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The DWD climate prediction website

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DWD provides operational seasonal and decadal predictions of the German climate prediction system since 2016 and 2020, respectively. We plan to present these predictions together with post-processed ECMWF sub-seasonal forecast products on the DWD climate prediction website www.dwd.de/climatepredictions. In March 2020, this climate service was published with decadal predictions for the coming years; sub-seasonal and seasonal predictions for the coming weeks and months will follow.

The user-oriented evaluation and design of this climate service has been developed in close cooperation with users from various sectors at workshops of the German Miklip project and will be consistent across all time scales. The website offers maps, time series and tables of ensemble mean and probabilistic predictions in combination with the prediction skill for 1-year and 5-year means/ sums of temperature and precipitation for different regions (World, Europe, Germany, German regions).

For Germany, the statistical downscaling EPISODES was applied to reach high spatial resolution required by several climate data users. Decadal predictions were statistically recalibrated in order to adjust bias, drift and standard deviation and optimize ensemble spread. We used the MESS and RPSS to evaluate the skill of climate predictions in comparison to reference predictions, e.g. 'observed climatology' or 'uninitialized climate projections' (which are both applied by users until now as an alternative to climate predictions). The significance was tested via bootstraps.

Within the 'basic climate predictions' section, a user-oriented traffic light indicates whether regional-mean climate predictions are significantly better (green), not significantly different (yellow) or significantly worse (red) than reference predictions. Within the 'expert climate predictions' section, prediction maps show per grid box the prediction itself (via the color of dots) and its skill (via the size of dots representing the skill categories of the traffic light). The co-development of this climate prediction application with users from different sectors strongly improves the comprehensibility and applicability by users in their daily work.

In addition to sub-seasonal and seasonal predictions, plans for future extensions of this climate service include multi-year seasonal predictions, e.g. 5-year summer or winter means, combined products for climate predictions and climate projections, further user-oriented, extreme or large-scale variables, e.g. ENSO, or high-resolution applications for German cities based on statistically

downscaled predictions.