Supplement for

GAN-argcPredNet v2.0: A Radar Echo Extrapolation Model based on Spatiotemporal Process Enhancement

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Table S1-8

Table S1: This is the hyperparameters of ConvLSTM and ConvGRU. The batch size of training is 10.

Model	Name	Kernel size	Stride	Padding	Hidden states
ConvLSTM	ConvLSTM layer	5×5	1×1	2×2	(64, 64, 128)
ConvGRU	ConvGRU layer	5×5	1×1	2×2	(64, 64, 128)

Table S2: This is the hyperparameters of the encoder module in the GA-ConvGRU generator. The batch size of training is 10.

Model	Name	Kernel size	Stride	Padding	Filter
GA-ConvGRU (Encoder in Generator)	GRU1_i2h	3×3	1×1	1×1	64
	GRU1_h2h	5×5	1×1	2×2	64
	Downsample1	7×7	3×3	1×1	64
	GRU2_i2h	3×3	1×1	1×1	192
	GRU2_h2h	5×5	1×1	2×2	192
	Downsample2	5×5	3×3	1×1	192
	GRU3_i2h	3×3	1×1	1×1	192
	GRU3_h2h	3×3	1×1	1×1	192

Table S3: This is the hyperparameters of the decoder module in the GA-ConvGRU generator.

Model	Name	Kernel size	Stride	Padding	Filter
GA-ConvGRU (Decoder in Generator)	GRU3_i2h	3×3	1×1	1×1	192
	GRU3_h2h	3×3	1×1	1×1	192
	Upsample2	5×5	3×3	1×1	192
	GRU2_i2h	3×3	1×1	1×1	192
	GRU2_h2h	5×5	1×1	2×2	192
	Upsample1	7×7	3×3	1×1	192
	GRU1_i2h	3×3	1×1	1×1	64
	GRU1_h2h	5×5	1×1	2×2	64

Table S4: This is the hyperparameters of the GA-ConvGRU discriminator.

Model	Name	Kernel size	Stride	Padding	Filter
GA-ConvGRU (Discriminator)	Convolution_1	7×7	5×5	1×1	32
	Convolution_2	5×5	3×3	1×1	64
	Convolution_3	4×4	4×4	2×2	128
	Convolution_4	4×4	4×4	0×0	256
	Convolution_5	4×4	-	-	1

Table S5: This is the hyperparameters of the GAN-argcPredNet v1.0 generator. The batch size of training is 10.

Model	Components	Name	Kernel size	Padding	Filter
GAN-argcPredNet v1.0 (Generator)	Module A_l	Convolution layer	3×3	1×1	(1, 128, 128, 256)
		Maxpool	3×3	0×0	-
	Module $\hat{A}_l$	Convolution layer	3×3	1×1	(1, 128, 128, 256)
	Module R_l	Upsample	3×3	-	-
		argcLSTM	3×3	1×1	(1, 128, 128, 256)

Table S6: This is the hyperparameters of the GAN-argcPredNet v1.0 discriminator.

Model	Name	Kernel size	Stride	Padding	Filter
GAN-argcPredNet v1.0 (Discriminator)	Convolution_1	3×3	2×2	1×1	32
	Convolution_2	3×3	2×2	1×1	64
	Convolution_3	3×3	2×2	1×1	128
	Convolution_4	3×3	2×2	1×1	256

Table S7: This is the hyperparameters of the GAN-argcPredNet v2.0 generator. The batch size of training is 10.

Model	Components	Name	Kernel size	Padding	Filter
	STIC Attention	Convolution layer	7×7×5	3×3×2	1
GAN-argcPredNet v2.0 (Generator)	Module A_l	Convolution layer	3×3	1×1	(1, 128, 128, 256)
		Maxpool	3×3	0×0	-
	Module $\hat{A}_l$	Convolution layer	3×3	1×1	(1, 128, 128, 256)
	Module R_l	Upsample	3×3	-	-
		argcLSTM	3×3	1×1	(1, 128, 128, 256)

Table S8: This is the hyperparameters of the GAN-argcPredNet v2.0 discriminator.

Model	Name	Kernel size/Size	Stride	Padding	Filter
GAN-argcPredNet v2.0 (Discriminator)	Compression Ratio of Channel Attention	8	-	-	-
	Convolution_1	3×3	2×2	1×1	32
	Convolution_2	3×3	2×2	1×1	64
	Convolution_3	3×3	2×2	1×1	128
	Convolution_4	3×3	2×2	1×1	256