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Improving ECMWF 6-h maximum rain with non-linear methods and instability indices

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ECMWF 6-h maximum rain in Friuli Venezia Giulia region is underestimated, in particular during the summer-fall seasons and during the 18-00 UTC period of the day.

In a previous work, a linear method was developed to improve the direct ECMWF 6-h maximum rain forecasts using 32 different statistical models, one for each of the 4 subareas, for each of the 4 periods of the day

and for each of the 2 periods of the year. This tool is used operatively in OSMER-ARPA FVG since 2015.

In this new work the same approach is extended using also non-linear (neural networks) methods and using as input also the instability indices derived from the ECMWF pseudo-sounding forecast.

Results improve the performances obtained by the previous linear approach, even if the plain/coastal areas during summer still have low predictability.