innovation for a safer world.

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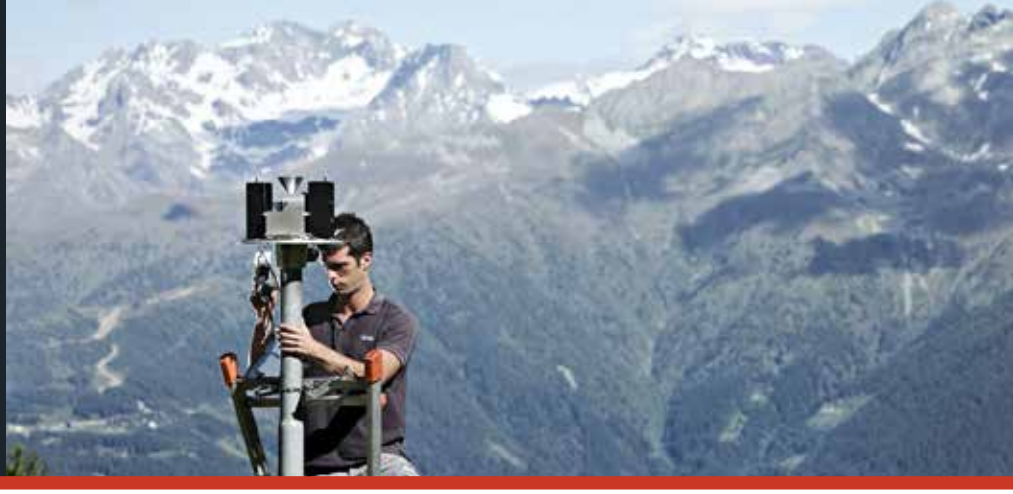

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EDITORIAL

CAE joins the Bolzano conference "Early warning systems for debris flows: state of the art and challenges"

Starting from 2019, the National Civil Protection Week will be celebrated every October 13th: 7 days of initiatives and events organized by the National Civil Protection Service to inform and raise awareness about risk scenarios, self-protection measures, the civil protection legislation, risk mitigation and how the Civil Protection System works.

In this context, from **October 16 to 18**, the conference **"Early warning systems for debris flows: state of the art and challenges"**, will be held in Bolzano, organized in cooperation with the Civil Protection Agency of the Autonomous Province of Bolzano.

The international event will focus on debris flows, one of the greatest risks for infrastructures and population in mountain areas. Structural mitigation measures are not always suitable to protect transport routes and other sensitive artifacts, especially in narrow and highly anthropized valleys; therefore, the development and deployment of early warning systems, based on the real-time monitoring of the flow of debris, are essential for the protection of the population.

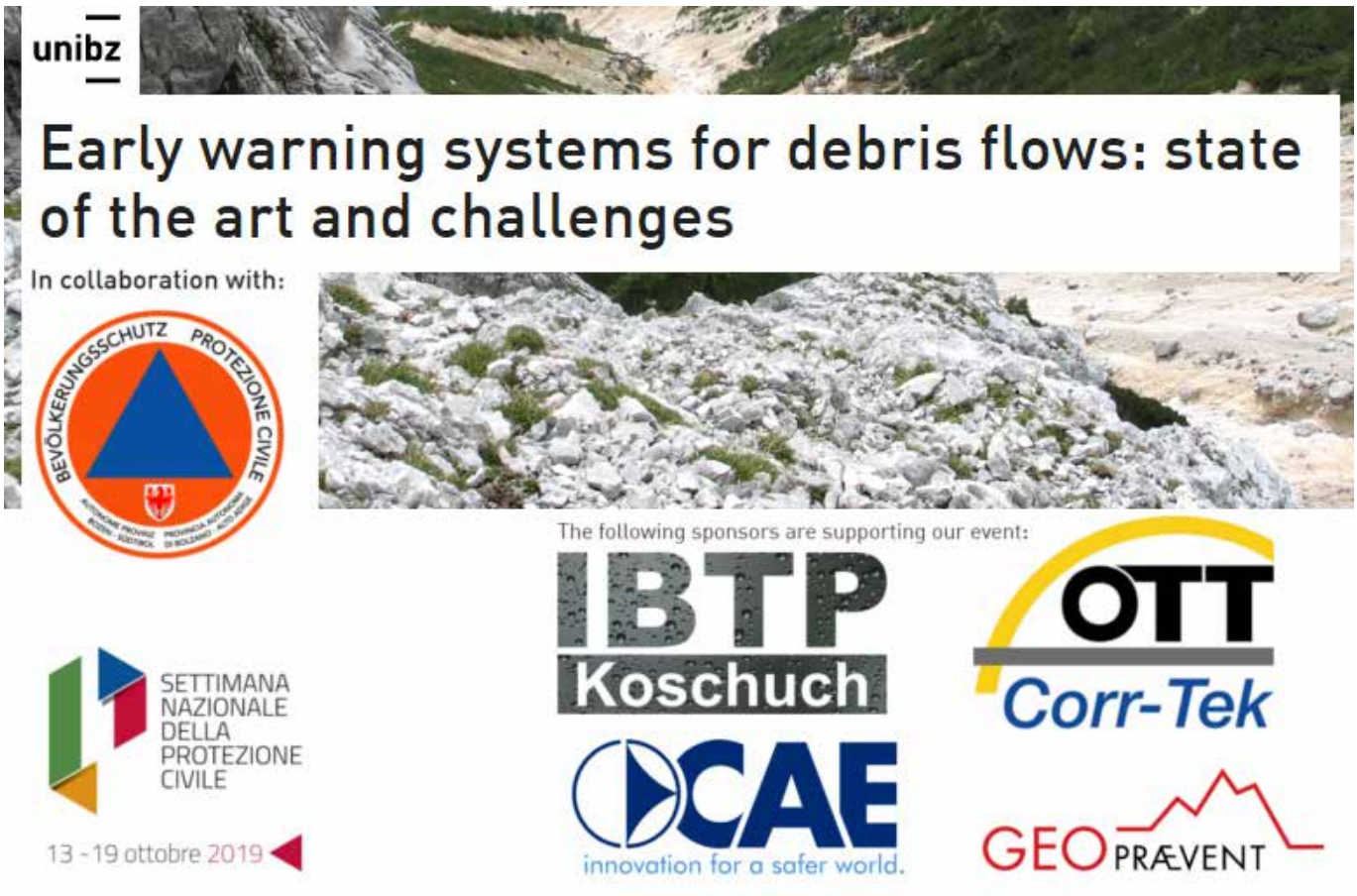
The workshop will allow scholars and professionals to di-

scuss different methods for monitoring and alerting, with the aim of promoting the reliable use of such systems by local authorities. CAE has been concerned for years with promoting the importance of mitigating environmental risks, with the ultimate aim of protecting the population; as a provider of **over 40 landslide monitoring and warning systems throughout Italy**, CAE has deemed it important to sponsor this event focused on hydrogeological risk and, in particular, on debris flows.

Researchers and representatives of the local authorities will open the conference on October 16th, analyzing the state of the art of debris flow systems in Italy. On the same day it will also be discussed the Cancia monitoring and early warning system, implemented by CAE in 2013. The following day, representatives of the Italian and international scientific community from USA, Mexico, Spain, Austria and Switzerland will speak to present methods and recently developed procedures for the early warning against the flow of debris and lahar (mud flows composed of pyroclastic material and water flowing along the slopes of a volcano). Lastly, a visit to the Gadria monitoring basin (Bolzano, Italy) is planned for October 18th.

It is still possible to register on the event website, where a detailed program of the three days is also available. Participants will be entitled to obtain professional credits. ■

See you there!



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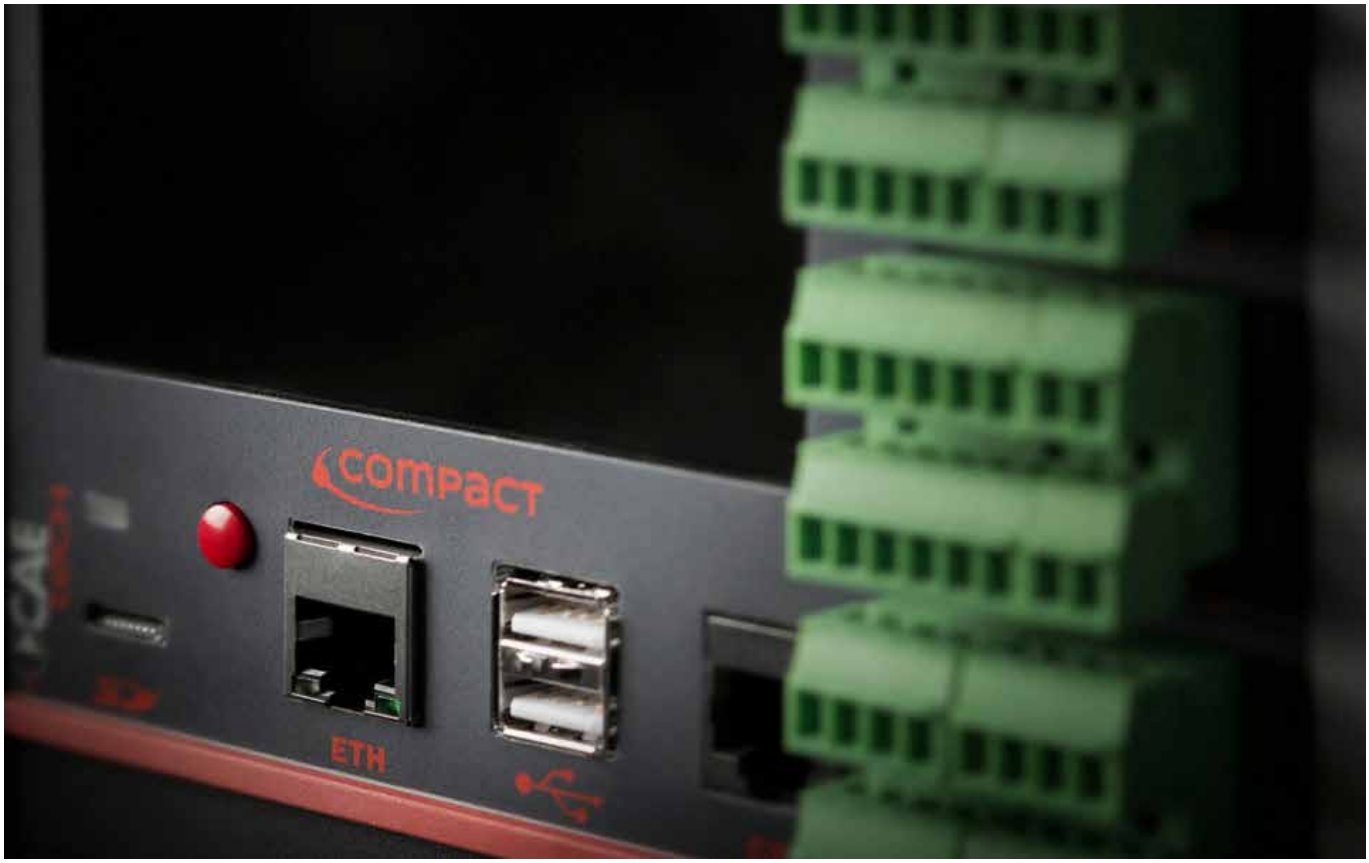
Compact: a new range of CAEtech dataloggers is born



A new range of CAEtech dataloggers is born: the Compact line is designed to provide a **modular and scalable solution**, both from the hardware and software points of view, and to meet the needs of different types of users.

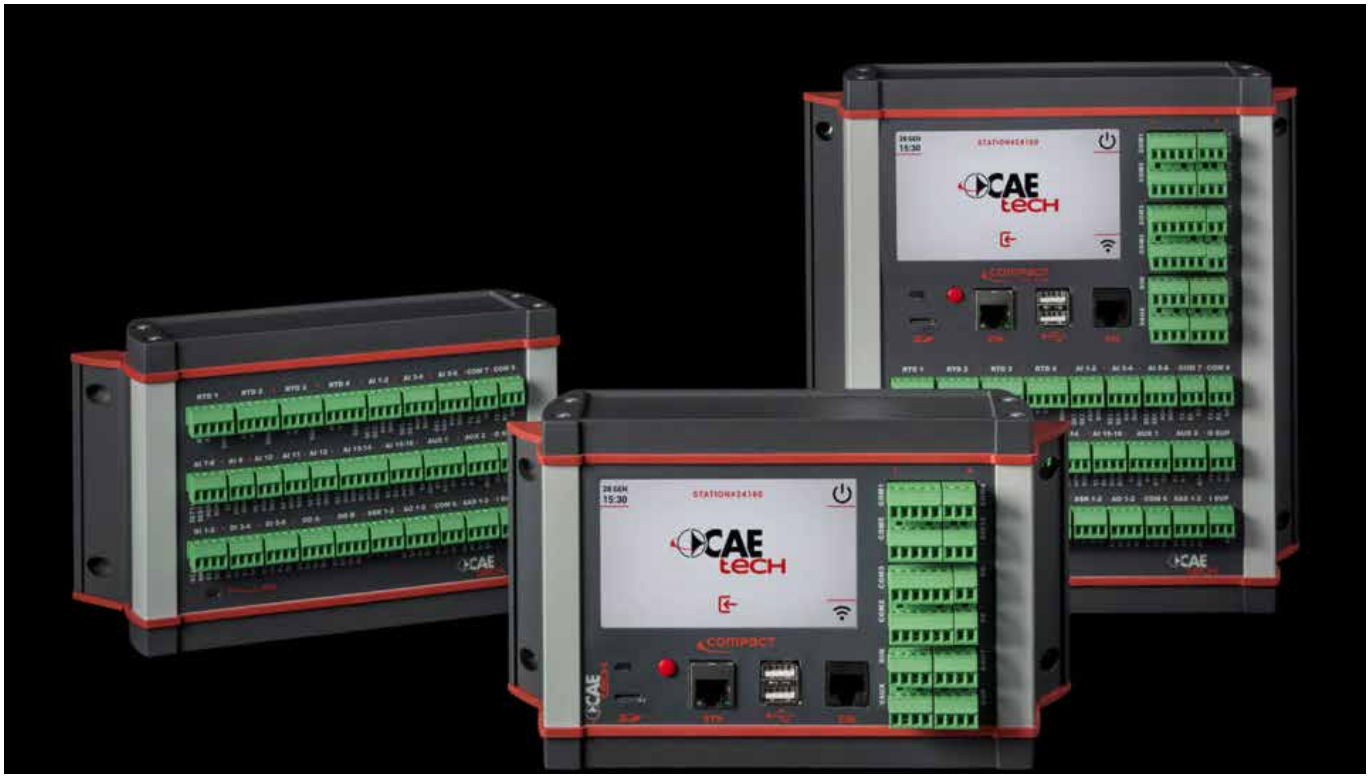
These are innovative, IoT ready acquisition units that manage all the activities related to the equipment installed on the field. To perform these tasks in the best way possible, CAE developed a powerful hardware based on the **Linux Embedded** Operating System; this ensures high flexibility and allows the use of extremely advanced **open source** programming languages. For example, the Python scripting language helps the user customizing the dataloggers, according to their specific needs.

Designed according to the experience gained by CAE with the Mhaster datalogger, which by now has been produced and installed in over 1000 sites worldwide, this scripting language inherits several successful features: for example, the presence on board of a powerful and fully interoperable **web server** based on largely widespread standards.

The **dataloggers** of the **Compact** line boast **next generation technology**, are **scalable** and **compact** and ensure the high standards of **quality**, **power** and **reliability** typical of CAEtech products, while keeping **power consumptions** low.

The hardware scalability is guaranteed by 3 different models:

- **Compact: Digital acquisition unit**
- **Compact Plus: Analogue and digital acquisition unit**



- **Plus: expansion for analogue and digital sensors**

on which different **application packages** can be implemented, determining therefore the **software scalability**. The application packages are designed to perfectly meet the various needs of the users, in a multi-risk perspective.

Compact, Compact Plus and Plus are designed to be easily used and integrated into already existing systems, thanks to their standard interfaces and small size. These features, together with particularly low energy consumption, allow a high flexibility in terms of installation. ■

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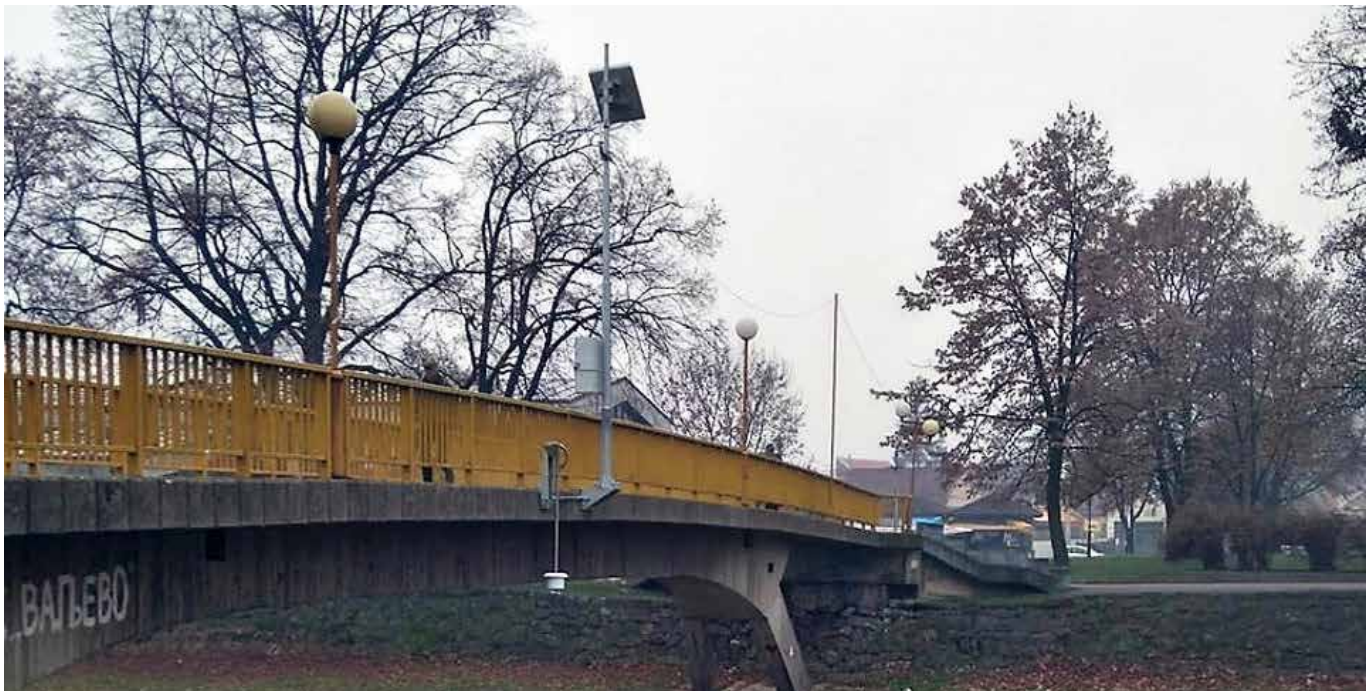
Green light to the implementation of the new Hydrological and UHF Communication Network in Serbia

In 2014, Serbia suffered a massive flood (please find a video of the affected territories at this link), which led to the implementation of the **Serbia National Disaster Risk Management Program** aimed at increasing resilience and preparation to floods; a critical part of this program is the strengthening of the remote hydrometric network. After winning the tender, in July 2019, CAE signed the contract for the **implementation of the new hydrological monitoring network** with redundant data transmission: mobile and UHF transmission. Funding and management of the program are the result of the collaboration between the **Serbian Government**, the European Commission and the World Bank. The contracting authority was the Directorate for Water, of the Ministry of Agriculture, Forestry and Water Management, while the beneficiary is the Republic Hydrometeorological Service of Serbia (RHMSS).

The supply is an essential component of the new Early Warning system, based on **open technologies** and established reference **standards**, and is designed to be the most effective way to accomplish and modernize the Hydrological System for Republic Hydrometerological Service of Serbia.

The **UHF transmission system** together with **mobile communication** guarantees the highest reliability and minimum loss of data, especially during emergency, as well as easy operation, possibility of system query according to needs and extremely low operating costs.

The system to be provided will be a **modular**, **flexible** and **multipurpose** instrument; the technology allows the integration of various future monitoring requirements. This solution ensures an optimum **monitoring** of the **meteorological phenomena** of



the territory and a rapid and efficient spreading of **alerts** aimed at **reducing environmental risks, for civil defence and human safety purposes**.
The project includes all elements necessary to guarantee the achievement of the highest targets, in terms of full operation of the system, "robustness" of equipment, durability and accuracy of data and includes:

- supply and installation of **65 hydrological monitoring stations** equipped with different kind of water level sensors (radar, pressure, bubble,…);
- supply and installation of the **UHF radio communication** network consisting of 1 radio base station and 4 repeaters;
- design and implementation of the **Control Centre**, including all software for network management and data visualization;
- integration of the data acquired from already existing equipment with those generated by the new technologies in a single database, in order to make them jointly available for consultation and use;
- full and continued staff **training**;
- **guaranteed** technical assistance to cover all possible occurrences. ■

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Breakthrough in Emilia-Romagna: the regional monitoring network is now faster

As part of the project that led to the **reduction of the cycle times of the hydrometeorological network of the Emilia-Romagna Region and to the technological updating of the Romagna network**, the last phase of testing and verification of compliance for services and supplies was completed. These procedures allow to certify that the object of the contract in terms of performance, objectives and technical, economic and qualitative characteristics has been fulfilled and carried out in compliance with the provisions and contractual agreements. CAE Magazine had already presented the project when it was awarded; to learn more about it click here.

Among other things, the following items have been verified:

- compliance of the supplies at the Bologna and Parma stations and of the field installed components, such as dataloggers, repeating stations, radio and radio panels;
- radio communication protocols;
- proper functioning of the network, polled entirely from the control centre in Bologna;
- cycle times: in particular, it was established that the network, composed of over 250 stations, takes a **maximum of 15 minutes** to perform the data acquisition cycle and the distribution of the same at the secondary stations.

This adjustment and speeding up operation proves to be an investment of great importance, as it is useful to guarantee a more effective and timely control by ARPAE, in order to be able to cope with the increase in intense and sudden hydrometeorological events that are more and more affecting the territory. ■

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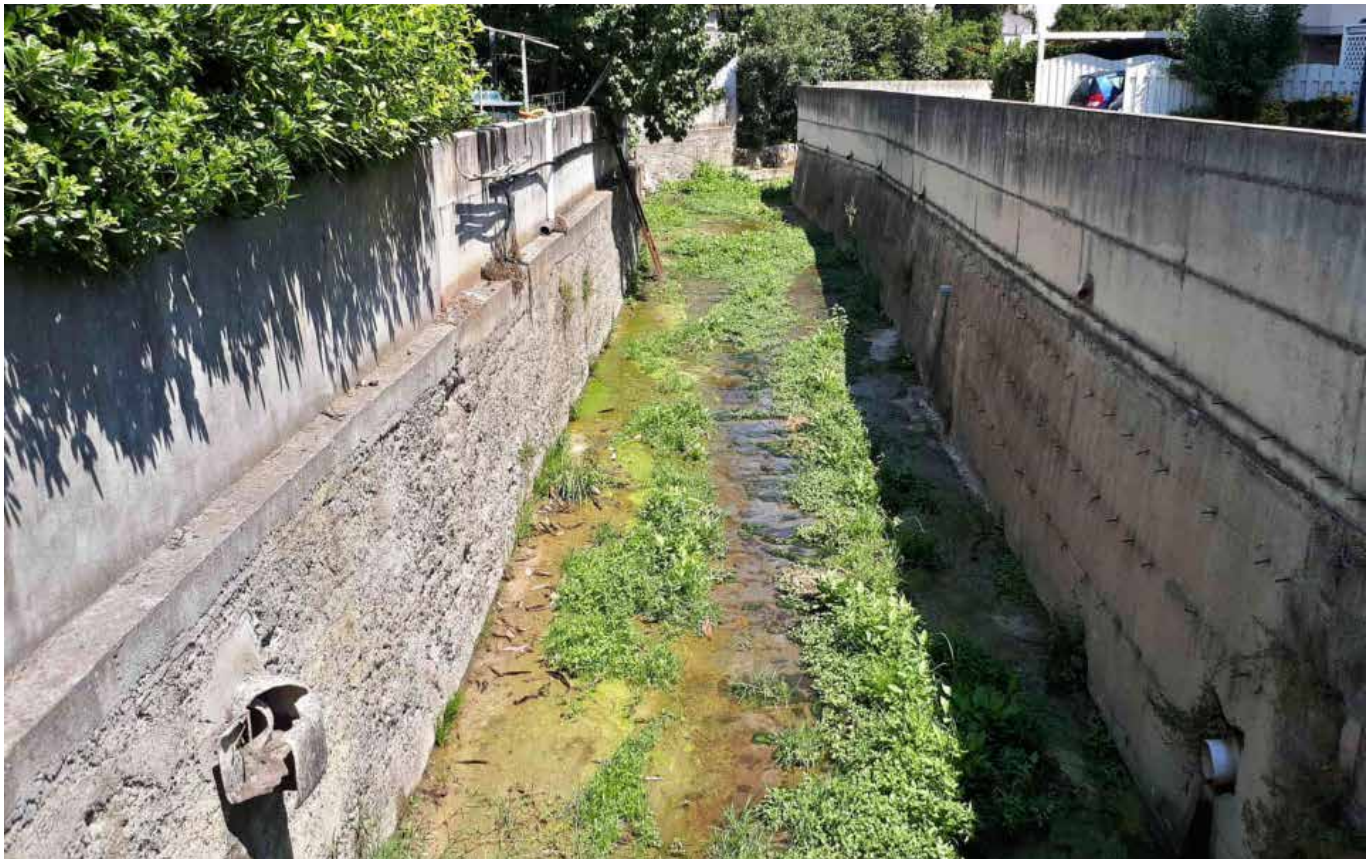
Keeping Rosignano Marittimo safe: work begins on the new early warning system



On September 10, 2017 the town of Rosignano, as well as Livorno and Collesalvetti, was hit by an exceptional wave of bad weather. Considering the risks arising from the increasingly concentrated and intense precipitations, as well as the rise in hydraulic risk due to the presence on the territory of buried waterways (which with this type of events risk not being able to bear the waterload), the Municipality of Rosignano, among the other activities undertaken for the restoration of the territory and to increase the safety of citizens, decided to install a monitoring and early warning system connected to the water level the two canals of "Fosso Cotone" and "Botro Secco", in the territory of the Municipality of Rosignano Marittimo.

This important measure of adaptation to climate change and to the risks connected to it, was financed by the ADAPT Project ("Assisting the adaptation to climate change of the urban systems of the cross-border area") out of the Maritime Italy-France Cross-border Program (INTERREG) 2014-2020.

CAE was awarded the open tender announced by the Municipality which requires the supply, installation, activation and maintenance of a real-time monitoring and early warning "turnkey system" for measuring hydrometric and pluviometric parameters.

When predefined thresholds are exceeded, the system will be able to automatically send alert and pre-alert SMS to the municipal administration operators in charge, and to warn the population

locally thanks to a distributed network of acoustic warning devices (sirens), which will be placed along the roads in the area considered most at risk.
The proposed system is highly upgradeable, with different types of sensors or alarm devices, which can be integrated and configured. By default, when the thresholds are exceeded all the sirens will be activated; however, if the administration wishes it, it will be possible to configure the system so that when the threshold defined for one of the two canals is exceeded, only some of the sirens are activated, while the other are activated only when the threshold of the other canal is exceeded.

One of the two stations will be equipped with mains power, while the other will be autonomous from the energy standpoint, thanks to a solar cell power supply system and a backup battery allowing the system to operate for over a month, even in total absence of insolation.
The system will consist of **2 hydrometric stations** equipped respectively with:

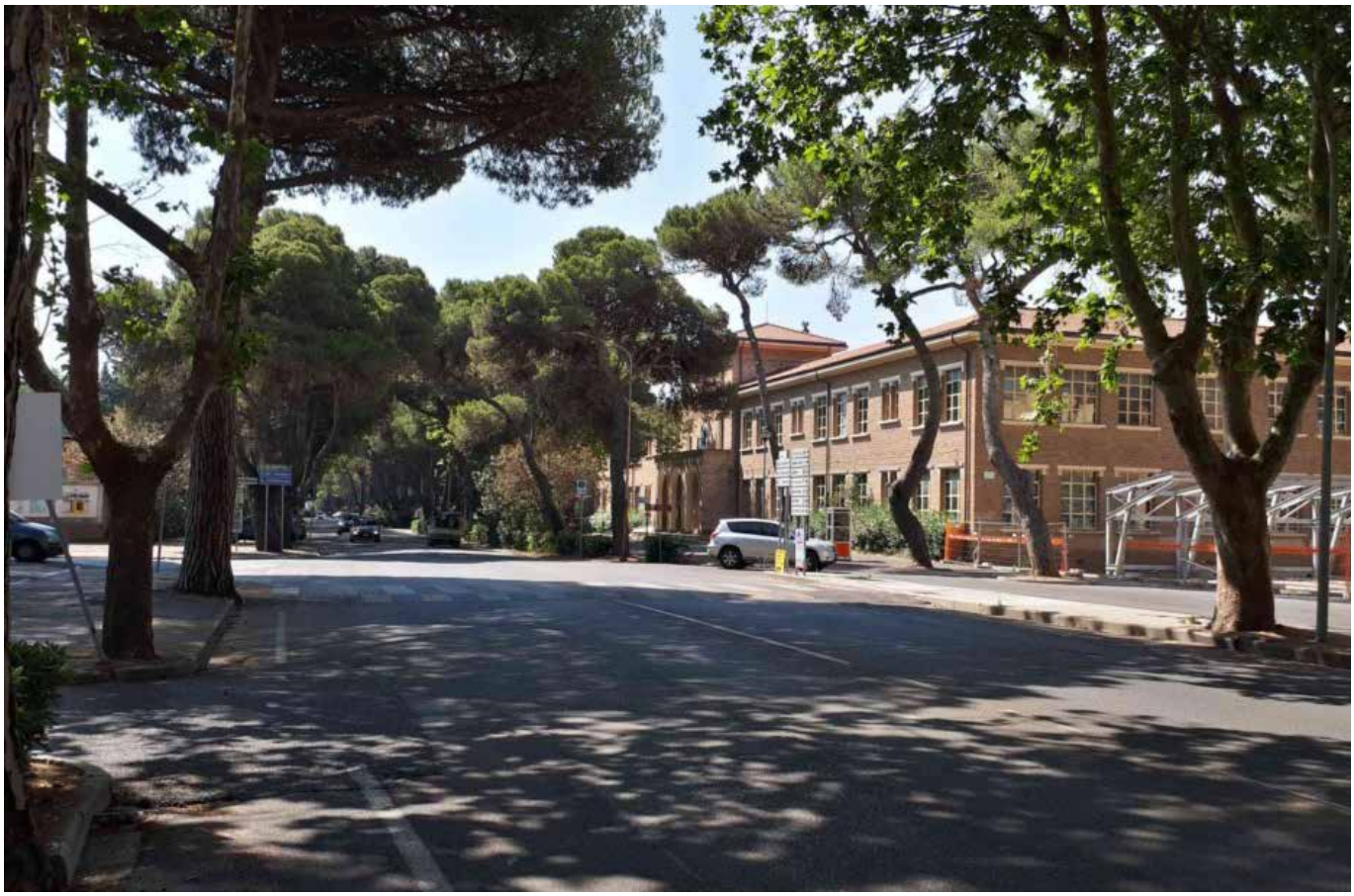
- Mhaster Datalogger, which allows: high computing power, standard interfaces for external communication and compatibility with standard network protocols. The datalogger can be configured remotely via Internet and allows early warning procedures to be set. The Mhaster Datalogger also features an open source operating system: Linux;
- pressure hydrometer or LPR radar hydrometer;
- ACTI-Link Module for wireless connection of the station to local alert systems;
- **GPRS/UMTS** communication module;
- **Webcam**;

- **10 sirens**;
- one of the two stations will also be equipped with a **PG2 rain gauge.**

The data collected by the station will be made available to the Administration both locally (thanks to the LCD display of the Mhaster datalogger) and remotely, in two different ways:

- by connecting via an Internet browser to the station's web server service, i.e. the data display website on the control unit of the Mhaster station (Web Mhaster). This site, in addition to data visualization, allows access to the station's configuration functions;
- via Tablet and/or Smartphone, using the **Droid-Mhas** App.

By acquiring an innovative and open system for the mitigation of floods and water damage risk, the Municipality of Rosignano stands out as an Administration that deeply cares about safeguarding its citizens. ■



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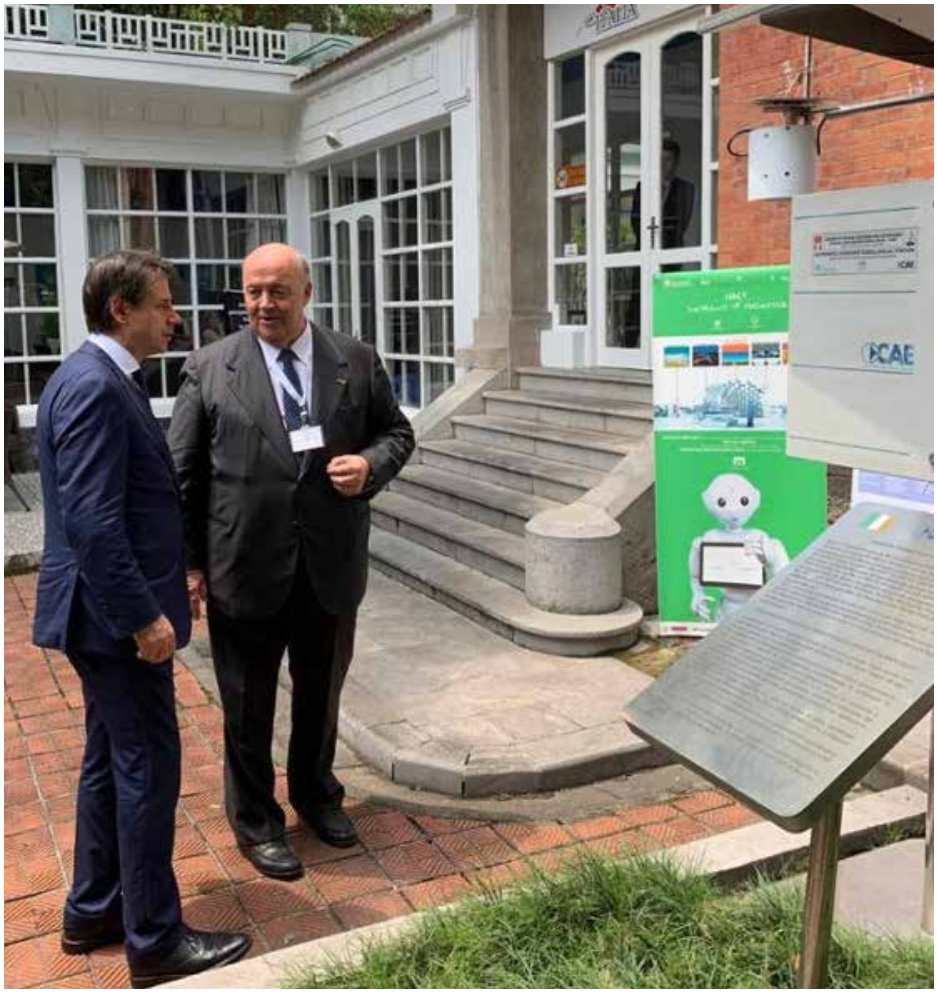
The Italian Prime Minister, Giuseppe Conte, visiting the Socialist Republic of Vietnam

On June, 5th and 6th, the Italian Prime Minister, Giuseppe Conte, visited the Socialist Republic of Vietnam.

The Prime Minister spoke at the opening session of the 3rd High Level Dialogue on ASEAN-Italy Economic Relations, where he met with the Vietnamese Prime Minister, Nguyen Xuan Phuc, and spoke at the event "The Italian Technologies for Vietnam's Smart and Circular Economy", organized by the Institute for Foreign Trade in collaboration with the Italian Embassy in Hanoi.

He also visited Casa Italia, which since 2013 has been a centre for spreading the Italian culture, language, products and way of life in Vietnam, where the Vice-President and founder of CAE, Engineer Giancarlo Maria Pedrini, showed the Prime Minister the exposed meteorological monitoring station.

According to our Prime Minister, this mission resulted in a highly positive balance, as Vietnam is showing a strong economic growth, which at the moment is stable and above the 6% threshold. There are great opportunities for Italian businessmen, so it is important to continue to build a system with Vietnam which, as Italy's first trading partner in Asia, can be considered as a base which can allow us to enter the entire South-East Asian market.



Italy and Vietnam have recently celebrated their 45th anniversary of the beginning of diplomatic relations, and it has been 6 years now since a definite strategic relationship has been established, leading to the development of bilateral relations in many sectors. At a press conference, the Vietnamese Prime Minister, Nguyen Xuan Phuc, spoke of the intention, agreed with Prime Minister Conte, to invest in scientific and technological training, environmental protection, defence and security; the two countries also agreed to intensify cooperation to address global issues such as climate change and food security. ■

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