Supporting Information for

A Unified System for Evaluating, Ranking and Clustering in SDGs

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Wide Application and Third-Party Evaluations of CCHZ-DISO

Since its initial publication, CCHZ-DISO has garnered significant traction and witnessed widespread application, garnering over 100 citations in the Web of Science within the past three years. In this section, we showcase a selection of notable objective and positive evaluations from third-party sources, underscoring the impact and utility of the CCHZ-DISO system.

Kalmar et al. (2021) first recommended the DISO index for assessing historical regional precipitation simulations with the RegCM4.5 model. They compared DISO and Taylor diagram methods and found that “The advantage of using DISO versus the Taylor diagram is that the comprehensive performances of the different models are still not quantified by the latter”. In a sensitivity analysis of soil water and heat transfer parameters in community land surface models, Deng et al. (2021) introduced DISO, as discussed in section 2.3 of their paper published in the “*Journal of Advances in Modeling Earth Systems*”. Moreover, they declared that “In this paper, the most important and best advantage of DISO is that after normalizing the observed and simulated data, the value of DISO can express the performance of the same model at different sites”.

Wu et al. (2023) suggested that DISO has more advantages than Taylor diagrams, noting that “DISO overcomes some disadvantages of Taylor diagrams and provides an intuitive way to measure differences between various GCMs in the same assessment system”; additionally, the limitations of Taylor diagrams were discussed: “Taylor diagrams (Taylor 2001) are the most common way to assess the performance of climate products. However, they inevitably have inherent drawbacks…. The DISO (Hu et al. 2019) algorithm was designed to overcome the drawbacks that exist in Taylor diagrams. First, DISO has a higher dimensionality than Taylor diagrams… In addition, DISO can evaluate the performance of a model based on multiple metrics at the same time, which can reflect the performance of the model in different aspects”. The comprehensive

performance of the CCHZ-DISO has been explored in many studies (Zhuang et al., 2023; Liu et al., 2022; Longo-Minnolo et al., 2022; Ma et al., 2022; Yin et al., 2022).

The third-party evaluations unequivocally indicate that, in comparison to Taylor diagrams, CCHZ-DISO exhibits superior advantages. It stands as an efficient and highly effective approach for the comprehensive quantification of performance across diverse models, providing a holistic assessment of their overall capabilities.

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