Spatially Variable Precipitation and its Influence on Water Balance in a Headwater Alpine Basin, Nepal

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Supplementary Materials

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Table S1. Hydro-climatic data and DEM used in this study.

Variables	Duration	Source
Precipitation (*Pr*)	October 2000–September 2004	[24]
Air temperature (*t*)	October 2000–September 2004	[24]
Relative humidity (*Rh*)	October 2000–September 2004	[24]
Wind speed (*u*)	October 2000–September 2004	[24]
Streamflow (q)	October 2000–September 2004	[10]
Elevation (Z)	NA	ASTER DEM from NASA's EARTHEXPLORER

Table S2. Best fit equation performance in predicting annual precipitation. Note that Table S1 contains the performance of quadratic equations as linear equations yield very poor performance. The column elevation shows the R2 of the quadratic equations (only elevation as function) while predicting annual precipitation. The slope and exposure columns also show their respective quadratic equation's performance.

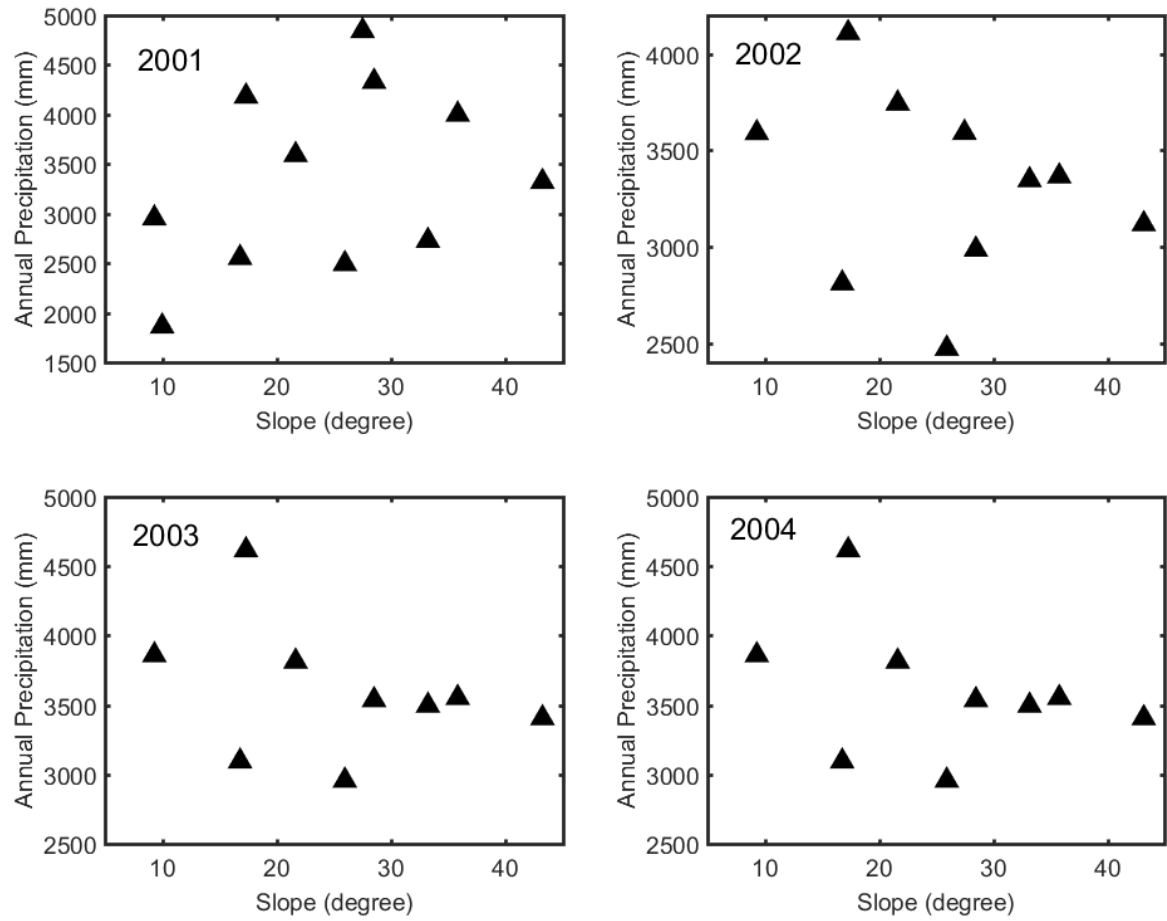|	Elevation	Slope	Exposure	Combined model (Exposure, Slope and Elevation)
2001 R^2	0.64	0.34	0.35	0.91
2002 R^2	0.62	0.00	0.20	1.00
2003 R^2	0.56	0.12	0.29	1.00
2004 R^2	0.60	0.21	0.23	1.00

Figure S1. Relationship between slope (degree) and annual precipitation. Note that a linear fit would produce R^2 of 0.12, 0.07, 0.11, and 0.049 for 2001, 2002, 2003, and 2004, respectively.
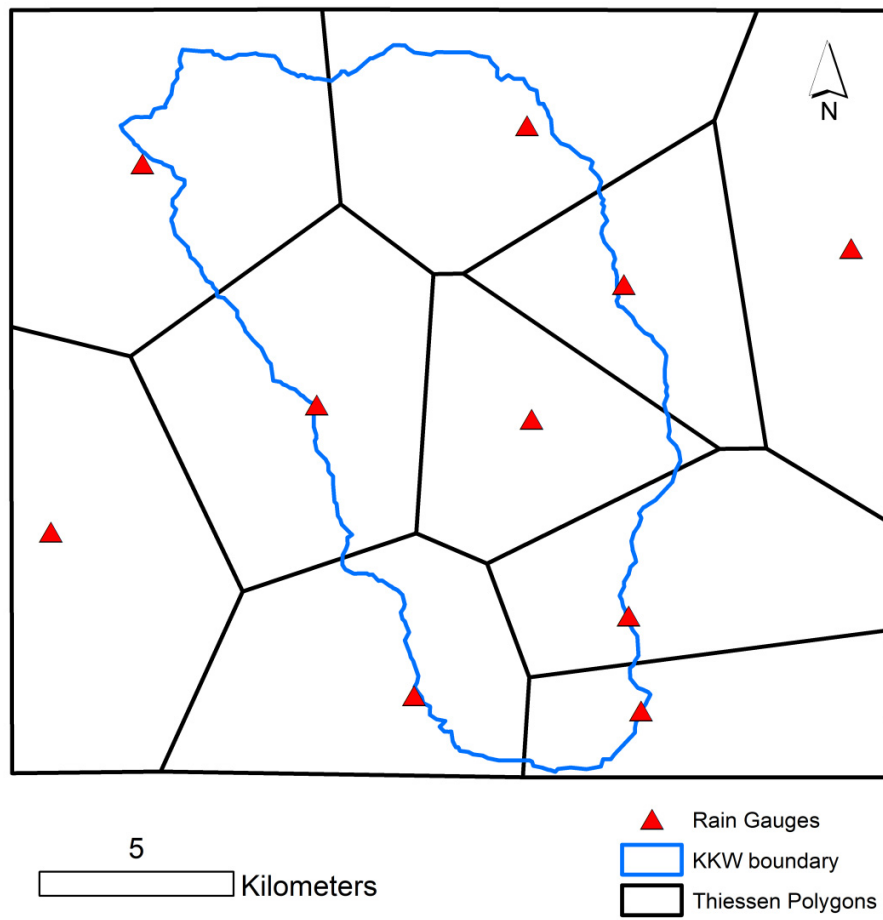
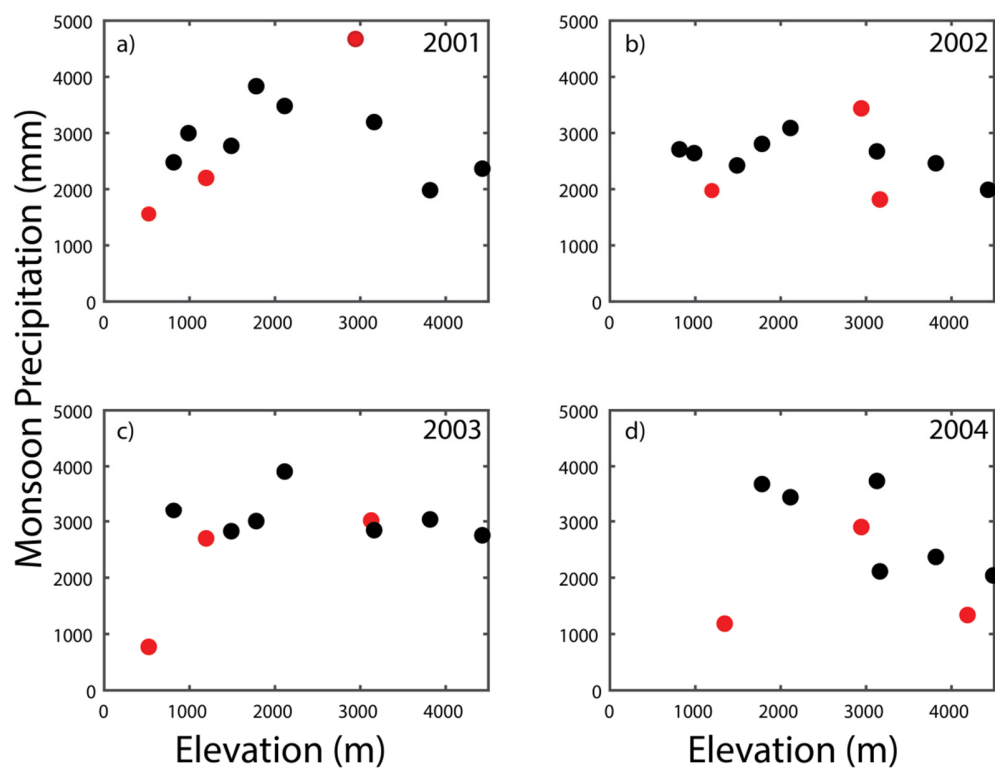Figure S2. Distribution of Thiessen polygons and rain gauges for the year 2002.

Figure S3. The plots between elevation and annual monsoon (June-September) precipitation during each year of the 2001–2004 period in the study area. The red circles are rain gauges just outside the watershed and black circles are within the KKW. Note that equations are shown at the bottom of each subplot and derived using the data corresponding to black circles (within the KKW).
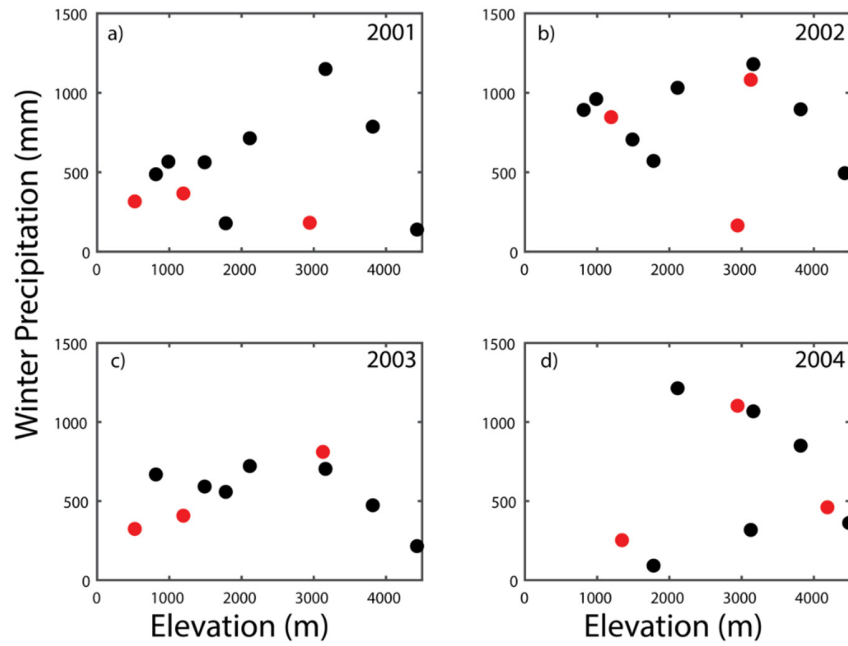
Figure S4. The plots between elevation and annual winter (Oct–May) precipitation during each year of 2001–2004 period in the study area. The red circles are rain gauges just outside the watershed and black circles are within the KKW. Note that equations are shown at the bottom of each subplot and derived using the data corresponding to black circles (within the KKW).