Real time forecast of extreme meteo-hydrological events: the italian experience

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The increase in flood risk that may be produced by climate change lead, for densely urbanized areas, to a necessary change in the philosophy of risk mitigation. The mitigation of of risk exposure, especially in a changing climate of the extremes, if managed with structural measures alone implies investments often incompatible with the amount of the gross annual income of the area of concern. The structural measures needs to be coupled with “non-structural” ones, i.e. real time flood forecast. This point is particularly important in areas concerned by high level risk caused by landslides or flash floods in small mountainous catchments, as in the Mediterranean Countries. To cope with that Italy has recently implemented a new system for real time forecast of extreme meteorological events and flash floods. The national scientific community has been deeply involved on it. It has been designed to deeply exploit the information produced with high temporal frequency by models and observation networks, including remote sensing from both satellites and meteorological radars. Authors will illustrate in this work the architecture of the system and how all the information are combined in order to reduce the uncertainty related to flash flood forecast.