Supplementary Materials: Detection of the Coupling between Vegetation Leaf Area and Climate in a Multifunctional Watershed, Northwestern China. *Remote Sens.* 2016, doi:10.3390/rs8121032.

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1. The observed air temperature and the precipitation

The observed data shows a significant increasing trend in the air temperature anomaly ($p < 0.001$), and no significant increasing trend in the precipitation anomaly percentage (Figure S1), which indicates that the UHRB features a warming and humid climate in the past three decades.

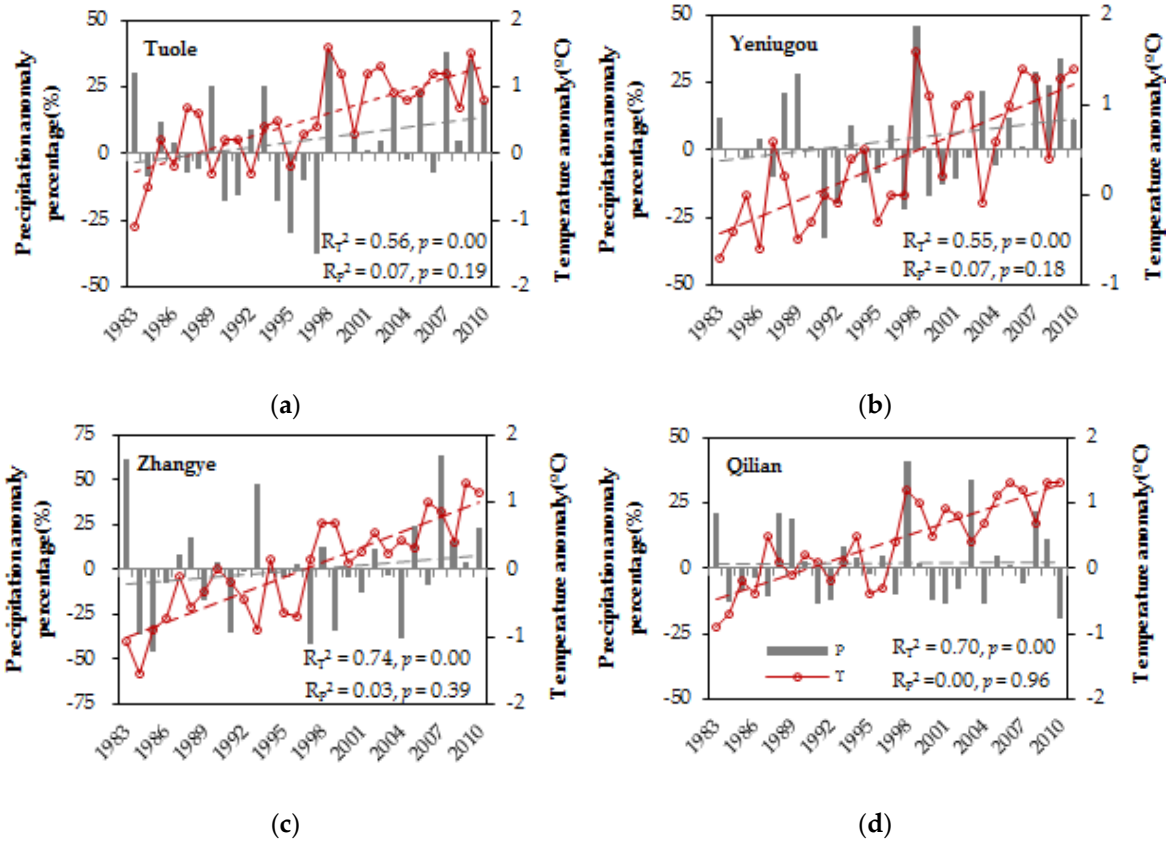
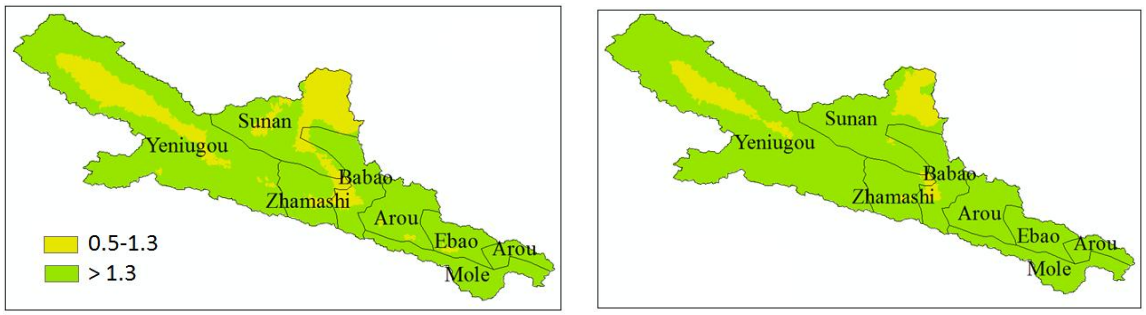


Figure S1. Air temperature anomaly (°C, red lines) and precipitation anomaly percentage (%, grey bars) in four meteorological stations (**a**) Tuole; (**b**) Yeniugou; (**c**) Zhangye; and (**d**) Qilian (Figure 1 showed the locations of the four stations).

2. Mean annual AI

Most of the basin features humid (AI > 1.3), and sub-humid climate in small areas (0.5 < AI ≤1.3) in the north and west of the basin (Figure S2). After 2000, the sub-humid area shrinks, and the humid region expands accordingly (Figure S2b).

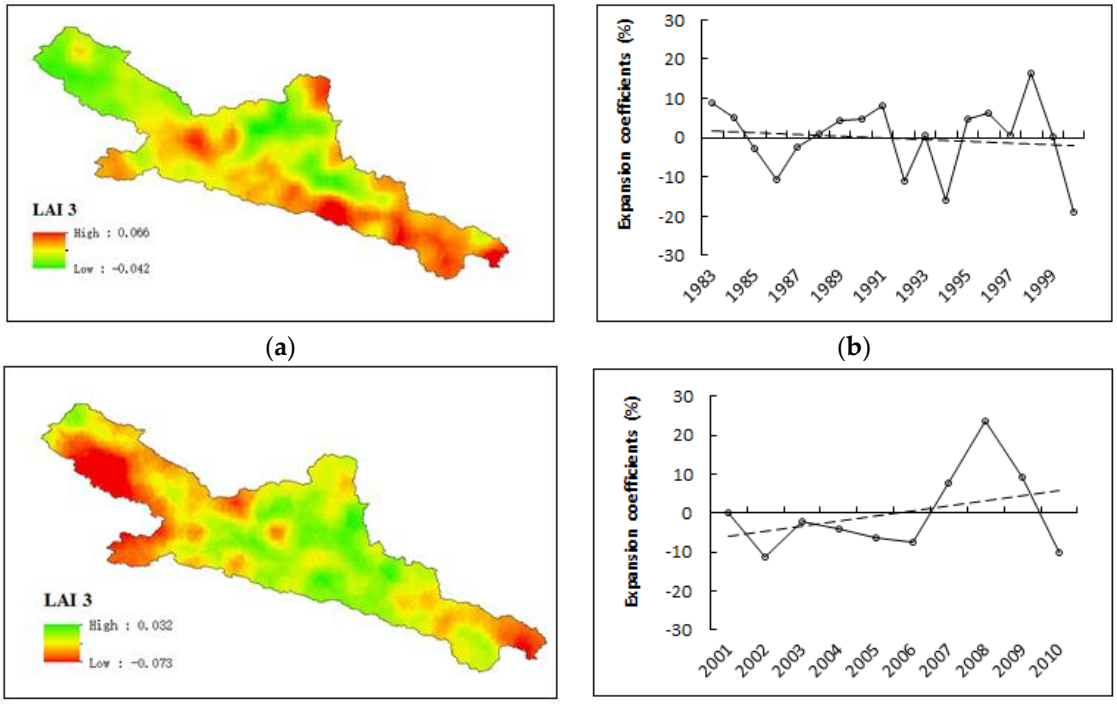


(**a**) (**b**)

Figure S2. Mean annual AI during (**a**) 1983–2000; and (**b**) 2001–2010.

3. EOF Mode 3 of annual LAI

During the two periods, the third eigenvectors both show a reverse pattern with the different increasing and decreasing regions (Figure S3). The temporal series (Figure S3a,b) shows no obvious trend first, then a slight increasing trend (Figure S3c,d).



(**a**) (**b**)

(**c**) (**d**)

Figure S3. EOF of annual LAI (**a**) Mode 3; (**b**) Temporal series of Mode 3 during 1983–2000; (**c**) Mode 3; and (**d**) Temporal series of Mode 3 during 2001–2010.