● **Supplementary Material**

Identification, Mapping and Eco-hydrological Signal Analysis for Groundwater-dependent Ecosystems (GDEs) in Langxi River Basin, North China

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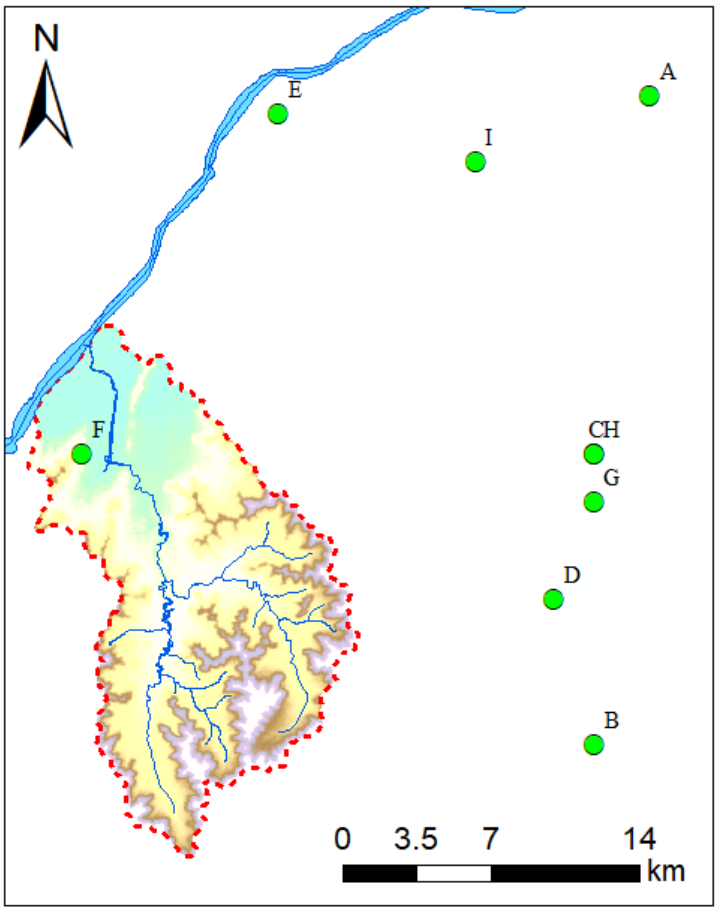
Supplementary Table 1. Sensor parameters of various bands of Landsat series satellites.

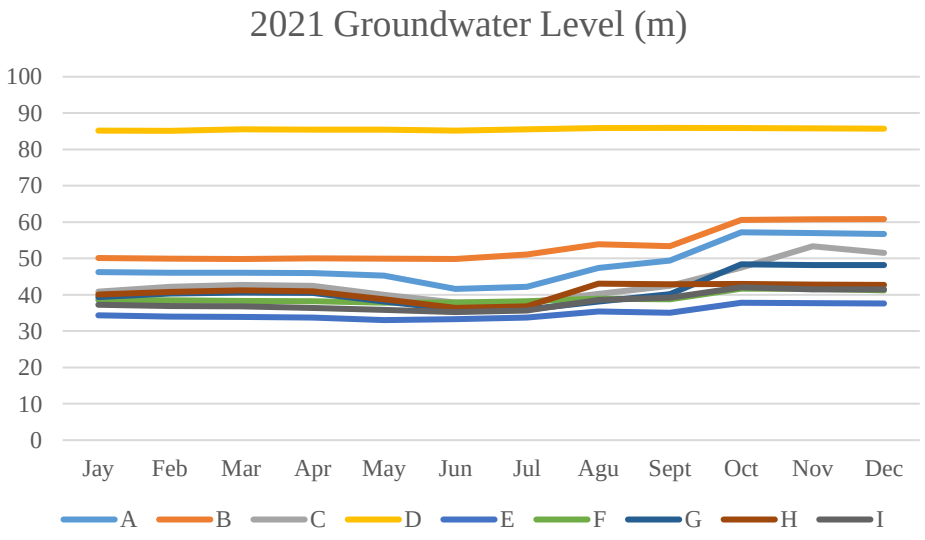
Bands	**Blue**	**Green**	**Red**	**Nir**	**Swir1**	**Swir2**
Landsat5TM	0.0315	0.2021	0.3102	0.1594	-0.6806	-0.6109
Landsat7ETM+	0.1509	0.1973	0.3279	0.3406	-0.7112	-0.4572
Lansat8OLI	0.1511	0.1973	0.3283	0.34067	-0.7117	-0.4559

Note: Nir, Swir1 and Swir2 are the near red band, mid infrared band 1, mid infrared band 2.

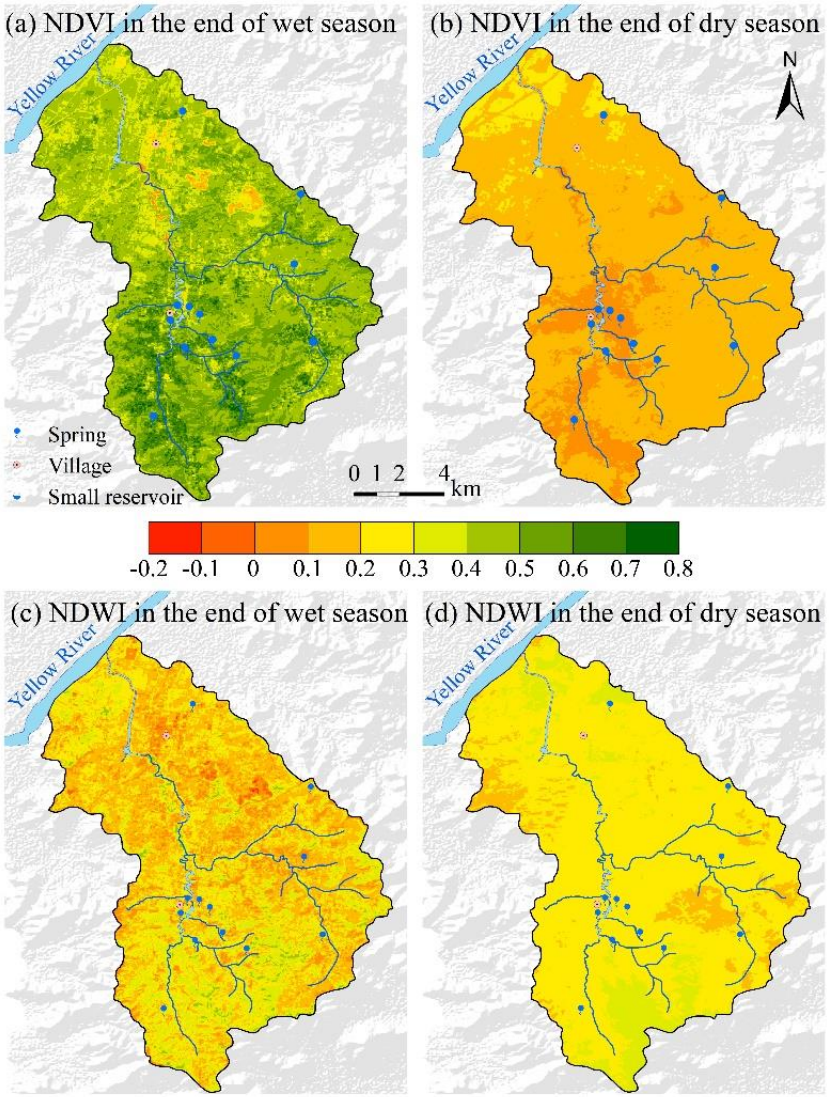
Supplementary Table 2. Resources of the remote sensing datasets.

Dataset	Resource	Description
USGS Landsat 8 Level 2, Collection 2, Tier 1	Cook M, Schott JR, Mandel J, Raqueno N. Development of an Operational Calibration Methodology for the Landsat Thermal Data Archive and Initial Testing of the Atmospheric Compensation Component of a Land Surface Temperature (LST) Product from the Archive. Remote Sensing. 2014; 6(11):11244-11266. https://doi.org/10.3390/rs61111244	This dataset contains atmospherically corrected surface reflectance and land surface temperature derived from the data produced by the Landsat 8 OLI/TIRS sensors. These images contain 5 visible and near-infrared (VNIR) bands and 2 short-wave infrared (SWIR) bands processed to orthorectified surface reflectance, and one thermal infrared (TIR) band processed to orthorectified surface temperature. They also contain intermediate bands used in calculation of the ST products, as well as QA bands.
NASA SRTM Digital Elevation 30m	Farr, T. G., et al. (2007), The Shuttle Radar Topography Mission, Rev. Geophys., 45, RG2004, doi:10.1029/2005RG000183.	The Shuttle Radar Topography Mission (SRTM digital elevation data is an international research effort that obtained digital elevation models on a near-global scale. This SRTM V3 product (SRTM Plus) is provided by NASA JPL at a resolution of 1 arc-second (approximately 30m). This dataset has undergone a void-filling process using open-source data (ASTER GDEM2, GMTED2010, and NED), as opposed to other versions that contain voids or have been void-filled with commercial sources.





Supplementary Figure 1. Time series of the average groundwater level in or around Langxi River Basin in the research period.



Supplementary Figure 2. NDVI (a, b) and NDWI (c, d) data for the end of the wet season (a, c) and the end of the dry season (b, d) (2020 to 2021).