HIGH-QUALITY AUSTRALIAN MONTHLY PAN EVAPORATION DATASET

Background

Scientific debate in recent years regarding “global dimming” has led some scientists to suggest that an apparent decline in pan evaporation over the last few decades points to reduced incoming solar radiation. This has greatly increased the interest in Australia’s pan evaporation record.

Analysis of the raw data does indeed show a decline in pan evaporation recorded over Australia. However, the installation of birdguards on the pans during the late 1960s and early 1970s is known to have created an inhomogeneity in the climate record. Other sources of inhomogeneity include changes in location and exposure at individual sites. In order to determine reliable long-term trends in Australia’s evaporation record, observational records adjusted for these artificial changes are required.

Consequently a high-quality monthly pan evaporation dataset of 60 stations has been developed for Australia (Jovanovic et al. 2006). The quality control process involved examination of historical station metadata, together with an objective test to identify and correct for discontinuities. The adjusted dataset shows no significant trend in recorded evaporation since 1970.

Data format

The compressed high-quality Australian monthly pan evaporation dataset *HQ_monthly_evap_txt.tar* is available at: ftp://ftp.bom.gov.au/anon/home/ncc/www/change/HQmonthlyE

Within this compressed dataset:
HQME_stations contains a listing of all stations included in the dataset with station number, latitude, longitude, elevation and station name.

evaphq.<station number>.<period>.txt.Z files contain the data for each individual station for periods ranging from *monthly* to *annual*. The header in each data file includes variable type, station number, start date of data (yyyymmdd), end date of data (yyyymmdd) and station name. Data are in format <start of period (yyyymmdd)> <end of period (yyyymmdd)> <pan evaporation total (mm)>.

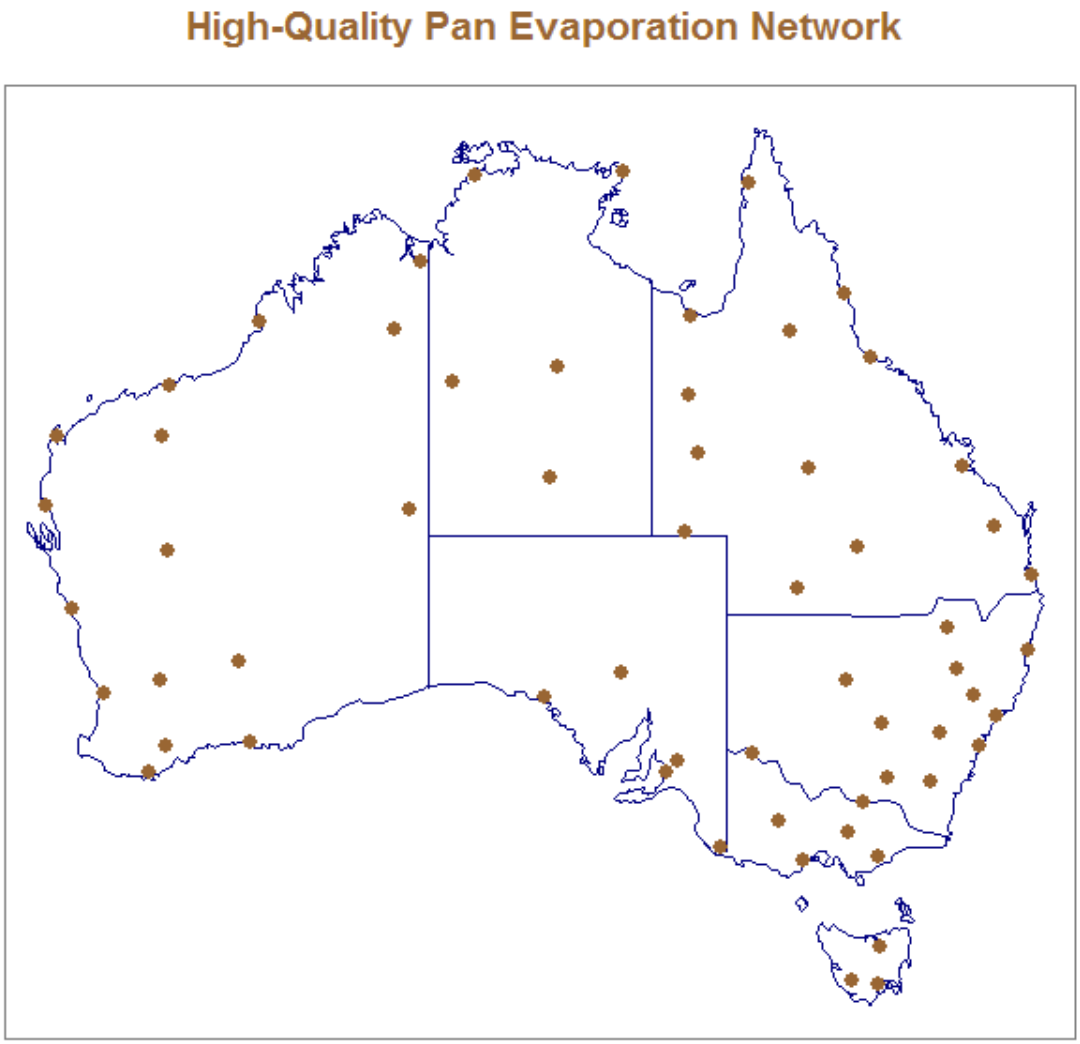
Throughout the data files *99999.9* is used to denote missing data.

Station list

Number	Lat.	Long.	El.(m)	Name
002012	-18.23	127.66	0422.0	HALLS CREEK AIRPORT
002014	-15.65	128.71	0031.0	KIMBERLEY
003003	-17.95	122.23	0007.0	BROOME AIRPORT
004032	-20.37	118.63	0006.4	PORT HEDLAND AIRPORT
005007	-22.24	114.10	0005.0	LEARMONTH AIRPORT
005026	-22.24	118.34	0463.0	WITTENOOM
006011	-24.89	113.67	0004.0	CARNARVON AIRPORT
007045	-26.61	118.54	0517.0	MEEKATHARRA AIRPORT
008051	-28.80	114.70	0033.0	GERALDTON AIRPORT
009021	-31.93	115.98	0015.4	PERTH AIRPORT
009741	-34.94	117.80	0068.0	ALBANY AIRPORT
009789	-33.83	121.89	0025.0	ESPERANCE
010092	-31.48	118.28	0315.0	MERREDIN
010622	-33.96	118.49	0286.0	ONGERUP
012038	-30.78	121.45	0365.3	KALGOORLIE-BOULDER AIRPORT
013017	-25.03	128.30	0598.0	GILES METEOROLOGICAL OFFICE
014015	-12.42	130.89	0030.4	DARWIN AIRPORT

014508 -12.27 136.82 0051.6 GOVE AIRPORT
015135 -19.64 134.18 0375.7 TENNANT CREEK AIRPORT
015590 -23.80 133.89 0546.0 ALLICE SPRINGS AIRPORT
015666 -20.18 130.01 0340.0 RABBIT FLAT
016001 -31.16 136.81 0166.6 WOOMERA AERODROME
018012 -32.13 133.70 0015.3 CEDUNA AMO
023090 -34.92 138.62 0048.0 ADELAIDE
023373 -34.48 139.01 0275.0 NURIOOTPA VITICULTURAL
026021 -37.75 140.77 0063.0 MOUNT GAMBIER AERO
027045 -12.68 141.92 0018.0 WEIPA
029004 -17.74 139.55 0005.5 BURKETOWN
029127 -20.68 139.49 0340.3 MT ISA
030018 -18.29 143.55 0291.7 GEORGETOWN
031011 -16.87 145.75 0003.0 CAIRNS AERO
032040 -19.25 146.77 0007.5 TOWNSVILLE AERO
036031 -23.44 144.28 0192.2 LONGREACH AERO
038003 -22.91 139.90 0161.8 BOULIA AIRPORT
038026 -25.90 139.35 0046.6 BIRDSVILLE AIRPORT
039083 -23.38 150.48 0010.0 ROCKHAMPTON AERO
040265 -27.53 153.25 0011.0 REDLANDS
040428 -25.66 151.75 0120.0 BRIAN PASTURES
044021 -26.42 146.25 0301.5 CHARLEVILLE AERO
045025 -28.00 143.82 0128.7 THARGOMINDAH AIRPORT
048027 -31.49 145.83 0260.0 COBAR MO
050052 -33.07 147.23 0195.0 CONDOBOLIN AG RESEARCH STN
053115 -29.49 149.85 0213.0 MOREE AERO
055024 -31.03 150.27 0307.0 GUNNEDAH SCS
059040 -30.31 153.12 0005.0 COFFS HARBOUR MO
061078 -32.79 151.84 0009.0 WILLIAMTOWN RAAF
061089 -32.06 150.93 0216.0 SCONE SCS
063005 -33.43 149.56 0063.0 BATHURST AGRICULTURAL STATION
066037 -33.94 151.17 0006.0 SYDNEY AIRPORT
070014 -35.30 149.20 0578.2 CANBERRA AIRPORT
072150 -35.16 147.46 0212.0 WAGGA WAGGA AMO
076031 -34.23 142.08 0050.0 MILDURA AIRPORT
079079 -36.79 143.12 0228.6 TOTTINGTON
082039 -36.10 146.51 0175.0 RUTHERGLEN RESEARCH
085072 -38.12 147.13 0004.6 EAST SALE AIRPORT
087126 -38.28 144.05 0136.0 WURDIBOLUC RESERVOIR
088023 -37.23 145.91 0230.0 LAKE EILDON
091104 -41.54 147.20 0170.0 LAUNCESTON AIRPORT COMPARISON
094069 -42.98 147.08 0063.0 GROVE (COMPARISON)
097053 -42.77 146.04 0322.0 STRATHGORDON VILLAGE

Network Map



References

Jovanovic, B., Jones, D.A. and Collins, D.A. 2006. A high quality monthly pan-evaporation dataset for Australia. Submitted to Climatic Change.

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