

This manuscript introduces unseen-awg, an analog weather generator that uses ECMWF reforecasts and block sampling to generate long daily weather series over Europe. The approach is innovative, relevant for climate-risk applications, and supported by openly available code and data.

The manuscript is generally well written and structured. The method is promising and could make a valuable contribution. However, the interpretation of unseen extremes, parameter choices, and validation procedures should be strengthened.

Major comments

1. The daily extremes generated by unseen-awg are unprecedented relative to ERA5 for 2003–2023, but they already exist in the reforecast archive. The authors should clarify this distinction and avoid implying that the weather generator creates entirely new daily states. They should also examine whether the most extreme values are associated with lead times or ensemble members and assess whether they could reflect forecast artefacts.
2. The reforecast dataset is described as containing approximately 3,500 years of weather states, but these states are not independent because of overlapping initializations, lead times, and ensemble members. This may affect analog selection, extreme-event sampling, and return-level interpretation. The effective sample size should be investigated through sensitivity tests using subsets of initializations, lead times, or ensemble members.
3. Please clarify whether the unweighted Euclidean is normalized, whether anomalies or raw Z500 fields are used, the choice not to use area weighting should also be justified because it gives greater influence to high-latitude grid cells.
4. The selection of $\tau=30$ days is based mainly on a qualitative compromise between autocorrelation and flexibility. Figure 3b only evaluates summer temperature at one grid cell. The authors should provide broader sensitivity analyses across variables, seasons, and regions.
5. The parameter σ is optimized for $\tau=1$ but then applied to simulations using $\tau=30$. The assumption that the optimal value transfers between these configurations should be tested. In addition, the forecast experiment benefits from a one-day “look-ahead” and uses a lead-zero reforecast state as ground truth. Its interpretation as an actual forecast experiment should therefore be clarified.
6. The method is presented as generating stationary present-day climate, although the 2003–2023 period contains temperature trends. The authors should clarify how “present-day climate” is defined and discuss whether trends affect the generated extremes and dependencies.

Minor comments and typographical corrections

Line 39: “As a consequence, also local weather” → “As a consequence, local weather is also”.

Line 50: “An alternative are reforecasts” → “An alternative is the use of reforecasts”.

Line 79: Replace “0th to 45th forecast day” with “forecast days 0–45”.

Line 237: “coniguous” → “contiguous”.

Line 246: “climate-sensitive system” → “climate-sensitive systems”.

Line 253: “with dimensionality” → “with the dimensionality”.

Line 270: “may be never be generated” → “may never be generated”.

Line 279: “size of reforecast dataset” → “size of the reforecast dataset”.

Line 304: “climate impacts models” → “climate-impact models”.

Line 452: “ECMWFs” → “ECMWF’s”.

Line 468: “AI assisted” → “AI-assisted”.