Appendix table 1. Categories of database ﬁelds included for the soil respiration (Rs) database’s main data ﬁle.

|  |  |  |  |
| --- | --- | --- | --- |
| **ID No.** | **Field name** | **Description** | **Notes** |
| 1 | Country | Country of site | Y |
| 2 | SiteID | A given character sites ID, consist of International domain name abbreviations + First three letters of site name | N/A |
| 3 | StudyNumber | A given numeric number for publication, same as SRDB if paper was from SRDB. New added publications : the number start from 10000; Papers published in Chinese (with English abstract): start from 20000. | N/A |
| 4 | Rs\_Norm | Soil respiration unites normalized to g C m-2 day-1 | Y |
| 5 | Measure\_Year | Rs measured year | Y |
| 6 | Measure\_Month | Rs measured month | Y |
| 7 | TS | Soil temperature (℃) | Y |
| 8 | Pm | Monthly total precipitation | ① |
| 9 | Tm | Monthly mean air temperature | ① |
| 10 | MAP | Mean annual precipitation | ① |
| 11 | MAT | Mean annual temperature | ① |
| 12 | P\_Annual | Annual total precipitation | ① |
| 13 | T\_Annual | Annual average air temperature | ① |
| 14 | APm | Average monthly precipitation | ① |
| 15 | ATm | Average monthly air temperature | ① |
| 16 | P\_Anomaly | P\_Annual - MAP | ① |
| 17 | T\_Anomaly | T\_Annual - MAT | ① |
| 18 | P\_LastMonth | Last month’s precipitation | ① |
| 19 | T\_LastMonth | Last month’s air temperature | ① |
| 20 | Latitude | Latitude of site, decimal; positive=north, negative = south | Y |
| 21 | Longitude | Longitude of site, decimal; positive=east, negative = west | Y |
| 22 | Climate\_Koeppon | Third climate type under Koeppon climate classification | ② |
| 23 | Middle\_Climate | Second climate type under Koeppon climate classification | ② |
| 24 | Top\_Climate | First climate type under Koeppon climate classification | ② |
| 25 | IGBP\_FromPaper | IGBP vegetation types collected from paper | Y |
| 26 | IGBP | IGBP vegetation types from IGBP vegetation classification | ③ |
| 27 | LAI | LAI value from a reprocessed MODIS global LAI data | ④ |
| 28 | BD | Bulk density value from FAO data | ⑤ |
| 29 | BS | Soil base saturation | ⑤ |
| 30 | C/N | Carbon nitrogen ration | ⑤ |
| 31 | CaCO3% | Soil CaCO3 percentage | ⑤ |
| 32 | CEC | Soil Cation Exchange Capacity | ⑤ |
| 33 | Clay% | Clay content | ⑤ |
| 34 | Sand% | Sand percentage | ⑤ |
| 35 | Silt% | Silt percentage | ⑤ |
| 36 | N | Total nitrogen content | ⑤ |
| 37 | OC | Organic carbon | ⑤ |
| 38 | PH | PH value | ⑤ |
| 39 | Meas\_Method | Soil respiration measure method | Y |
| 40 | Elevation | Site’s elevation information obtained from SRTM | ⑥ |

Notes: Y indicates the information was collected from publications. N indicates the information was collected from other data sources (please see details from ① to ⑥). N/A indicates the information was self-identified information.

①: Half-degree air temperature and monthly precipitation data were derived from the Center for Climate Research at the University of Delaware, available at <http://climate.geog.udel.edu/~climate/html_pages/download.html#T2011>

②: Global Köppen-Geiger climate classification: <http://koeppen-geiger.vu-wien.ac.at/>

③: Hansen, M.C., DeFries, R.S., Townshend, J.R.G. & Sohlberg, R. 2000. Global land cover classification at 1 km spatial resolution using a classification tree approach. International Journal of Remote Sensing, 21, 1331–1364.

④: Yuan, H., Dai, Y., Xiao, Z., Ji, D. & Shangguan, W. 2011. Remote Sensing of environment reprocessing the MODIS leaf area index products for land surface and climate modelling. Remote Sensing of Environment, 115, 1171–1187. Available at <http://dx.doi.org/10.1016/j.rse.2011.01.001>.

⑤: Köchy, M., Hiederer, R. & Freibauer, A. 2015. Global distribution of soil organic carbon–Part 1: Masses and frequency distributions of SOC stocks for the tropics, permafrost regions, wetlands, and the world. Soil, 1, 351–365.

⑥: Jarvis, A., Reuter, H.I., Nelson, A. & Guevara, E. 2008. Hole-filled SRTM for the globe Version 4. available from the CGIAR-CSI SRTM 90m Database (http://srtm. csi. cgiar. org).