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T2m and only minor differences are observed between below- and above-normal precipitation.

The reliability analysis is also performed for accumulated precipitation. The forecast skill is lower than events.

The combination of the low value of the observed frequency of the below-normal category, together with the adopted binning interval (0.2), hinders most of the information contained in the reliability curves of cold events. To overcome this issue, a reliability diagram created through an adaptive binning based on the forecast frequency (as proposed by Brocker and Smith, 2007) has been adopted and compared for week 3 and 4 (Fig. 3). The clustering underlying the new reliability evaluation highlights enhanced resolution for very low forecast probabilities, indicating that cold-event distribution is more confident than what suggested by the histograms in Fig.2. The new clustering has small impact on the reliability of warm-event prediction due to the greater confidence of its refinement distribution, which also implies significant occupation of all probability bins.

The monthly forecasting system developed at CNR-ISAC is operationally run on a weekly basis to produce 41-member ensemble forecasts in the framework of the Subseasonal-to-Seasonal (S2S) project. In this work, two years of forecasts, covering 106 weeks from April 2015, are verified against ERA-Interim reanalyses. The evaluation is based on weekly averages starting from the first forecast day. The anomaly correlation coefficient of 500-hPa geopotential height shows enhanced predictive skill during the cold months, when favorable values are occasionally obtained beyond week 2. The root mean square error at week 2 over land points of the extratropical Northern Hemisphere, for below-normal (a) and above-normal events (b). The area under the curve for each forecast week is reported at the bottom of each panel, the same value obtained persisting the probabilities for the previous week of the same forecast is reported in brackets for weeks 2-4.