



Numerical study of the fall 2006 flooding events in Galicia with WRF-NMM: the role of the warm sea surface temperature anomaly

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The fall season of 2006 was extraordinarily warm and rainy in Galicia, as in many other areas of Spain and Western Europe. New records of mean minimum temperatures were set and close to record monthly precipitation amounts were measured in several locations in October. These high October precipitation amounts are still far from record totals for a monthly period; yet the intense rainfall led to unprecedented flash flooding in many locations, mostly on the western Atlantic coast. We study here, with the aid of observations and high resolution numerical simulations of the WRF-NMM model, the dynamics leading to the four most pronounced flooding events of the season, with especial focus on the last and most intense episode at the end of November. In this event, the development of an intense narrow cold frontal rainband brought rainfall totals surpassing 100 mm in just 3 or 4 hours in several locations of Southwestern Galicia, including off the coast islands. We investigate the role of the tongue of anomalously warm sea surface temperature (at record high for this period) west of the Iberian Peninsula on the development of a strong low level jet almost parallel to the coast and the intensification of the precipitation cores associated with the narrow cold frontal rainband.