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Supplementary Materials for

Accurate nowcasting of cloud cover at solar photovoltaic plants

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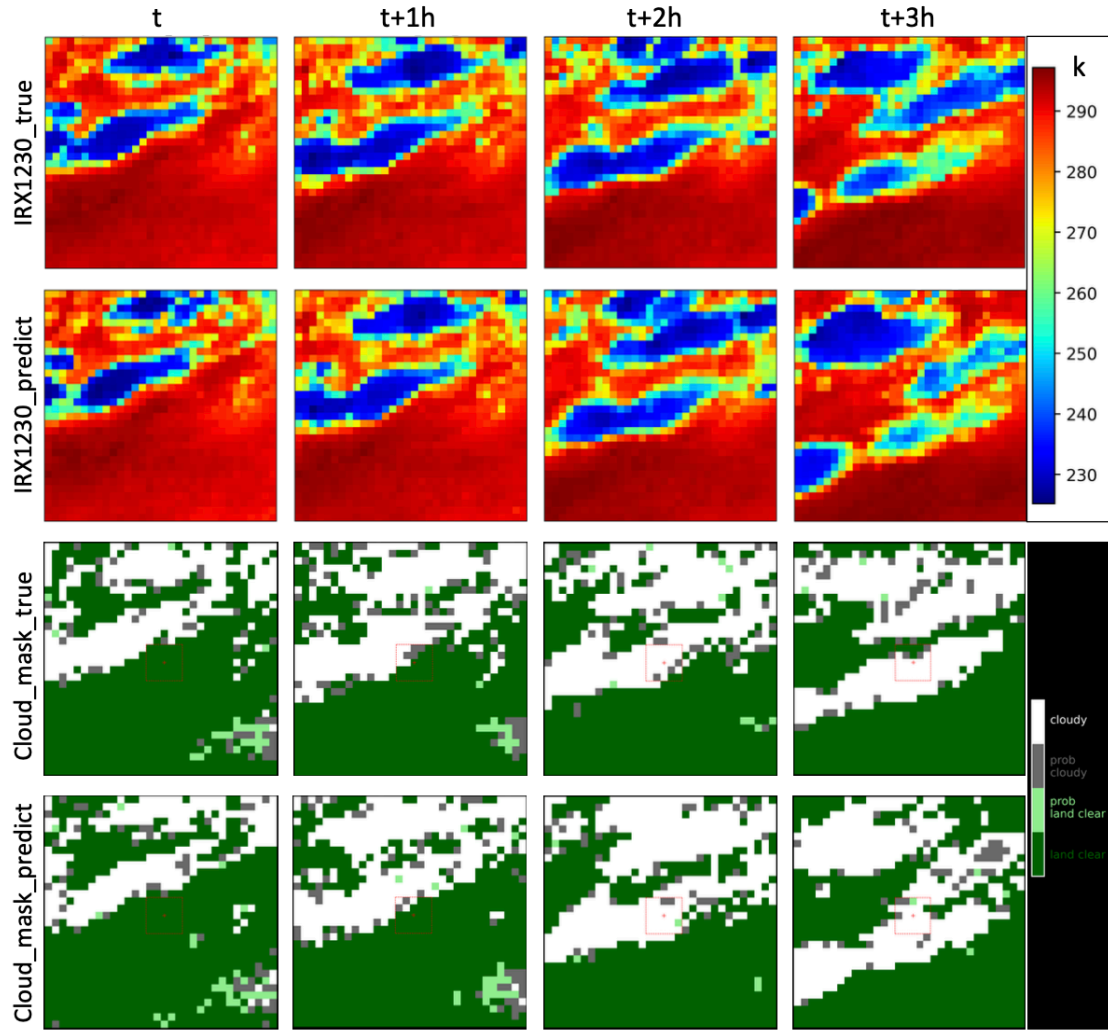
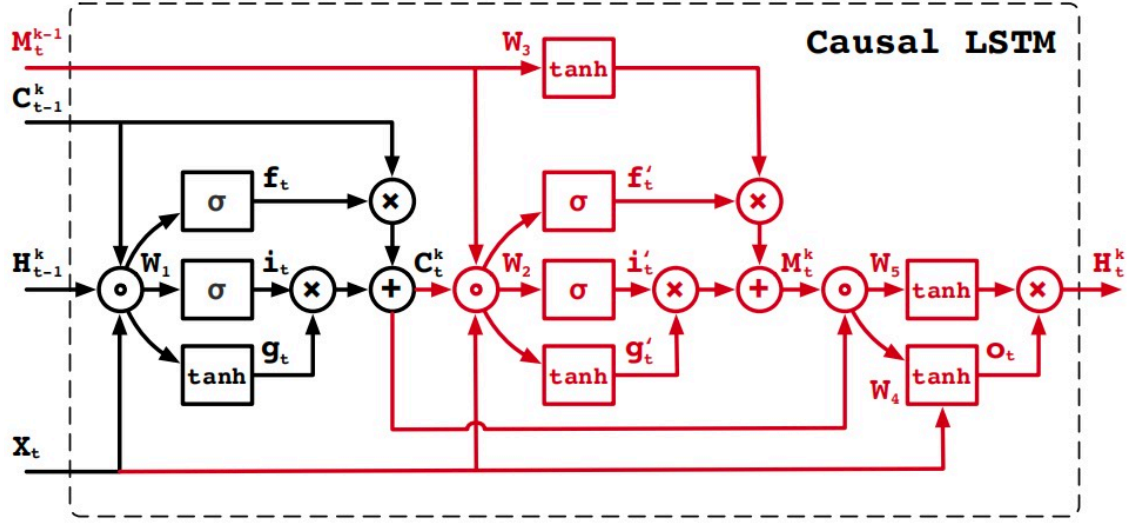
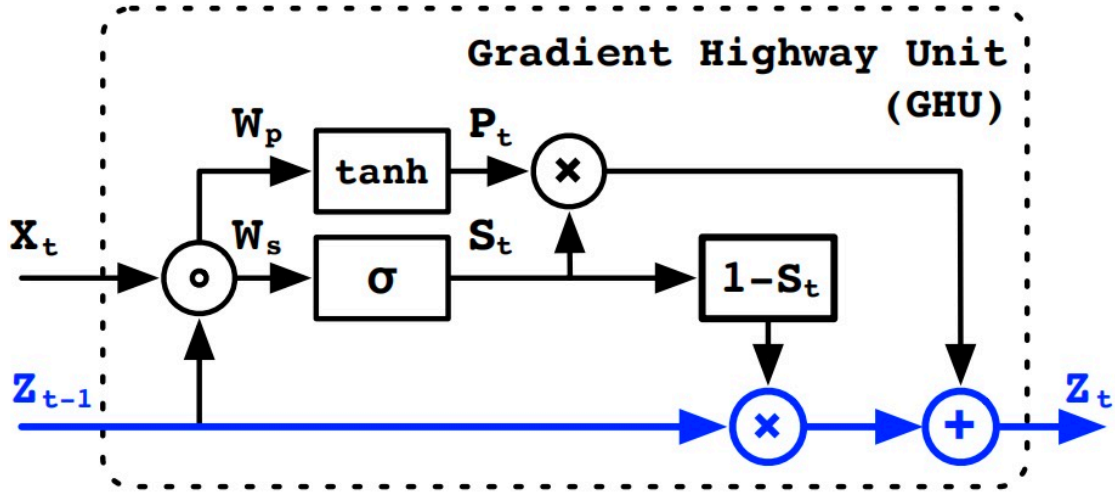


Fig. S1. Comparisons of observed (top row panel) and predicted satellite images at AHI 12.30 μ m band (IRX1230, second row panels) and the cloud mask products retrieved by actual observations (third row panel) and the predict cloud mask products retrieved by the predicted image data (bottom row panel) at Zhuhai station (red dashed square boxes) at UTC 05:00 (t, first column), 06:00 (t+1h, second column), 07:00 (t+2h, third column) and 08:00(t+3h, fourth column) on November 17, 2022. The white, gray, light green and dark green spots represent cloudy, probably cloudy, probably clear and clear pixel labels, respectively.



(a)



(b)

Fig. S2. (a) Causal long short-term memory (LSTM) and (b) GHU ^[32]. The temporal (black) and spatial (red) memories are connected in a cascaded way through gated structures. " $\odot$ " denotes the concatenation, " $\otimes$ " an element-wise multiplication, " $\oplus$ " an addition, and σ an element-wise sigmoid function.

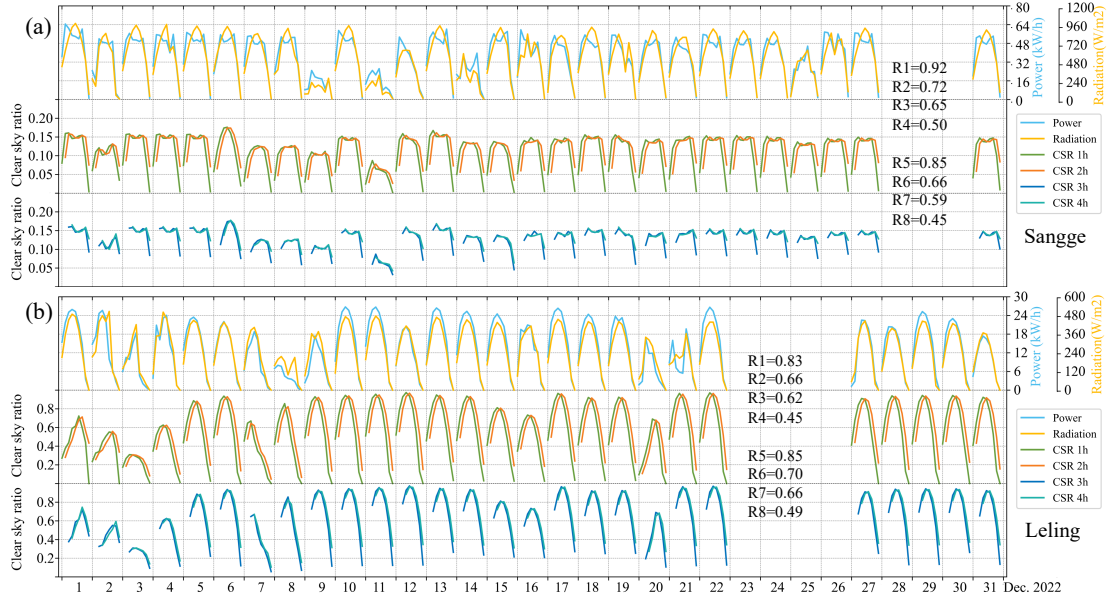


Fig. S3. Same as Fig. 4, but for the samples in December 2022.

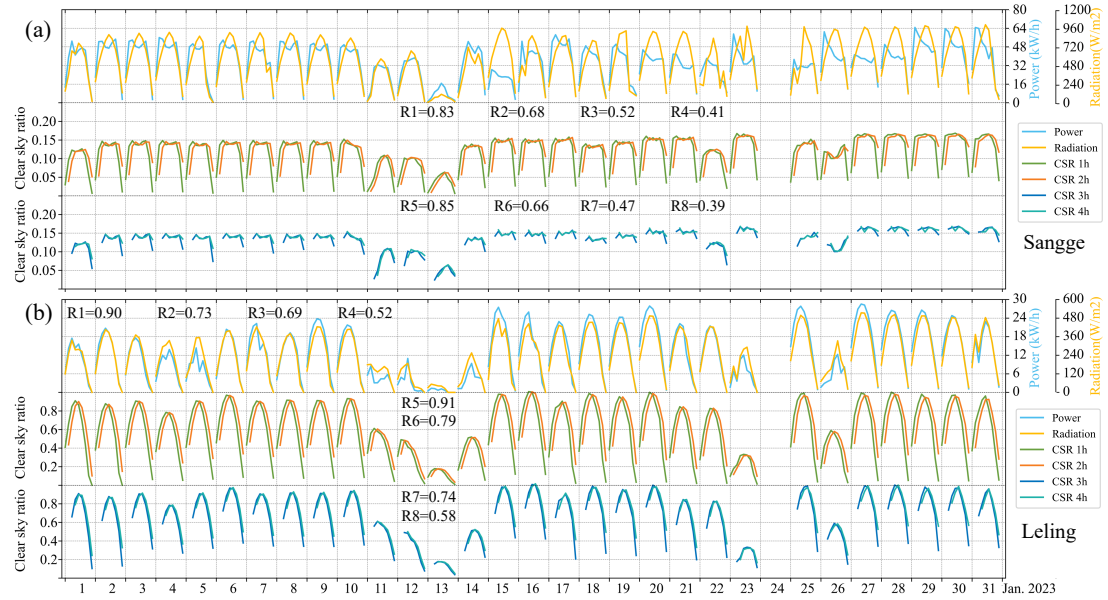


Fig. S4. Same as Fig. 4, but for the samples in January 2023.

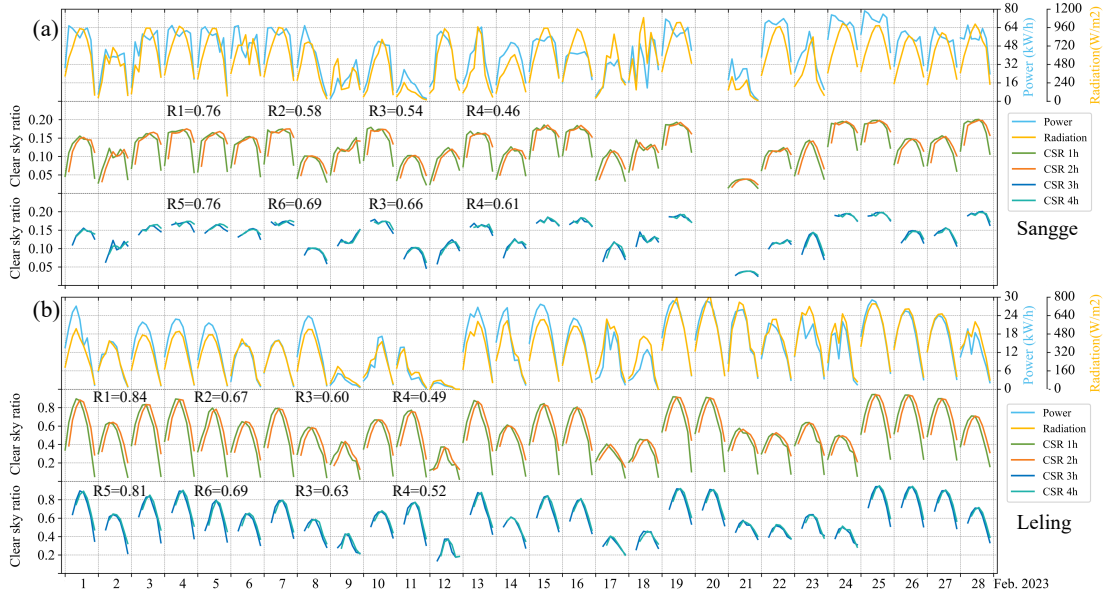


Fig. S5. Same as Fig. 4, but for the samples in February 2023.

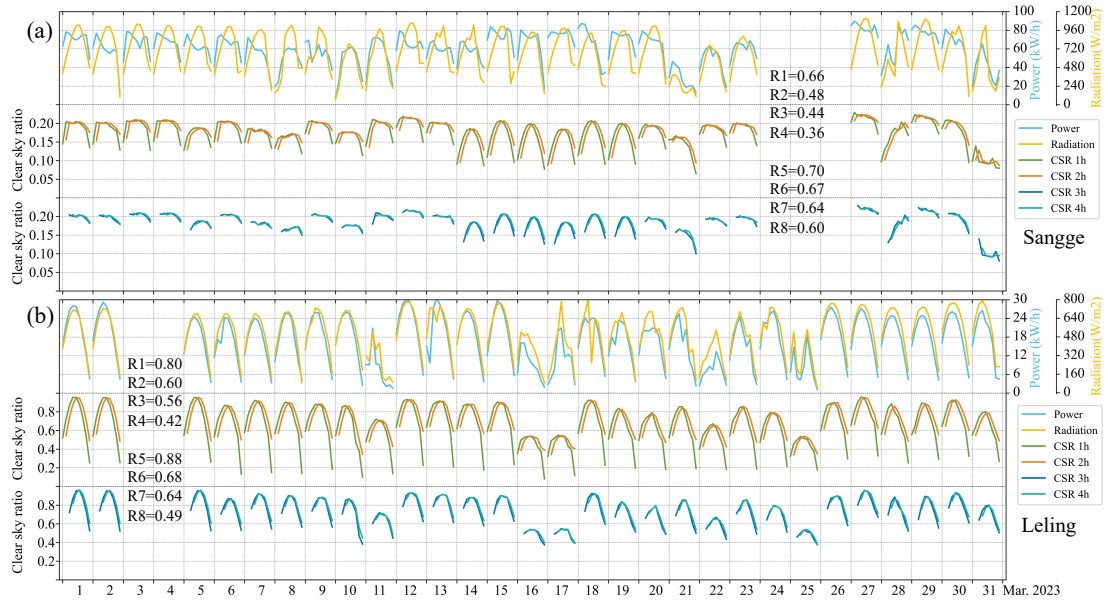


Fig. S6. Same as Fig. 4, but for the samples in March 2023.