



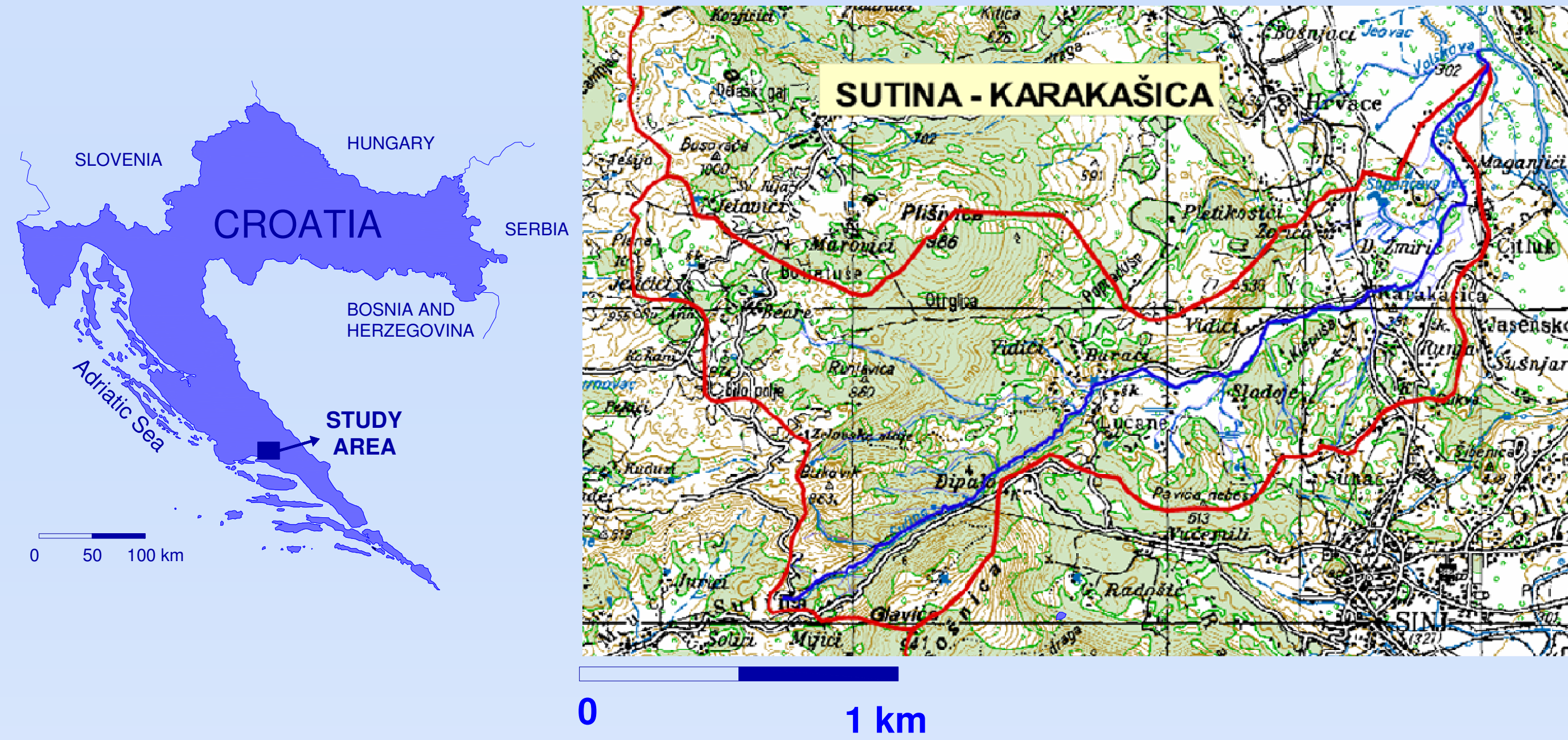
Hydrological monitoring of experimental karst catchment Sutina –Karakašica

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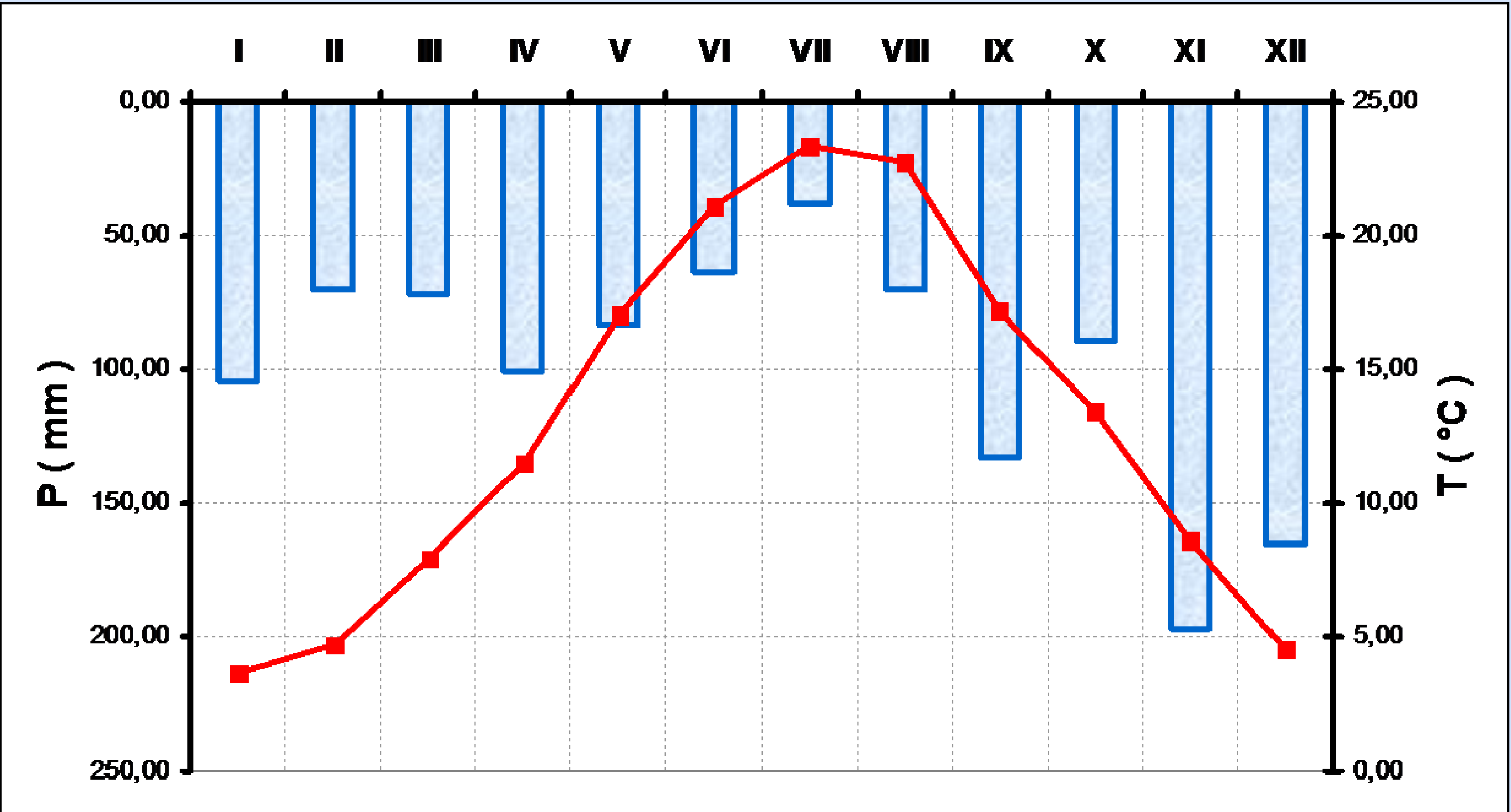
The Sutina – Karakašica is an ungauged karst catchment in southern part of Croatia with relative small area but with existing records of several events of flash flood that compromised the structures as bridge and roads along the stream. This poster gives an overview of the creation of the experimental catchment and establishment of the hydrological monitoring system which has for a goal a better understanding of runoff processes within the experimental karst area as well as flash flood occurrence analysis.



Location of the study area. Catchment area and assumed catchment borders.

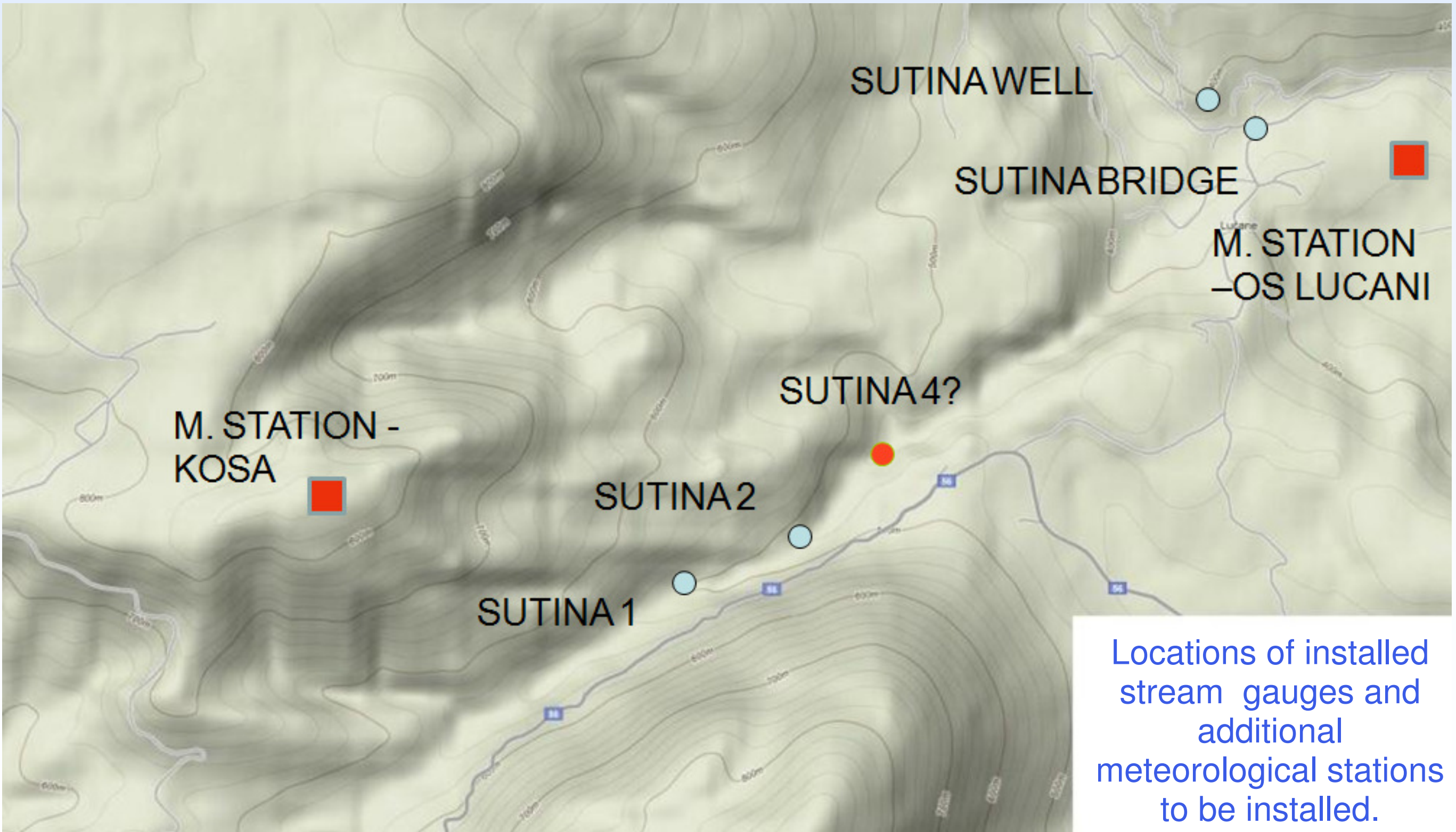
The studied catchment is located in Dalmatia, southern part of Croatia, a region of Dinaric karst. Although it is very difficult to determine catchment borders in the karstic terrain, for the porpoises of the study the area of the catchment is estimated to 8 km². The length of the stream flow up to the control cross section is 4.4 km. The highest point of the studied catchment area is on the 941 m a.s.l. and the lowest at the 300 m a.s.l. The geological settings of the catchment are characterized by the sedimentary rocks, mostly limestone and dolomites with discontinuities (cracks, and fractures) filled up with terra rossa and breccias. The presence of mudstone patches in the surface ensures the continuous surface flow of the studied stream. Some caves are also to be found in the catchment area.

The available daily data from 1995 to 2005 (precipitation, temperature and relative humidity) is provided by National Meteorological and Hydrological Service. The station is located 5 km from the study site at the altitude of 301 m a.s.l. It is running and operational.



Annual time series of average monthly air temperatures and average monthly precipitation at the meteorological station Sinj during the period of 1995 – 2005.

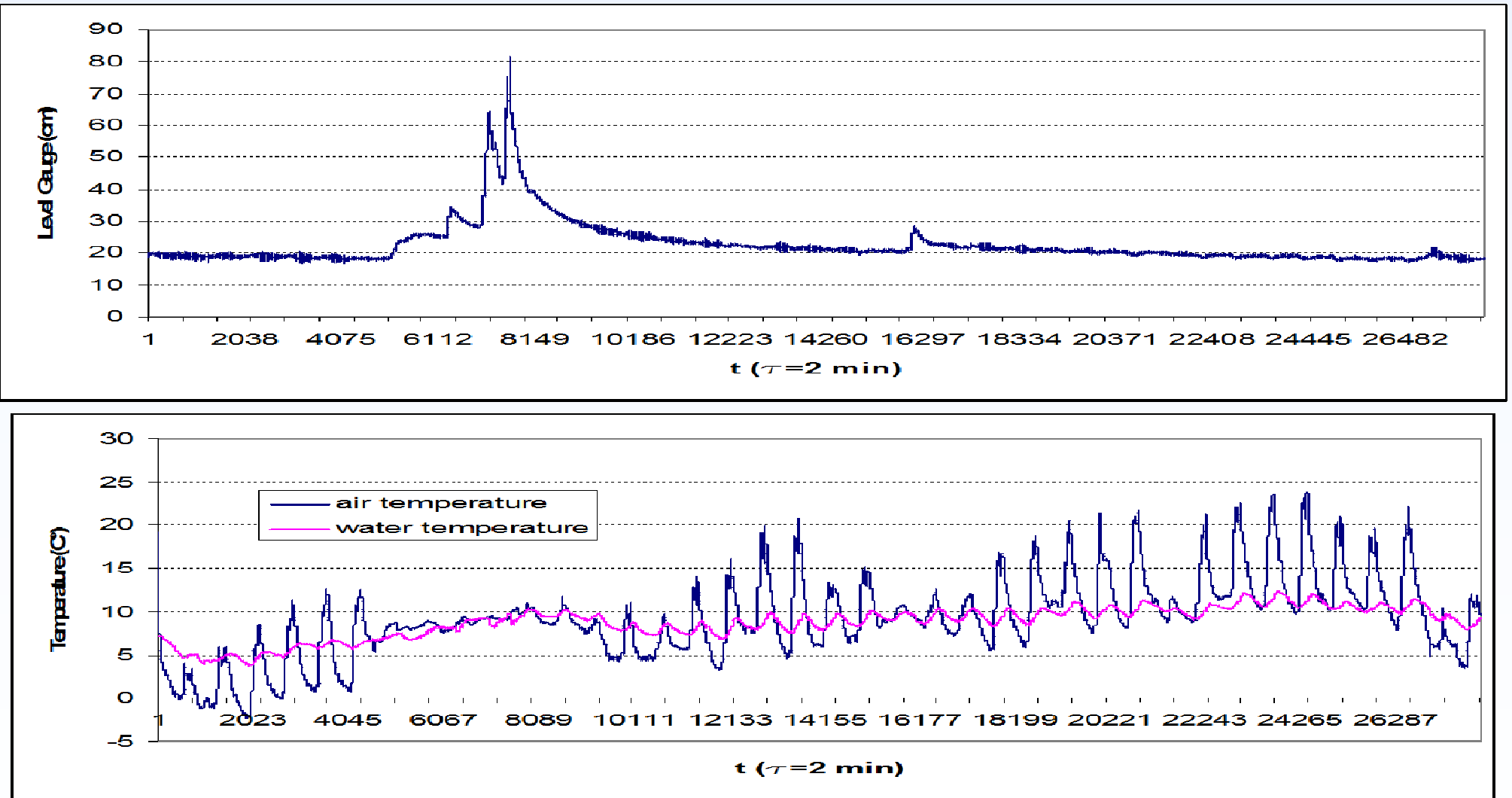
Five gauges were installed at the site to monitor contributions of lateral gullies by a storm event and groundwater level (SUTINA WELL). Additional meteorological stations are to be installed.



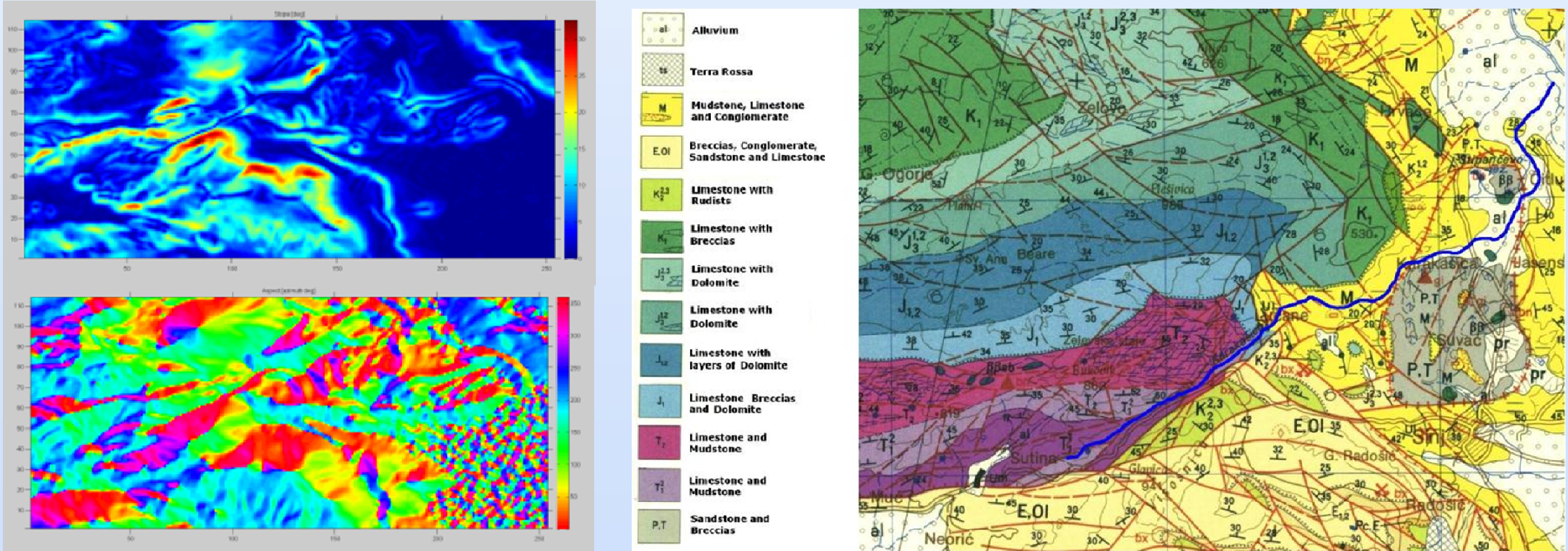
Locations of installed stream gauges and additional meteorological stations to be installed.



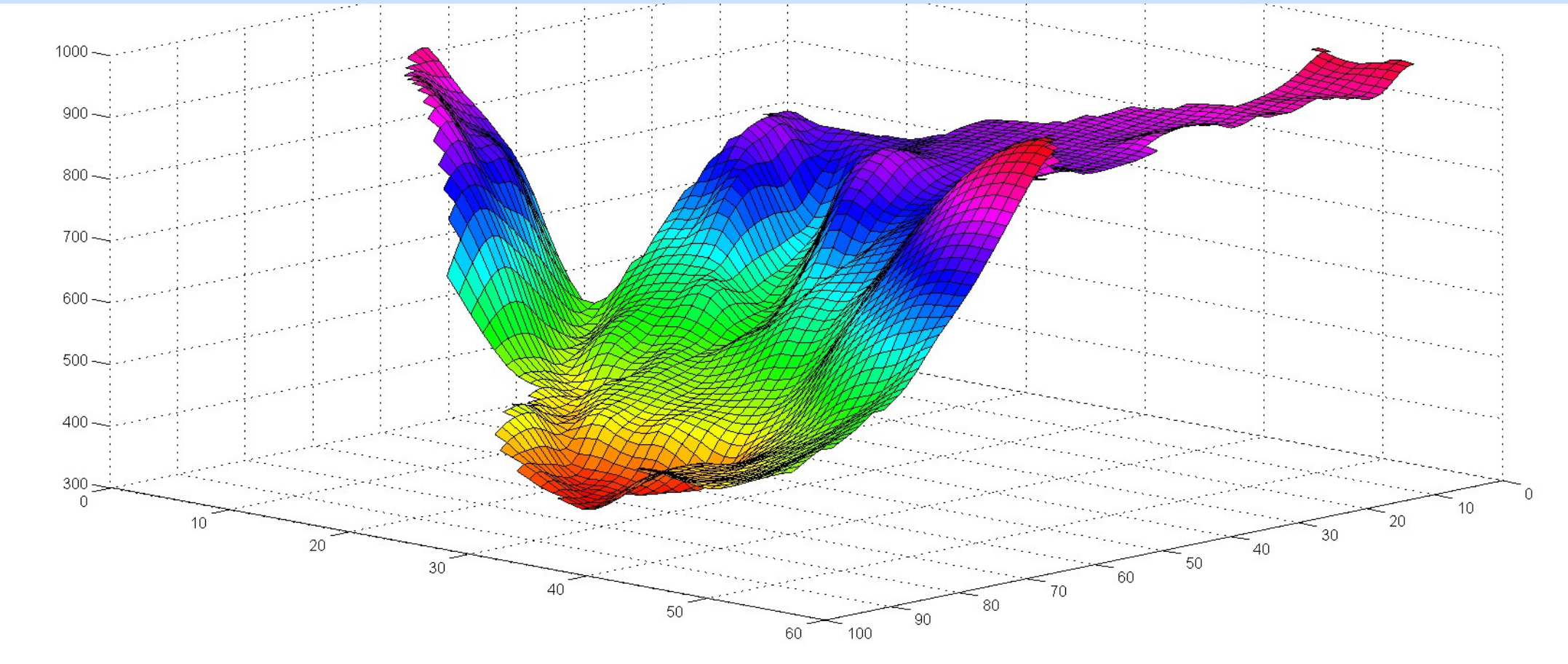
Event based measurements on the stream and permanent measurement of water level and water temperature on five locations.



An example of recorded data during a storm event.



Slope and aspect DEM analysis. Geological map of the study area.



DEM of the study area that generates most of the surface flow.

In the karst watersheds the occurrence of flash floods can be registered due to the exceptional meteorologic events during the year. The intensive rainfall in the short time period can trigger a flash flood that can induce overbank flow, immense changes in channel morphology and in sediment distribution. In order to produce a hydrological model that could predict the events of flash flood in the studied area, a continuous monitoring of meteorological and hydrological parameters in the catchment is established. The predictions of exceptional flooding events derived from a useful hydrological model based on the study site can be used further on to quantify the possible flooding risk. The study site can be useful by extrapolating procedure as well as obtained results to a larger scale.

Acknowledgements:
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