

HIGH-QUALITY AUSTRALIAN MONTHLY CLOUD AMOUNT DATASET

Background

The response of cloud cover to increasing greenhouse gases represents the largest internal source of uncertainty in model predictions of climate change. It is therefore important that changes in historical cloud cover are assessed using reliable datasets. A high-quality monthly Total Cloud Amount (TCA) dataset of 165 stations has been developed for monitoring long-term changes in cloudiness over Australia. The dataset is based on weather observer estimates of 9am and 3pm TCA (measured in eighths of sky obscured or “oktas”), with most records starting around 1957. Individual TCA series were adjusted for biases caused by relocations, changes in observers, and transition to daylight saving time in summer months.

Data format

The compressed high-quality Australian monthly cloud amount dataset is available at:
<ftp://ftp.bom.gov.au/anon/home/ncc/www/change/HQmonthlyC>

HQ_monthly_cld9am_txt.tar contains monthly mean 9am cloud amount files.

HQ_monthly_cld3pm_txt.tar contains monthly mean 3pm cloud amount files.

HQ_monthly_cldm_txt.tar contains monthly mean “daytime” cloud amount files (where “daytime” cloud amount is average of 9am and 3pm cloud amounts).

Within these compressed datasets:

HQMC_stations contains a listing of all stations included in the dataset with station number, latitude, longitude and station name.

*cld*hq.<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)> <mean cloud amount (oktas)>.

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

Station list

Number	Lat.	Long.	Name
001013	-15.49	128.12	WYNDHAM POST OFFICE
002012	-18.23	127.66	HALLS CREEK AIRPORT
002032	-17.02	128.22	WARMUN
003003	-17.95	122.23	BROOME AIRPORT
004032	-20.37	118.63	PORT HEDLAND AIRPORT
004035	-20.78	117.15	ROEBOURNE
005007	-22.24	114.10	LEARMONTH AP
005016	-21.64	115.11	ONSLow
005026	-22.24	118.34	WITTENOOM
006011	-24.88	113.67	CARNARVON AIRPORT
006072	-23.03	115.04	EMU CREEK STATION
007045	-26.61	118.54	MEEKATHARRA AIRPORT
008039	-30.28	116.66	DALWALLINU COMPARISON
008051	-28.80	114.70	GERALDTON AIRPORT
009021	-31.93	115.98	PERTH AIRPORT
009114	-31.02	115.33	LANCELIN
009510	-33.96	116.14	BRIDGETOWN POST OFFICE
009534	-33.57	115.82	DONNYBROOK
009592	-34.45	116.04	PEMBERTON

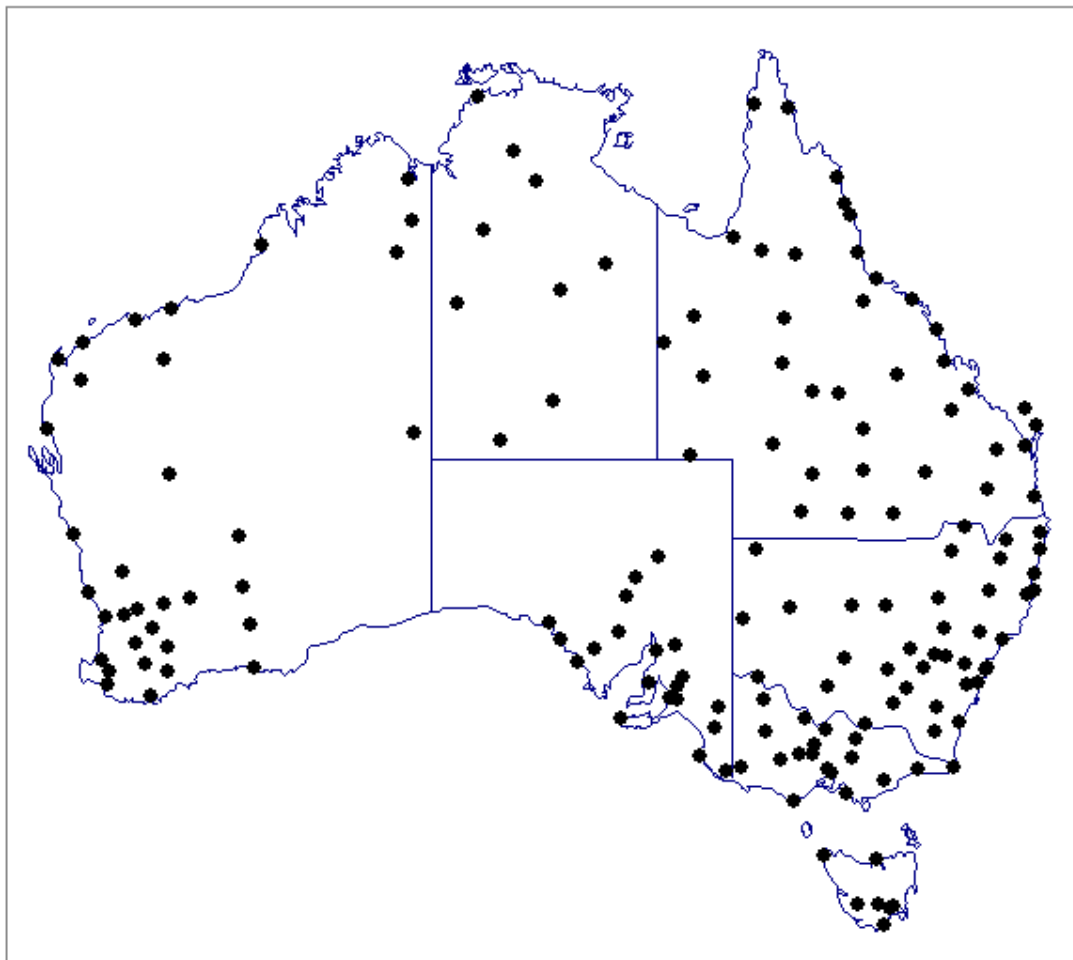
009741	-34.94	117.80	ALBANY AIRPORT
009789	-33.83	121.89	ESPERANCE
010035	-31.66	117.25	CUNDERDIN
010092	-31.48	118.28	MERREDIN
010311	-31.90	116.76	YORK
010536	-32.33	117.87	CORRIGIN
010579	-33.69	117.56	KATANNING COMPARISON
010592	-33.10	118.46	LAKE GRACE POST OFFICE
010614	-32.93	117.18	NARROGIN
010622	-33.96	118.49	ONGERUP
012038	-30.79	121.45	KALGOORLIE-BOULDER AIRPORT
012046	-28.88	121.33	LEONORA
012065	-32.20	121.78	NORSEMAN
012074	-31.23	119.33	SOUTHERN CROSS
013017	-25.04	128.29	GILES METEOROLOGICAL OFFICE
014015	-12.42	130.89	DARWIN AIRPORT
014612	-15.57	133.21	LARRIMAH
014840	-17.39	131.12	WAVE HILL
014903	-14.44	132.27	KATHERINE AVIAT.MUSEUM
015085	-18.64	135.95	BRUNETTE DOWNS
015135	-19.64	134.18	TENNANT CREEK AIRPORT
015511	-25.31	131.76	CURTIN SPRINGS
015590	-23.80	133.89	ALICE SPRINGS AIRPORT
015666	-20.18	130.01	RABBIT FLAT
016001	-31.16	136.80	WOOMERA AERODROME
016032	-32.52	136.49	NONNING
016065	-30.45	137.17	ANDAMOOKA
017031	-29.65	138.06	MARREE
018012	-32.13	133.71	CEDUNA AMO
018044	-33.13	135.55	KYANCUTTA
018069	-33.65	134.89	ELLISTON
018079	-32.80	134.21	STREAKY BAY
019062	-33.03	138.75	YONGALA
021043	-33.18	138.01	PORT PIRIE BHAS
022008	-34.38	137.68	MAITLAND
022801	-35.75	136.59	CAPE BORDA
023034	-34.96	138.53	ADELAIDE AIRPORT
023343	-34.56	138.83	TURRETFIELD RES.
023733	-35.07	138.85	MOUNT BARKER
024511	-34.18	139.08	EUDUNDA
025507	-36.10	140.35	KEITH
025509	-35.33	140.52	LAMEROO
026021	-37.75	140.79	MOUNT GAMBIER AERO
026026	-37.16	139.76	ROBE COMP.
027045	-12.68	141.92	WEIPA AP
028008	-12.78	143.30	LOCKHART RIVER AP
029012	-18.20	142.24	CROYDON TOWNSHIP
029063	-17.69	141.07	NORMANTON AP
029127	-20.68	139.49	MT ISA
030018	-18.29	143.55	GEORGETOWN POST OFFICE
030045	-20.73	143.14	RICHMOND POST OFFICE
031011	-16.87	145.75	CAIRNS AERO
031037	-16.38	145.56	LOW ISLES LIGHTHOUSE
031209	-15.45	145.19	COOKTOWN AP
032004	-18.26	146.02	CARDWELL EDEN ST
032040	-19.25	146.77	TOWNSVILLE AERO
033065	-22.35	149.54	ST LOWRENCE PO
033119	-21.12	149.22	MACKAY MO
033257	-20.02	148.22	BOWEN AP
034084	-20.05	146.27	CHARTERS TOWERS AP
035019	-22.83	147.64	CLERMONT POST OFFICE
035069	-24.88	146.26	TAMBO POST OFFICE
036007	-23.55	145.29	BARCALDINE POST OFFICE
036031	-23.44	144.28	LONGREACH AERO

037043 -21.61 138.31 URANDANGIE
037051 -22.39 143.04 WINTON POST OFFICE
038003 -22.91 139.90 BOULIA AIRPORT
038024 -25.42 142.66 WINDORAH PO
038026 -25.90 139.35 BIRDSVILLE
039004 -24.18 149.81 BARALABA PO
039039 -25.63 151.61 GAYNDAH POST OFFICE
039059 -24.11 152.71 LADY ELLIOT ISLAND
039083 -23.38 150.48 ROCKHAMPTON AERO
039085 -24.73 153.21 SANDY CAPE LIGHTHOUSE
040126 -25.52 152.71 MARYBOROUGH
040842 -27.39 153.13 BRISBANE AP
041521 -28.52 150.33 GOONDIWINDI AP
041522 -27.17 151.27 DALBY AP
043091 -26.54 148.78 ROMA AP
044010 -28.03 147.48 BOLLON MARY ST
044021 -26.41 146.26 CHARLEVILLE AERO
044026 -28.07 145.68 CUNNAMULLA POST OFFICE
045015 -26.61 144.26 QUILPIE AIRPORT
045025 -27.99 143.81 THARGOMINDAH AP
046037 -29.43 142.01 TIBOOBURRA PO
046043 -31.56 143.37 WILCANNIA
047007 -31.98 141.47 BROKEN HILL (PATTON ST)
048027 -31.49 145.83 COBAR MO
051039 -31.55 147.20 NYNGAN AIRPORT
053115 -29.49 149.85 MOREE AERO
055136 -30.97 151.35 WOOLBROOK
056011 -29.74 151.74 GLEN INNES POST OFFICE
056032 -29.05 152.02 TENTERFIELD
058012 -29.43 153.36 YAMBA PILOT STATION
058221 -28.79 153.34 LISMORE (RICHMOND HILL)
059017 -31.08 152.82 KEMPSEY
059030 -30.92 153.09 SMOKY CAPE LIGHTHOUSE
059040 -30.31 153.12 COFFS HARBOUR MO
061078 -32.79 151.84 WILLIAMTOWN RAAF
061086 -32.50 150.91 JERRYS PLAINS PO
062013 -32.36 149.53 GULGONG PO
063005 -33.43 149.56 BATHURST AGRI
063039 -33.71 150.31 KATOOMBA
063231 -33.38 149.12 ORANGE AIRPORT COMPARISON
064008 -31.27 149.27 COONABARABRAN (NAMOI STREET)
065026 -33.14 148.16 PARKES (MACARTHUR STREET)
065091 -33.85 148.65 COWRA AP
066037 -33.94 151.17 SYDNEY AIRPORT AMO
066062 -33.86 151.21 SYDNEY (OBSERVATORY HILL)
068102 -34.49 150.40 BOWRAL
068188 -34.40 150.88 WOLLONGONG UNI
069018 -35.91 150.15 MORUYA HEADS PILOT STATION
070014 -35.30 149.20 CANBERRA AIRPORT
070278 -36.23 149.12 COOMA VISITORS CENTRE
072150 -35.16 147.46 WAGGA WAGGA AMO
073054 -33.93 147.24 WYALONG PO
073142 -34.63 148.04 COOTAMUNDRA AP
074034 -35.99 146.36 COROWA AP
075031 -34.52 144.85 HAY
075032 -33.49 145.52 HILLSTON AIRPORT
076031 -34.23 142.08 MILDURA AIRPORT
076047 -35.07 142.31 OUYEN (POST OFFICE)
078077 -36.26 142.40 WARRACNABEAL MUSEUM
080015 -36.17 144.76 ECHUCA
080023 -35.73 143.92 KERANG (POST OFFICE)
081123 -36.74 144.33 BENDIGO
082002 -36.55 145.97 BENALLA
084016 -37.57 149.91 GABO ISLAND LIGHTHOUSE

084030	-37.69	148.46	ORBOST (COMPARISON)
085072	-38.11	147.13	EAST SALE AIRPORT
086071	-37.81	144.97	MELBOURNE REGIONAL OFFICE
086282	-37.66	144.83	MELBOURNE AIRPORT
086127	-38.61	145.59	WONTHAGI
088023	-37.21	145.84	LAKE EILDON
088043	-37.06	143.73	MARYBOROUGH
088110	-37.08	144.24	CASTLEMAINE PRISON
089085	-37.28	142.98	ARARAT PRISON
090015	-38.86	143.51	CAPE OTWAY LIGHTHOUSE
090135	-37.59	141.41	CASTERTON SHOWGROUNDS
091293	-41.06	146.79	LOW HEAD
091223	-40.91	144.71	MARRAWAH
094008	-42.84	147.50	HOBART AIRPORT
094010	-43.49	147.14	CAPE BRUNY LIGHTHOUSE
094029	-42.89	147.33	HOBART (ELLERSLIE ROAD)
095003	-42.71	146.90	BUSHY PARK (BUSHY PARK ESTATES)
097053	-42.77	146.04	STRATHGORDON VILLAGE

Network Map

High-Quality Monthly Cloud Network



References

Jovanovic, B., Collins, D.A., Braganza, B., Jakob, D. and Jones, D.A. 2009. A high-quality monthly Total Cloud Amount dataset for Australia. *Climatic Change (submitted)*.

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