

Abstract of the Project AEMET-miniMET, by Fernando Asanza

The miniMET project was initially conceived as a work of co-creation aligned with the current paradigm of **Citizen Science**, **SWAFS** (Science With And For Society) and **RRI** (Responsible Research and Innovation) **Tools**, and with clearly **educational** objectives. The goal is to show to the society, starting with students of every ages, how complete and complex is the process behind every meteorological data observed in each place and time. Besides, people must know the ultimately utility of that data in the process of weather forecast. By teaching the basis of the scientific method with the help of technology, we want to promote youth vocations for science and care of the environment, as well as the benefit of a valuable amount of observed data given back to our institution.

Therefore, the project proposes the creation of a network of automatic meteorological stations connected to the Internet, that is, as IoT devices, built in schools and environmental centres by students, and also by amateur meteorologists, with affordable and reliable elements of open hardware.

Aemet not only develops a specification of that station and the way of building it with appropriate manuals and instructions, but also offers assistance to the participants in all this DIY process including its correct installation and the configuration of their sensors data transmission.

On the other hand AEMET offers hosting of this data stream in its collaborative opendata, as well as tools to show these observations of every collaborator (school, individual, etc) in open maps in the Internet in real time as well as graphs of its evolution and other calculated parameters, such as extreme values of temperature, 3h pressure trend, maximum intensity of rainfall or its accumulated values, wind gusts, etc. Aemet will also develop and display climatological charts based on these data.

In addition, the project aims to reinforce - and recover - the key participation of non-professional AEMET collaborators that since the beginning of the 20th century established our important secondary observation network. A first official call in 1910 was answered by about 800 people, 400 of them teachers from small towns from all over Spain.

Although since then we have reached to have far more than 5000 collaborators, with pluviometric and thermopluviometric stations (1970~1990 stats), the harsh reality is that that number has been dropped in half today, mainly due to the difficulty of finding young successors of these vocations in these small villages where there is less and less young population and also these ones are less motivated to collaborate.

These collaborators are in fact **crowdsourcing**. Although the term crowdsourcing appeared for the first time in 2006 and was closely related to new technologies, the deep concept is the same, that is, outsourcing specific tasks to a voluntary and non-professional crowd.

Finally, the miniMET Project has also been proposed to provide automatic stations to, at least, part of these collaborators, not only to encourage and recover volunteers but also because, with this same tested device, any participant in the educational project, being it a school, an environmental center or private individual becomes in fact an AEMET collaborator.