Table S1. The accuracy of three 30 m land-cover products in Yuli County.

2020		Cropland	Shrubland	Grassland	Water body	Bareland	Impervious surface	Wetland	**O.A. (%)**	**Kappa**
Our results	**U.A. (%)**	89.24	50.00	77.00	95.74	97.43	87.88	82.35	92.52	0.87
	P.A. (%)	88.13	66.67	84.62	86.54	96.85	85.29	84.00		
GlobeLand30	**U.A. (%)**	89.93	40.00	69.74	80.00	93.27	86.37	71.44	90.88	0.84
	P.A. (%)	80.64	44.44	75.73	75.00	97.27	61.29	60.98		
CLCD	**U.A. (%)**	79.77	0.00	50.00	78.57	94.08	60.78	0.00	84.05	0.72
	P.A. (%)	86.25	0.00	74.73	63.46	97.75	45.59	0.00		
2010		Cropland	Shrubland	Grassland	Water body	Bareland	Impervious surface	Wetland	**O.A. (%)**	**Kappa**
Our results	**U.A. (%)**	92.00	15.00	63.20	80.00	94.70	93.18	77.78	88.33	0.79
	P.A. (%)	74.19	33.33	75.96	75.00	98.12	67.21	63.64		
GlobeLand30	**U.A. (%)**	85.54	33.33	67.26	67.74	95.01	97.56	77.42	88.70	0.80
	P.A. (%)	91.61	33.33	73.08	65.63	96.39	65.57	54.55		
CLCD	**U.A. (%)**	83.09	100.00	41.28	62.16	92.57	73.68	0.00	81.68	0.67
	P.A. (%)	72.90	11.11	68.27	71.88	95.38	45.90	0.00		

Table S2. The accuracy of three 30 m land-cover products in Linxi County.

2020		Cropland	Forestland	Shrubland	Grassland	Water body	Bareland	Impervious surface	Wetland	**O.A. (%)**	**Kappa**
Our results	**U.A. (%)**	89.24	85.45	50.00	77.00	95.74	97.43	87.88	82.35	92.52	0.87
	P.A. (%)	88.13	97.92	66.67	84.62	86.54	96.85	85.29	84.00		
GlobeLand30	**U.A. (%)**	89.93	91.95	40.00	69.74	80.00	93.27	86.37	71.44	90.88	0.84
	P.A. (%)	80.64	83.33	44.44	75.73	75.00	97.27	61.29	60.98		
CLCD	**U.A. (%)**	79.77	72.80	0.00	50.00	78.57	94.08	60.78	0.00	84.05	0.72
	P.A. (%)	86.25	95.83	0.00	74.73	63.46	97.75	45.59	0.00		
2010		Cropland	Forestland	Shrubland	Grassland	Water body	Bareland	Impervious surface	Wetland	**O.A. (%)**	**Kappa**
Our results	**U.A. (%)**	92.00	92.31	15.00	63.20	80.00	94.70	93.18	77.78	88.33	0.79
	P.A. (%)	74.19	85.71	33.33	75.96	75.00	98.12	67.21	63.64		
GlobeLand30	**U.A. (%)**	85.54	90.24	33.33	67.26	67.74	95.01	97.56	77.42	88.70	0.80
	P.A. (%)	91.61	75.51	33.33	73.08	65.63	96.39	65.57	54.55		
CLCD	**U.A. (%)**	83.09	72.80	100.00	41.28	62.16	92.57	73.68	0.00	81.68	0.67
	P.A. (%)	72.90	92.86	11.11	68.27	71.88	95.38	45.90	0.00		

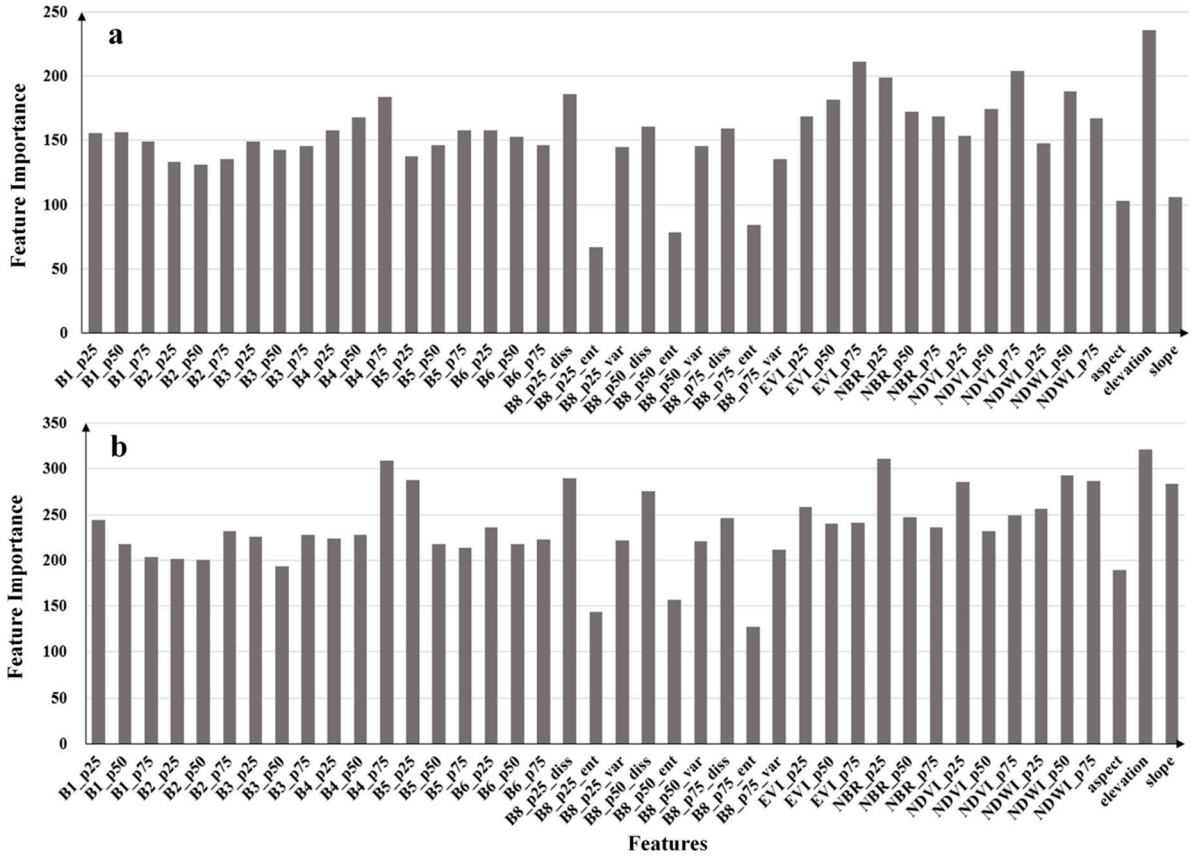


Figure S1. Importance of percentile composite features to land cover mapping. (a) results for Yuli; (b) results for Linxi. Noted: B1, B2, B3, B4, B5, B6, B7, and B8 represent Blue, Green, Red, NIR, SWIR1, SWIR2 and Panchromatic bands, respectively; P25, P50, and P75 represent the 25th, 50th, and 75th percentile composites, respectively; diss, ent, and var represent the dissimilarity, entropy and variance features, respectively; aspect, elevation, and slope represent angle, elevation and slope, respectively.