

Groundwater and Rainfall Trends

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Coomandook – Cooke Plains Site Location Information & Hydrographs

The table shows a list of 12 wells (from the DEW WaterConnect groundwater network) that are currently being monitored in the Coomandook – Cooke Plains focus area. These are displayed in the WaterConnect website in the following Obswell networks: Peake, Roby & Sherlock PWA (PEAKE), SAMDB Non-prescribed area (SAMDB_NP) and Tintinara Coonalpyn PWA (TINT_COON). All of the wells listed are in the unconfined Qpcb aquifer.

Water level data is available on the Department of Environment and Water (DEW) website. The address is www.waterconnect.sa.gov.au. The Obswell tab on the Groundwater Data page can be used to find records for each water well.

Obswell No.	Obswell Network	Field Name	Location / Property / Landholder	Date Drilled / dug	Total Depth (m)
SHK003	PEAKE		Sherlock	08/04/1987	10.50
SHK005	PEAKE		Moorlands	14/02/1991	11.00
SHK006	PEAKE		Buccleuch	07/08/1992	5.50
RBY003	PEAKE		Coomandook	14/03/1987	20.00
RBY004	PEAKE		Cooke Plains	unknown	2.14
RBY008	PEAKE		Hannah Well Rd	06/05/1949	13.72
RBY015	PEAKE		Coomandook town	12/04/2003	6.59
RBY016	PEAKE	CM1	Gas Pipeline Lane	19/10/2005	9.0
PEK003	PEAKE		Peake	08/08/1992	11.00
MAL002	SAMDB_NP		Ashville	26/09/1989	30.00
CLN001	SAMDB_NP		Malinong	04/12/1951	37.49
LVG001	TINT-COON		Netherton Road	09/04/1987	16.5

Photographs have been taken by DEW at each monitoring site in the network and are presented to display the site in context of the surrounding land use.



SHK003. Photo taken Monday, 15 December 2014. [Download](#)

SHK003 is on a reserve in Sherlock town



SHK005. Photo taken Thursday, 19 April 2018. [Download](#)

SHK005 located on a roadside



SHK006. Photo taken Monday, 15 December 2014. [Download](#)

SHK006 near an existing windmill & tank



RBV003. Photo taken Monday, 16 April 2018. [Download](#)

RBV003 is in a highly saline scald



RBV004. Photo taken Friday, 1 April 2016. [Download](#)

RBV004 is an old open well



Observation Well. Photo taken Monday, 8 October 2012. [Download](#)

RBV008 is an old abandoned well



Observation Well. Photo taken Monday, 8 October 2012. [Download](#)

RBY015 in the town of Coomandook



RBY016. Photo taken Monday, 16 April 2018. [Download](#)

RBY016 on Gas Pipeline Lane



PEK003. Photo taken Monday, 15 December 2014. [Download](#)

PEK003 is on a farm property



MAL002. Photo taken Wednesday, 18 April 2018. [Download](#)

MAL002 occurs in dune swale topography



Observation Well. Photo taken Monday, 8 October 2012. [Download](#)

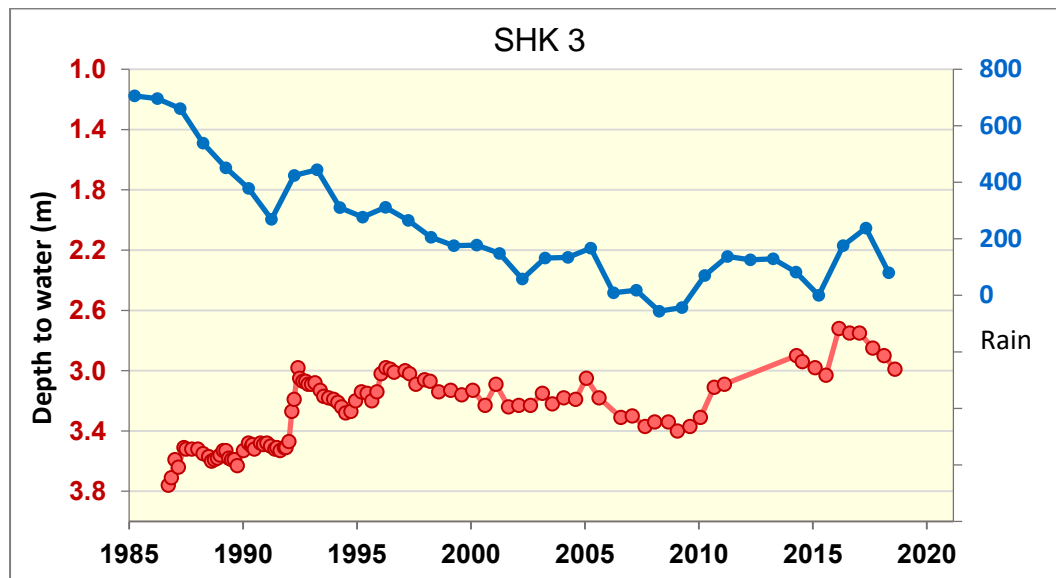
CLN001 is an abandoned bore / windmill



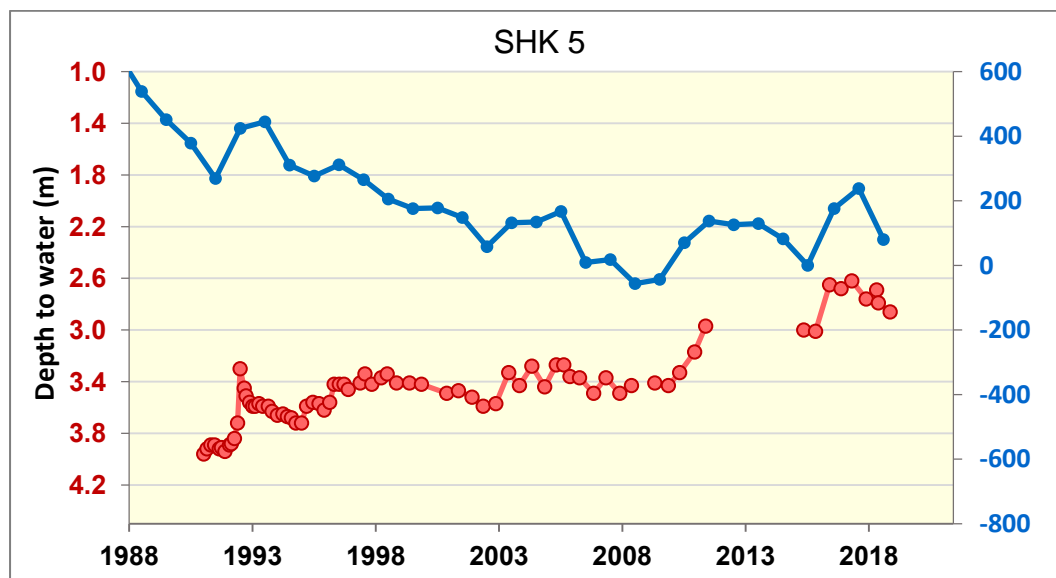
Observation Well. Photo taken Tuesday, 9 October 2012. [Download](#)

LVG001 on a roadside

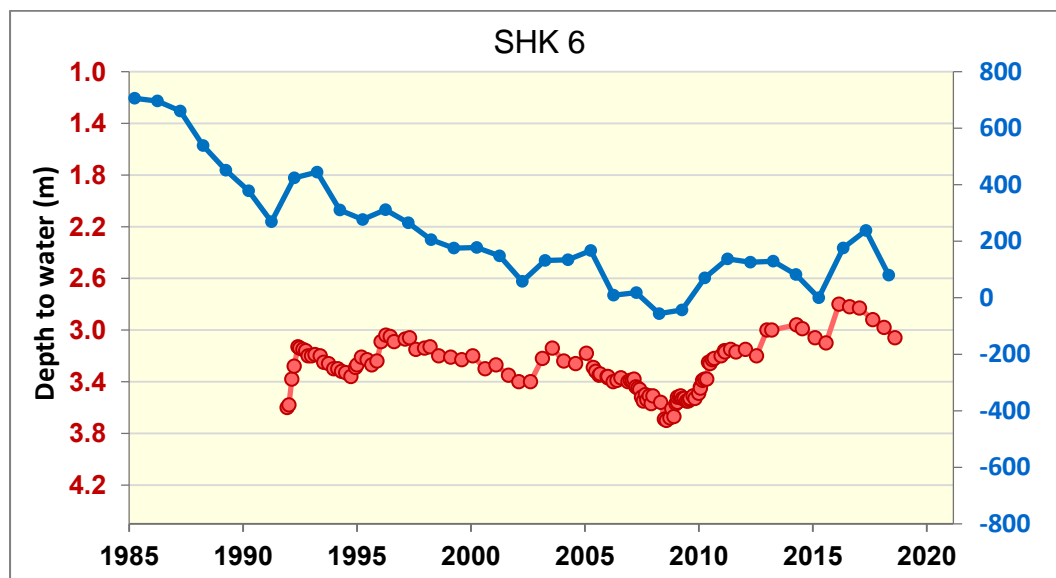
SHK003: This bore occurs on a road reserve in Sherlock town site and was drilled in April 1987 to a depth of 10.5m. The depth to water shows an overall rise in the period 1990 – 1997 followed by a static to falling trend up until 2010. There was another rising trend up until 2017 where the highest water level on record occurred. The trend can be summarised as an episodic rising trend. It shows large rises in depth to water for particular rainfall events which may be due to cemented layers causing a change in the aquifer porosity. The depth to water tends to mirror the residual accumulative rainfall trend except prior to 1990 where the rainfall curve was falling but groundwater levels were rising.



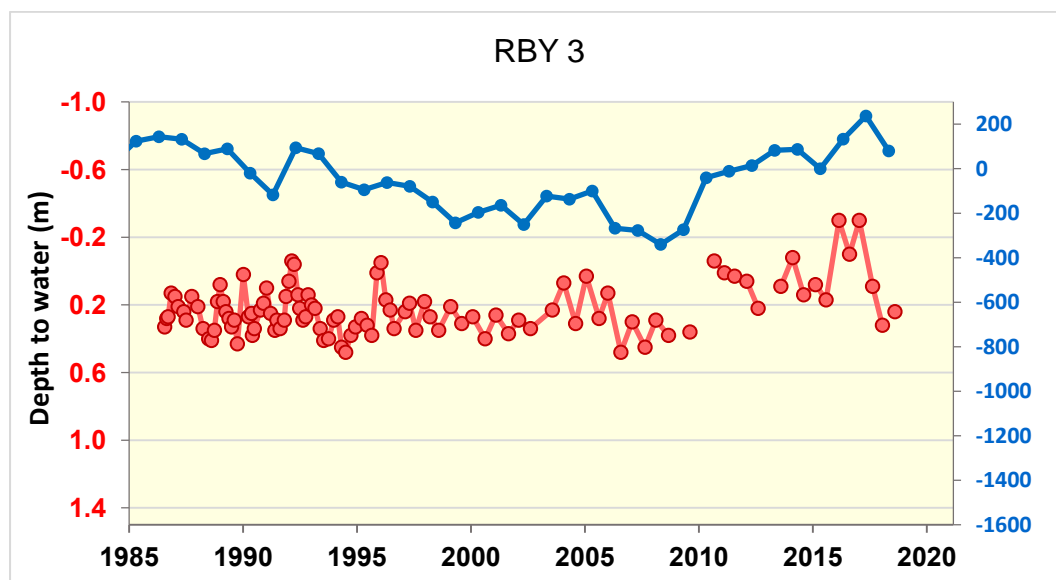
SHK005: This borehole was drilled in the Sherlock area in 1991 to 11m depth. The depth to water similarly displays an episodic rising trend with large responses observed in 1992 and 2009 to 2011. The very wet spring of 2016 resulted in the highest water level on record (NB: a gap in the record occurs between 20011 and 2015). The depth to water tends to mirror the residual accumulative rainfall trend except in the period from the mid-90s to 2010 where the rainfall curve was falling but groundwater levels were rising in this overall period.



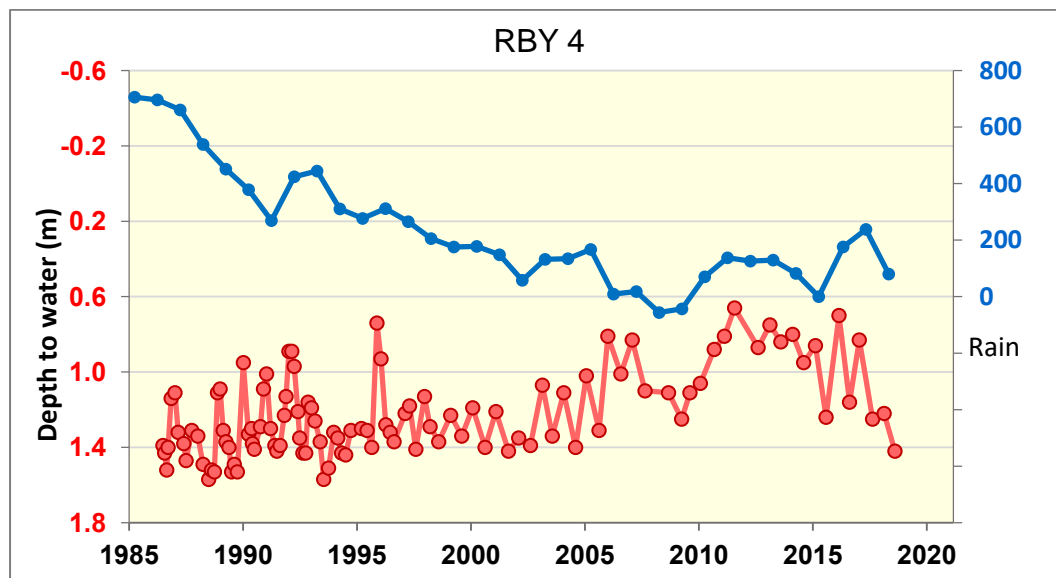
SHK006: This borehole was drilled in 1992 to 5.5m depth in the Sherlock area. Watertable rises are apparent in the wet seasons of 1992, 1996/97, 2004/05, 2010/11 and 2016. Watertable declines occurred in the dry years of 1993-95, 2002, 2006-09 and 2018/18. These rises and falls closely mirror the residual accumulative rainfall trend. The watertable has shown a continuous rise, rather than a spike in the period 2010 to 2015 and then reached its highest level on record in 2016. This significant episodic rise of the watertable provides a clue as to why dryland salinity re-emerged in the Coomandook area during 2017.



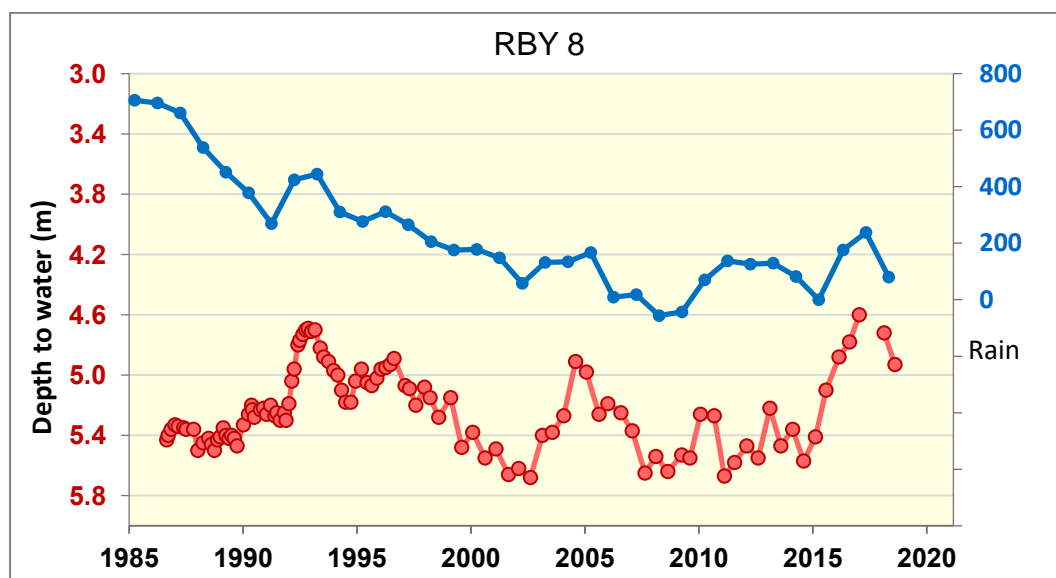
RBV003: This bore was drilled to 20m in 1987. It is located between Cooke Plains and Coomandook. The depth to water responses are very 'spiky' as the watertable is very close to the ground surface. The negative depth to water values indicate that the watertable rises above the surface following heavy rainfall. The hydrograph displays a typical winter / seasonal trend with annual highs and lows. There is an overall rising trend apparent from 2000 to 2018.



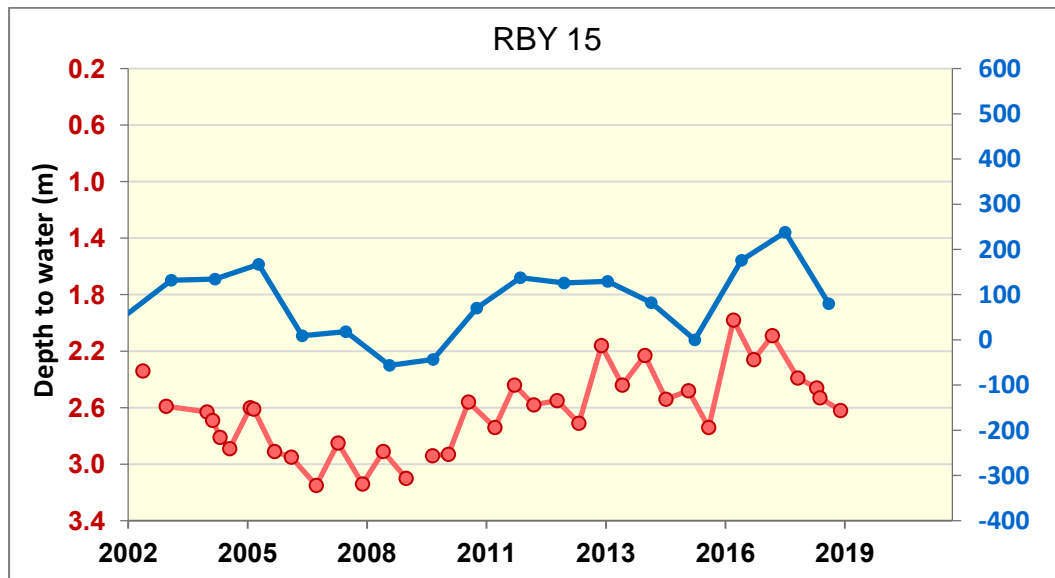
RB004: This is a narrow diameter (0.5m) hand dug well to a depth of 2.14m in calcrete rock. It is located southeast of Cooke Plains and has a monitoring record going back to 1987. As the watertable is very shallow it is expected to show strong seasonal fluctuations (winter spikes). As the watertable is within 1.5m of the soil surface, the surrounding area could be expected to be impacted by soil salinity. It goes against the long term rainfall trend which has been falling but the shallow watertable shows an overall rising trend with time.



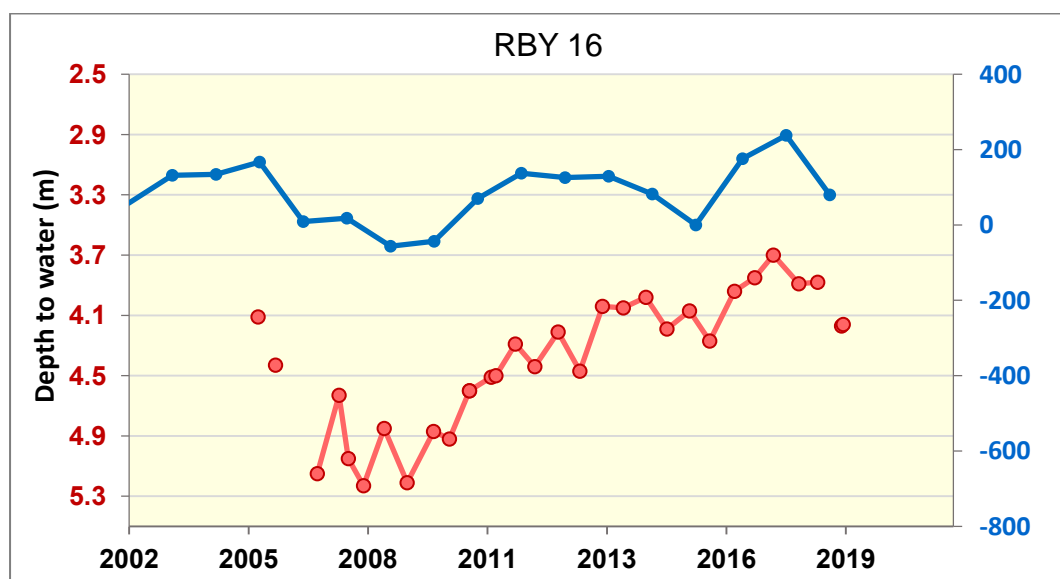
RB008: Is located on Hannah Well Road just west of Coomandook. The old disused windmill still stands over a hand dug well which is 1.5m in diameter. The well has a continuous record going back to 1987. Again, there is a reasonably good match between rainfall and watertable level trends. There was a significant watertable rise of +1.0m between 2015 and 2017 reflecting the high amount of rainfall experienced during this period.



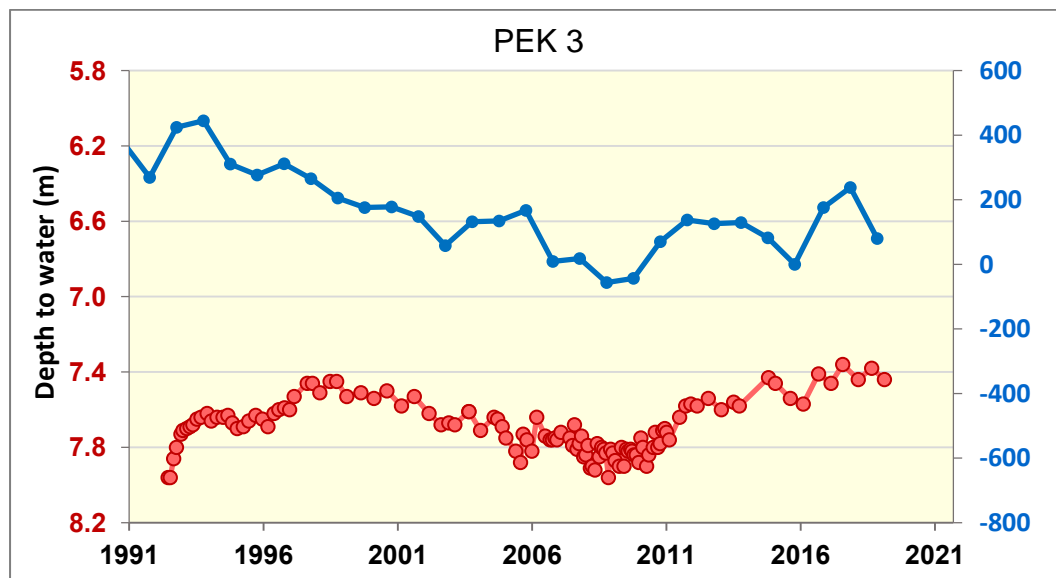
RB015: This site is located in the town of Coomandook opposite the general store. The bore was drilled by the then Dept. of Mines and Energy to a total depth of 6.6m. The purpose was to investigate damage to grain silos from shallow saline groundwater. The bore could be considered as a 'control site' that reflects the surrounding agricultural land. Depth to water level shows a falling trend (-0.8m) from 2004 to 2008 but with a 'spike' in 2005 reflecting a wet winter. There is a rising trend (+1.2m) from 2010 to 2017. Seasonal peaks and troughs are to be expected as the watertable gets closer to the ground surface.



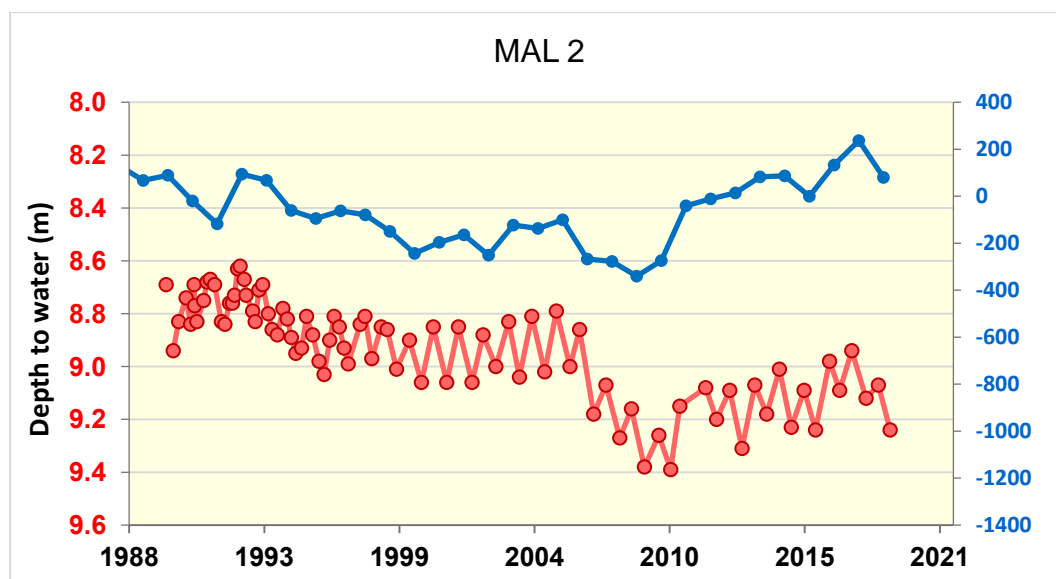
RB016 (CM1): This monitoring obswell was drilled in October 2005 to 9m depth. It is located on private property adjacent, Gas Pipeline Road and was intended to monitoring a stand of newly established Lucerne. Topographically it occurs in a swale at base of large sand dune. The borehole was rehabilitated in June 2007 as the PVC riser tube had snapped off at ground level. A new reference point was made in April 2017 with the riser tube at 0.80m above ground. A falling trend (minus 1.3m) occurs from 2006 to 2009 but with seasonal 'spikes' reflecting larger rainfall events during this period. A continually rising trend (+1.6m) then occurs from 2009 to 2017.



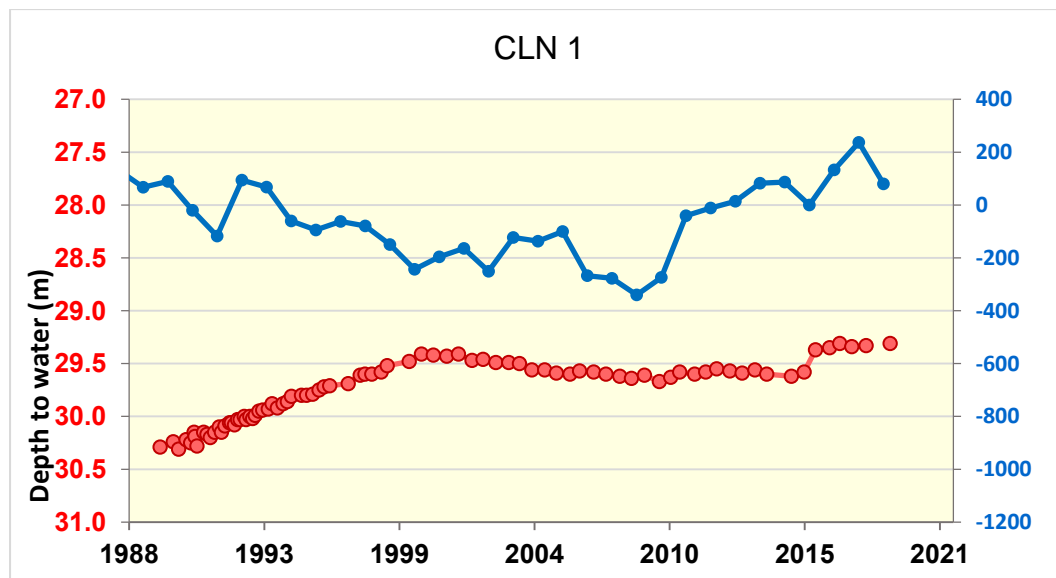
PEK003: This bore was drilled to 11m depth in 1992 and is located east of Coomandook. The borehole shows a general rise from 1994 to 1998 followed by a continuous fall from 1998 to 2010 (which reflects the falling rainfall trend). The 2010/11 summer rainfall event kicked off a continuous / episodic rise from 2010 until the present, reinforced by the 2016 high rainfall event. Seasonal responses (spring rise, autumn fall) are superimposed upon the longer term trends. This site was intensively monitored between 2007 and 2011 as indicated by the 'cramped' data points.



MAL002: This site is located relatively close to Lake Alexandrina and near the swamps surrounding the lake. The borehole was drilled to 30m depth in 1989. Depth to water levels show marked annual seasonal fluctuations of around 1 – 2m superimposed upon longer term trends resulting from wet and dry seasons. A low point reflects the 2006 – 2009 drought with high points reflecting wet seasons in 1992, 2005, 2010-11 and 2016. Overall, there was a general fall from 1993 until 2010, followed by a general rise from 2010 to 2018. This closely reflects the residual rainfall trends during those periods. For further details of surface water / groundwater interactions, see Appendix C.



CLN001: Located at Malinong, this borehole was drilled to a depth of 37m in 1951. Regular monitoring commenced in 1989. The watertable rose by 2.6m between 1951 and 1989 (not shown on graph due to a large data gap). It continued to rise by another 0.9m up until 2000. Since then the trend has been relatively stable with seasonal rises and falls. However there was a significant rise following the large 2016 rainfall event in spring.



LVG001: Located on Netherton Road, east of Coomandook, this borehole was drilled to 16.5m in 1987. It indicates a continuously rising trend with minor seasonal peaks and troughs. The jump-up spike in 2005/06 indicates a change in the reference point as a protective standpipe was installed above ground level (see photo). The depth to water level is almost a reverse image of the rainfall cumulative deviation suggesting that in this case groundwater is still responding to the clearing of native vegetation with the time lag being quite substantial. The total rise between 1987 and 2018 is 2.7m indicating a rise of 0.09m/year.

