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Predictability and extended-range prognosis in natural hazard risk mitigation process: A case study over west Greece

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Natural hazards pose an increasing threat to society and new innovative techniques or methodologies are necessary to be developed, in order to enhance the risk mitigation process in nowadays. It is commonly accepted that disaster risk reduction is a vital key for future successful economic and social development. The systematic improvement accuracy of extended-range prognosis products, relating with monthly and seasonal predictability, introduced them as a new essential link in risk mitigation procedure.
Aiming at decreasing the risk, this paper presents the use of seasonal and monthly forecasting process that was tested over west Greece from September to December, 2013. During that season significant severe weather events occurred, causing significant impact to the local society (severe storms/rainfalls, hail, flash floods, etc). Seasonal and monthly forecasting products from European Centre for Medium-Range Weather Forecasts (ECMWF) depicted, with probabilities stratified by terciles, areas of Greece where significant weather may occur.
As atmospheric natural hazard early warning systems are able to deliver warnings up to 72 hours in advance, this study illustrates that extended-range prognosis could be introduced as a new technique in risk mitigation. Seasonal and monthly forecast products could highlight extended areas where severe weather events may occur in one month lead time. In addition, a risk mitigation procedure, that extended prognosis products are adopted, is also presented providing useful time to preparedness process at regional administration level.