Supplementary Tables

Table S1. Abbreviations used in the present study.

Sl.no.		Abbreviation	Full Form
	Elevation Data Sets derived from Satellites/Space based platforms	Ast30	ASTER GDEM V3 at 30m grid resolution
		Crt30	CARTOSAT V3 R1 at 30m grid resolution
		Srt30	SRTM V3 at 30 m grid resolution
		Srt90	SRTM V4.1 at 90m grid resolution
		MRT90	MERIT global DEM at 90m grid resolution
		TDX90	TanDEM-X DEM at 90m grid size
	Ground-based equipment	DGPS	Differential Global Positioning System
		MobileGPS	GPS chip in Android OS based mobile
	Elevation Range measured by Ground-based Equipment	D	Elevation range measured by DGPS
		M	Elevation range measured by Android phone
	Observation station points	GCP	Ground control point
	Difference in values of geospatial co-ordinate of GCPs observed by DGPS and Android phone (DGPS-MOBILE)	△X	Mean difference in Easting value
		△Y	Mean difference in Northing value
		△Z	Mean difference in Elevation value
	Interpolation methods used for DEM resampling	nn	Nearest Neighbour
		bl	Bilinear
		bc	Bicubic
7.	Original or uncorrected elevation data	u	Uncorrected space borne elevation data sampled at GCPs
	Corrected elevation data	c	Corrected space borne elevation data sampled at GCPs
8.	Statistical Parameters	RMSE	Root Mean Square error,
		MBE	Mean Bias Error
		RSD	Relative Standard Deviation
		SD	Standard Deviation
		SE	Standard Error
9.	Statistic using LINEST function of Excel	r2	Co-efficient of Determination
		se(y)	Standard error of y-estimate
		m	Slope
		se(m)	Standard error of slope
		C	Intercept
		se(C)	Standard error of intercept

Table S2. Correlation, established using Microsoft excel LINEST function, between estimates of elevation from ground-based equipment (DGPS) versus estimates of elevation from Android OS based MobileGPS at GCPs.

Linear Regression (DGPS Vs MobileGPS)					
r2(%)	**se(y)**	**m**	**se(m)**	**b**	**se(b)**
17.45	8.70	0.68	0.12	76.54	30.30

Table S3. Results of two tail paired t-test for mean of elevation (Z) values (at 99% CL & α= 0.01) carried out taking pairs of elevation values over "uncorrected (u)", and "corrected (c)" DEM rasters. Pairs are further grouped by the extraction of DEM values using three interpolation methods; nn, bl, and bc at GCPs.

DEM u Vs c	Pair Name (Elevation)	$\bar{X}$	S^2	N	df	t Stat	p-value	t Critical	H_1: $\mu_d \neq 0$
Ast30	u.Ast30.nn	250.37	70.80	145	144	51.82	<0.001	2.61	T
	c.Ast30.nn	244.46	49.58	145					
	u.Ast30.bl	250.29	68.02	145	144	50.90	<0.001	2.61	T
	c.Ast30.bl	244.51	47.32	145					
	u.Ast30.bc	250.28	69.16	145	144	51.75	<0.001	2.61	T
	c.Ast30.bc	244.42	48.35	145					
Crt30	u.Crt30.nn	249.78	38.41	145	144	161.60	<0.001	2.61	T
	c.Crt30.nn	244.40	43.53	145					
	u.Crt30.bl	249.69	36.49	145	144	180.31	<0.001	2.61	T
	c.Crt30.bl	244.40	40.89	145					
	u.Crt30.bc	249.65	37.16	145	144	175.34	<0.001	2.61	T
	c.Crt30.bc	244.42	41.68	145					
Srt30	u.Srt30.nn	249.21	42.16	145	144	220.13	<0.001	2.61	T
	c.Srt30.nn	244.43	38.83	145					
	u.Srt30.bl	249.23	40.88	145	144	292.89	<0.001	2.61	T
	c.Srt30.bl	244.41	38.38	145					
	u.Srt30.bc	249.24	41.40	145	144	222.16	<0.001	2.61	T
	c.Srt30.bc	244.45	38.13	145					
Srt90	u.Srt90.nn	249.23	40.94	145	144	362.70	<0.001	2.61	T
	c.Srt90.nn	244.34	38.89	145					
	u.Srt90.bl	249.23	38.28	145	144	1845.43	<0.001	2.61	T
	c.Srt90.bl	244.51	37.90	145					
	u.Srt90.bc	249.27	39.84	145	144	399.24	<0.001	2.61	T
	c.Srt90.bc	244.37	38.00	145					
MRT90	u.MRT90.nn	248.40	38.26	145	144	820.32	<0.001	2.61	T
	c.MRT90.nn	244.40	38.99	145					
	u.MRT90.bl	248.40	36.17	145	144	299.70	<0.001	2.61	T
	c.MRT90.bl	244.40	38.12	145					
	u.MRT90.bc	248.44	37.48	145	144	854.99	<0.001	2.61	T
	c.MRT90.bc	244.40	38.18	145					
TDX90	u.TDX90.nn	248.03	43.33	145	144	145.18	<0.001	2.61	T
	c.TDX90.nn	244.39	39.45	145					
	u.TDX90.bl	248.06	40.21	145	144	253.22	<0.001	2.61	T
	c.TDX90.bl	244.43	38.05	145					
	u.TDX90.bc	248.09	42.12	145	144	149.39	<0.001	2.61	T
	c.TDX90.bc	244.41	38.35	145					

Null Hypothesis: H0: $\mu_d = 0$; Alternative Hypothesis: H_1: $\mu_d \neq 0$.
Where, μ_d = hypothesized mean difference, Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m, $\bar{X}$ = mean, S2 = variance, N= No. of observations, df = degree of freedom, t Stat= t-statistic, t Critical = critical value of two tail paired t-Test, p-value = two tail probability distribution for paired t-Test, CL = Confidence Level, α = level of significance, T= True, F= False.

Table S4. Results of two tail F-test for variances of elevation values (at 99% CL & α= 0.01), carried out taking pairs of elevation values sampled over "uncorrected (u)", and "corrected (c)" DEM rasters. Pairs are further grouped by the extraction of DEM values using three interpolation methods; nn, bl, and bc at GCPs.

DEM u Vs c	Pair Name (Elevation)	$\bar{X}$	S2	N	df	F-stat	p-value	CI	H_1: $\sigma_1^2 \neq \sigma_2^2$

Ast30	u.Ast30.nn	250.37	70.80	145	144	1.428	0.033	(0.6494,1.5399)	F
	c.Ast30.nn	244.46	49.58	145					
	u.Ast30.bl	250.29	68.02	145	144	1.438	0.030	(0.6494,1.5399)	F
	c.Ast30.bl	244.51	47.32	145					
	u.Ast30.bc	250.28	69.16	145	144	1.430	0.032	(0.6494,1.5399)	F
	c.Ast30.bc	244.42	48.35	145					
Crt30	u.Crt30.nn	249.78	38.41	145	144	1.133	0.453	(0.6494,1.5399)	F
	c.Crt30.nn	244.40	43.53	145					
	u.Crt30.bl	249.69	36.49	145	144	1.121	0.496	(0.6494,1.5399)	F
	c.Crt30.bl	244.40	40.89	145					
	u.Crt30.bc	249.65	37.16	145	144	1.121	0.492	(0.6494,1.5399)	F
	c.Crt30.bc	244.42	41.68	145					
Srt30	u.Srt30.nn	249.21	42.16	145	144	1.086	0.622	(0.6494,1.5399)	F
	c.Srt30.nn	244.43	38.83	145					
	u.Srt30.bl	249.23	40.88	145	144	1.065	0.706	(0.6494,1.5399)	F
	c.Srt30.bl	244.41	38.38	145					
	u.Srt30.bc	249.24	41.40	145	144	1.086	0.622	(0.6494,1.5399)	F
	c.Srt30.bc	244.45	38.13	145					
Srt90	u.Srt90.nn	249.23	40.94	145	144	1.053	0.758	(0.6494,1.5399)	F
	c.Srt90.nn	244.34	38.89	145					
	u.Srt90.bl	249.23	38.28	145	144	1.010	0.952	(0.6494,1.5399)	F
	c.Srt90.bl	244.51	37.90	145					
	u.Srt90.bc	249.27	39.84	145	144	1.049	0.776	(0.6494,1.5399)	F
	c.Srt90.bc	244.37	38.00	145					
MRT90	u.MRT90.nn	248.40	38.26	145	144	1.019	0.910	(0.6494,1.5399)	F
	c.MRT90.nn	244.40	38.99	145					
	u.MRT90.bl	248.40	36.17	145	144	1.054	0.752	(0.6494,1.5399)	F
	c.MRT90.bl	244.40	38.12	145					
	u.MRT90.bc	248.44	37.48	145	144	1.019	0.912	(0.6494,1.5399)	F
	c.MRT90.bc	244.40	38.18	145					
TDX90	u.TDX90.nn	248.03	43.33	145	144	1.098	0.574	(0.6494,1.5399)	F
	c.TDX90.nn	244.39	39.45	145					
	u.TDX90.bl	248.06	40.21	145	144	1.057	0.741	(0.6494,1.5399)	F
	c.TDX90.bl	244.43	38.05	145					
	u.TDX90.bc	248.09	42.12	145	144	1.098	0.574	(0.6494,1.5399)	F
	c.TDX90.bc	244.41	38.35	145					

Null Hypothesis: H0: $\sigma_1^2 = \sigma_2^2$; Alternative Hypothesis: H_1: $\sigma_1^2 \neq \sigma_2^2$

Where, σ_1^2= variance for 1st population, and σ_2^2= variance for 2nd population, Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m, $\bar{X}$= mean, S2 = sample variance, N= No. of observations, df = degree of freedom, Fstat = F-statistic, p-value = probability distribution for two-tail F-Test, CI = Confidence Interval, CL = Confidence Level, α = level of significance, T= True, F= False.

Table S5. Results of two tail F-test for variances (at 99% CL & α= 0.01), carried out taking pairs of elevation values observed by "DGPS" and sampled over "uncorrected (u)" DEM rasters where values were extracted by three interpolation methods; nearest neighbour (nn) , bilinear (bl) and bicubic (bc) at GCPs.

DEM(u) Vs DGPS	Pair Name (Elevation)	$\bar{X}$	S2	N	df	t Stat	p-value	CI	H_1: $\sigma_1^2 \neq \sigma_2^2$
Ast30	u.Ast30.nn	250.37	70.80	145	144	2.070	<0.001	(0.6494,1.5399)	T
	DGPS	244.41	34.21	145					

	u.Ast30.bl	250.29	68.02	145	144	1.989	<0.001	(0.6494,1.5399)	T
	DGPS	244.41	34.21	145					
	u.Ast30.bc	250.28	69.16	145	144	2.022	<0.001	(0.6494,1.5399)	T
	DGPS	244.41	34.21	145					
Crt30	u.Crt30.nn	249.78	38.41	145	144	1.123	0.488	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.Crt30.bl	249.69	36.49	145	144	1.067	0.699	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.Crt30.bc	249.65	37.16	145	144	1.086	0.620	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
Srt30	u.Srt30.nn	249.21	42.16	145	144	1.232	0.211	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.Srt30.bl	249.23	40.88	145	144	1.195	0.286	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.Srt30.bc	249.24	41.40	145	144	1.210	0.253	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
Srt90	u.Srt90.nn	249.23	40.94	145	144	1.197	0.282	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.Srt90.bl	249.23	38.28	145	144	1.119	0.500	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.Srt90.bc	249.27	39.84	145	144	1.165	0.361	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
MRT90	u.MRT90.nn	248.40	38.26	145	144	1.119	0.502	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.MRT90.bl	248.40	36.17	145	144	1.057	0.738	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.MRT90.bc	248.44	37.48	145	144	1.096	0.584	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
TDX90	u.TDX90.nn	248.03	43.33	145	144	1.267	0.157	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.TDX90.bl	248.06	40.21	145	144	1.176	0.333	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					
	u.TDX90.bc	248.09	42.12	145	144	1.231	0.213	(0.6494,1.5399)	F
	DGPS	244.41	34.21	145					

Null Hypothesis: H0: $\sigma_1^2 = \sigma_2^2$; Alternative Hypothesis: H_1: $\sigma_1^2 \neq \sigma_2^2$
Where, σ_1^2= variance for 1st population, and σ_2^2= variance for 2nd population, Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m, $\bar{X}$= mean, S2 = sample variance, N= No. of observations, df = degree of freedom, Fstat = F-statistic, p-value = probability distribution for two-tail F-Test, CI = Confidence Interval, CL = Confidence Level, α = level of significance, T= True, F= False

Table S6. Results of two tail F-test for variances of elevation (Z) (at 99% CL & α= 0.01), carried out taking pairs of elevation values observed by "DGPS" and sampled over "corrected (c)" DEM rasters where values were extracted by three interpolation methods; nearest neighbour (nn) , bilinear (bl) and bicubic (bc) at GCPs.

DEM (c) Vs DGPS	Pair Name (Elevation)	$\bar{X}$	S2	N	df	F-stat	p-value	CI	H_1: $\sigma_1^2 \neq \sigma_2^2$
Ast30	c.Ast30.nn	244.4565	49.58104	145	144	1.45	0.027	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Ast30.bl	244.5058	47.31647	145	144	1.38	0.052	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					

	c.Ast30.bc	244.4203	48.34629	145	144	1.41	0.039	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
Crt30	c.Crt30.nn	244.4047	43.53391	145	144	1.27	0.149	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Crt30.bl	244.398	40.88627	145	144	1.20	0.286	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Crt30.bc	244.4186	41.67564	145	144	1.22	0.237	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
Srt30	c.Srt30.nn	244.4297	38.82553	145	144	1.14	0.448	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Srt30.bl	244.412	38.38389	145	144	1.12	0.490	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Srt30.bc	244.4514	38.1307	145	144	1.11	0.515	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
Srt90	c.Srt90.nn	244.3437	38.89221	145	144	1.14	0.442	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Srt90.bl	244.511	37.90234	145	144	1.11	0.539	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.Srt90.bc	244.3674	37.99553	145	144	1.11	0.529	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
MRT90	c.MRT90.nn	244.3981	38.9921	145	144	1.14	0.433	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.MRT90.bl	244.403	38.12473	145	144	1.11	0.516	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.MRT90.bc	244.4028	38.18381	145	144	1.12	0.510	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
TDX90	c.TDX90.nn	244.3915	39.4491	145	144	1.15	0.393	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.TDX90.bl	244.4283	38.04905	145	144	1.11	0.524	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					
	c.TDX90.bc	244.4073	38.34761	145	144	1.12	0.494	(0.6494,1.5399)	F
	DGPS	244.4062	34.20564	145					

Null Hypothesis: H0: $\sigma_1^2 = \sigma_2^2$; Alternative Hypothesis: H_1: $\sigma_1^2 \neq \sigma_2^2$
Where, σ_1^2= variance for 1st population, and σ_2^2= variance for 2nd population, Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m, $\bar{X}$ = mean, S2 = sample variance, N= No. of observations, df = degree of freedom, Fstat = F-statistic, p-value = probability distribution for two-tail F-Test, CI = Confidence Interval, CL = Confidence Level, α = level of significance, T= True, F= False.

Table S7. Results of paired t-test for means of slope values (at 99% CL & α= 0.01) carried out taking pairs of slope values over "uncorrected (u)", and "corrected (c)" DEM Slope rasters at GCPs. Pairs are further grouped by the extraction of slope values using three interpolation methods; nearest neighbour (nn), bilinear (bl), and bicubic (bc) at GCPs.

Slope of DEMs	Pair Name (slope)	$\bar{X}$	S^2	N	df	t Stat	p-value	t Critical	H_1: $\mu_d \neq 0$
Ast30	u.Ast30	5.25	6.92	145	144	24.37	<0.001	2.61	T
	c.Ast30.nn	4.40	4.89	145					
	u.Ast30	5.25	6.92	145	144	24.37	<0.001	2.61	T
	c.Ast30.bl	4.39	4.86	145					
	u.Ast30	5.25	6.92	145	144	24.37	<0.001	2.61	T
	c.Ast30.bc	4.40	4.88	145					

Crt30	u.Crt30	3.28	3.44	145	144	−21.47	<0.001	2.61	T
	c.Crt30.nn	3.49	3.90	145					
	u.Crt30	3.28	3.44	145	144	−21.47	<0.001	2.61	T
	c.Crt30.bl	3.47	3.85	145					
	u.Crt30	3.28	3.44	145	144	−21.47	<0.001	2.61	T
	c.Crt30.bc	3.47	3.86	145					
Srt30	u.Srt30	2.72	1.62	145	144	25.87	<0.001	2.61	T
	c.Srt30.nn	2.62	1.49	145					
	u.Srt30	2.72	1.62	145	144	25.87	<0.001	2.61	T
	c.Srt30.bl	2.64	1.52	145					
	u.Srt30	2.72	1.62	145	144	25.87	<0.001	2.61	T
	c.Srt30bc	2.62	1.49	145					
Srt90	u.Srt90	1.75	0.58	145	144	27.55	<0.001	2.61	T
	c.Srt90.nn	1.70	0.56	145					
	u.Srt90	1.75	0.58	145	144	27.55	<0.001	2.61	T
	c.Srt90.bl	1.74	0.58	145					
	u.Srt90	1.75	0.58	145	144	27.55	<0.001	2.61	T
	c.Srt90.bc	1.70	0.56	145					
MRT90	u.MRT90	1.63	0.56	145	144	−26.31	<0.001	2.61	T
	c.MRT90.nn	1.64	0.57	145					
	u.MRT90	1.63	0.56	145	144	−26.31	<0.001	2.61	T
	c.MRT90.bl	1.67	0.59	145					
	u.MRT90	1.63	0.56	145	144	−26.31	<0.001	2.61	T
	c.MRT90.bc	1.64	0.57	145					
TDX90	u.TDX90	1.87	0.62	145	144	28.59	<0.001	2.61	T
	c.TDX90.nn	1.79	0.57	145					
	u.TDX90	1.87	0.62	145	144	28.59	<0.001	2.61	T
	c.TDX90.bl	1.82	0.59	145					
	u.TDX90	1.87	0.62	145	144	28.59	<0.001	2.61	T
	c.TDX90.bc	1.79	0.57	145					

u = uncorrected, c = corrected, nn = nearest neighbour, bl = bilinear, bc = bicubic, Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m, $\bar{X}$ = mean, S2 = variance, N= no. of observations, df= degree of freedom, t Stat= t-statistic, t Critical two tail = two tail critical value of paired t-test at a confidence Level, P(F<=f) two-tail = two tail probability distribution for paired t-test, CL = Level of confidence, α = level of significance.

Table S8. Results of two tail F-test for variances of slope values (at 90%, 95% and 99% CL) carried out taking pairs of slope values over "uncorrected (u)" and "corrected (c)" DEM Slope rasters (Ast30, Crt30, and Srt30) at GCPs. Pairs are further grouped by the extraction of slope values using three interpolation methods; nearest neighbour (nn), bilinear (bl), and bicubic (bc) at GCPs.

Slope from DEMs	**Pair Name (slope)**	**$\bar{X}$**	**S2**	**N**	**df**	**Fstat**	**p-value**	**Confidence Interval (FLT, FRT)**			**Diff. Statistically Significant**		
								CL=0.90,α =0.10	CL=0.95,α =0.05	CL=0.99,α =0.01	CL= 0.90	CL=0.95	CL=0.99
Ast30	u.Ast30	5.25	6.92	145	144	1.416	0.038	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	Yes	Yes	No
	c.Ast30.nn	4.40	4.89	145	144								
	u.Ast30	5.25	6.92	145	144	1.426	0.034	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	Yes	Yes	No
	c.Ast30.bl	4.39	4.86	145	144								
	u.Ast30	5.25	6.92	145	144	1.419	0.037	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	Yes	Yes	No
	c.Ast30.bc	4.40	4.88	145	144								

Crt30	u.Crt30	3.28	3.44	145	144	1.132	0.459	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Crt30.nn	3.49	3.90	145	144								
	u.Crt30	3.28	3.44	145	144	1.119	0.501	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Crt30.bl	3.47	3.85	145	144								
	u.Crt30	3.28	3.44	145	144	1.120	0.498	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Crt30.bc	3.47	3.86	145	144								
Srt30	u.Srt30	2.72	1.62	145	144	1.085	0.624	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Srt30.nn	2.62	1.49	145	144								
	u.Srt30	2.72	1.62	145	144	1.065	0.708	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Srt30.bl	2.64	1.52	145	144								
	u.Srt30	2.72	1.62	145	144	1.085	0.624	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Srt30.bc	2.62	1.49	145	144								

Table S9. Results of two tail F-test for variances of slope values (at 90%, 95% and 99% CL) carried out taking pairs of slope values over "uncorrected (u)", and "corrected (c)" DEM Slope rasters (Srt90, MRT90, and TDX90) at GCPs. Pairs are further grouped by the extraction of slope values using three interpolation methods; nearest neighbour (nn), bilinear (bl), and bicubic (bc) at GCPs.

Slope from DEMs	**Pair Name (slope)**	$\bar{X}$	**S2**	**N**	**df**	**Fstat**	**p-value**	**Confidence Interval (FLT, FRT)**			**Diff. Statistically Significant**		
								CL=0.90,α =0.10	CL=0.95,α =0.05	CL=0.99,α =0.01	CL=0.90	CL=0.95	CL=0.99
Srt90	u.Srt90	1.75	0.58	145	144	1.053	0.759	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Srt90.nn	1.70	0.56	145	144								
	u.Srt90	1.75	0.58	145	144	1.010	0.953	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Srt90.bl	1.74	0.58	145	144								
	u.Srt90	1.75	0.58	145	144	1.048	0.777	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.Srt90.bc	1.70	0.56	145	144								
MRT90	u.MRT90	1.63	0.56	145	144	1.019	0.910	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.MRT90.nn	1.64	0.57	145	144								
	u.MRT90	1.63	0.56	145	144	1.054	0.753	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.MRT90.bl	1.67	0.59	145	144								
	u.MRT90	1.63	0.56	145	144	1.019	0.912	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.MRT90.bc	1.64	0.57	145	144								
TDX90	u.TDX90	1.87	0.62	145	144	1.098	0.576	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.TDX90.nn	1.79	0.57	145	144								
	u.TDX90	1.87	0.62	145	144	1.057	0.742	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.TDX90.bl	1.82	0.59	145	144								
	u.TDX90	1.87	0.62	145	144	1.098	0.576	(0.7595,1.3166)	(0.7204,1.3881)	(0.6494,1.5399)	No	No	No
	c.TDX90.bc	1.79	0.57	145	144								

u = uncorrected, c = corrected, nn = nearest neighbour, bl = bilinear, bc = bicubic, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m, $\bar{X}$= mean, S2 = variance, N= no. of observations, df= degree of freedom, Fstat = F-statistic, FLT = F-critical at left tail, FRT = F-critical at right tail, P(F<=f) two-tail= two tail probability distribution for F-Test, CL = Level of confidence, α = level of significance.

Supplementary Figures

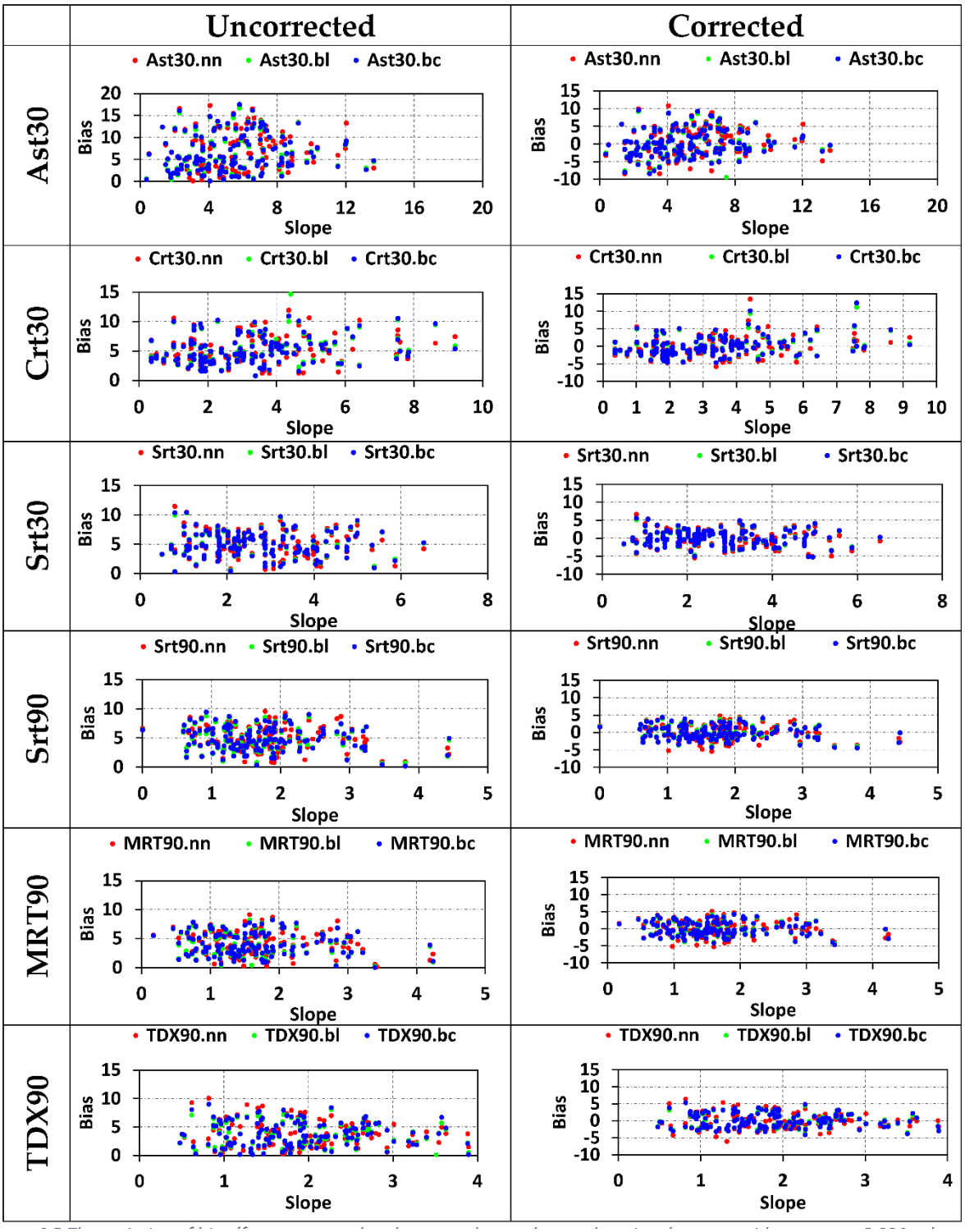

Figure S1. The variation of bias (for uncorrected and corrected space borne elevation data sets with respect to DGPS values over GCPs) with changes in slope of the surface over the study region. The reduction in bias and randomly distributed bias values across the range of slope is visible in corrected space borne elevation data sets (Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m) compared to the corresponding uncorrected dataset.

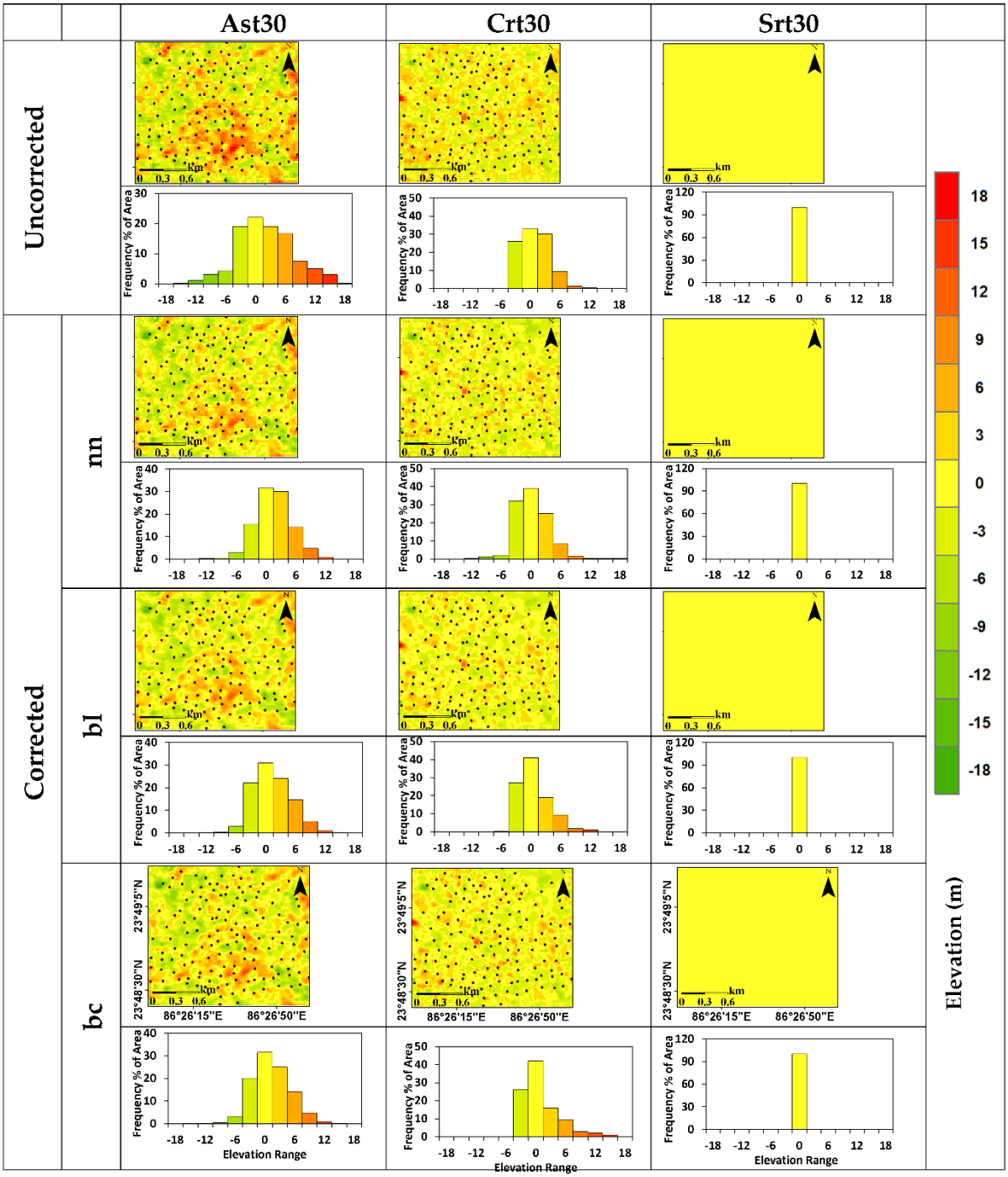

Figure S2. The differences of elevation map (DEM-Srt30) of the study area and corresponding histogram (Frequency (% of area)) exhibiting difference of elevation in space borne elevation data sets before and after correction where Srt30 (SRTM at 30m) is taken as base for comparison. The nn, bl, and bc refers to the interpolation methods. (Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3 at 30m grid).

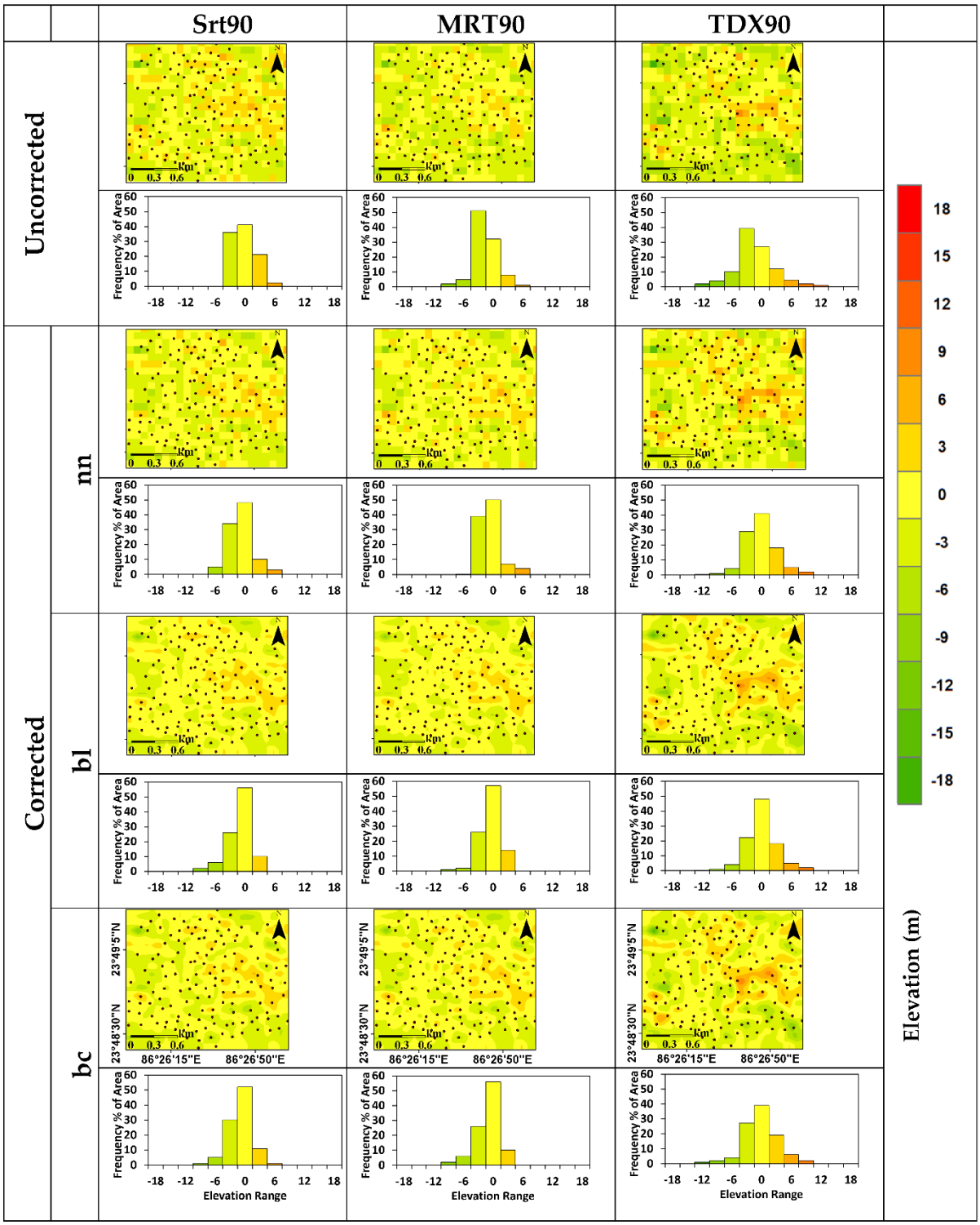

Figure S3. The differences of elevation map (DEM-Srt30) of the study area and corresponding histogram (Frequency (% of area)) exhibiting difference of elevation in space borne elevation data sets before and after correction where Srt30 (SRTM at 30m) is taken as base for comparison. The nn, bl, and bc refers to the interpolation methods. (Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X at 90m grid).

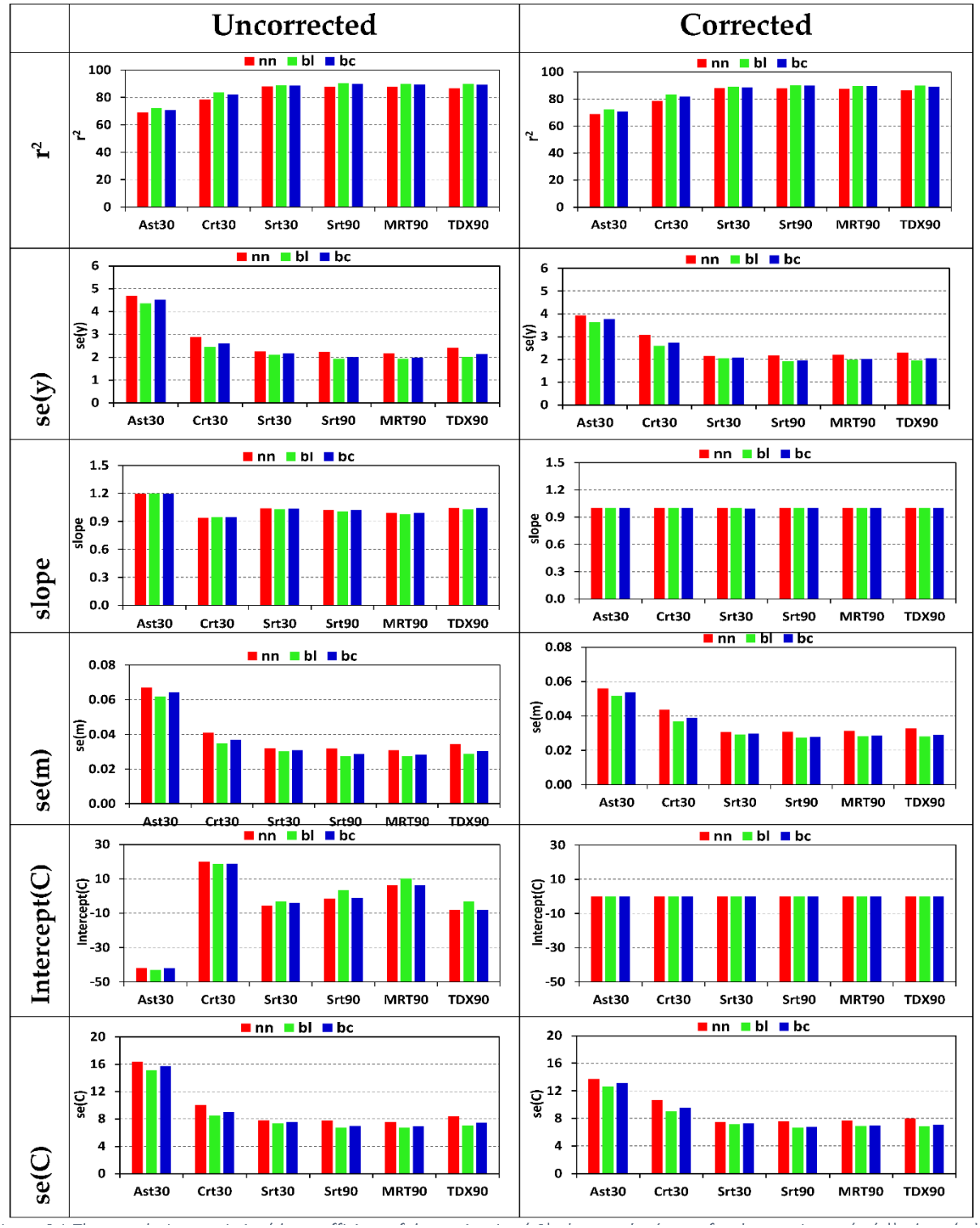

Figure S4. The correlation statistics (the coefficient of determination (r^2), the standard error for the y estimate (se(y)), slope (m), intercept (C), and the standard error value for the constant (se(C)) based on the linear fit for uncorrected or corrected space borne elevation data sets (Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m) with respect to DGPS values at the GCPs. The nn, bl, and bc refers to the interpolation methods.

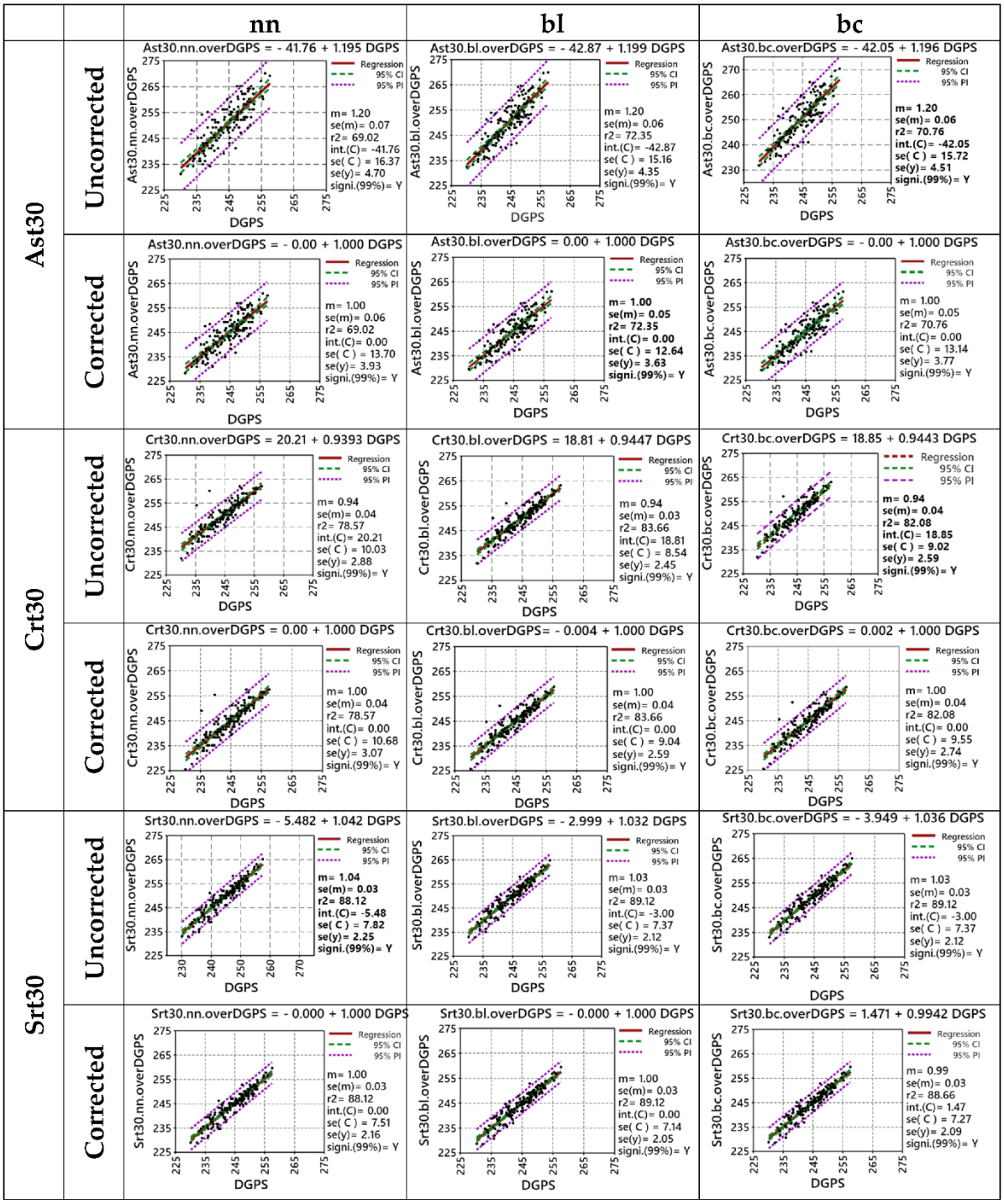

Figure S5. Scatter plot showing correlation statistics using elevation values from uncorrected space borne elevation data sets (Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3) with respect to DGPS values over the GCPs. The nn, bl, and bc refers to the interpolation methods.

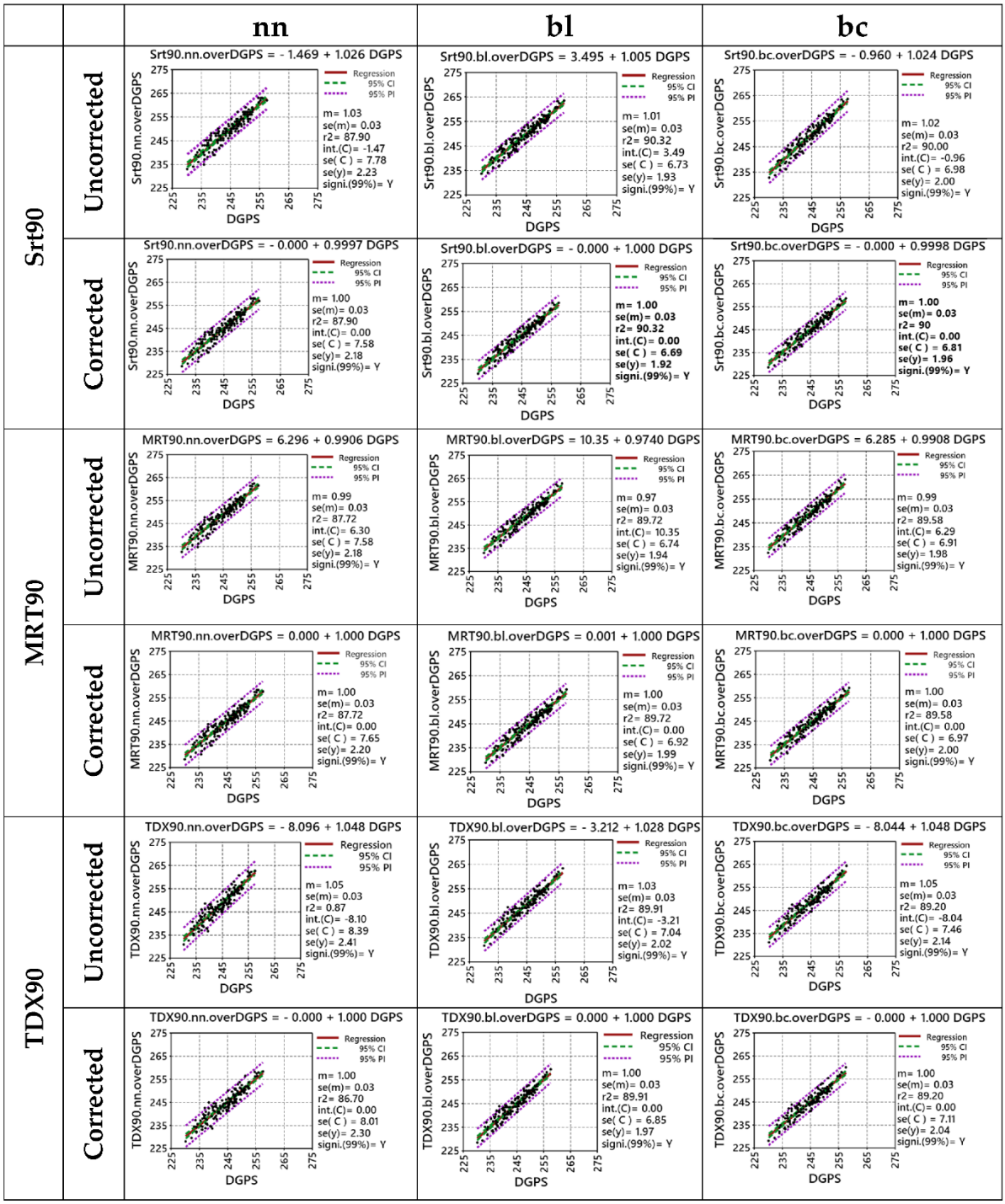

Figure S6. Scatter plot showing correlation statistics using elevation values from corrected space borne elevation data sets (Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m) with respect to DGPS values over the GCPs. The nn, bl, and bc refers to the interpolation methods.

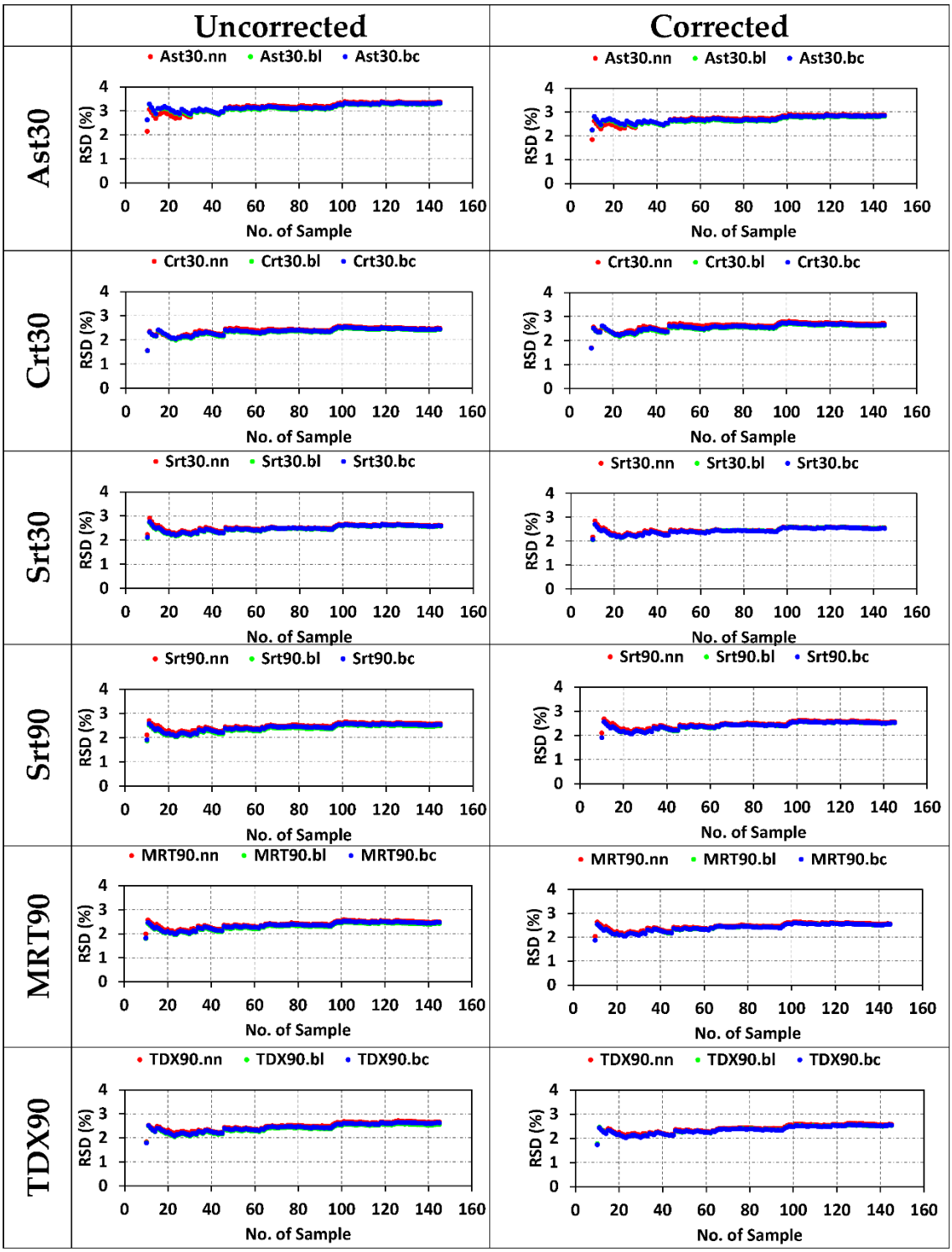

Figure S7. The variation in the calculated values of relative standard deviation (RSD in %) with increasing number of GCPs (randomly selected) exhibit stabilization of values at around 60 (for 60-145 no. of GCPs). There is a minor change in RSD% for corrected space borne elevation data sets. The nn, bl, and bc refers to the interpolation methods. (Ast30 = ASTER GDEM V3, Crt30 = CartoDEM v3.R1, Srt30 = SRTM.v3, Srt90 = SRTM.v4.1, MRT90= MERIT DEM, TDX90=TanDEM-X 90m).