

| (a) Temperature datasets used as input data for temperature-based PET equations. Multiple versions were used to investigate the effect of temporal distribution of the data on output PET estimation | | | |
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| Dataset short name | Resolution | Description | Comment |
| CHES-temp daily | 1 km × 1 km Daily | CHES-met high-resolution mean daily temperature: part of a larger dataset developed by CEH for environment modelling applications, available for 1961–2015 | “Best” available gridded daily temperature data for Great Britain |
| CHES-temp clim | 1 km × 1 km Daily | CHES daily mean temperature climatology: long-term average (1961–1990) of daily mean temperature, derived from CHES-temp daily | Default option that could be used even if no temperature data were available |
| CHES-temp monthly I | 1 km × 1 km Monthly disaggregated to daily | CHES daily mean temperature derived from monthly averages, constant during the month. Step changes in temperature between consecutive months | To investigate whether temporal disaggregation method (from monthly to daily) has an effect on output PET estimation |
| CHES-temp monthly II | 1 km × 1 km Monthly disaggregated to daily | CHES daily mean temperature derived from monthly averages, interpolated using pchip | |
| CHES-temp monthly III | 1 km × 1 km Monthly disaggregated to daily | CHES daily mean temperature derived from monthly averages, disaggregated to daily using CHES-temp clim pattern | |
| (b) Temperature datasets used to assess spatial resolution for the best performing PET method | | | |
| Dataset short name | Resolution | Description | Comment |
| UKCP09-temp monthly I | 5 km × 5 km Monthly disaggregated to daily | UKCP09 daily mean temperature derived from monthly averages, constant during the month | Two temporal disaggregation methods tested. |
| UKCP09-temp monthly II | 5 km × 5 km Monthly disaggregated to daily | UKCP09 daily mean temperature derived from monthly averages, interpolated using pchip | |
| (c) PET datasets used to calibrate the equations and assess the output PET | | | |
| Dataset short name | Resolution | Description | Use |
| CHES-PM | 1 km × 1 km Daily and monthly | CHES-PET 1 km grids, daily (and monthly) time series available for 1961–2015, calculated using the Penman–Monteith (PM) equation for FAO-defined well-watered grass | (1) calibration of the temperature-based PET equations (1961–1990) (2) Evaluation of the equations (1991–2012) (3) Evaluation of the final gridded product (1991–2012) |
| CHES-PM climatology | 1 km × 1 km Daily and monthly | Daily (and monthly) PET long-term average, calculated from CHES-PM for 1961 to 1990 | used as a “naïve method” against which the PET reconstruction methodology can be tested to assess performance |