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Heavy precipitation retrieval from combined satellite observations and ground-based lightning measurements within the EU FLASH project

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Within the European Union FP6 FLASH project, we have developed a series of algorithms for the retrieval of precipitation (especially, heavy precipitation) from satellite-borne microwave (MW) and infrared (IR) radiometers in conjunction with lightning data from ground-based networks operating over the Mediterranean area – such as ZEUS and LINET. These algorithms have then been applied to the various case studies that have been selected within the FLASH project, that aims at improving the monitoring, nowcasting and forecasting of the hazardous, flood-producing storms that intermittently strike the Mediterranean coastal regions. In this paper, we describe our combined MW/IR/lightning precipitation algorithms and analyses with special reference to the case study of 14-15 September 2006 over the western Mediterranean, that has been selected for joint research by the EU FLASH and HYDRATE projects.