Supplementary Materials

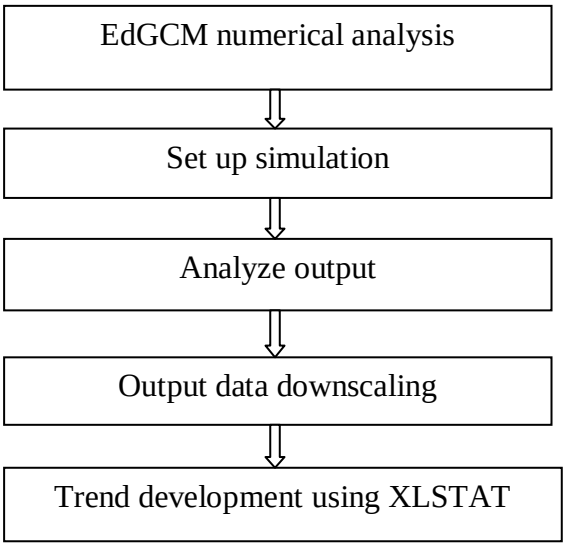


Fig. S1. Working process flow diagram.

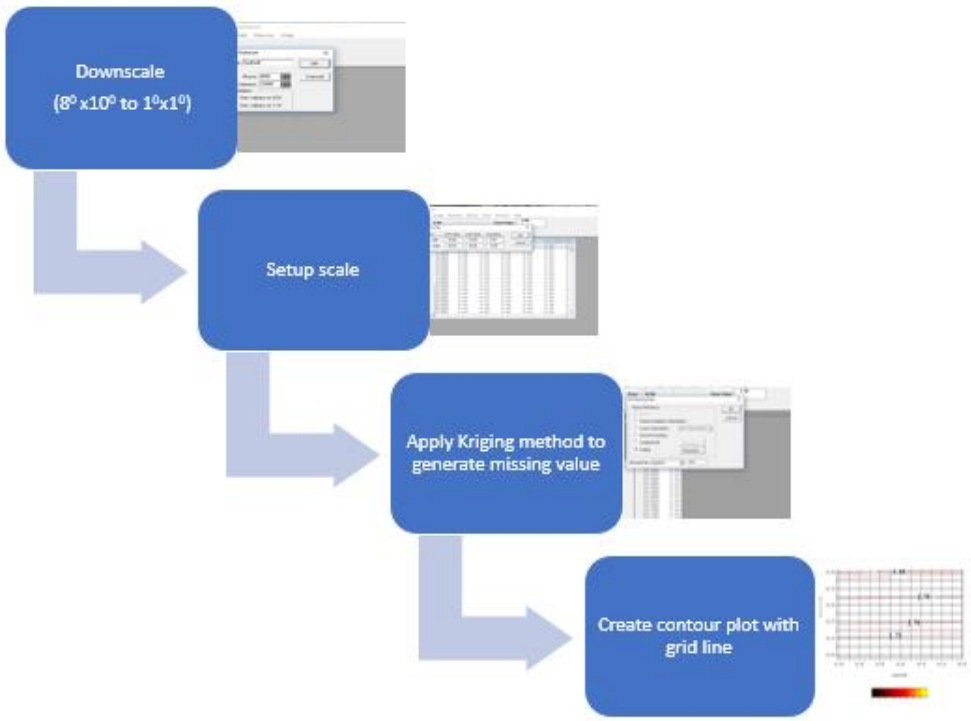
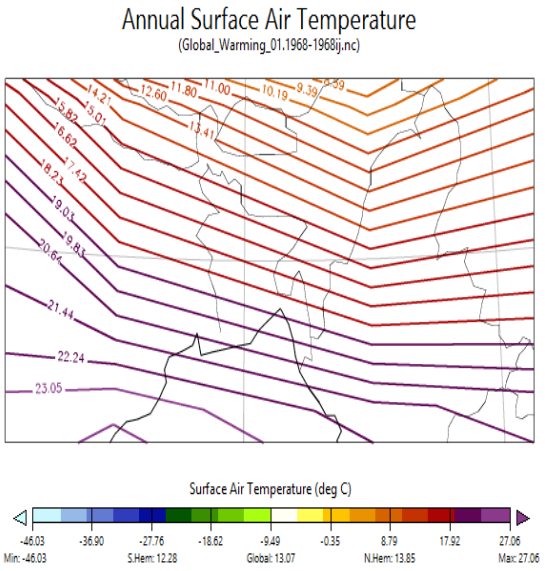
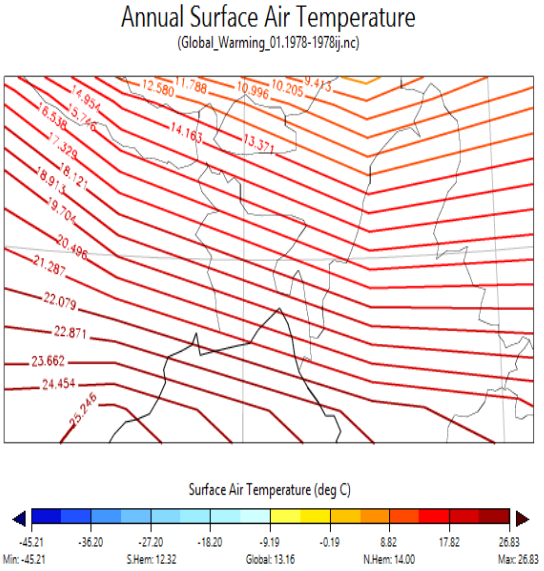
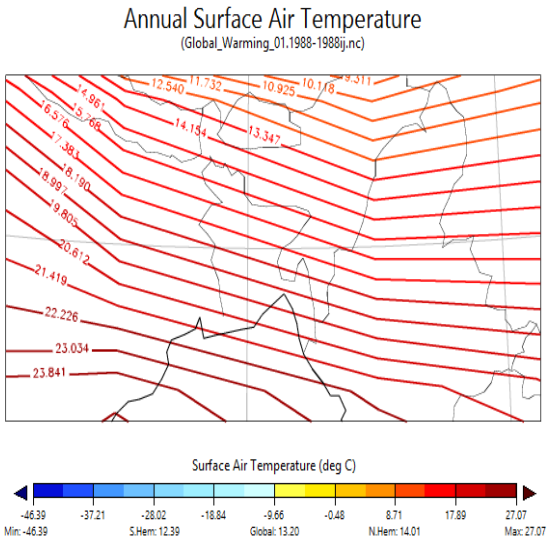
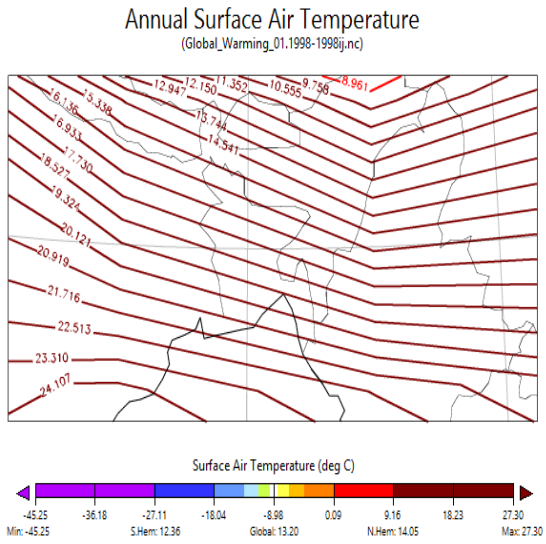


Fig. S2. Working process of transform software.


Annual Surface Air Temperature
(Global_Warming_01.1968-1968ij.nc)
Surface Air Temperature (deg C)
-46.03 -36.90 -27.76 -18.62 -9.49 -0.35 8.79 17.92 27.06
Min: -46.03 S.Hem: 12.28 Global: 13.07 N.Hem: 13.85 Max: 27.06


Annual Surface Air Temperature
(Global_Warming_01.1978-1978ij.nc)
Surface Air Temperature (deg C)
-45.21 -36.20 -27.20 -18.20 -9.19 -0.19 8.82 17.82 26.83
Min: -45.21 S.Hem: 12.32 Global: 13.16 N.Hem: 14.00 Max: 26.83


Annual Surface Air Temperature
(Global_Warming_01.1988-1988ij.nc)
Surface Air Temperature (deg C)
-46.39 -37.21 -28.02 -18.84 -9.66 -0.48 8.71 17.89 27.07
Min: -46.39 S.Hem: 12.39 Global: 13.20 N.Hem: 14.01 Max: 27.07


Annual Surface Air Temperature
(Global_Warming_01.1998-1998ij.nc)
Surface Air Temperature (deg C)
-45.25 -36.18 -27.11 -18.04 -8.98 0.09 9.16 18.23 27.30
Min: -45.25 S.Hem: 12.36 Global: 13.20 N.Hem: 14.05 Max: 27.30

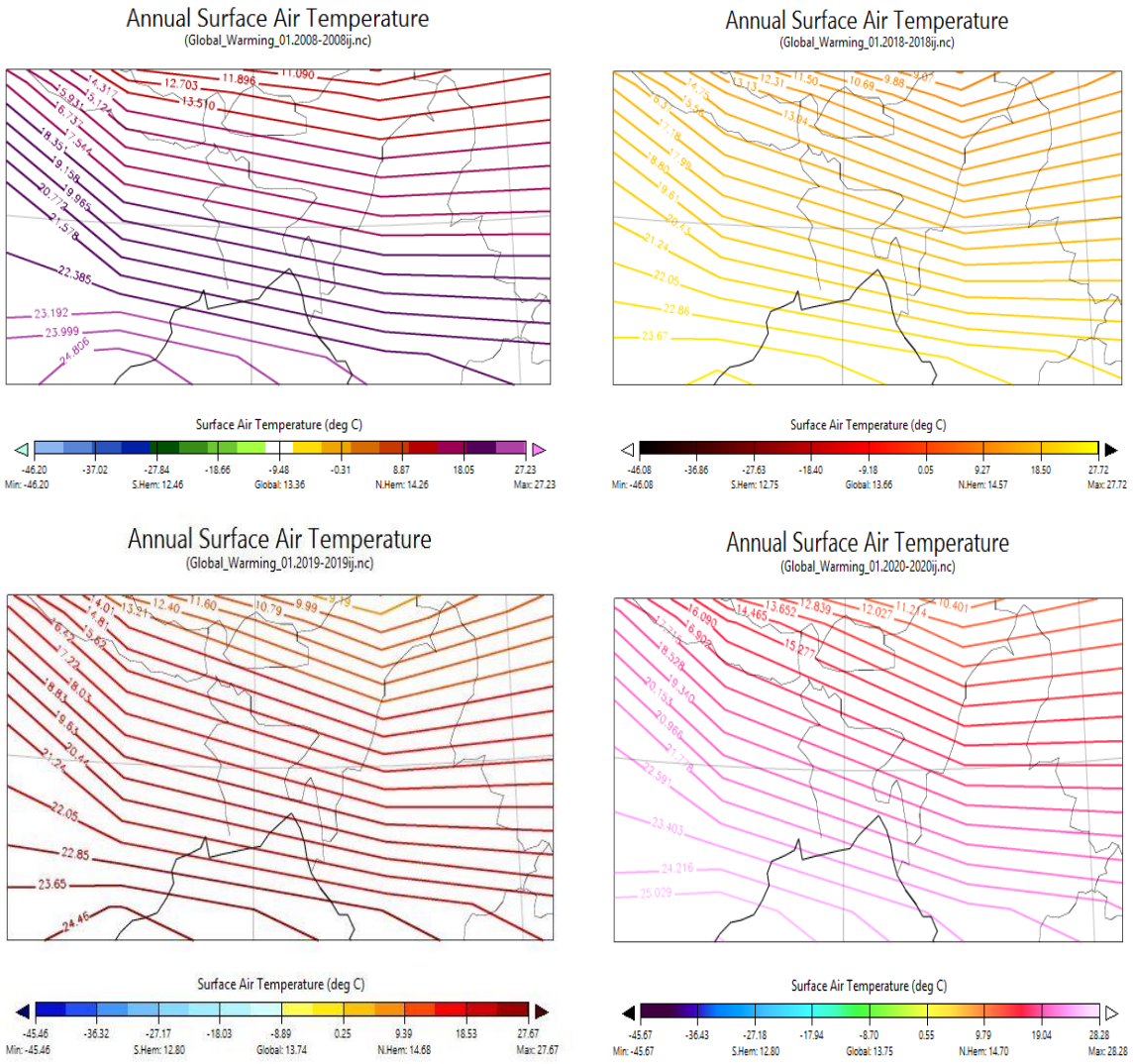


Fig. S3. Temperature changes for global warming 01 scenarios.

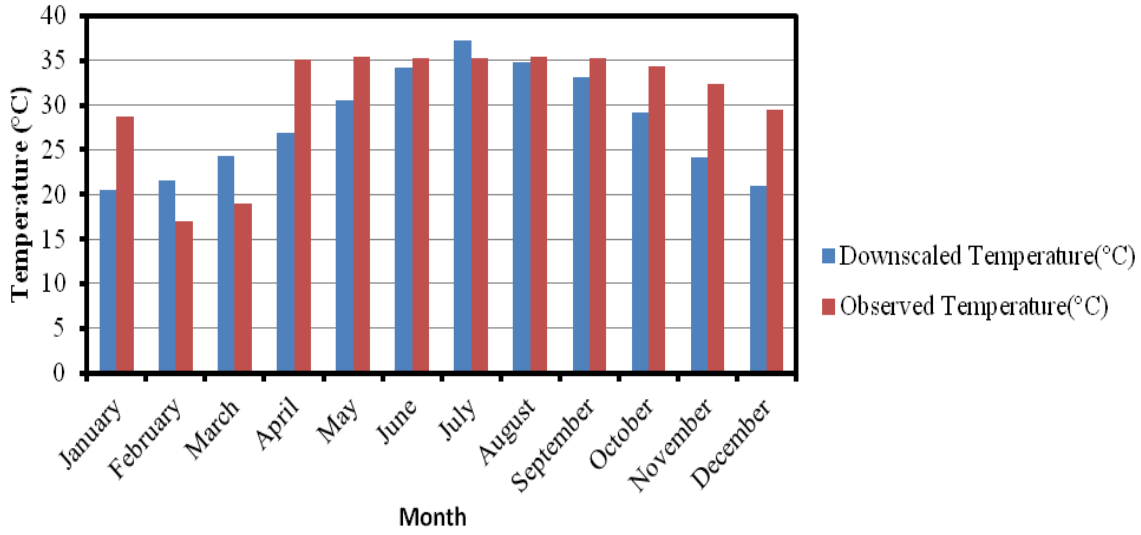


Fig. S4. Comparison of observed and downscaled predicted mean monthly temperature (℃) for a period (1968-2017).

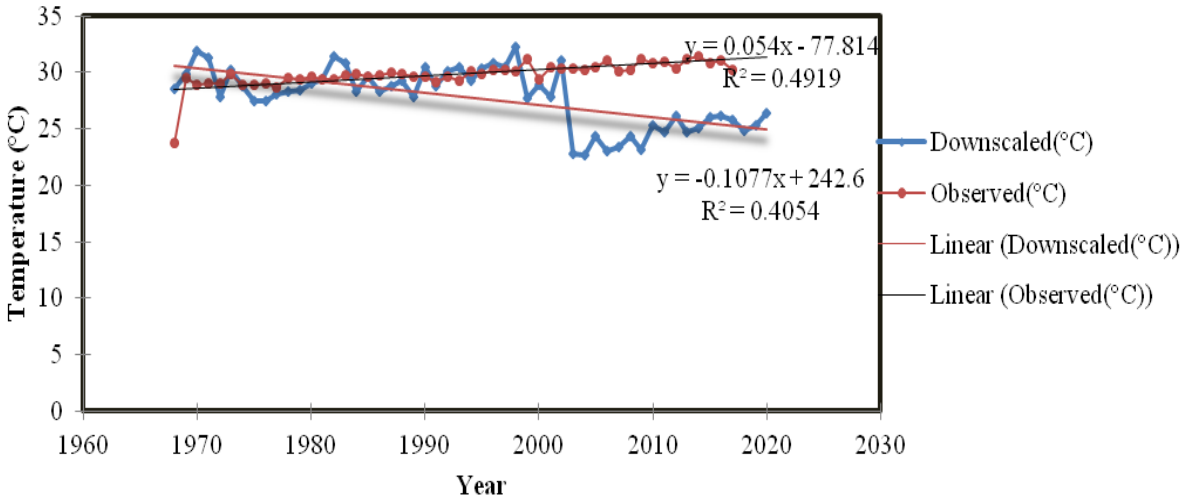


Fig. S5. Time series and Trend lines of observed and downscaled average annual temperature (℃).

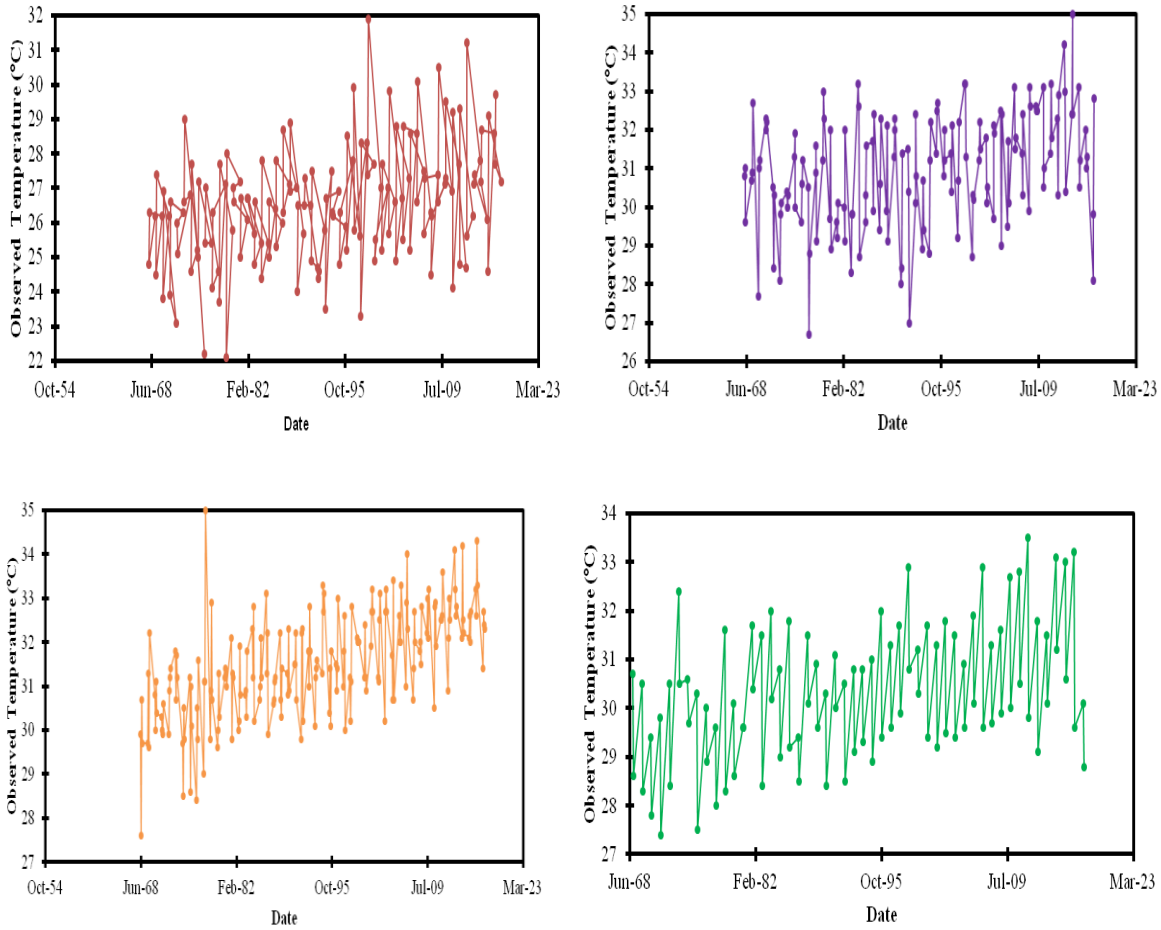


Fig. S6. Seasonal Mann-Kendall test of observed temperature for winter, pre-monsoon, monsoon, post-monsoon season.

Table S1. Seasonal Mann-Kendall Test for Downscaled Temperature

Season	**Kendall's tau**	***S'***	***P*-value**	**Alpha**	**Sen's slope**
Winter	-0.311	-1286.000	< 0.0001	0.05	-0.084
Pre-monsoon	-0.222	-917.000	0.002	0.05	-0.075
Monsoon	-0.384	-2118.000	< 0.0001	0.05	-0.146
Post-monsoon	-0.417	-1148.000	< 0.0001	0.05	-0.113

Table S2. Seasonal Mann-Kendall test for Observed Temperature

Season	**Kendall's tau**	***S'***	***P*-value**	**Alpha**	**Sen's slope**
Winter	0.304	1108.000	< 0.0001	0.05	0.037
Pre-monsoon	0.223	811.000	0.0003	0.05	0.032
Monsoon	0.470	2277.000	< 0.0001	0.05	0.051
Post-monsoon	0.429	1037.000	< 0.0001	0.05	0.043