



## METEOROLOGICAL NETWORK

Having accurate meteorological data that can be turned into useful information by skilled end-users is vitally important, not just to study global warming in the long run, but also for any type of mid or short-term application, such as the calculation of crop water needs, planning and management of hydrological resources or renewable energies, air quality control or road safety.

Consequently, more and more meteorological networks are progressively helping big and small companies to reach cost-effective decisions, to avoid unnecessary losses and reduce daily risks, as well as to strengthen the resilience of infrastructures.

SICE is the leading Company in developing and implementing technologies for environmental control and management, highly qualified in the design, installation and maintenance of both hydrological and meteorological networks, as well as tailoring these systems for any usage, ranging from meteorological agencies themselves, support for air monitoring networks, renewable energy projects, meteorological monitoring at airports, etc.

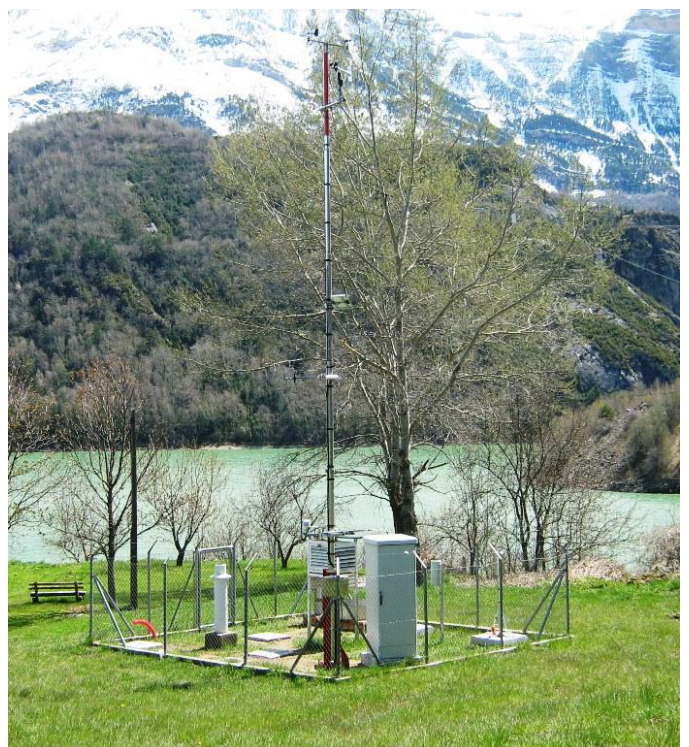
SICE has the capacity to work on all phases of these kinds of systems, from their conception as systems to their start-up, operation and maintenance, including the choice of the most appropriate solution for the system architecture, data collection and communication systems, in addition to data centralization, compilation, logging, and final reporting when it has been turned into useful information.

### METEOROLOGICAL STATIONS

Meteorological stations are facilities with instrumentation and equipment intended to punctually measure and record different meteorological variables, such as air temperature, atmospheric pressure, rainfall, relative humidity and wind direction, among others, for different usages, including weather forecasting and climate study.

Meteorological stations are spread along a particular area in order to set up a network; they are placed in strategic locations for the sake of data collection according to the ultimate objective for which the network is specifically designed.

When technicians define appropriate thresholds adapted to the system considered, alarms or warnings can be triggered, and the weather stations instantly start gathering data and reporting to the control room or operations control center that usually manages the system. In any case, alarms or data can be sent anytime upon user demand at the central control room. **SICE also develops and implements in-house data acquisition systems for several types and brands of weather stations.**



## COMMUNICATIONS SYSTEM

The communications system is responsible for transmitting data logged in the station to the Control Center.

SICE integrates any kind of communication solutions which allows to provide a great number of ideas and solutions appropriate to the project and client needs.

The communication solutions go through, for instance, satellite, GSM/GPRS mobile networks, TETRA networks, analogue and digital radio, GOES or Meteosat meteorological satellites, carrier wave communications and others.

## METEOROLOGICAL NETWORKS MANAGEMENT

The implementation of a meteorological station network involves the appropriate selection and installation of the appropriate instrumentation, according to the network features and the exact locations, but it goes beyond. Details related to their operation and maintenance are also very important, as well as checking and calibration of the equipment or quality control systematization, all aspects on which SICE is an expert.

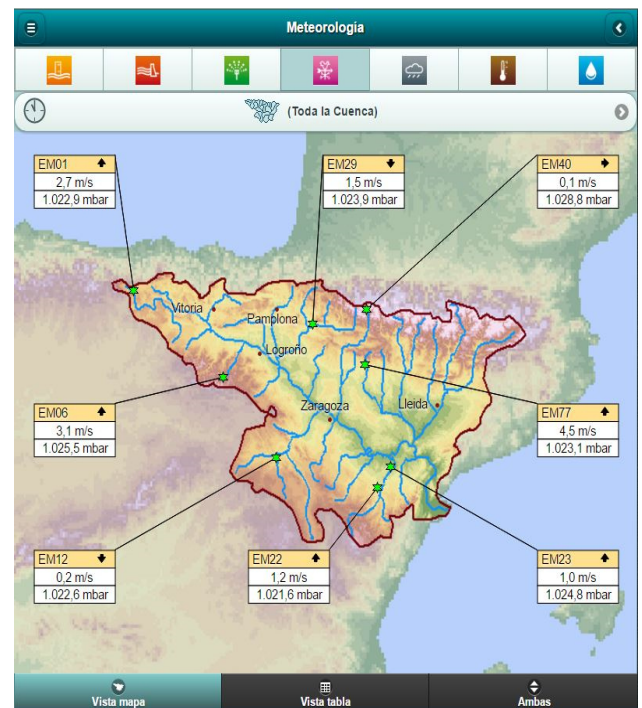
In addition, SICE is highly qualified on all the necessary IT tools to manage the network system in a strong, reliable, efficient and comfortable way, offering high-quality real-time information.

Finally, SICE provides other meteorological added-value services, such as data processing, assessment, and management by means of using specific meteorological models, such as GFS, ECMWF, NOGAPS, or HIRLAM.



## SYSTEM OPERATIONS AND CONTROL CENTER

Once the raw data for the desired variables has been gathered, compiled and processed, an appropriate SCADA (Supervisory Control and Data Acquisition) must be provided. The System Operations and Control Center is a central space where all these data collecting, saving, displaying, and processing takes place. Data is turned into useful information that allows competent technicians to make an assessment of the current state of the system and thus leads to improved decision-making, encompassing forecasting, communication, reporting, alarm and emergency management.



## BUILDING SYNERGIES

As a world leader in the integration and management of any kind of infrastructure or service, SICE has managed to generate synergies among its areas of expertise, offering cutting-edge solutions for meteorological and hydrological networks, such as those used by private or state-owned agencies that deal with air monitoring or traffic surveillance systems.

SICE not only meets demands related to any of these systems, but also integrates, as part of the intelligent traffic systems (ITS) on interurban roads, meteorological stations for monitoring variables that could have an impact on traffic safety (wind shears, rain, ice on the road, visibility issues...).