



Floods in Vitoria-Gasteiz : economic impact and meteorological causes.

Santiago Gaztelumendi (1,2), Joseba Egaña (1,2), José Antonio Aranda (2,3)

(1) Meteorology Area, Energy and Environment Division, TECNALIA R&I, Basque Country, Spain, (2) Basque Meteorology Agency (EUSKALMET), Basque Country, Spain, (3) Emergencies and Meteorology Directorate, Security Department, Basque Government, Basque Country, Spain

Severe weather phenomena impact the Basque society and economy in many ways, from disruption in various sectors and substantial damages in infrastructure to human and economic losses. Particularly flooding is the natural event that causes the most disaster damage in Basque Country. In this study we focus on flood impact produced in Vitoria-Gasteiz area (political capital of Basque Country) during the period 1996-2015 and meteorological phenomena that cause them. On one hand, Zadorra river flows to the Ebro river along Araba Territory, crossing Vitoria-Gasteiz municipality from east to west. On the other hand, minor rivers flows from south to north into the city.

In the cold season the jet stream descends from latitude and the depressions are more powerful, and active promoting frontal systems that can leaves significant precipitations in the studied area. They are maritime-type situations with successive active fronts or quasi-stationary warm fronts, which generate persistent and stratiform precipitation, and we must also take into account factors such as snow melting and soil saturation. Situations of the summer period (May-September) occur due to the formation of storms that generate convective intense precipitations, but generally of short duration. They are situations that present a high degree of instability, with an undefined surface situation.

The events that generate problems in the area of Vitoria-Gasteiz can be grouped in two main types. On one side those that happen in the cold season (October-April), especially during December, January and February, and on the other hand in the summer period, mainly due to relatively strong storms. During first cases impact tend to occurs in the vicinity of the main river for a relatively high economic amount. During second type events, damages are more extended all around the city but with less economic impact.

In this work we use, as a reference for impact, the losses from flood damage paid by Spanish Insurance Compensation Consortium (CCS) during twenty years (1996-2015). Data are analyzed and presented in different ways grouped per date, period, amount, damage type, location, etc. The final objective is to contribute to knowledge of impact characteristics in this area, increasing awareness and preparedness for floods events.