From Observations to Action

Why Integrated Systems Matter for Early Warnings



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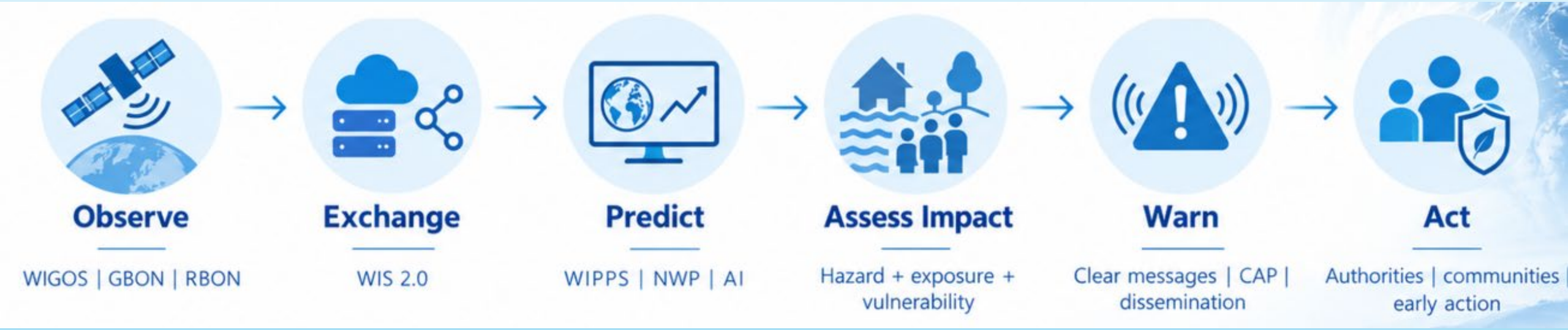
Why Early Warnings Matter



Early warnings save lives, protect livelihoods and strengthen resilience.

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The Early-Warning Value Chain



A warning system is only as strong as its weakest link.

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Observations Are the Foundation



Surface & upper-air
Stations, radiosondes and aircraft observations



Radar & satellite
Continuous monitoring of evolving hazards



Hydrology & ocean
Rivers, coasts and marine conditions



Metadata & quality
Standards, calibration and traceability

No observations → no reliable forecast

Coverage | **Quality** | **Timeliness** | **Sustainability**

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Integration Turns Data into Intelligence



GBON

RBON ⇨ **Draft Resol. 3.1.**

Financial Mechanisms

Cooperation

Interoperable data exchange

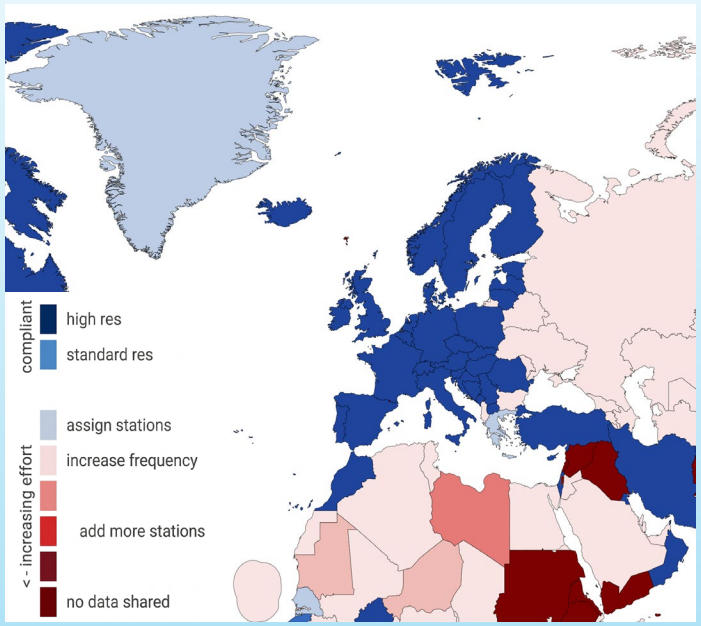
Faster access to critical information

Cross-border consistency

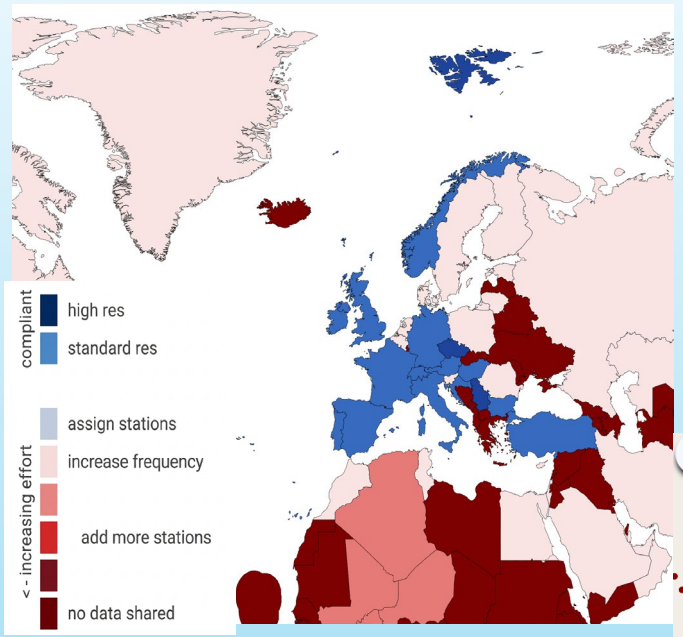
Better services for decision-makers

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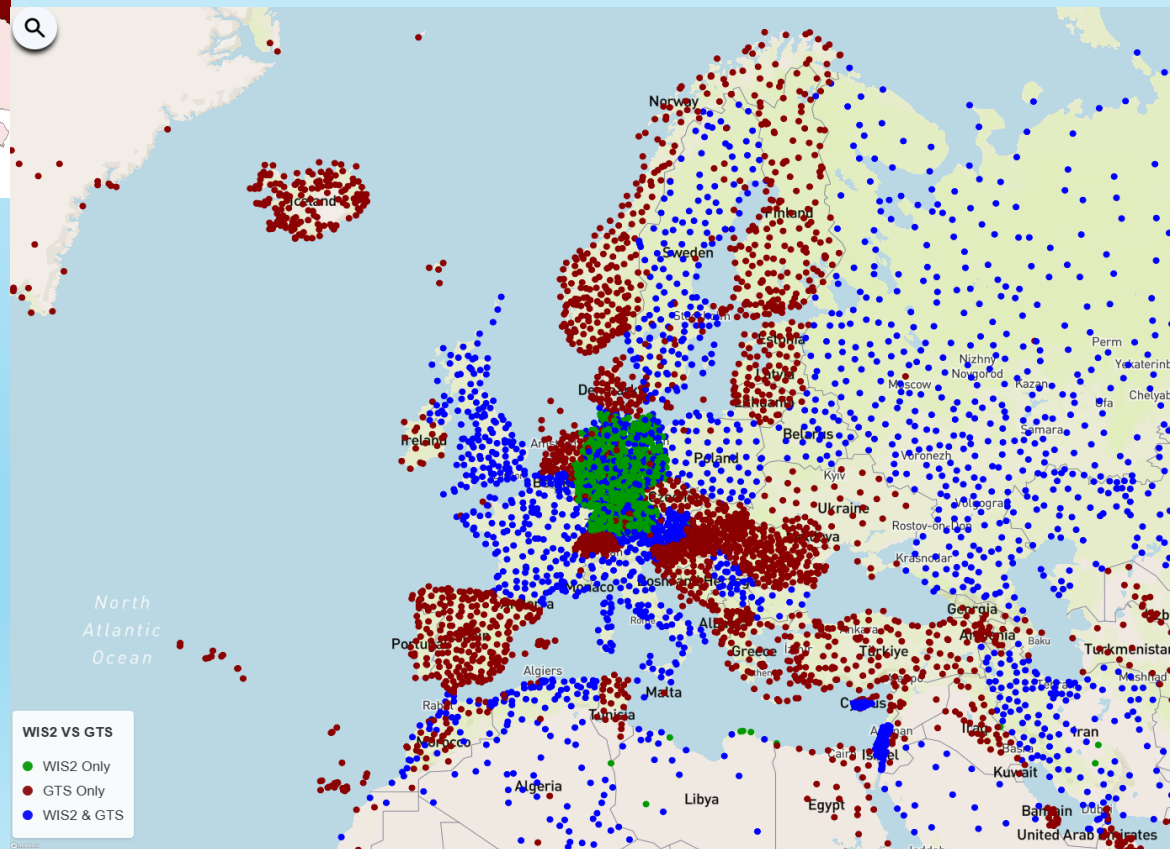
GBON Compliance



Surface Q3 -2025



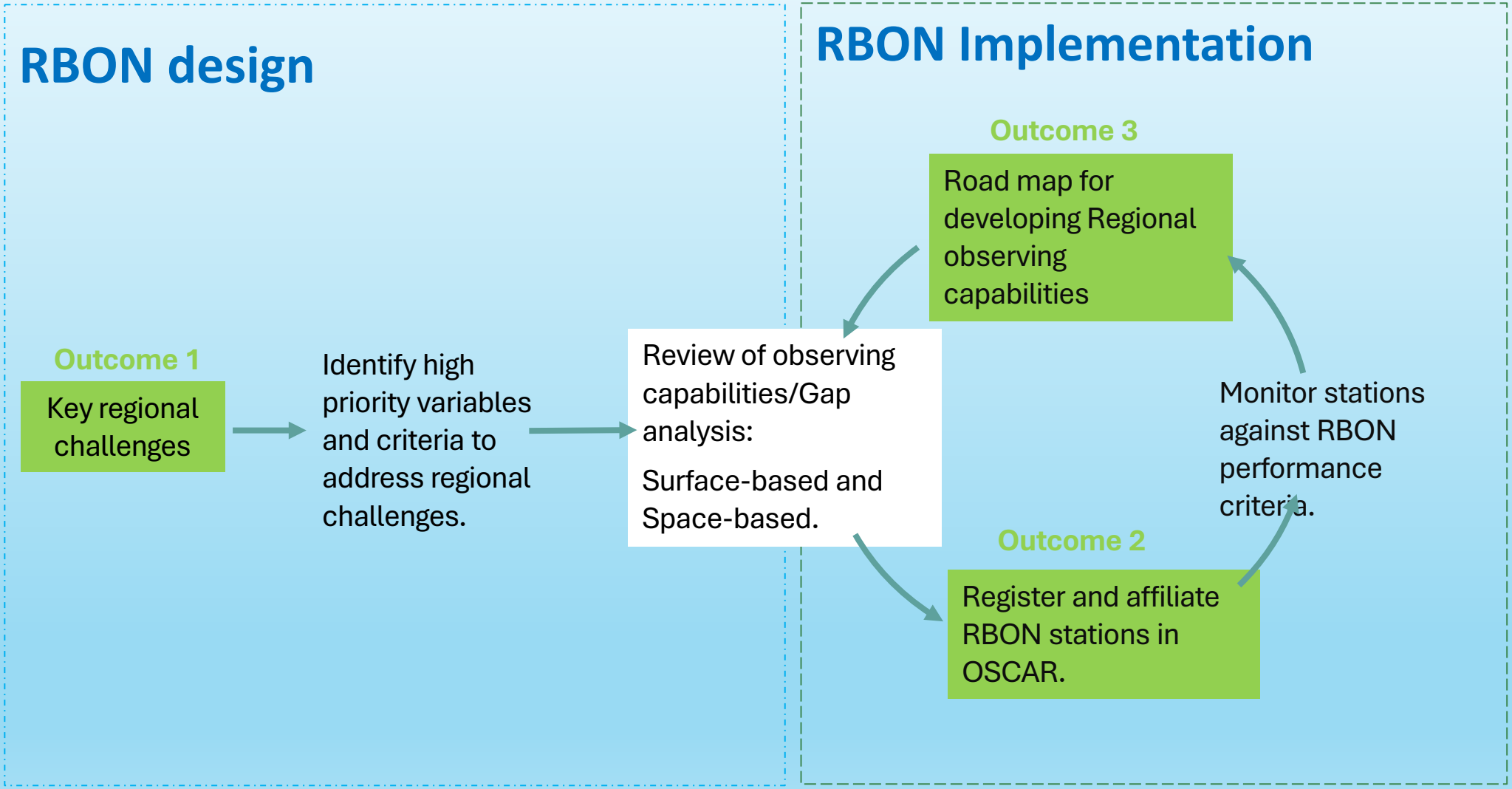
Upper-air Q3 -2025



Transition GTS-WIS2.0

Source: wdqms.wmo.int

RBON – Design and Implementation Steps



Draft Resolution 3.1

Source: RBON FG

From Hazard Forecasts to Impact-Based Warnings

Hazard forecast

200 mm of rain

in 24 hours

- **Meteorological intensity**
- **Useful, but not sufficient**

Translate hazard into consequences

Impact-based warning

High probability of flooding affecting people, roads and critical services

- **Flash flooding likely**
- **Road disruptions expected**
- **Critical sites may be affected**
- **Early action may be needed**

Users need to know what the weather will do — not only what the weather will be.

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Early Warnings for All: Four Connected Pillars

1

Risk Knowledge

Understand hazards, exposure and vulnerability

2

Observations & Forecasting

Detect, monitor, analyse and predict

3

Warning Dissemination

Communicate clear and actionable messages

4

Preparedness & Response

Enable coordinated early action

Pillar 2 creates value only when it connects with the other three.

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What Integration Requires



Strong systems connect science, operations, communication and response.

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Key Takeaways



Better observations improve warnings.



Connected systems create usable intelligence.



Impact-based services translate science into decisions.



The goal is action that protects lives and livelihoods.

“The value of an observation is measured by the action it enables.”

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Thank you very much

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