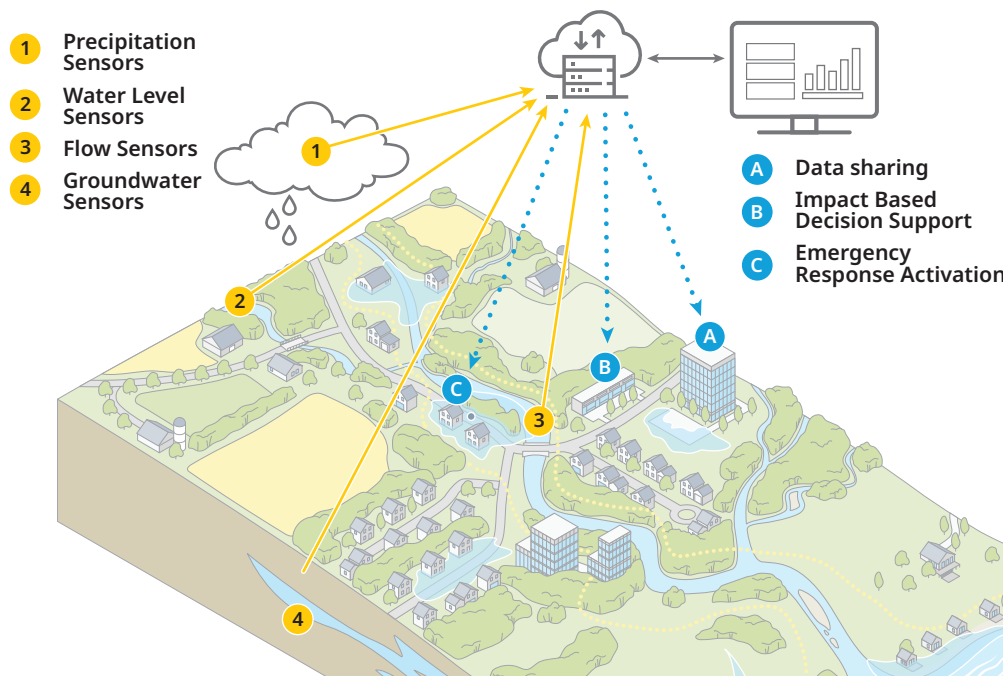
ELEMENTS OF A FLOOD MONITORING NETWORK

The key objective is to empower communities with the right data and enable the mitigation of flood risk. Monitoring data is required to provide timely alarms, but also to enable the identification of flood hotspots and the assessment of mitigation measures.

To achieve this, a network approach is essential; the entire catchment must be monitored at critical locations and data must be collected without or with as few gaps as possible.

1. Precipitation Sensors
2. Water Level Sensors
3. Flow Sensors
4. Groundwater Sensors

A. Data sharing
B. Impact Based Decision Support
C. Emergency Response Activation

OBSERVE AND THRIVE

We empower communities to observe and measure the natural world, strengthening resilience against climate variability.

The OTT HydroMet family of brands harnesses two centuries of hydrology and meteorology expertise, pioneering technologies specifically for flood monitoring applications. We are committed to understanding your specific needs and providing distinctive flood monitoring solutions. Our support extends through commissioning, optimization, and maintenance to ensure you receive timely and accurate data. This is the OTT HydroMet difference.
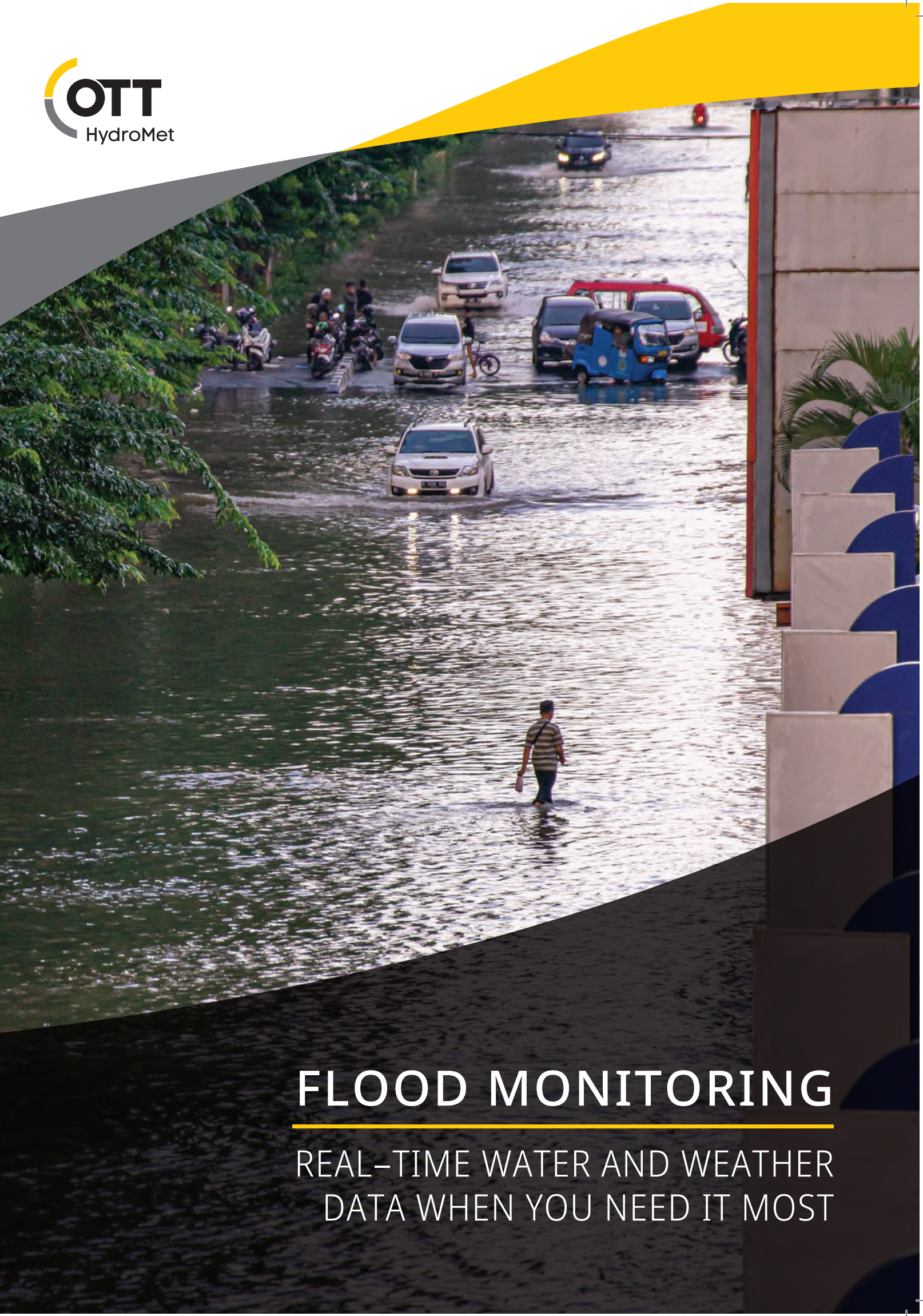

OTT HydroMet | KIPP & ZONEN | Lufft | OTT | SUTRON | HYDROLAB | METEOSTAR
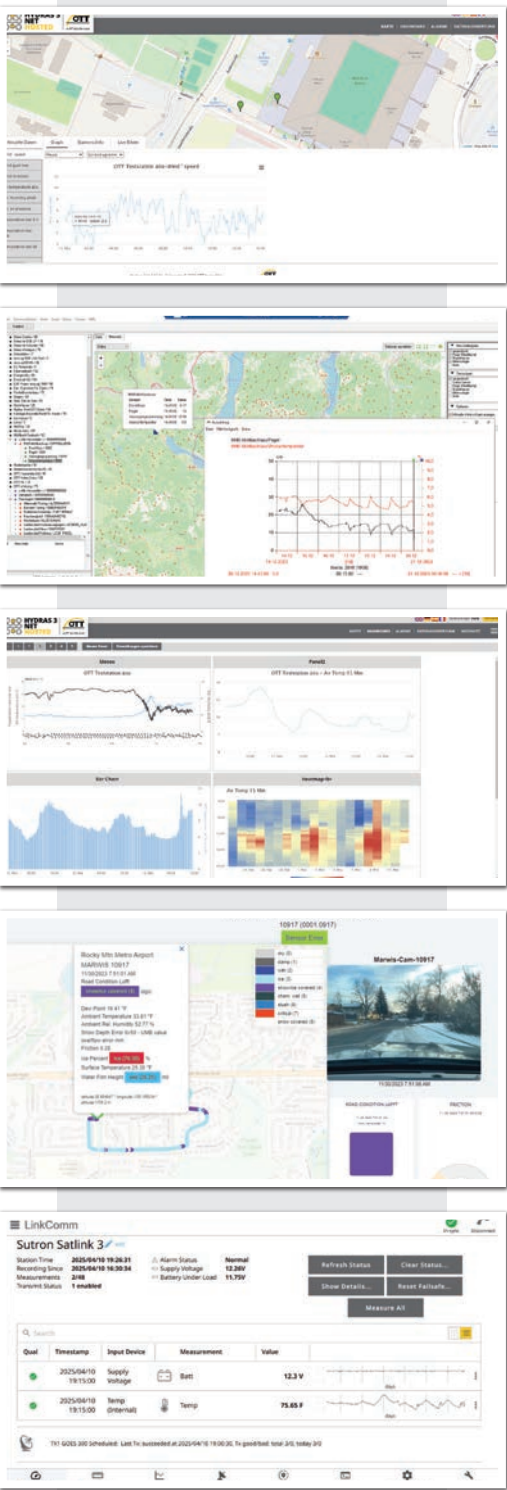
FLOOD MONITORING
REAL–TIME WATER AND WEATHER DATA WHEN YOU NEED IT MOST

DATA MANAGEMENT

Recent developments in smart sensors, communications technology, IoT and the management of Big Data, have combined to dramatically improve the ease with which flood managers can implement integrated flood management plans.

- Access to critical real-time data such as heavy rain events and water levels.
- Data Visualization via web/app based dashboards.
- Remote network management, including network status, command handling, and quality assurance and control.
- Data Sharing for triggering threshold alarms and distributing critical information across response teams.
- Access to latest webcam images.
- Secure data hosting, compliant with regional regulations.

FLOOD MONITORING SYSTEM

Flexible configurations for all application levels.

- Measurement simplicity with the OTT SensorLink 1000.
  - Minimal experience required for set up and operation.
  - Enables network density with cost-effective supplemental monitoring.
  - Protects against data loss by providing cost-effective redundancy.

- Multiple-point measurement configurations to add additional data.
  - Monitor precipitation and other weather parameters.
  - Confirm conditions visually with remote web camera view.
  - Increase data-density for deeper insights.

- Intuitive, wireless data transmission.
  - Right-sized datalogger/telemetry options for all application levels.
  - Low-power consumption options for remote up-time confidence.

- Field hardened, robustly tested equipment and flexible mounting options.

WATER LEVEL/ FLOW SENSORS

SENSOR TYPE	PARAMETERS	KEY ADVANTAGES
Radar Level Sensor	• Water Level • Distance to Water • Calculated discharge	• Ideal for debris or sediment laden rivers/streams or flash floods. • Non-contact radar level sensor with pulse radar technology to measure safely above the water from a bridge, pier, or mounting arm to avoid large debris and high sediment loads. • Unmatched accuracy with 80 GHz radar technology and smart features like inclination measurement.
Pressure Level Sensor	• Water Level / Pressure • Water Temperature • Calculated Discharge	• Ideal for stilling wells, streams, weirs, or flumes. • Minimize the need for data post-processing by directly outputting discharge. • Internal position sensor provides warnings if sensor is displaced due to in-stream events.
Surface Velocity Sensor	• Surface Velocity	• Non-contact velocity radar sensor to collect surface water velocity measurements.
Bubble Level Sensor	• Water Level • Water Temperature	• Ideal for high accuracy requirements for stream gaging & monitoring of tidal/coastal areas, estuaries, groundwater & reservoirs.
Station Camera	• Visual images	• A compact camera provides situational awareness and context to your sensor readings with pictures every hour. An excellent addition to any new or exisiting station with simple datalogger integration.

PRECIPITATION

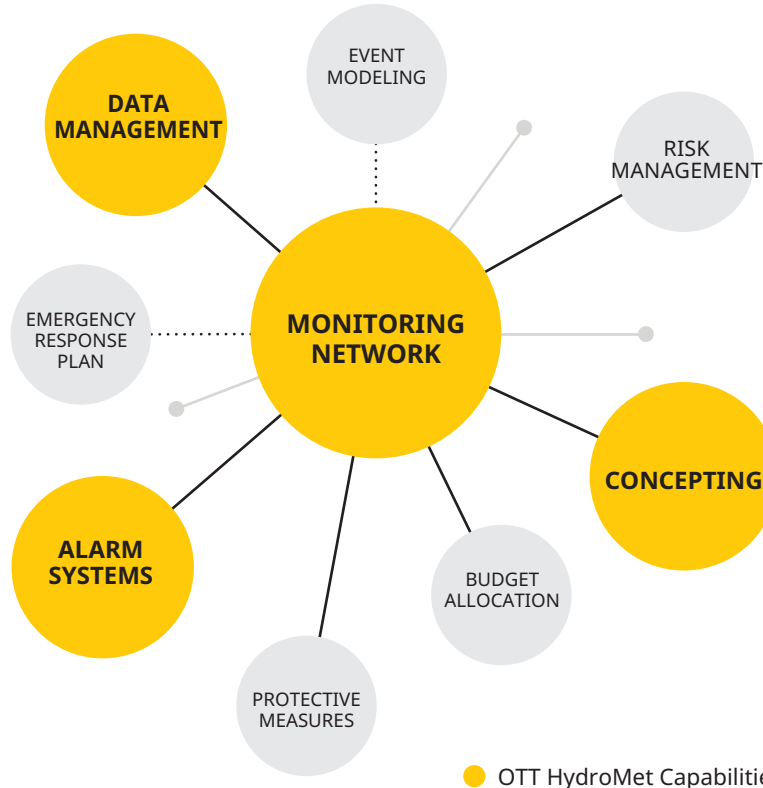|		
All-Weather Weighing Rain Gauge	• Precipitation Accumulation • Precipitation Intensity • Bucket Content (real-time and non real-time)	• Ideal for highly accurate readings for both liquid and non-liquid precipitation. • Virtually maintenance-free and lifetime calibrated. • Weighing gauge handles high volumes and intensity of rain during flood conditions.
Compact Weather Station with Tipping Bucket	• Precipitation Accumulation • Precipitation Intensity • Air Temperature/Pressure • Relative Humidity • Wind Direction/Speed	• Common rain gauge for flood applications. Lightweight and compact, a Tipping Bucket Rain Gauge occupies a small footprint and may be mounted to poles, towers, and cement pads.
Precipitation	• Precipitation Accumulation • Precipitation Intensity • Precipitation Type	• Ideal for remote locations with varying environmental conditions and difficult accessibility. • Quick response time detecting precipitation throughout an event. • Low maintenance option for worry-free deployment.

FLOOD MANAGEMENT PROGRAM COMPONENTS

- Determine program goals.
- Map monitoring network sites.
- Select site specific technology and requirements.
- Determine which parameters (rainfall and intensity, water level, water flow, etc.) will be most helpful to identify flood events and how frequently the data needs to be collected.
- Optimize your monitoring station to send alarms to emergency response team members when a threshold is exceeded (e.g., water rises above flood stage).
- OTT HydroMet helps achieve a comprehensive monitoring network so managers can better understand the conditions that cause flooding, increasing confidence in warning system effectiveness.

MONITORING NETWORK

DATA MANAGEMENT

EVENT MODELING

RISK MANAGEMENT

CONCEPTING

BUDGET ALLOCATION

PROTECTIVE MEASURES

ALARM SYSTEMS

EMERGENCY RESPONSE PLAN

● OTT HydroMet Capabilities

Federal and State water management agencies worldwide trust OTT HydroMet for reliable and precise data across their extensive monitoring networks. We guarantee the quality of our instruments by offering warranties against defects, as well as warranty extensions and additional protections against unexpected outages, ensuring a continuous and dependable data stream.

	Factory and Workmanship Defects	Accidental Damage	Acts of Nature	Intentional Damage	Other Unforeseen Failures	Shipping
Standard Warranty	✓	✕	✕	✕	✕	Standard
Extended Warranty	✓	✕	✕	✕	✕	Standard
Comprehensive Coverage	✓	✓	✓	✕	✓	Standard