Designing a smart early warning hydrometeorological system for Greek Municipality of Ermionida

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Climate change affects the severity and frequency of natural disasters, mainly because the positive trends in global surface temperatures increase the possibility of more droughts and also the increased intensity of rainfall leads to intense flood phenomena.

The Municipality of Ermionida, located in the Argolis regional unit (Peloponnese, Greece), is an area that only slightly affected by the climate crisis. The area is particularly dry, and suffers from several flash flood events especially during autumn and early winter months, thus, there is a need for a forecasting system operation at local scale.

In the frame of this work, SMILE project's objectives (which is funded by Greek Government) are presented, as well as, the general scheme of a proposed tool that is equipped with a monitoring system is described in detail. SMILE system for the Municipality of Ermionida is a user friendly online tool, designed with the scope of monitoring and processing data from connected sensors, i.e., stage records from hydrometric stations installed on torrents and meteorological parameters from stations installed on several areas in the watershed. This on-line tool allows the user to access data from a central screen, and to create specific diagrams per parameter and per station. The system-involved sensors are connected to a datalogger with internal 4G modem, for the real-time monitoring and inter-operability with an additional 1D/2D hydraulic model that will be created in the frame of the same research project for critical areas, with the scope of issuing warnings.

**Key Words:** Civil protection, Meteorological phenomena, Flooding, flashfloods, early warning system