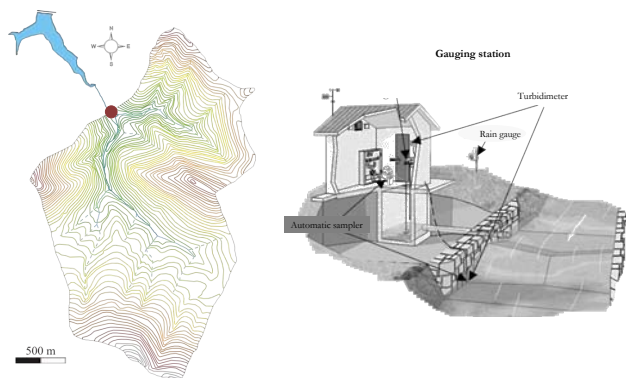




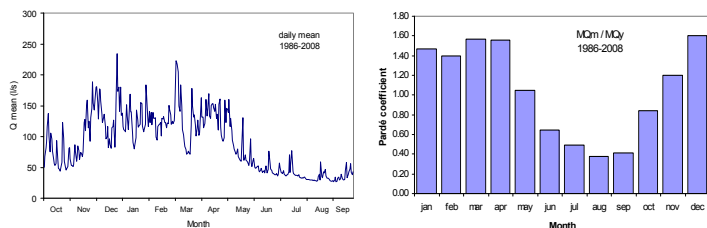
Basin characteristics

River Basin / River Basin (according EU-WFD)	Deba river basin
Operation (from... to...)	Since 1986, still in operation
Gauge coordinates / Gauge datum:	X=540642 Y=4778125 Z=349
Catchment area:	4.8 Km ²
Elevation range:	340 – 750 m a.s.l.
Basin type: (alpine, mountainous, lowland)	Mountainous
Climatic parameters: (mean precipitation, temperature and others)	1480 mm (1986-2007), 11.9 °C (1990-2008)
Land use:	80% <i>Pinus radiata</i> , 10% grassland, 10% mixed wood.
Soils:	Cambisol and Regosol.
Geology:	>90 % Calcareous flysch.
Hydrogeology: (Type of aquifers, hydraulic conductivity)	No aquifers of interest
Characteristic water discharges: (Q_{min} , Q_{max} , Q_{mean})	4.7 l/s, 10634 l/s, 90 l/s (1986-2008).

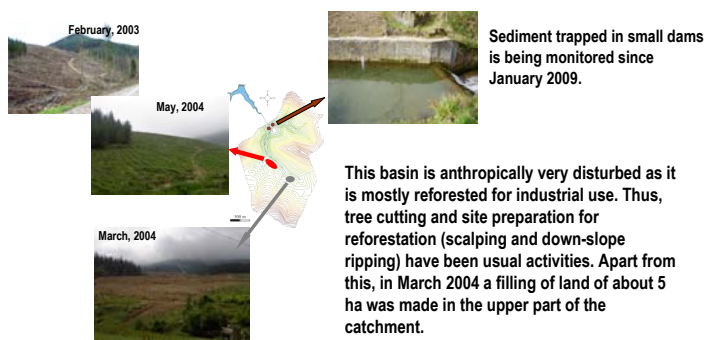
Map of the research basin



Mean hydrograph / Pardé flow regime



Special basin characteristics (hydrogeology, lakes, reservoirs etc.)



Instrumentation and data

Measured hydrological parameters	Measuring period	Temporal resolution	Number of stations
Discharge	since 1986	10 min.	1
Precipitation	since 1986	10 min.	1
Air temperature	since 1989	10 min.	1
Turbidity	since 2003	10 min.	1
Suspended sediment conc.	since 2003	Event based	1
Electrical conductivity	since 2003	Event based	1

Applied models

SWAT and TOPMODEL will be applied shortly.

Main scientific results

- At the annual scale:
 - Runoff coefficient is about 40 %.
 - The catchment has a considerable regulation capacity to face up to drier years, probably related to soils.
 - Suspended sediment yield is about 36 t/Km² (2003-2008).
- Observation of data at the event scale evidences that:
 - There is a direct response of the catchment to rainfall events in water and sediment, so the type of events observed are of "flash flood" type. There is no need of high or intense precipitations to observe a response (in water and SS) in the gauging station, a very small precipitation of 2.5 mm can produce a runoff event with a sediment response.
 - Total precipitation influences water and sediment response in terms of total and maximum discharge and sediment yield, however discharge and sediment increase depend more on precipitation maximum intensity. Relationship between discharge and suspended sediment is also strong, particularly between maximum discharge and discharge increase and maximum sediment concentration and sediment yield. Antecedent conditions seems not to have any influence on discharge and sediment values registered.
 - Analysis of the evolution of discharge and suspended sediment concentration during events, the hysteretic loops, determined that: events that show a lineal relationship between discharge and SSC are events with low total precipitation, discharge and sediment yield; events with clockwise hysteretic loops usually register high precipitation, discharge and suspended sediment yield and important precipitation before events; counter clockwise events differ from the previous because they show lower precipitation, discharge and suspended sediment records, and they are observed under high or low antecedent precipitation conditions; only one eight shaped hysteretic loop was observed and it is related with very intense precipitations and dry conditions; the rest of the events were not classified, they also take place during dry conditions and under high precipitation intensities.
 - Analysis of the evolution of electrical conductivity during events showed a quite homogeneous behaviour of water mineralization during runoff events. After a decrease of EC during discharge increase, initial conductivity is very rapidly recovered in any of the hydrological situations. Moreover, pre-event waters are present in high proportion in runoff, even during events.

Key references for the basin

- Zabaleta A., Martínez M., Antigüedad I., 2005. Suspended sediment yield continuous monitoring in two Basque Country catchments. Preliminary results. *10th ERB Conference. Progress in Surface and Subsurface Water Studies at Plot and Small Basin Scale. Conference Proceedings. Technical Documents in Hydrology*, 77, 139-144.
- Zabaleta A., Martínez M., Uriarte JA., Antigüedad I., 2006. Determinant factors for discharge/suspended sediment hysteretic loops in a small headwater catchment in the Basque Country. *5th World FRIEND Conference. Climate Change and Hydrological Impacts. Conference Proceedings CD*.
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