



## **GNSS observation for reducing the impact of Slow and Rapid Onset Disasters on cultural heritage – the SNIK CORS**

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Due to heavy anthropogenic pressure suffered by large areas of our countries, extreme climate events such as heavy rainfalls, potentially followed by flooding, are having a growing impact on the environment. Historic towns are particularly exposed to these threats, which are becoming increasingly frequent and, in some cases, may have a devastating effect on the territories and population. Such critical occurrences, with reference to the catastrophes they can lead to and how fast they can occur, are referred to as Slow-Onset Disasters (SODs), and Rapid Onset Disasters (RODs). In this context, GNSS observations can help to develop new tools aimed at tackling the effects of these events on the built environment and their users. With this aim, a Continuously Operating Reference Station (CORS), based on GNSS observations, named SNIK, was installed by the research group Applied Geomatics Laboratory (AGlab) at the Polytechnic University of Bari, with the support of Stonex Italy, while an integrated test field, consisting of four GNSS rover receivers was planned to be implemented on the new Rectorate building, currently under construction. The SNIK CORS is based on a high-precision Stonex SC2200 GNSS receiver equipped with a SA1500 choke-ring antenna. The test field is set up to be upgraded with additional sensors, such as SAR corner reflectors, accelerometers, and weather stations. The availability of a continuous stream of GNSS observations wants to help and facilitate the development of integrated approaches aimed at the early detection of the occurrence of potentially catastrophic events over the short and long-term period and the implementation of strategies for the mitigation of their impact on the safety and the healthiness of the built environment and cultural heritage, which is intrinsically more prone to be damaged.