

CASE STUDY

Observing Urban Climate Across the City of Birmingham



SUMMARY

Problem:

The University of Birmingham had set up a series of systems across the city to monitor urban climate. After years of use, the systems had become outdated, and some had fallen into disrepair.

Solution:

Campbell Scientific upgraded the systems with the ClimaVUE™50, SP30 solar panels, and CELL215 communications. The ClimaVUE50 measures all common meteorological parameters, the SP30 offers increased power capacity, and the CELL215 provides reliable connectivity to future-proof data-flow.

Realised benefits:

The robust systems supplied the customer with reliable data to be able to monitor ongoing weather conditions and change over time. Data was also delivered to kiosks near school locations for use in local educational programmes.

Location:

City of Birmingham (Various Locations)

Customer:

University of Birmingham

MONITORING THE WEATHER ACROSS BIRMINGHAM EARLY WARNING AND EDUCATION

Campbell Scientific worked with the University of Birmingham to upgrade 26 weather stations at numerous locations across Birmingham with brand new ClimaVUE™50 digital sensors, upgraded communication options, and larger solar panels to provide surety of power supply.

The stations monitor the climate conditions across the city, supplying the university with a robust record of data collected over time. Where the systems are installed on school sites, the data is delivered to kiosks for use in local educational programmes.

CASE STUDY

DELIVERING DATA – DETECTING THE WEATHER ACROSS THE CITY OF BIRMINGHAM

Birmingham University operates 26 weather stations across the city to serve as education portals and monitoring stations for the population of Birmingham. Over time, these stations had fallen into disrepair and were not delivering the required data. The systems needed modernising, upgrading, and servicing to bring them up to standard and ensure they continue to deliver value to the city.

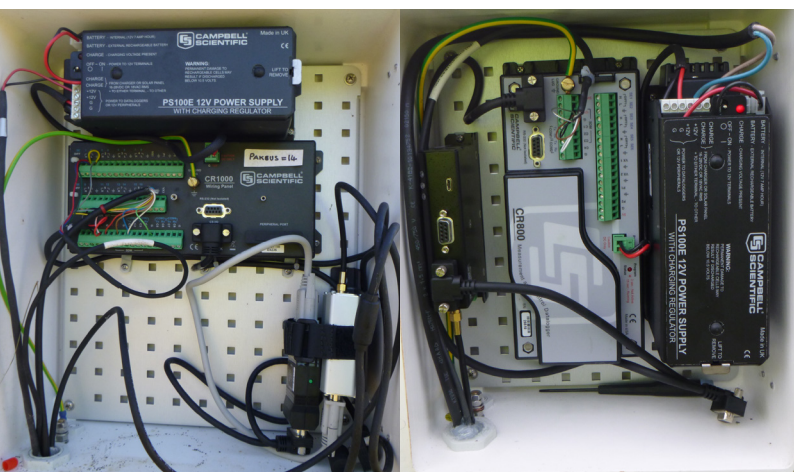
Located in various locations—including primary schools, university grounds, nature reserves, and housing estates—servicing created a challenge as no two sites were the same; some stations were missing enclosures and servicing had been intermittent on some critical components, causing failures and lack of data.

SYSTEM UPGRADES AND NEW CONFIGURATIONS

Sensor

ClimaVUE™50

The ClimaVUE50 is an affordable, all-in-one meteorological sensor that replaced the old WTX520 sensors across 26 sites. The ClimaVUE50 is an SDI-12 lower power sensor that measures many of the most common meteorological measurements, including air temperature, relative humidity, vapour pressure, barometric pressure, wind (speed, gust, and direction), solar radiation, precipitation, and lightning strike (count and distance).



Data Acquisition

CR1000 & CR800

There were two Campbell Scientific data logger options included in the weather stations, the CR1000 for the more complex stations and the CR800 for smaller and more remote stations. Both loggers are more powerful and robust and ideal for remote and long-term monitoring stations.

Communications

CELL215

A new CELL215 cellular modem was introduced to all sites to offer more reliable cellular connectivity across locations without the need for ongoing, costly maintenance visits.

Power Supply

SP30

All batteries were swapped and the solar panels replaced with new and more powerful SP30 variants. Battery capacity was increased during the change to ensure uninterrupted data transmission whatever the weather.



Data Visualisation and Access

Konect GDS

Konect GDS was supplied to help visualise the data from the stations. Konect is an easy-to-use and configure cloud-based software solution that provides access to data with any Internet-enabled device. Data is delivered via Konect to kiosks (screens) in each school facility to enable real-time data access on-site to facilitate learning.



WHEN MEASUREMENTS MATTER

DELIVERING DATA – DETECTING THE WEATHER ACROSS THE CITY OF BIRMINGHAM

DELIVERABLES

Through the station upgrades, Campbell Scientific brought the network across Birmingham back up to full capacity. By installing our ClimaVUE50, all the common meteorological measurements required were provided in a simple, all-in-one digital sensor, which further simplified installations and ongoing maintenance and operations for the University.

The upgraded CELL215 modems, in addition to improved cellular coverage across the area, provided more reliable data collection, and Konect GDS allowed the user to easily visualise and digest the data. Many of the stations were set up near schools. The touch screen kiosks supplied to the University of Birmingham gave students live access to the meteorological data.

The upgraded sites are not only supplying valuable urban climate data to the University of Birmingham across multiple city locations, but also educational opportunities to school children across the city.



For more information, either email sales@campbellsci.co.uk or call +44(0)1509 828888.