

# Earth vision paper 21: Solar Irradiance Anticipative Transformer

## Supplementary Information

Loss weights performance

Table 1: Performance for different weight values for the encoding loss. Based on the 15 minute ahead forecasting task for the Chilbolton dataset.

Weight for encoding loss ( $\gamma$ )	MAE (W/m <sup>2</sup> )	RMSE (W/m <sup>2</sup> )	FS (%)
0.5	69.68	113.05	20.72
1	<b>68.15</b>	<b>112</b>	<b>21.45</b>
2	69	112.35	21.2
6	69.5	113.7	20.26
10	70.26	114.46	19.72

Table 2: Performance for different weight values for the intermediate irradiance loss. Based on the 15 minute ahead forecasting task for the Chilbolton dataset.

Weight for intermediate irradiance loss ( $\beta$ )	MAE (W/m <sup>2</sup> )	RMSE (W/m <sup>2</sup> )	FS (%)
0.5	71.31	113.14	20.65
1	<b>68.15</b>	<b>112.00</b>	<b>21.45</b>
2	69.81	113.18	20.62
6	70.44	113.94	20.09
10	69.76	113.46	20.47

Table 3: Performance for different weight values for the final irradiance loss. Based on the 15 minute ahead forecasting task for the Chilbolton dataset.

Weight for final irradiance loss ( $\alpha$ )	MAE (W/m <sup>2</sup> )	RMSE (W/m <sup>2</sup> )	FS (%)
0.5	69.21	<b>111.89</b>	<b>21.53</b>
1	<b>68.15</b>	112.00	21.45
2	69.60	113.50	20.40
6	70.55	113.25	20.57
10	69.54	113.33	20.52

As the tables above show using equal weight factors gives the best balance of performance across the different evaluation metrics.