

Evolving surface weather observations to enhance weather sensors and systems

Edge computing

1

Allows advanced data processing at or near the source of the data itself, rather than transmitting the data to a datacenter or cloud first. Avoids latency and the need to queue the data within the larger IT ecosystem; also allows for more autonomous and efficient machine-to-machine communication (important for IoT).

Hybrid networking

Includes edge computing and a centralized management system operated through the cloud or on-premises. Provides flexibility, scalability, network security, and a robust common platform architecture.

2

Optical observation instruments

3

New advanced types of sensors with evolved weather identification, quantification, analysis, and accuracy. Uses one sensor to replace older ones, such as visibility and present weather detectors, disdrometers, freezing rain sensors, and rain gauges.

Smart-connected sensors

Provide enough processing power to handle more sophisticated functionalities, like device management, monitoring, and proactive alerts based on monitored parameters. Offer intelligent capabilities like automated diagnostics and software updates, reducing maintenance and extending service lives.

4

Cybersecurity resilience

5

Next-generation sensors and weather stations in which cybersecurity has been taken into account in the best possible way without any compromises. Connected sensors and weather stations are potential targets for random cyberattacks.