This collection of datasets provides the water table and throughfall data from Brunei Darussalam used in the paper: Scalar simulation and parameterization of water table dynamics in tropical peatlands by Alexander R. Cobb and Charles F. Harvey (Water Resources Research 55, doi:10.1029/2019WR025411; Cobb and Harvey 2019). It additionally provides the parameters for the peat hydraulic conductivity and specific yield functions derived in the paper, and the topographic data used to calculate the two-dimensional Laplacian of the peat surface elevation.

Datasets in this data collection:
- Locations: Latitude and longitude locations of water level and throughfall measurements, and location of flowtube.
- Throughfall data.
- Water level data from four piezometers (4 datasets).
- Flowtube geometry: Area enclosed by (portion of) a flowtube and the integral of the gradient along the downstream contour.
- Hydraulic conductivity: Knots and 95% confidence intervals of conductivity function.
- Specific yield: Knots and 95% confidence intervals of specific yield function.

The throughfall data are the average of data from four siphoning tipping-bucket rain gauges (Texas Electronics TR-525S, Dallas, Texas, USA) installed 50 cm above the peat surface along a 100 m transect, as described in Cobb and Harvey (2019). The coordinates provided for the throughfall measurements (in locations dataset) are the coordinates of the mid-point of the 4 throughfall gauges. The coordinates of the individual throughfall gauges were:
Gauge 1: 114.354260, 4.370139
Gauge 2: 114.354034, 4.369900
Gauge 3: 114.353943, 4.369769
Gauge 4: 114.353661, 4.369449
The centroid of these 4 locations (recorded in locations dataset) was found by converting the coordinates of each gauge to a local projected coordinate system (GDBD2009, EPSG:5247), averaging the northing and easting coordinates, and converting back to longitude-latitude coordinates (EPSG:4326).

Water level data were obtained from logging pressure transducers (Solinst Levelogger Edge 3001, Solinst Canada, Georgetown, Ontario, Canada) corrected for barometric fluctuations using a barometer (Solinst Barologger Gold 3001). Each transducer was suspended on a steel cable inside a 2" PVC pipe 1.5 m in length installed to 1.4 m depth and screened at 1.3--1.45 m below the top of the piezometer casing. Piezometers were developed prior to measurement by repeatedly plunging and removing a solid rod into the piezometer tube. The details of how the surface datum was obtained are described in Cobb et al (2017):
The flowtube described in the flowtube geometry dataset encloses the piezometers and throughfall gauges. The centroid of the throughfall gauges is taken as the location of the flowtube (in the location dataset). The areas and integrated gradients provided in the flowtube geometry dataset were used to calculate the two-dimensional Laplacian of the peat surface elevation, used in Cobb and Harvey (2019).

The conductivity and specific yield knots are recorded along with their 95% confidence intervals in the hydraulic conductivity and specific yield datasets. Details on how they were computed from the peat surface Laplacian and throughfall and water table time series are provided in Cobb and Harvey (2019).

Revision history

Version 1.0.2 - 2019-11-13:
- Merge and correct paragraphs on throughfall gauges during PANGAEA review process.

Version 1.0.1 - 2019-11-12:
- Format modified during PANGAEA review process.

Version 1.0.0 - 2019-10-09:
- Revised version submitted to Water Resources Research.

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