Supplementary Information

Title: Developing a novel hybrid model for the estimation of surface 8-h ozone (O_3) across the remote Tibetan Plateau during 2005-2018

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Number of texts: 1

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Number of tables: 1

Text S1

We employed three statistical indicators of the coefficient of determination (R^2), the rootmean-square error (RMSE), and the mean prediction error (MPE) to evaluate the model performance. These indicators are calculated as follows:

$$R^2 = \frac{\sum_{i=1}^{n}(pre - \bar{pre})(obs - \bar{obs})}{\sqrt{\sum_{i=1}^{n}(pre - \bar{pre})^2}\sqrt{\sum_{i=1}^{n}(obs - \bar{obs})}} \quad (1)$$

$$RMSE = \sqrt{\frac{\sum_{i=1}^{n}(pre - obs)^2}{n}} \quad (2)$$

$$MPE = \frac{\sum_{i=1}^{n}\left|pre - obs\right|}{n} \quad (3)$$

where *pre* represents the predictive value, *obs* is the observation value, and *n* is the total number of data records.

Fig. S1 The names and geographical locations of prefecture-level cities in Tibetan Plateau

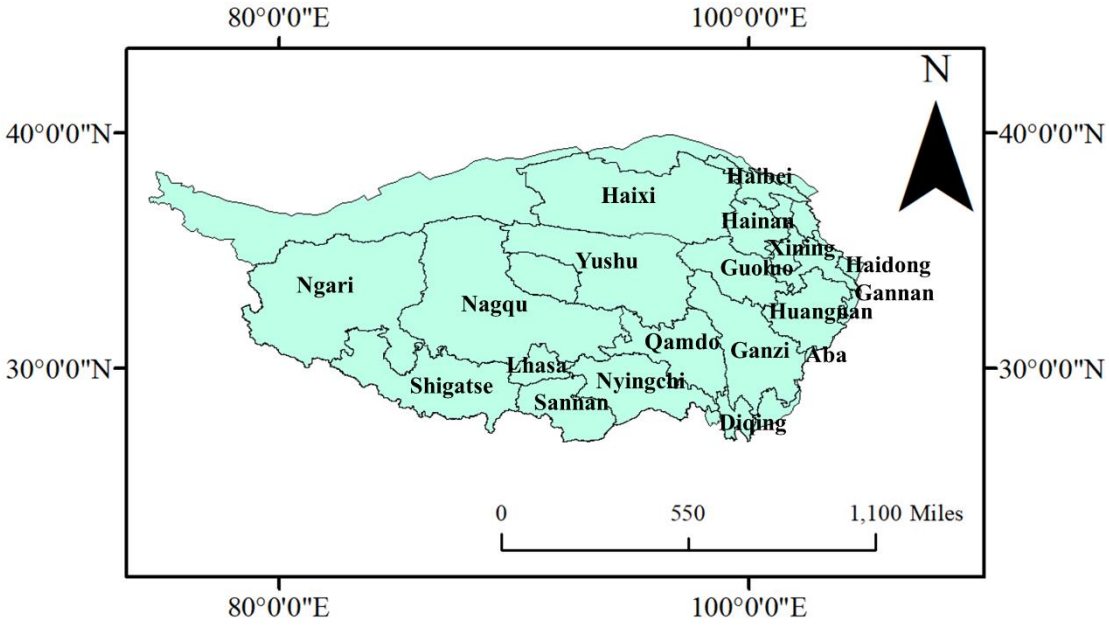


Fig. S2 The annually mean O_3 column amount (Unit: DU) in Tibetan Plateau during 2005-2018.

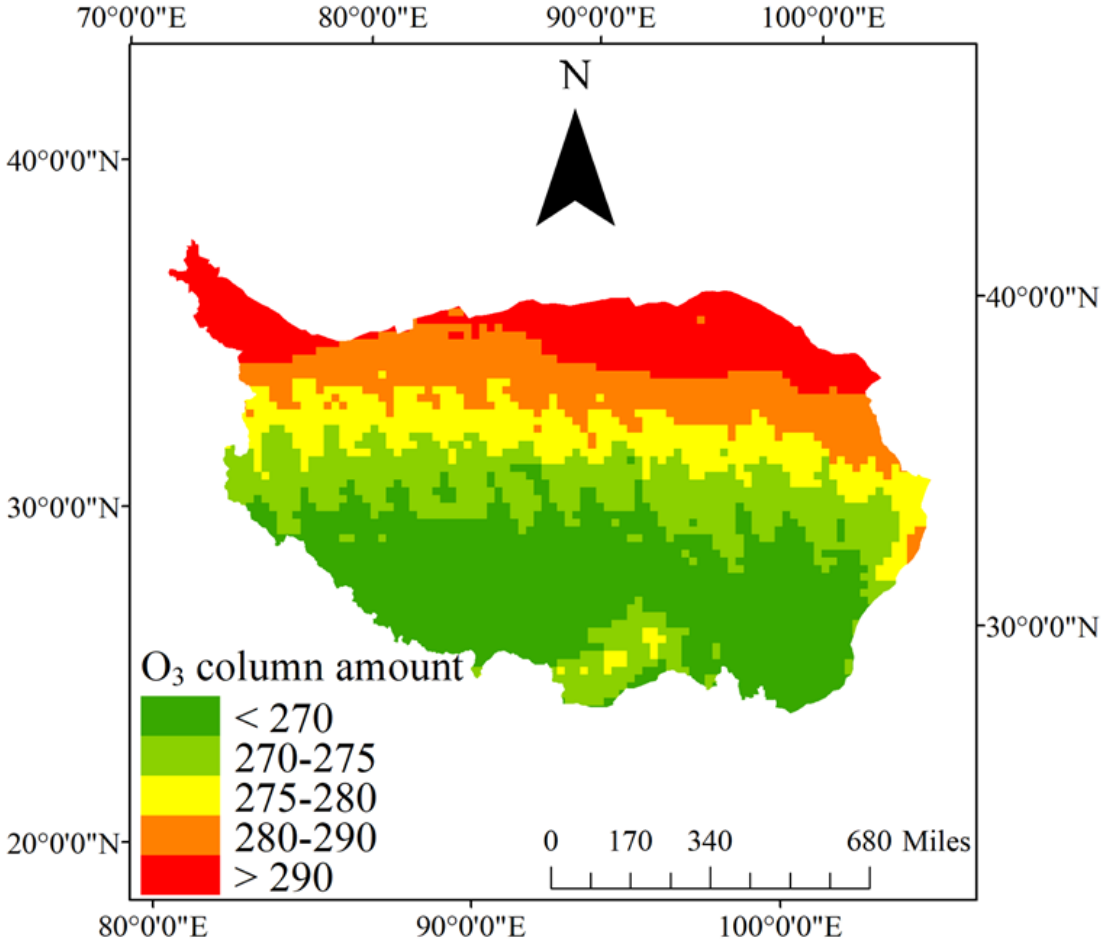


Fig. S3 The mean VOC and NO_x emissions (Unit: Mg) in Tibetan Plateau during 2005-2018.

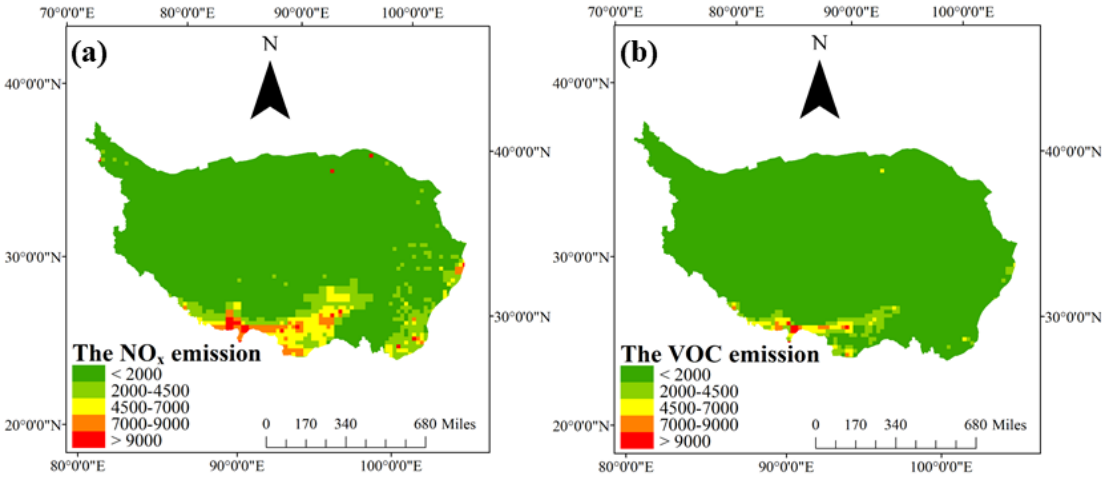


Fig. S4 The annually mean values for key meteorological factors during 2005-2018.

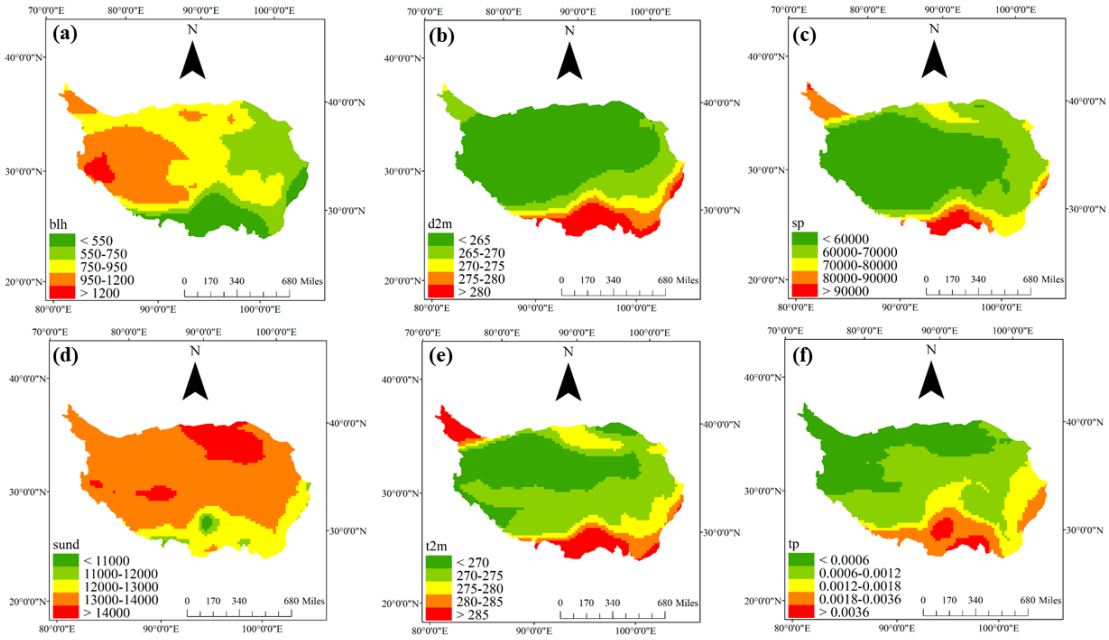


Fig. S5 The mean values for blh in four seasons during 2005-2018.

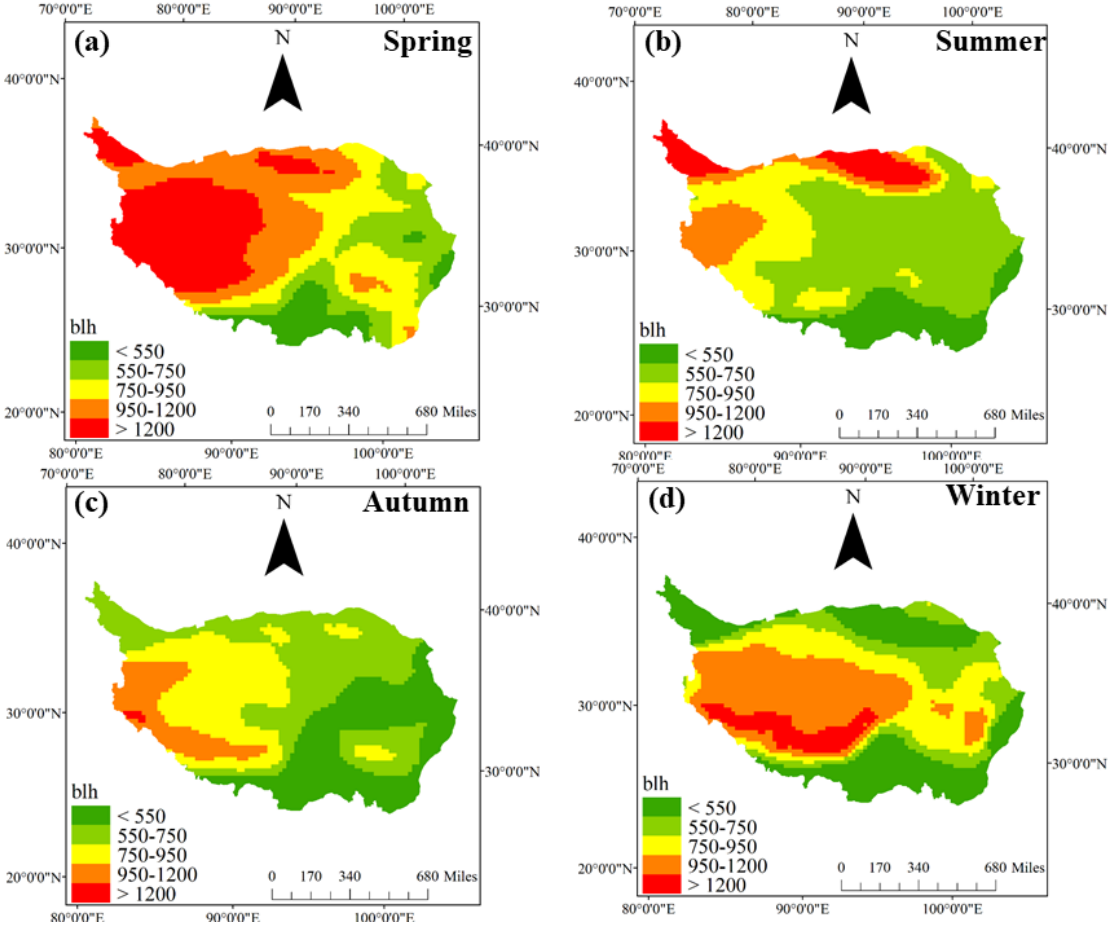


Fig. S6 The mean values for d2m in four seasons during 2005-2018.

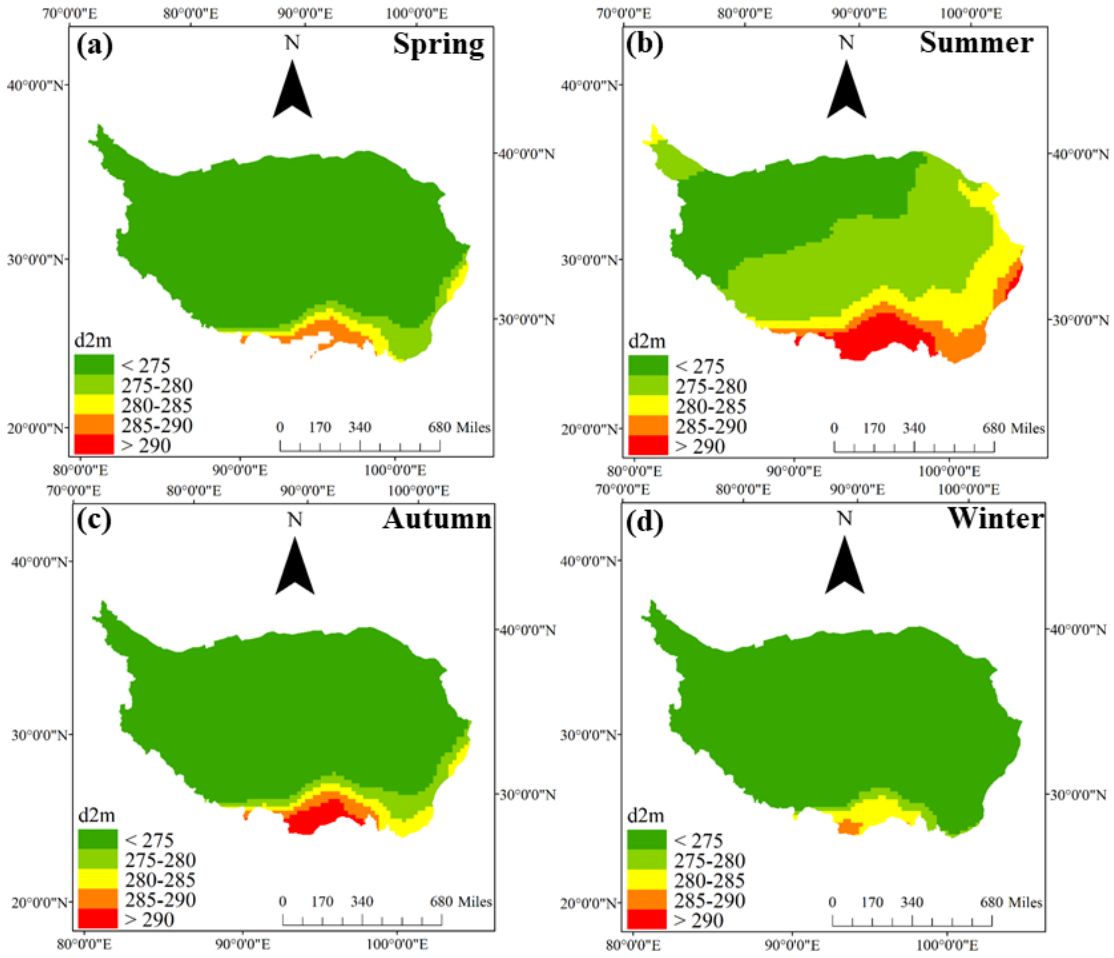


Fig. S7 The mean values for sp in four seasons during 2005-2018.

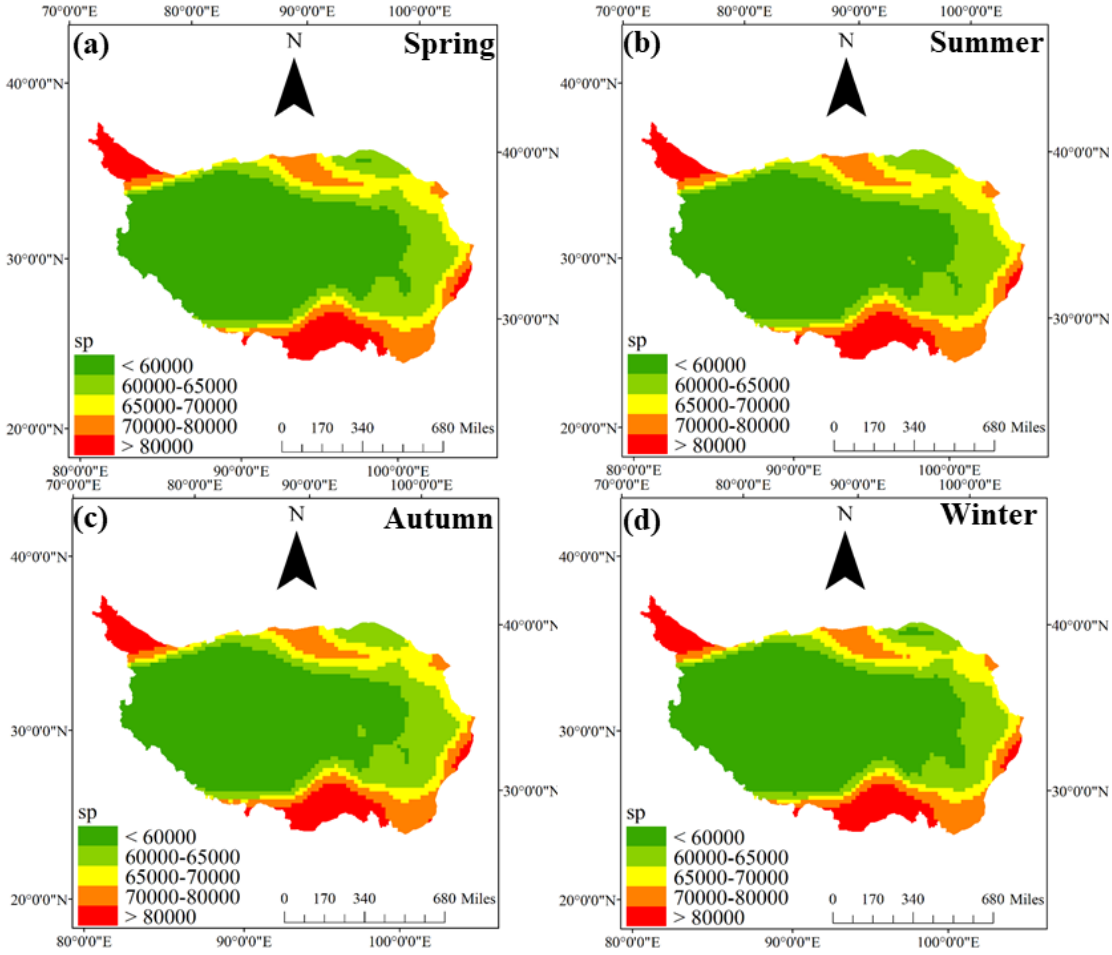


Fig. S8 The mean values for sund in four seasons during 2005-2018.

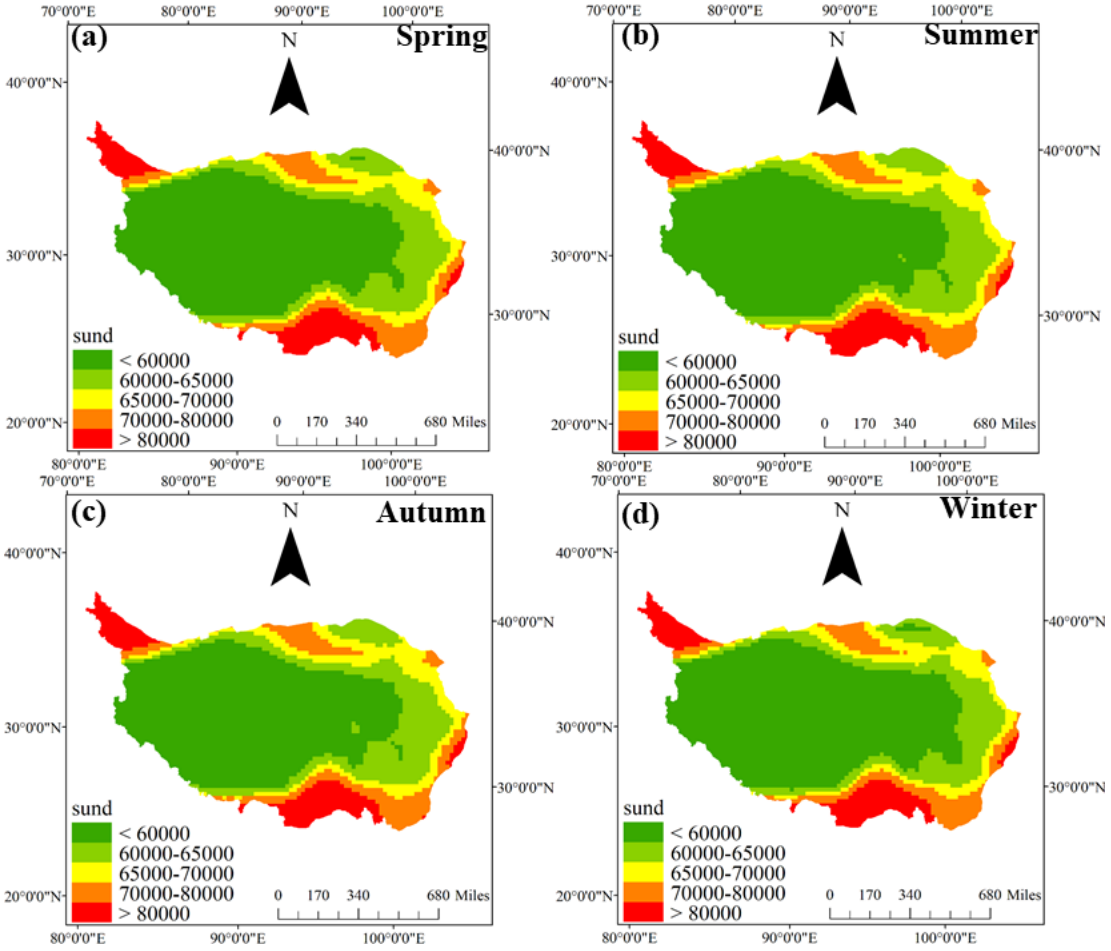


Fig. S9 The mean values for t2m in four seasons during 2005-2018.

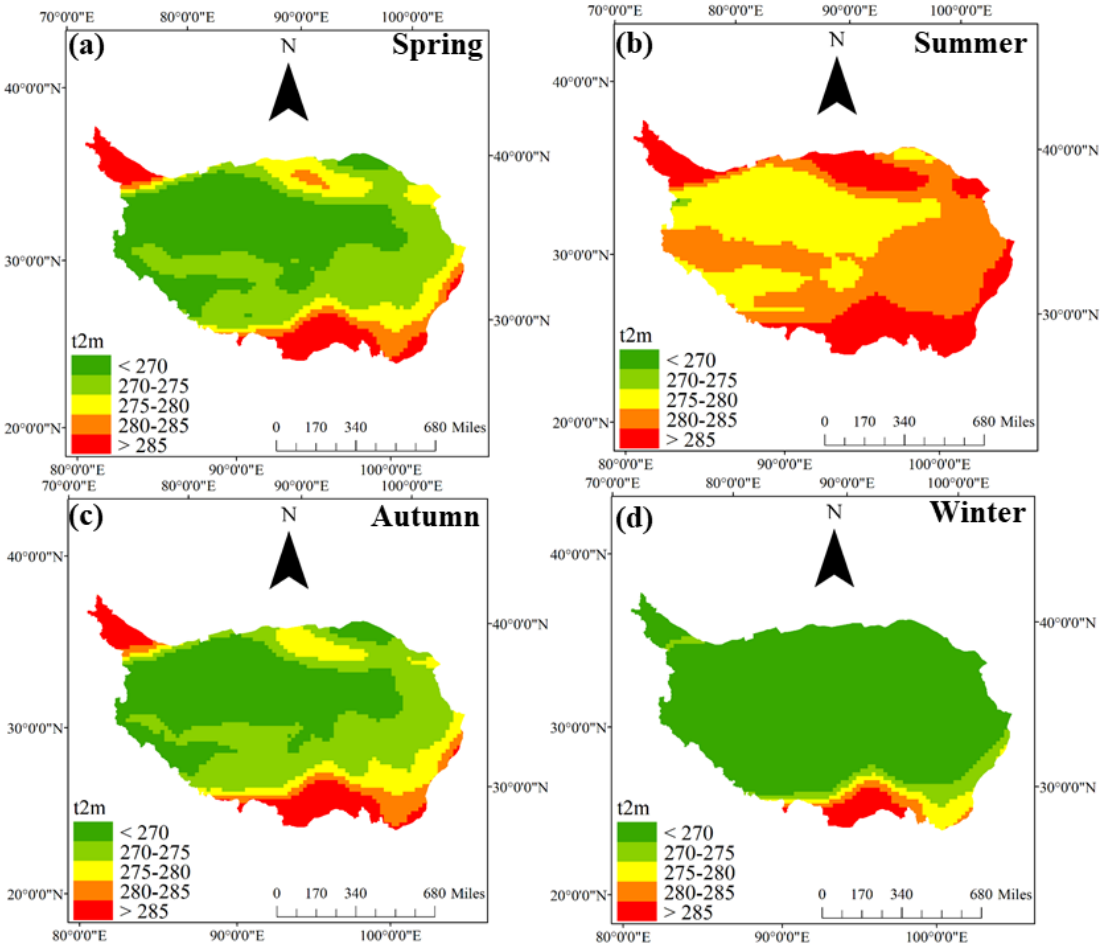
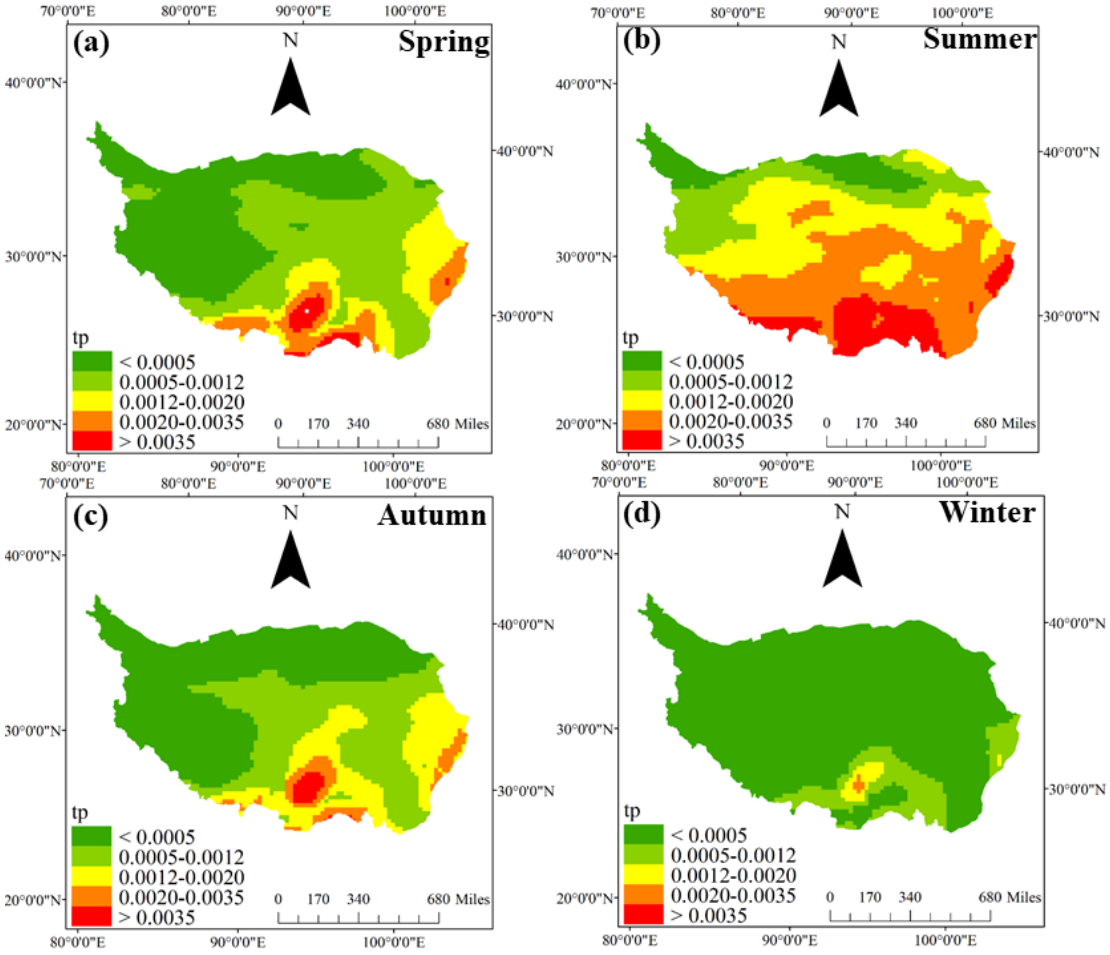


Fig. S10 The mean values for tp in four seasons during 2005-2018.



Tab. S1 The NO_x and VOC emissions (Unit: Mg) in four seasons over Tibetan Plateau

	Spring	Summer	Autumn	Winter
NO_x	92.74±5.52	90.69±5.21	91.64±5.34	95.24±5.65
VOC	207.21±6.44	206.15±6.46	207.16±6.46	219.99±6.55