

Authors' response to the Topical Editor

Comment 1: The authors' response to anonymous referee#1, Comment 2:" The authors declare "Extending the historical horizon beyond 24 hours did not significantly affect the prediction accuracy". Please give a concise description of how to find the trade-off between the model forecast accuracy and the computing resource." Could you be more specific on how to find the trade-off between the model forecast accuracy and the computing resource? This is relevant for the reader to understand your paper.

Response: Thank you for the comment. Increasing the horizon increases the computational complexity, but also potentially the prediction accuracy. We selected the horizon value T_{min} as the minimal value beyond which the accuracy increase was negligible. We have modified Section 4.1.1 to reflect this. We paste the changed paragraph here for convenience:

"Increasing the length of the historic horizon defined by the parameter T_{min} (see Section 3.1) increases the HIDRA execution time due to a substantially increased number of parameters in the input layer. We therefore analyzed the influence of the HIDRA historic horizon length, to find the best trade-off between the model forecast accuracy and the execution time. Table 1 summarizes the performance of HIDRA variants with $T_{min} \in \{12,24,36,48\}$, which translates to historic horizons of 12, 24, 36 and 48 hours prior to the beginning of the forecast. Prediction accuracy substantially increased by increasing the historic horizon from 12 to 24 hours (9% reduction in RMSE)but saturated for larger values. Since we have not observed measurable benefits for horizons beyond 24h, we have selected $T_{min} = 24$ as the optimal horizon value. In the remaining analysis, we denote this version as $HIDRA_0$."

Comment 2: The authors decided to set $T_{min} = 23$, however, the value of T_{min} in the new version5 manuscript is still 24.

Response: The length of the historic horizon (24h) did not change during the review process. Already in the initial submission $T_{min} = 23$ denoted the historic horizon of 24h which turned out to be somewhat misleading. Therefore we changed this definition in the response to Reviewer #2 so that the horizon value of 24h corresponds to the parameter value $T_{min} = 24$ in the interest of clarity and to prevent further confusion. This change was made consistent throughout the paper.

Kind regards,
Lojze Žust,
On behalf of the authors