WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Workshop on Standardization of First-mile Data Collection from Automatic Observing Platforms

Hydrology contribution – Brazil case

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Acting Director/Hydrological data and studies

WMO OMM
World Meteorological Organization
Organisation météorologique mondiale

Roles of the National Water Agency - ANA

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Regulatory activities

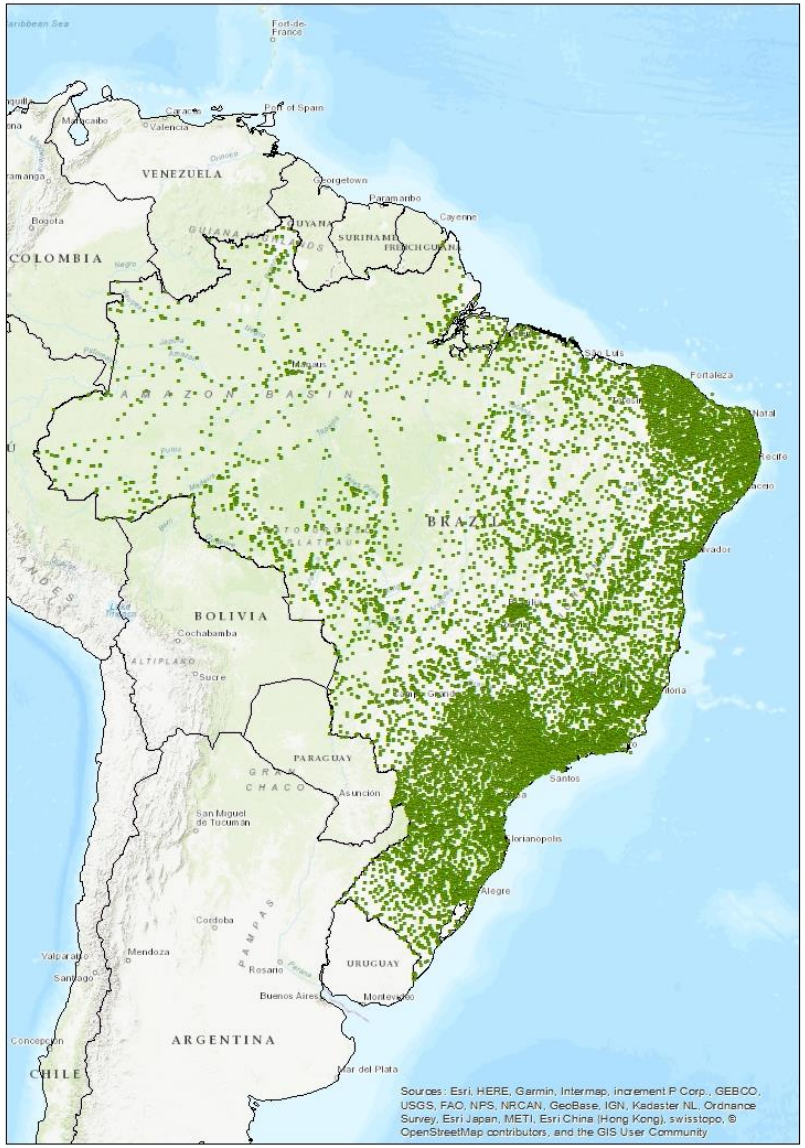
- water use rights at federal rivers
- regulation of public irrigation water adduction
- rules for water reservoir operation
- rules for dam safety
- enforcement of water use rules

Water management activities

- implementation of the water policy and its tools
- support to the National Water Resources Management System
- Hydrological monitoring
- Critical events

Induction activities

- Programs and projects
- Enhance water use efficiency
- Rise water availability



~ 24,000 hydrological stations at national database

Rede Hidrometeorológica Nacional

THE NATIONAL HYDROLOGICAL NETWORK

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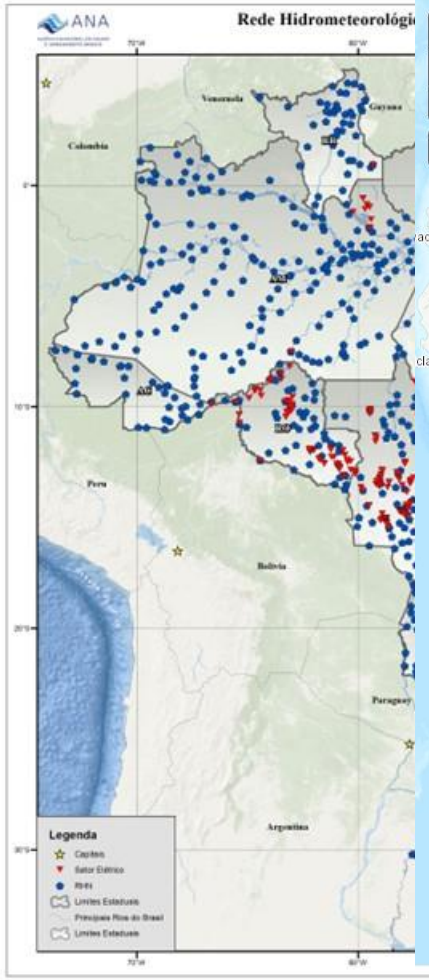
ANA - Hydropowersector
2.200 estações



Hydrological Data Collection Platform

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Typical variables:
Rainfall
Water level
Discharge
Water quality
Groundwater

Satellite or mobile or radio Transmission

Integrated equipment

Regulatory action:
Water consumption

Hydrological Data Collection Platform

Main components

Sensors → Datalogger → Communication

Instrumentation

Manager

Delivery agents
Modem, message, way of transmission

Data collection system

Data outputs

Many data formats → One data format

Hydrological Data Collection Platform

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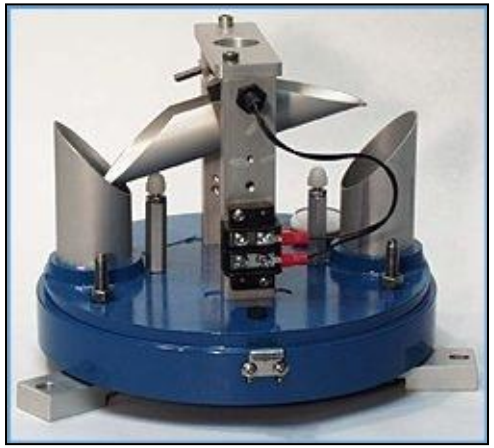
Sensors



Pressure
Bubble
Radar

Protocols

SDI 12
- Low energy consumption
- Smart sensors
- Standard for environmental variables
- Limited cable length

More dataloggers

RS 485
- High energy consumption
- Smart sensors
- Standard for industry/other uses
- Long cables

More sensors

Hydrological Data Collection Platform

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Datalogger

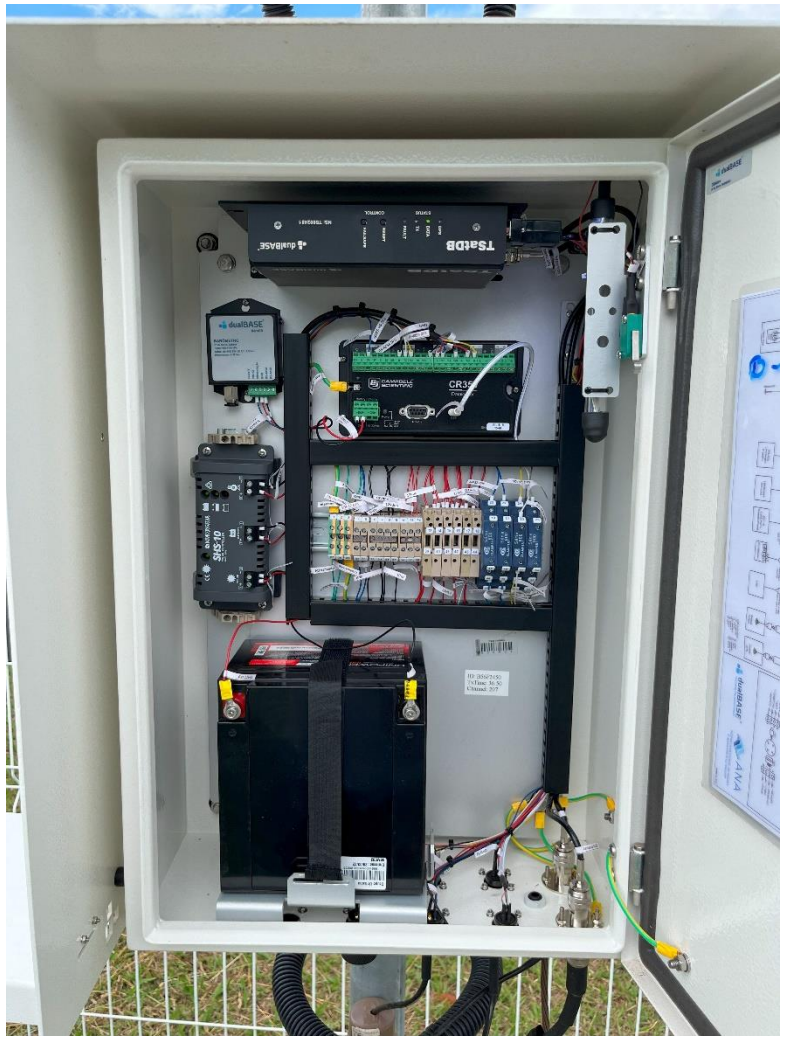
Able to understand:
- SDI 12
- RS 485
- RS 232 etc.

Management:
- Energy
- Sensors/Ports
- Storage
- Communications

Friendly software

Bad integration with communications!

Brazilian network:
- Campbell
- Vaissala
- Ott
- AgSolve
- Iris/Kisters



Hydrological Data Collection Platform

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Communication *shapes the* Data collection system

Transmission Protocols

Industry standard → Different protocols for different models and brands → Systems

X

My standard → One protocol → System

Hydrological Data Collection Platform

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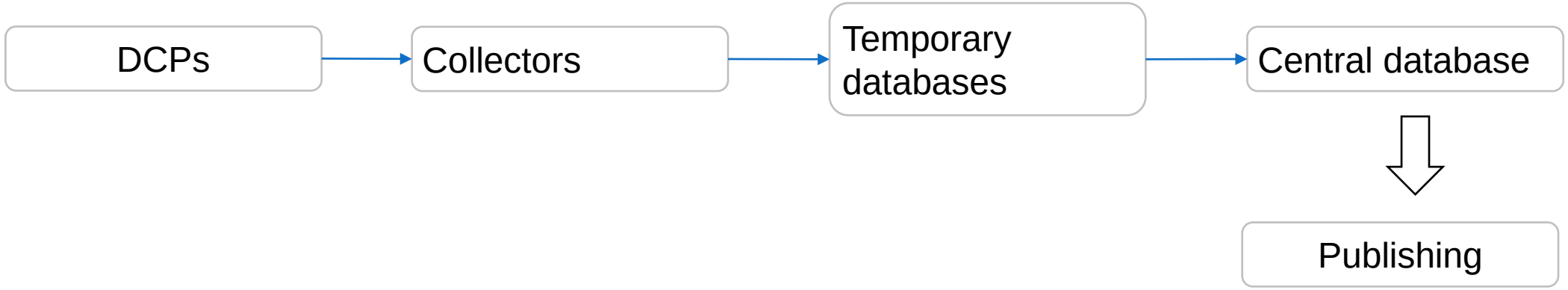
Communication *shapes the* Data collection system

Data collection system



Hydrological Data Collection Platform

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Communication *Shapes the* Data collection system

Brazilian case/Scenarios for developing real time data network:

- Industry protocols → Lot of data collector systems; High maintennce; Capacity building
- Standard message heading + message → Short message/ few data received; One data collector system
- Station ID + message → Redundancy data; One data collector system with templates for groups of similar stations

Protocols x sustentability

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Sensors, dataloggers and parts offer

Design/project

Acquisition cost

Technicians profile

Capacity building

Informatics, soft/hardware, inhouse/market

Transmission, data packages

Reliability

#AÁguaÉUmaSó

Obrigado!

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