Carapelle Basin
Northern Puglia, Italy

Basin characteristics

River Basin: Carapelle Torrent

Operation: From 2007 to present

Gauge coordinates: 41°17'50.34" N 15°36'02.51" E

Catchment area: 506.2 km²

Elevation range: 120 – 1075 m a.s.l.

Basin type: Mediterranean

Climatic parameters: Mean annual precipitation: 646 mm; Mean annual temperature: 14.8°C

Land use: Cropland (80% approximately); Fallow; Forest; Rangeland; Pasture; Urban

Soil properties: Entisols, fine clayey-loamy texture low organic matter content

Hydrological characteristics: Runoff depths: 0.2 to 8.6 mm; Peak discharges 1.6 to 73.6 m³/s; Sediment loads 202 to 103216 t

Instrumentation and data

Runoff monitoring station (hold by Centro Funzionale, Protezione Civile, Regione Puglia)
Remote data transmission ultrasound stage meter
Rain gauges (8 stations in the watershed area)
Air temperature sensors (8 stations in the watershed area)

Suspended sediment transport station
Hach-Lange Solitax probe:
• LED infrared light source, 45°
• Light scattered photodetectors, 90° and 140°
• Turbidity: from 0.001 to 4000 NTU
• Suspended solid concentration: from 0 to 150 g/l
Datalogger, solar panels and remote data transmission system

Applied models

•AnnAGNPS - Annualized Agricultural Non-Point Source
•DREAM - Distributed model for Runoff, Evapotranspiration, and Antecedent soil moisture simulation.

Main scientific results

• Assessment of the dynamics of sediment s in a medium-size watershed
• Study of the hysteretic loops sediments during floods
• Calibration and validation of the AGNPS model in the Carapelle basin
• Analysis of the DREAM model in relation to different input datasets
• Analysis of suspended sediment transport compared with other Mediterranean watersheds

Key references for the basin


Contacts

Prof. Francesco Gentile - francesco.gentile@uniba.it
Dott. Fabio Milillo - fabio.milillo@uniba.it
Dott. Giovanni Romano - giovanni.romano@uniba.it
Dipartimento di Scienze Agro-ambientali e territoriali “Università di Bari A. Moro, Via Amendola 165/a, 70126 Bari

Measuring facilities

Location and special characteristics of the basin

Mean hillslopes gradient (%): 8.2
Length of the main channel (km): 52.16
Time of concentration (h): 10
Mean gradient of the main channel (%): 16.3
Mean gradient of the channel upstream of the station (%): 1.8
Mean runoff coefficient: 0.2