CAMPANIA REGION

Technological Upgrade and Modernization of the Monitoring Network for Hydrometeorological and Hydraulic Risk in Campania

ANAC Guideline No. 8 promotes overcoming technological lock-in by favoring systems based on open standards and non-proprietary technologies, ensuring full data interoperability. In line with this, the Campania Region launched Phase 1 of the tender to **upgrade systems, equipment, IT and telecommunication infrastructures supporting the Regional Multi-Risk Functional Centre of Civil Protection**.

Campania's meteo-hydro-pluviometric network required updated technology and greater system uniformity. In addition to upgrading stations and sensors, it was necessary to overcome **lock-in** situations, also through the adoption of systems based on open communication protocols, while improving performance and radio transmission and reception times.

Summary

Location: Campania

Conclusion: 2022

Focus: Hydrometeorological and hydraulic risk

Challenges:

- Upgrading the regional trusted monitoring and warning network
- Overcoming technological lock-in

CAE Solution:

Upgrade and modernization of:

- 70 dataloggers
- 262 UHF radios
- 22 water level sensors, 13 thermo-hygrometers, 12 thermometers, 3 barometers, and 3 radiometers
- Solar panels

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FEATURES

Upgrading existing products with new equipment ensured higher performance, more efficient maintenance, and minimized system downtime.

To achieve interoperability and maximum network openness objectives, CAE, awarded the contract, relied on the most advanced CAEtech technologies: **the CompactPlus datalogger and the RÆVO UHF radiomodem**. The new products were easily integrated into the Campania network thanks to their full compatibility with the existing system, without requiring additional modules. A key element for data transmission and reception was the RÆVO radio, a multiprotocol radiomodem that ensured maximum system openness and will allow component interchangeability in the future as well. RÆVO supports the following protocols: **RS485, RS232, PPP, IP, UDP, CoAP, and Modbus RTU**. Among these, **CoAP** stands out as the standard protocol for the **Internet of Things (IoT)**.

The network upgrade included design, installation, and training activities, together with field and remote maintenance services supported by continuous 24/7 assistance.

The works were completed in 2022 **in record time, within just 90 days**, delivering a turnkey system fully compliant with the Region's requirements.ning activities, together wits.

COMPOSITION

The CAE intervention enabled the technological upgrade and modernization of Campania's hydrometeorological network through:

- **70 SP200/300 stations upgraded with high-performance Compact Plus dataloggers**;
- **262 RÆVO UHF** radiomodems installed on stations, repeaters, and central radio panels;
- **22 ULM30 ultrasonic water level sensors**;
- **13 THS thermo-hygrometers**;
- **12 thermometers**;
- **3 barometers**;
- **3 radiometers**.

In Phase 2 already planned by the Campania Region, the works will be further completed by replacing **142 SPM20 stations with Compact Plus dataloggers and technologically upgrading 178 rain gauges**.

The **power supply systems** were also upgraded by **replacing the previous solar panels with more powerful units rated at no less than 50 W**.

The control center was already equipped with hardware and software suitable for managing the new equipment, therefore **CAE upgraded the control center exclusively through configuration activities** aimed at enabling operation of the new devices.