

Figure S1 Aerial photographs of alpine meadow vegetation communities. a, b, c and d were photographs taken at the height of 2 m. e, f, g and h were photographs taken at a height of 0.5 m; Poaceae, KH, KP and BS represent communities of *Elymus nutans* + *Stipa silena* + *Festuca ovina*, *Kobresia humilis*, *Kobresia pygmaea* and black soil type, respectively.

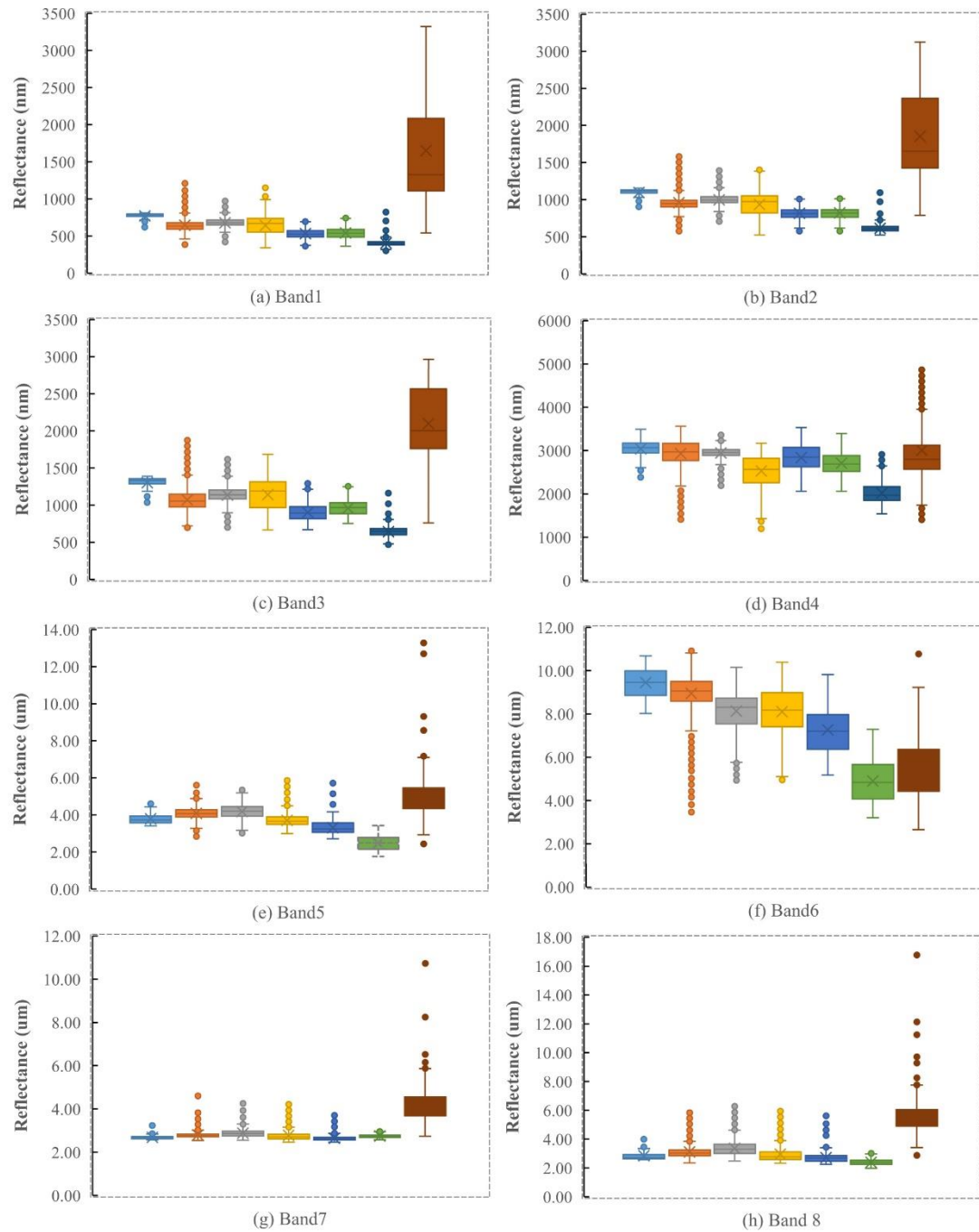


Figure S2 Statistical analysis results of band1 to band8 of GF1/GF6 images; Poaceae, KH, KP and BS represent *Elymus nutans* + *Stipa silena* + *Festuca ovina*, *Kobresia humilis*, *Kobresia pygmaea* and black soil type, respectively.

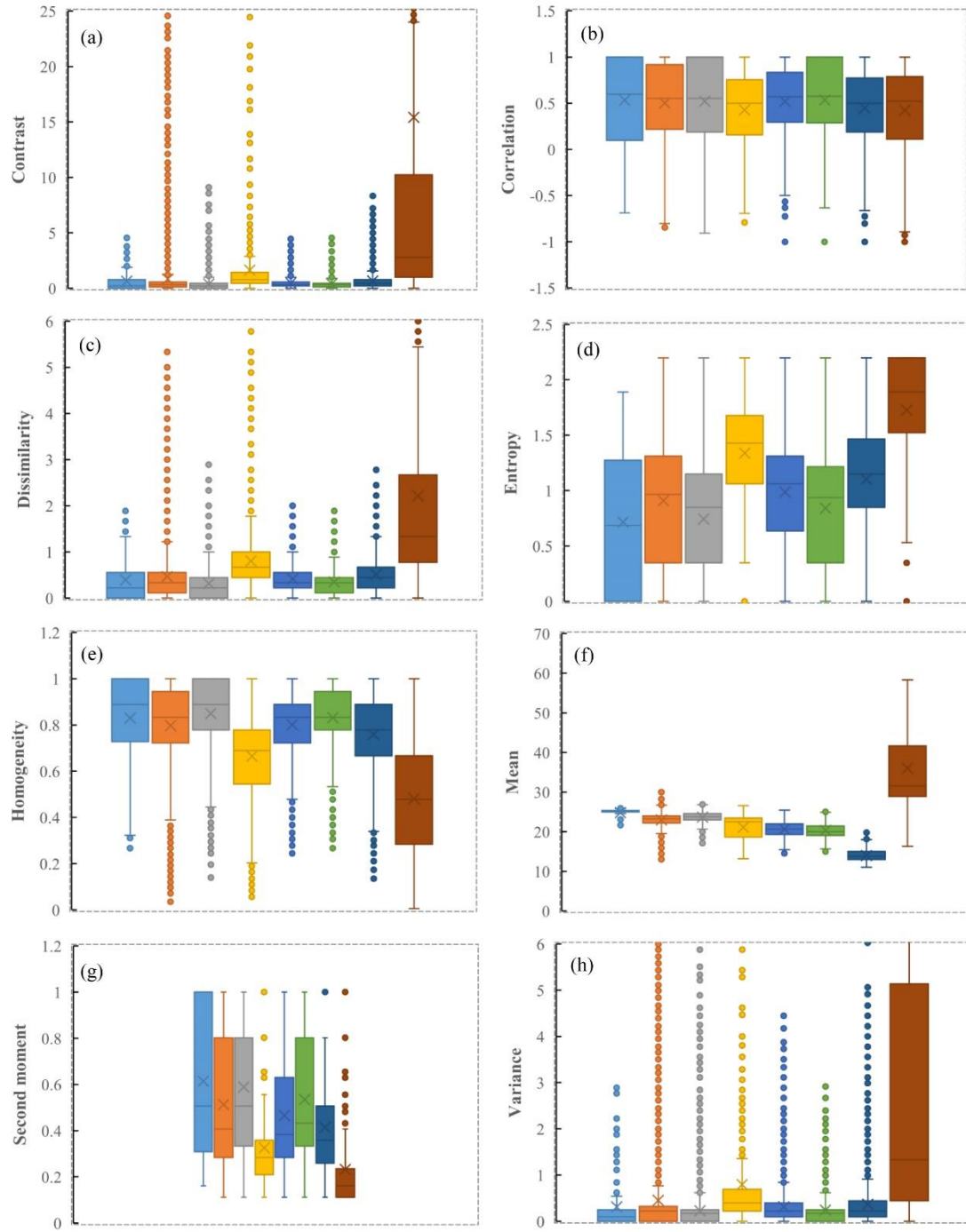


Figure S3 Statistical analysis results of texture indices of GF1/GF6 images; Poaceae, KH, KP and BS represent *Elymus nutans* + *Stipa silena* + *Festuca ovina*, *Kobresia humilis*, *Kobresia pygmaea* and black soil type, respectively.

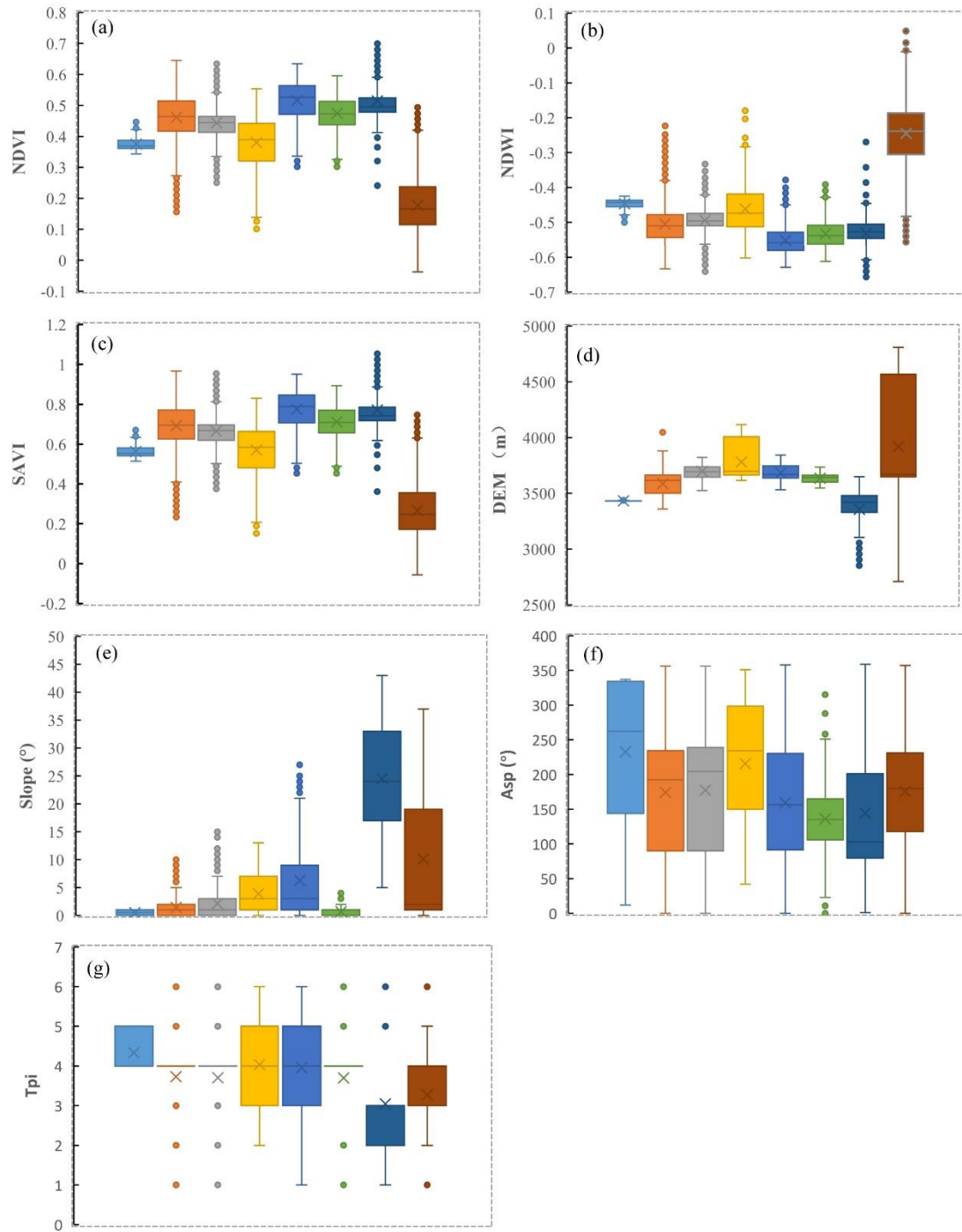


Figure S4 Statistical analysis results of vegetation and topography indices of GF1/GF6 images; Poaceae, KH, KP and BS represent *Elymus nutans* + *Stipa silena* + *Festuca ovina*, *Kobresia humilis*, *Kobresia pygmaea* and black soil type, respectively.