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## Memo

**Date** 24 March 2014  
**To** John Ross - Manager Hydrogeology: AGL Upstream Investments Pty Ltd  
**From** James Duggleby  
**Ref** 2201007A-GGP-FY-Q3 RevA  
**Subject** Gloucester Gas Project - FY14 Q3 Monitoring Update - March 2014

The following presents updated hydrographs for all Gloucester Gas Project groundwater monitoring bores and hydrograph and salinity traces for surface water monitoring sites for the period to March 2014. Full analysis and discussion of these results will be presented in the comprehensive 2014 Annual Report which will detail all groundwater and surface water level and quality results from the 2013/14 monitoring period (to be submitted September 2014).

For the period:

- The low level logger at TSW01 has malfunctioned and will be replaced in mid-March 2014.

**Figures 1 - 6: Groundwater hydrographs for Stage 1 and 2 nested monitoring bore sites**

**Figure 7: Surface water levels and EC comparison of all monitoring sites**

**Figures A-1 – A-31: Individual Stage 1 groundwater monitoring bore hydrographs**

**Figures A-32 – A-37: Individual Stage 2 groundwater monitoring bore hydrographs**

**Figures A-38 – A-45: Individual surface water level and EC monitoring hydrographs**

**Figures A-46 – A-48: PL03 (Pontilands) Vibrating Wire Piezometer hydrographs**

**Table 1** shows quarterly shallow gas monitoring results from TGMB01 and TGMB02 on the Tiedman property.

Yours sincerely



**James Duggleby**  
Senior Hydrogeologist  
Parsons Brinckerhoff

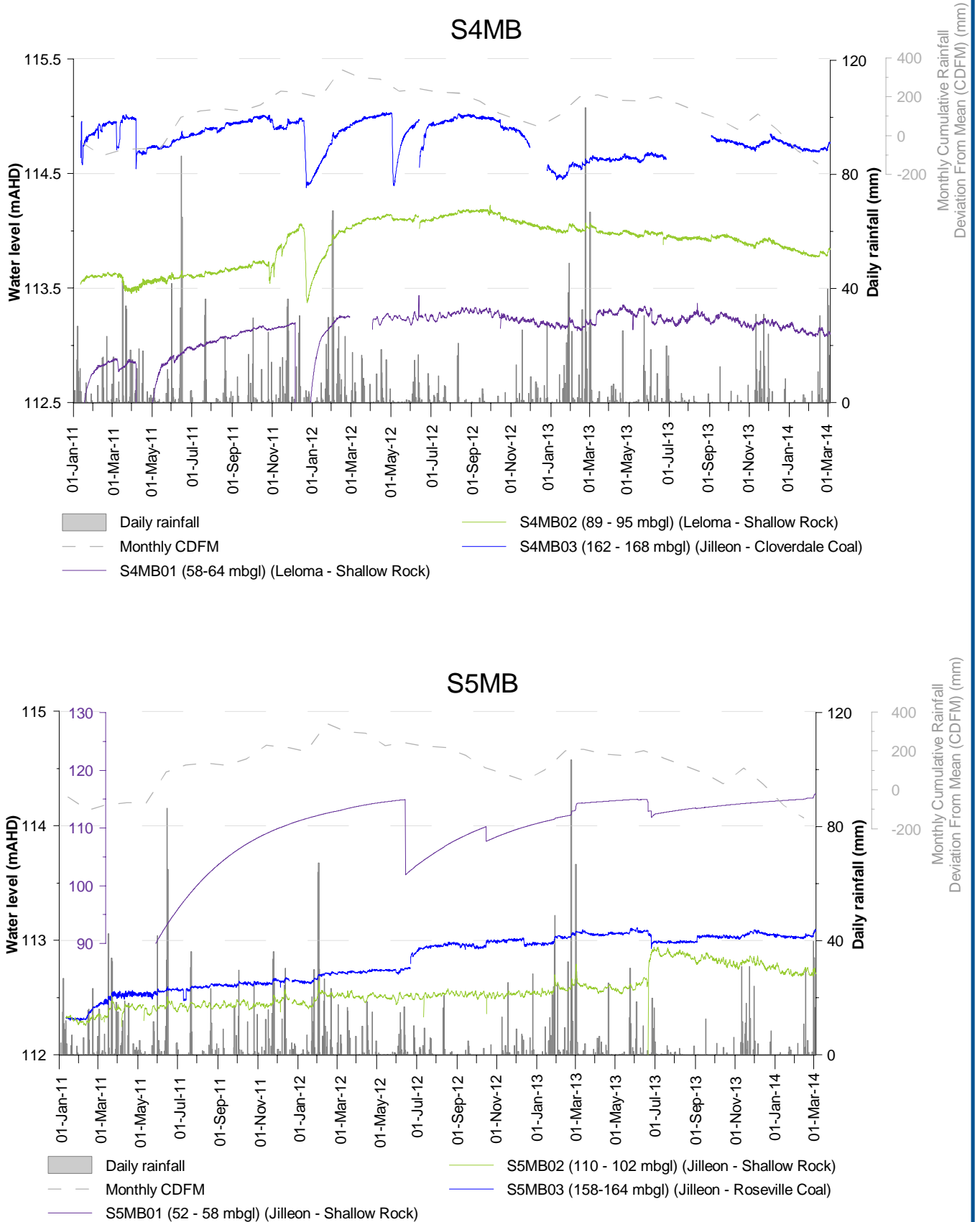


Figure 1: S4 and S5 monitoring bores

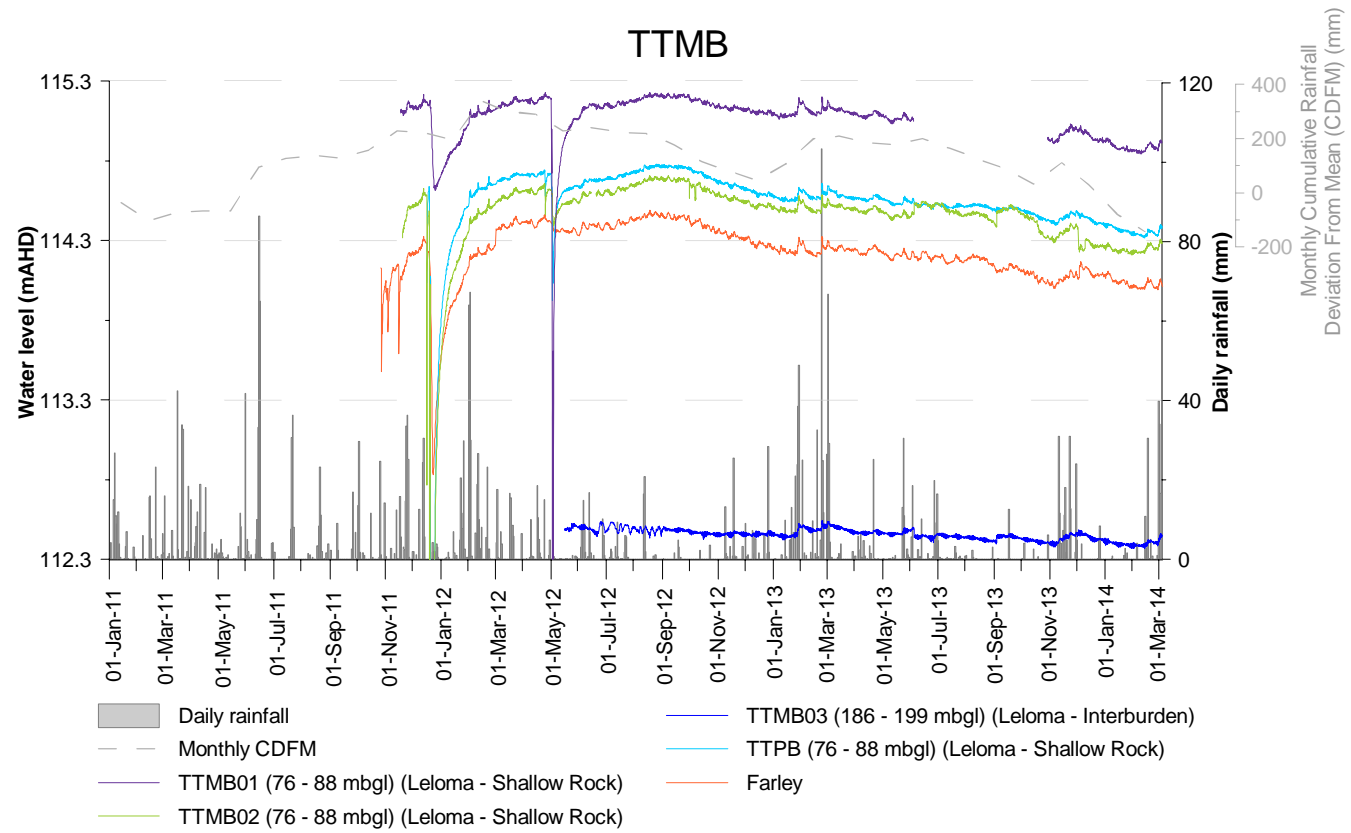
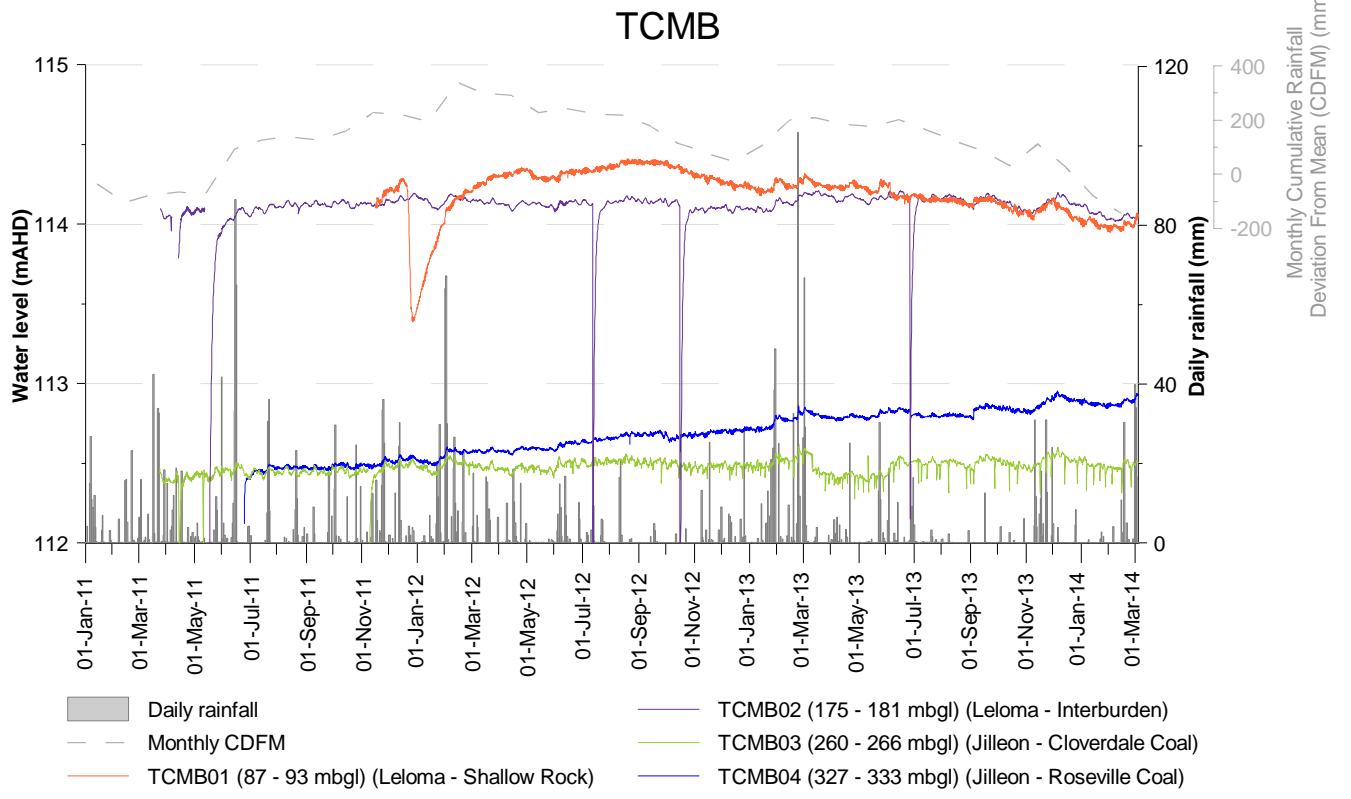


Figure 2: TCMB and TTMB monitoring bores

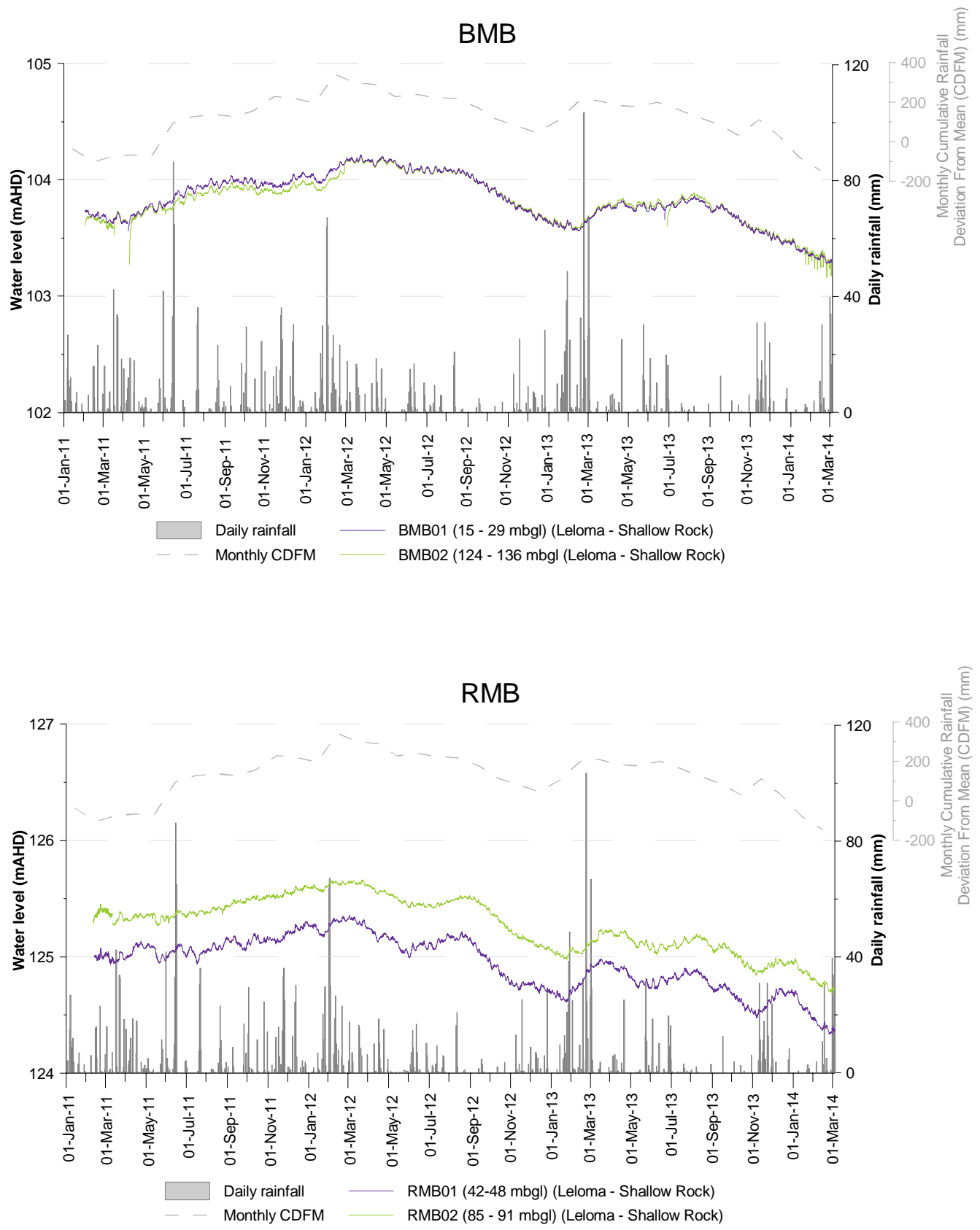


Figure 3: BMB and RMB monitoring bores



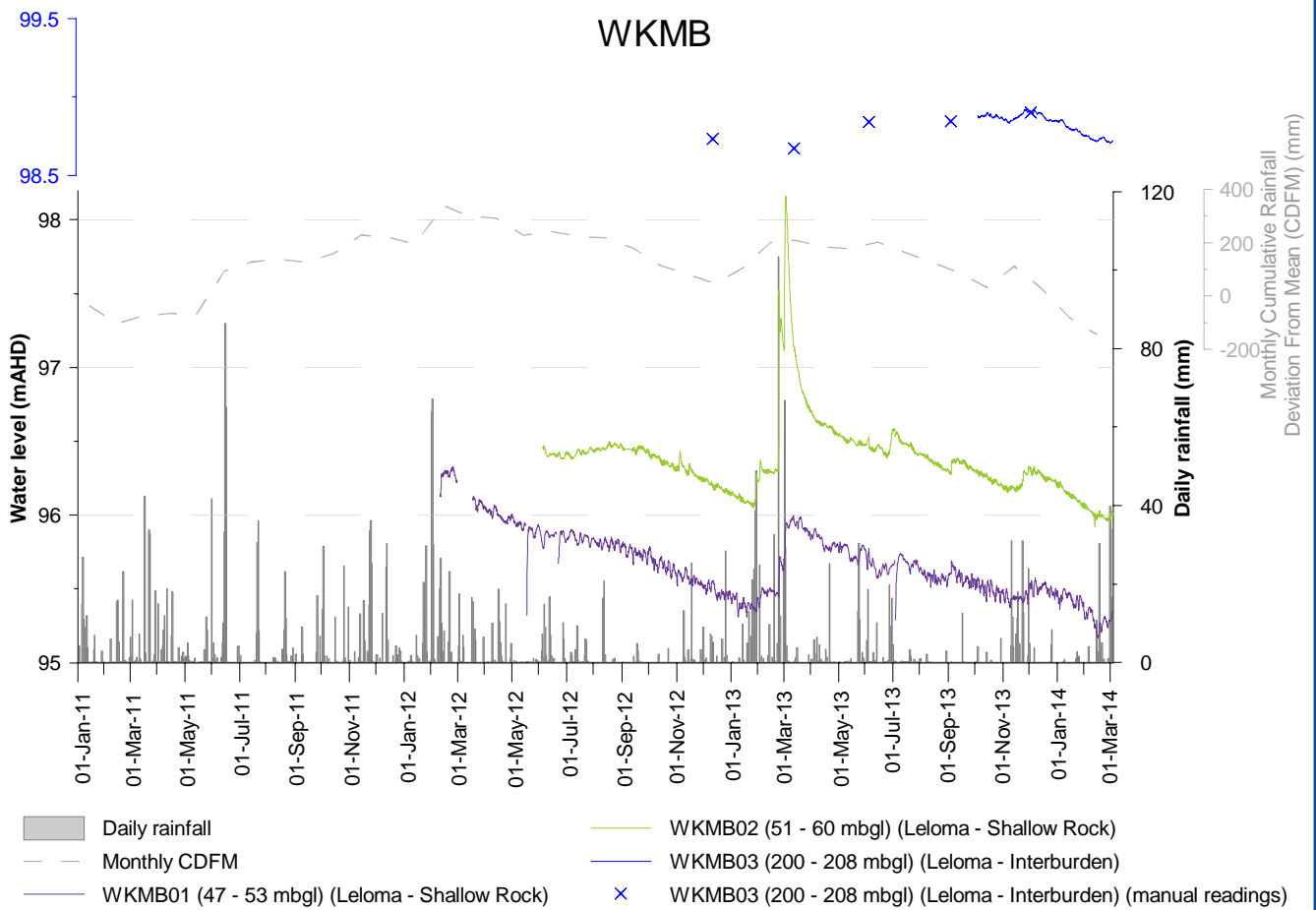
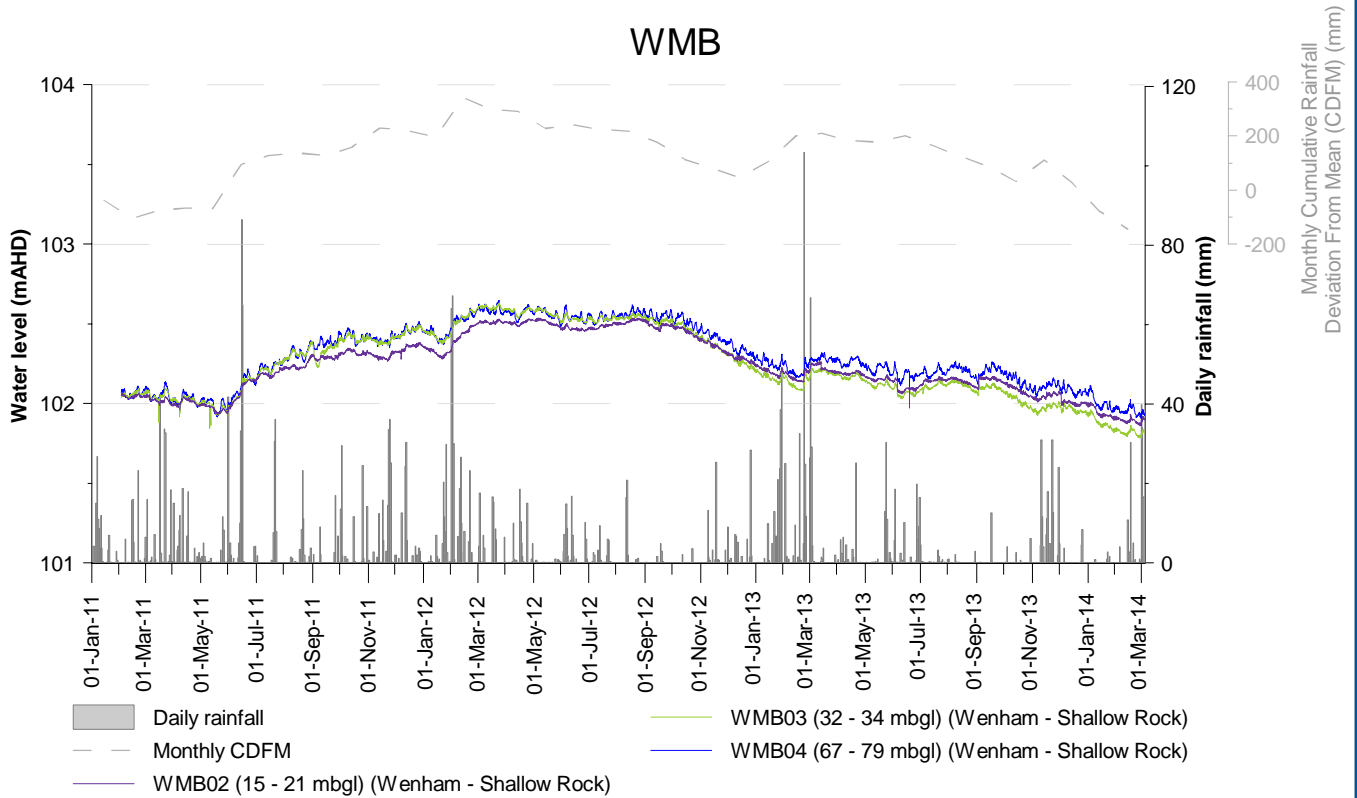


Figure 4: WMB and WKMB monitoring bores

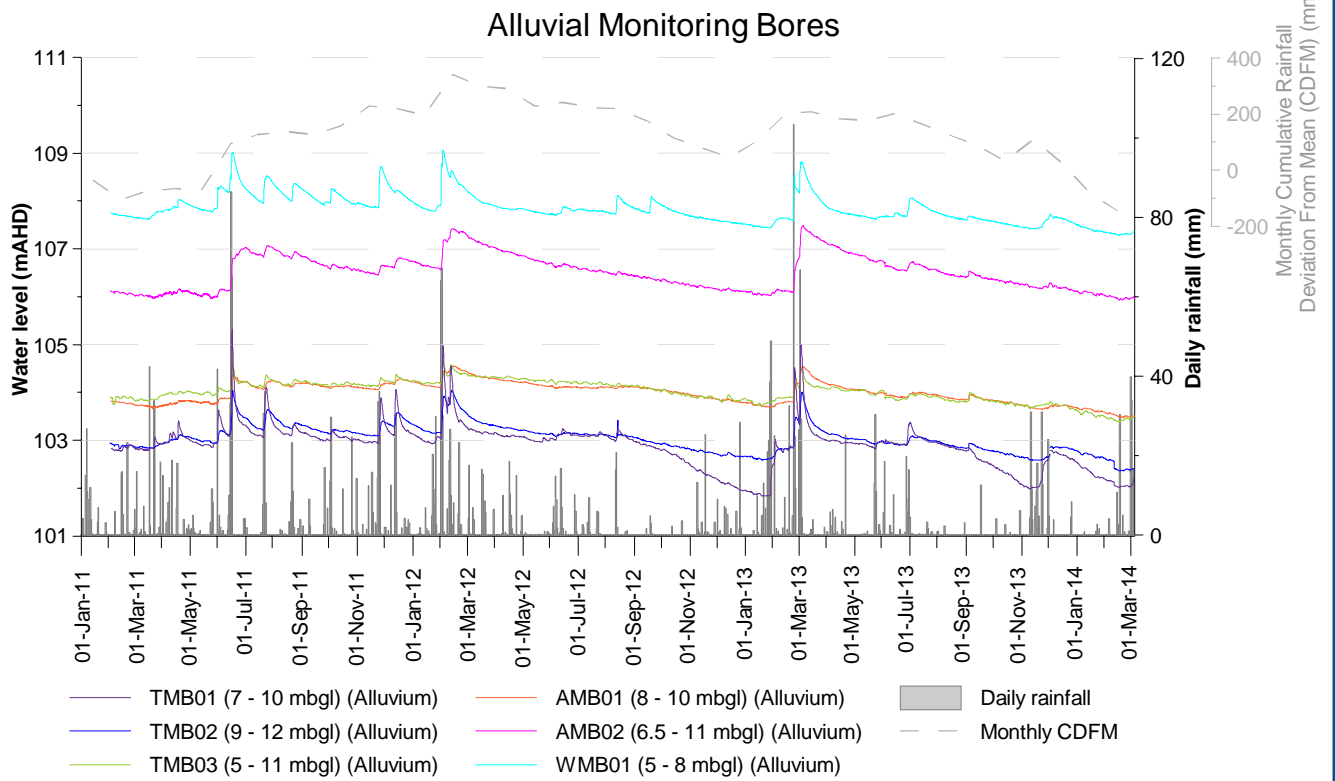


Figure 5: Alluvial monitoring bores

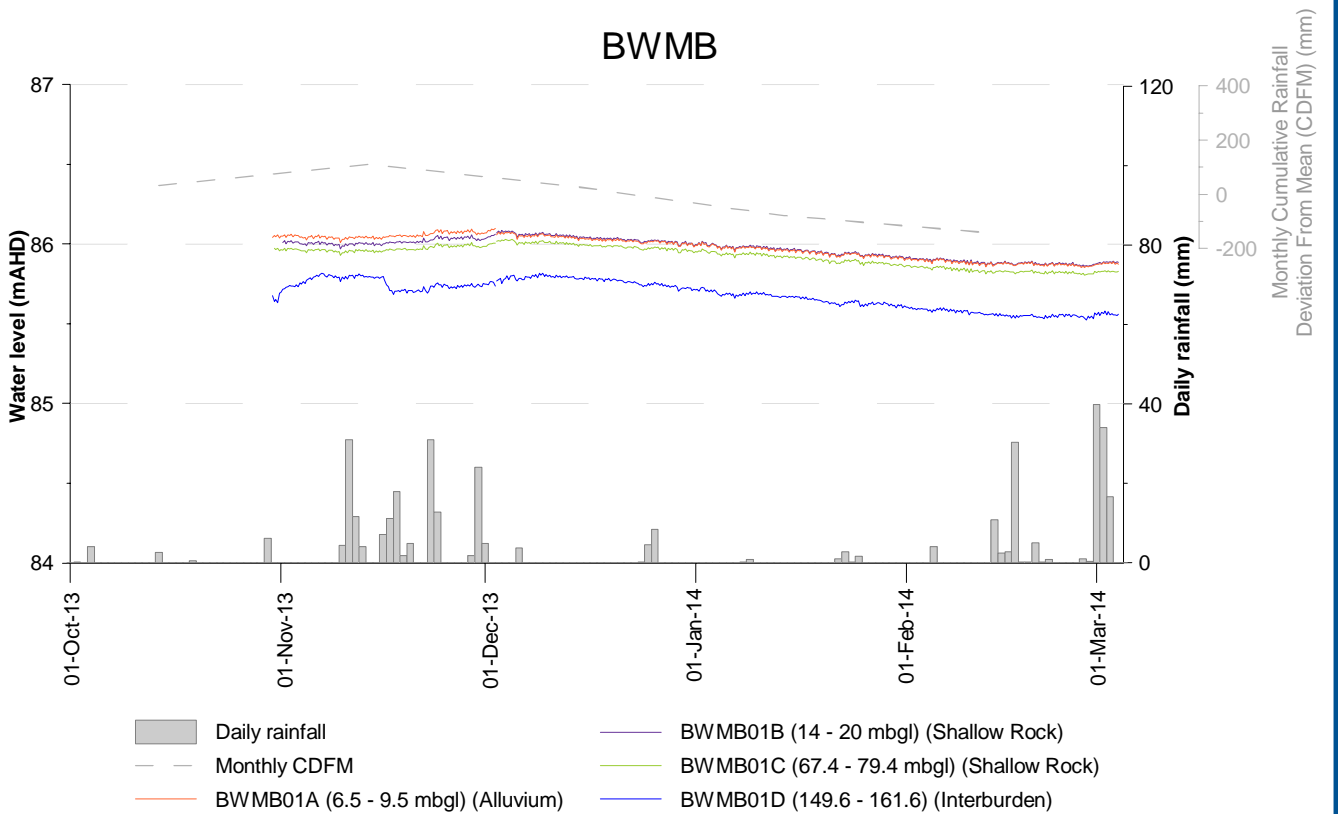
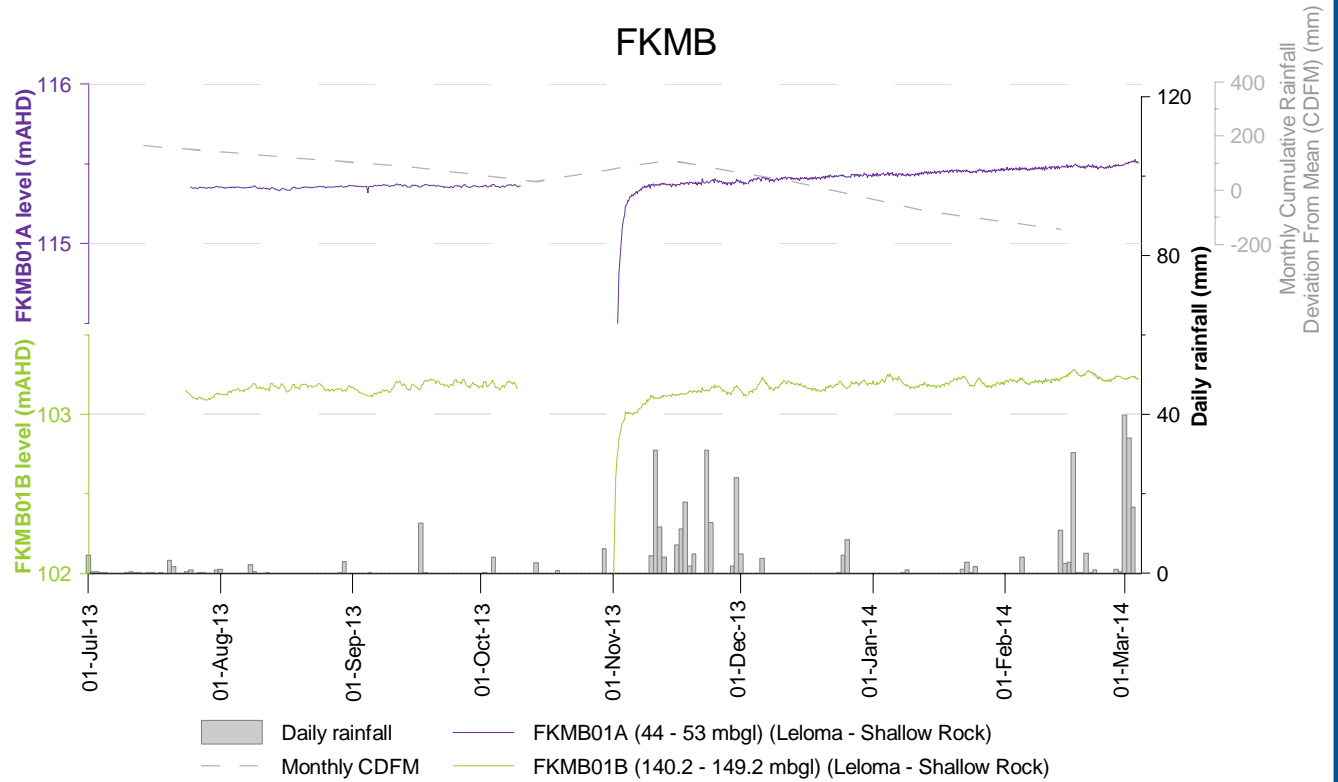


Figure 6: FKMB and BWMB monitoring bores

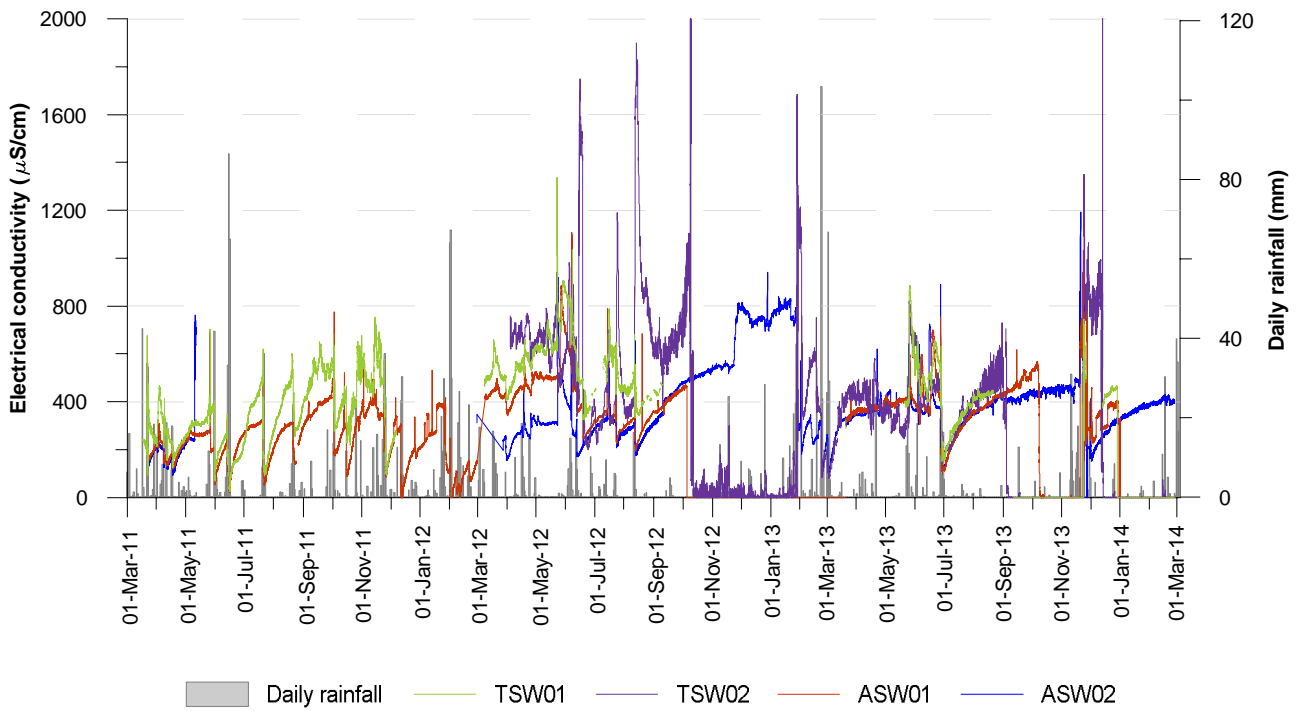
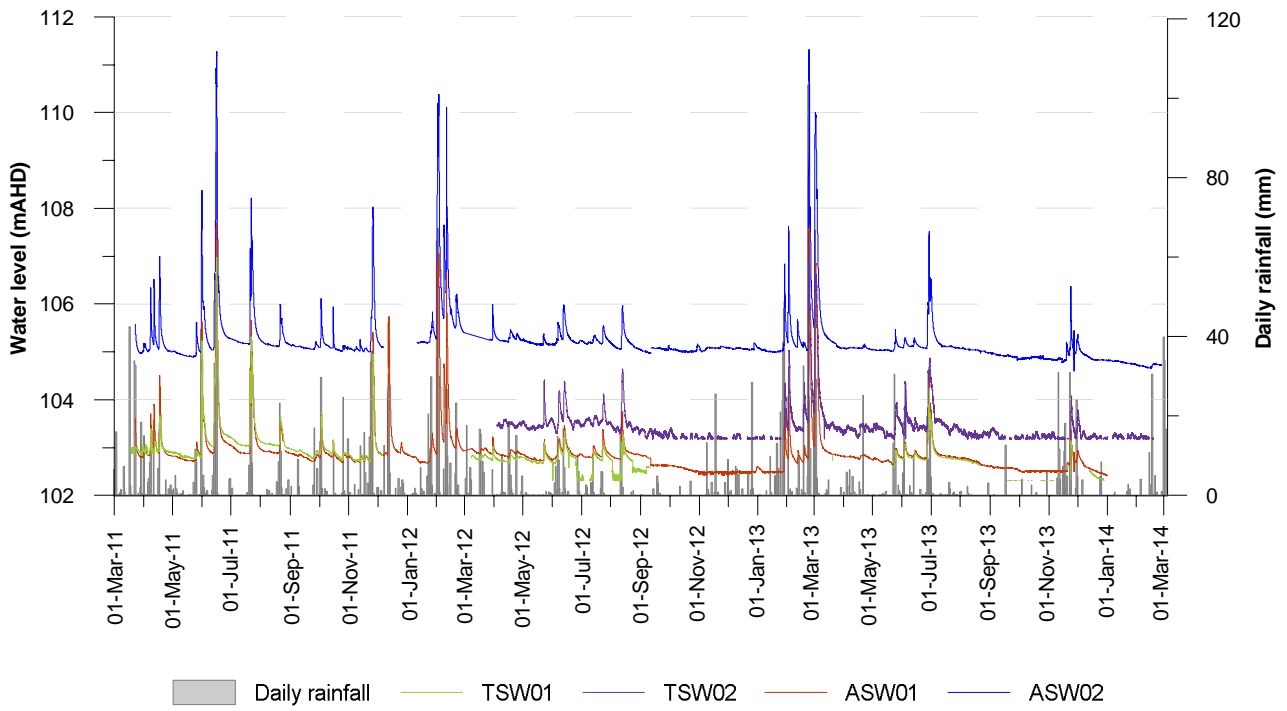


Figure 7: Surface water levels and EC

Figure A-1 Groundwater levels and rainfall TMB01

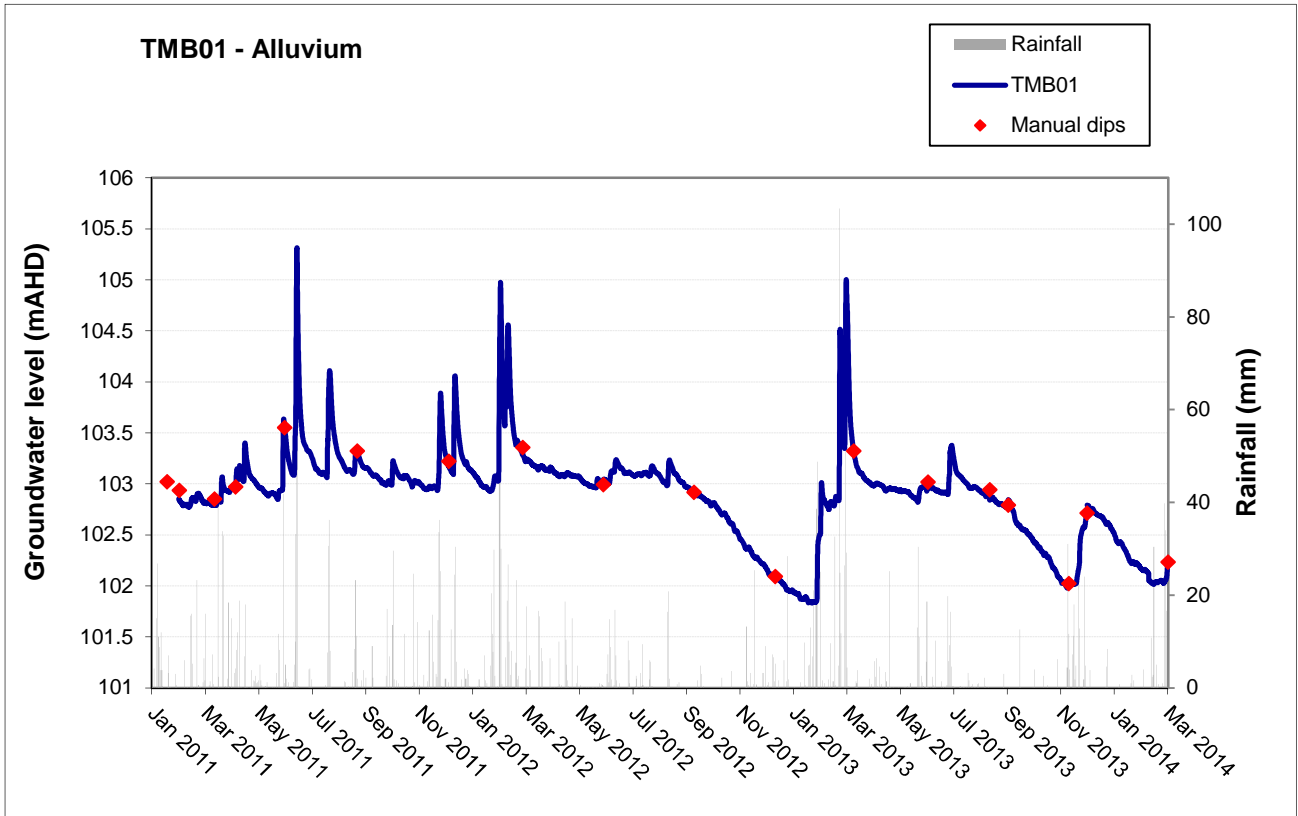


Figure A-2 Groundwater levels and rainfall at TMB02

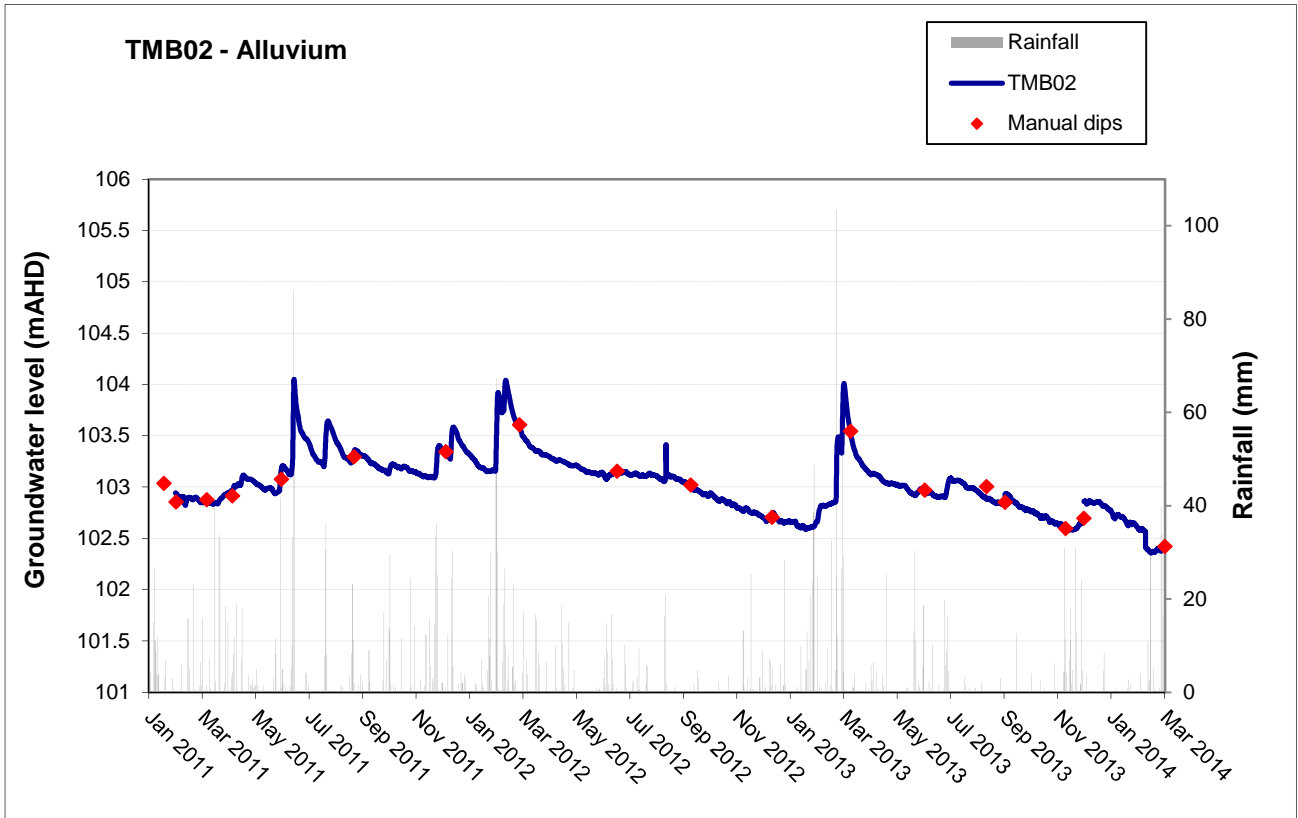


Figure A-3 Groundwater levels and rainfall at TMB03

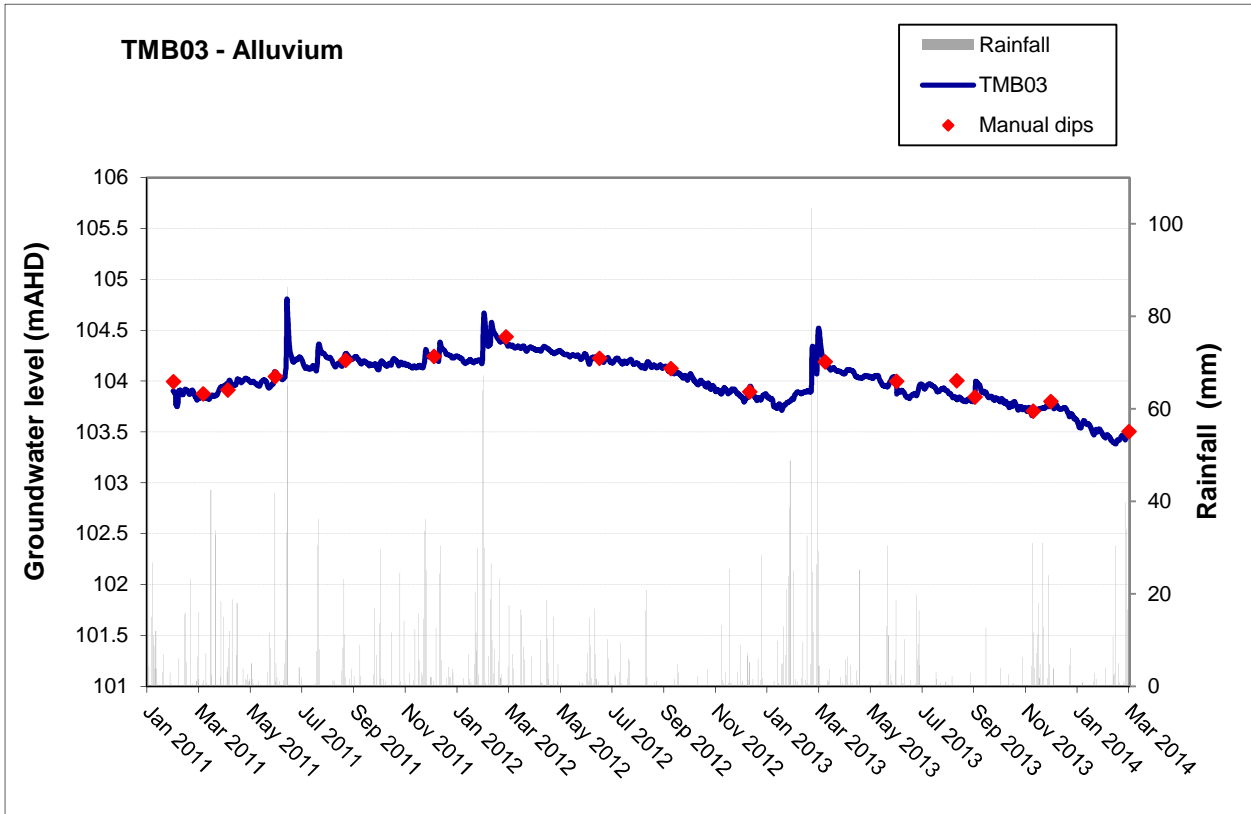


Figure A-4 Groundwater levels and rainfall at AMB01

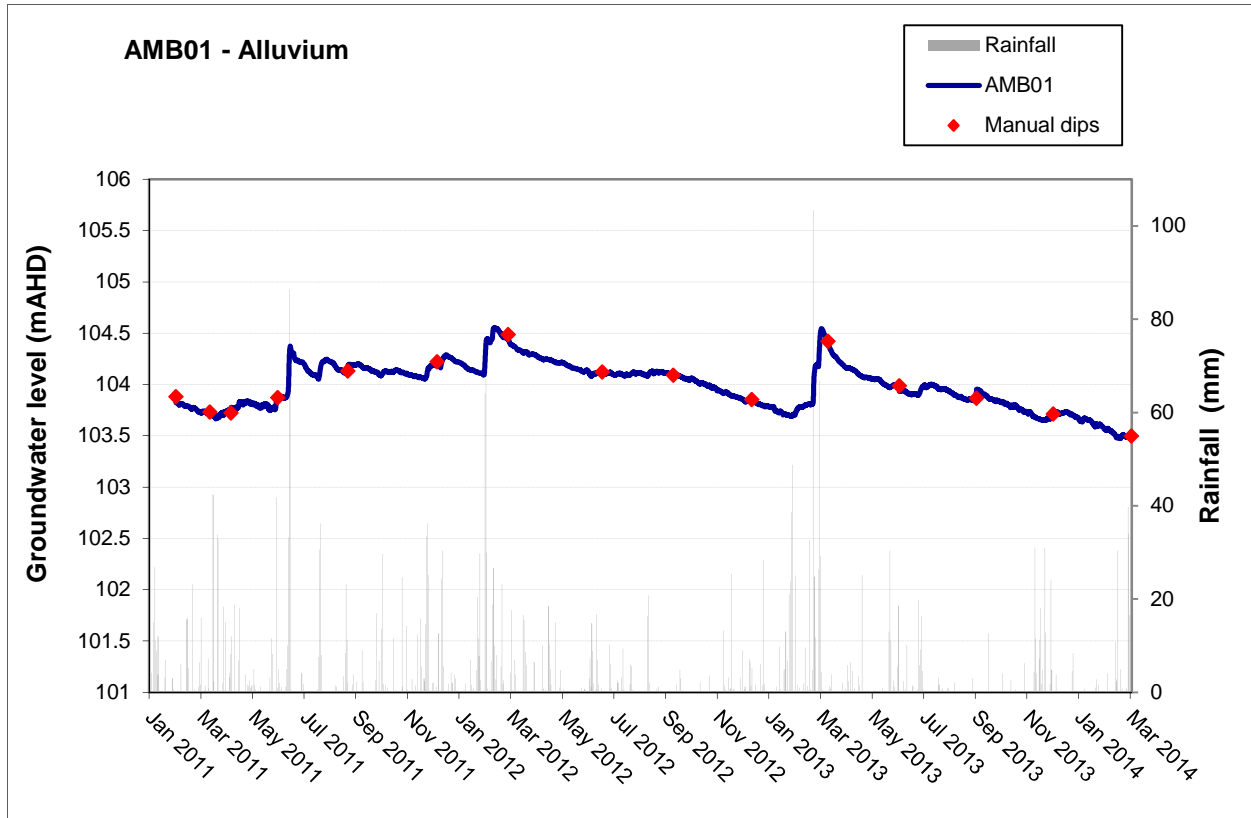


Figure A-5 Groundwater levels and rainfall at AMB02

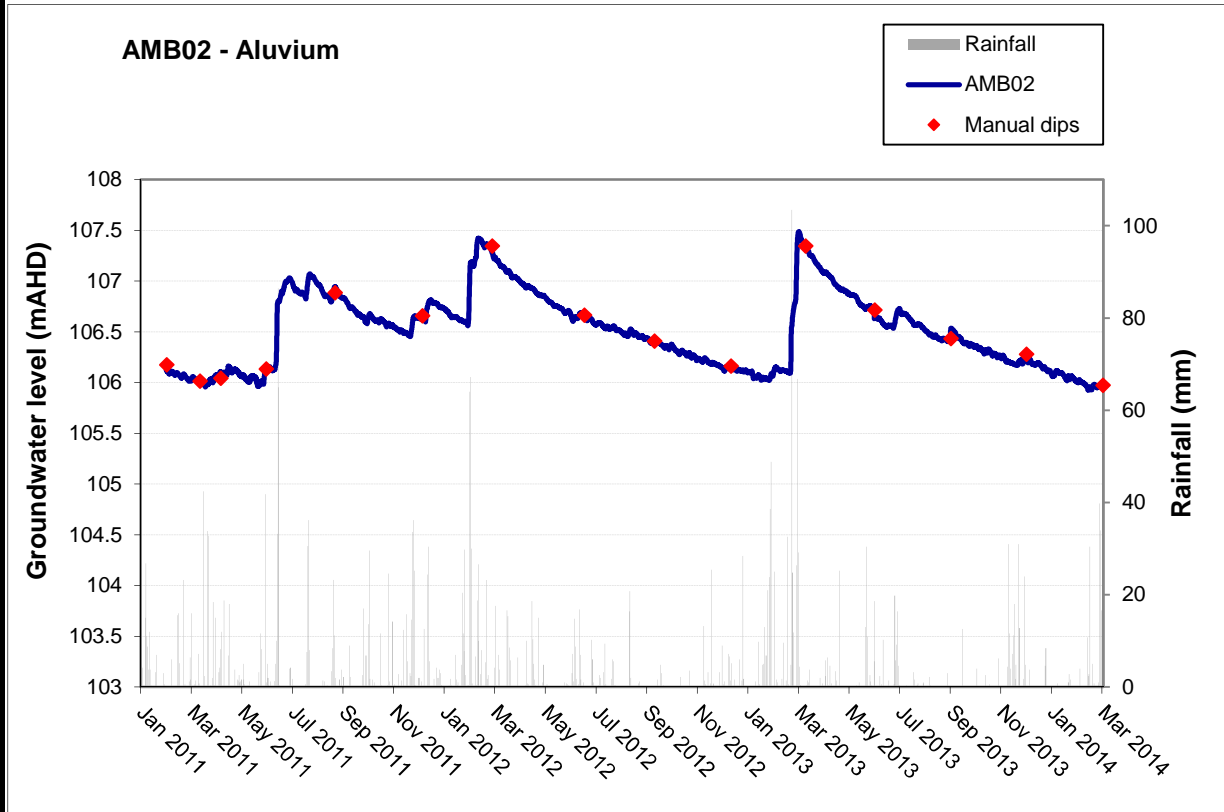


Figure A-6 Groundwater levels and rainfall at S4MB01

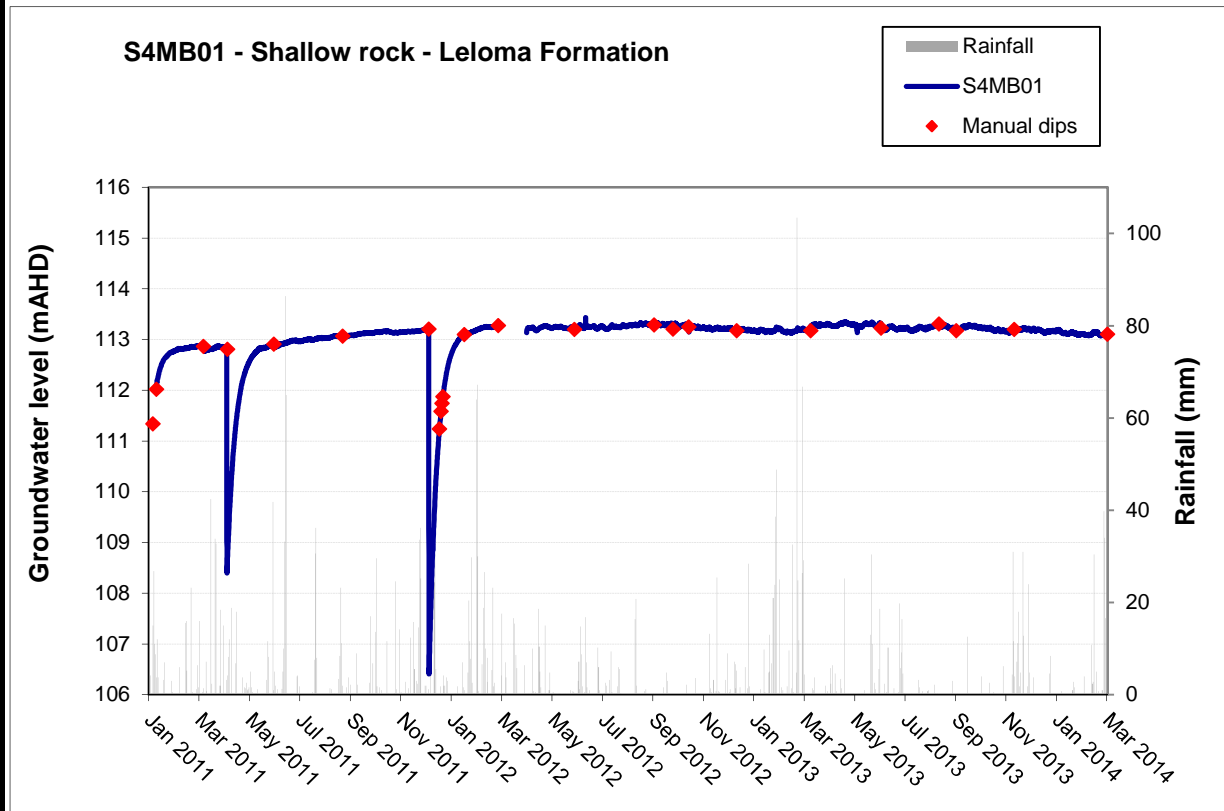


Figure A-7 Groundwater levels and rainfall at S4MB02

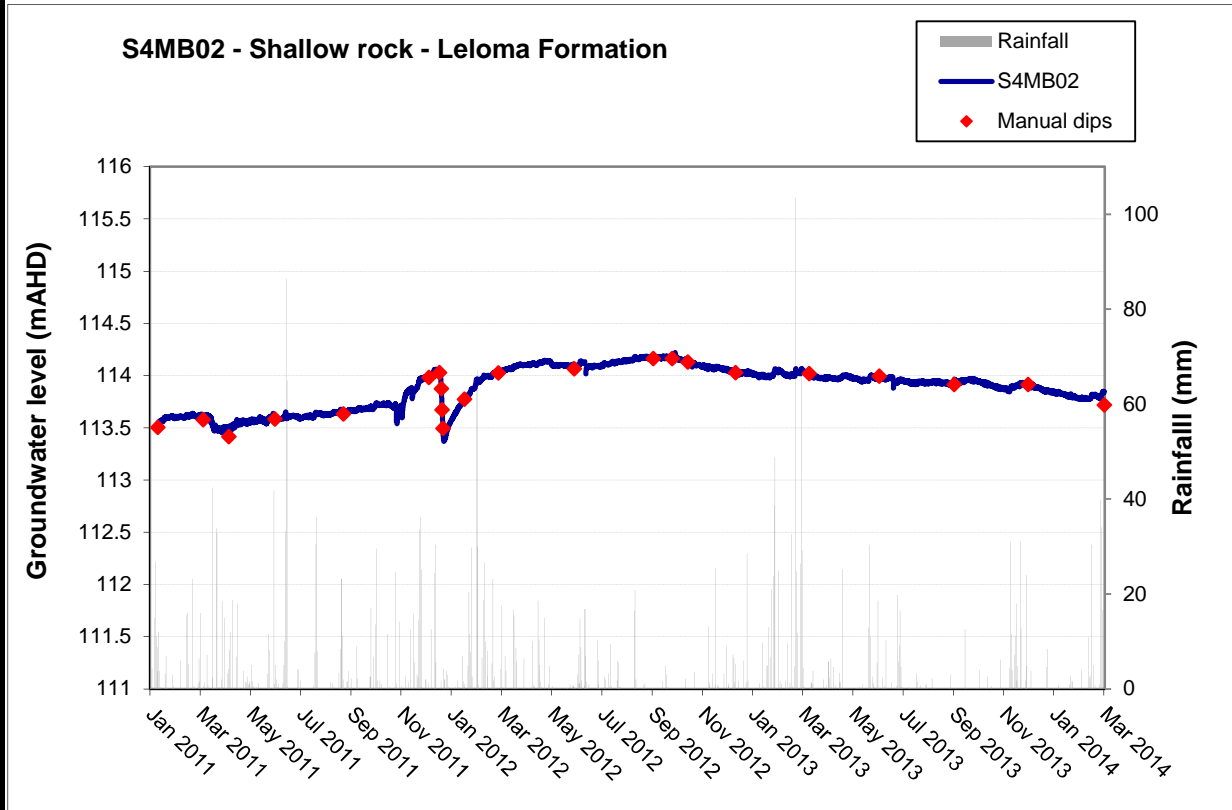


Figure A-8 Groundwater levels and rainfall at S4MB03

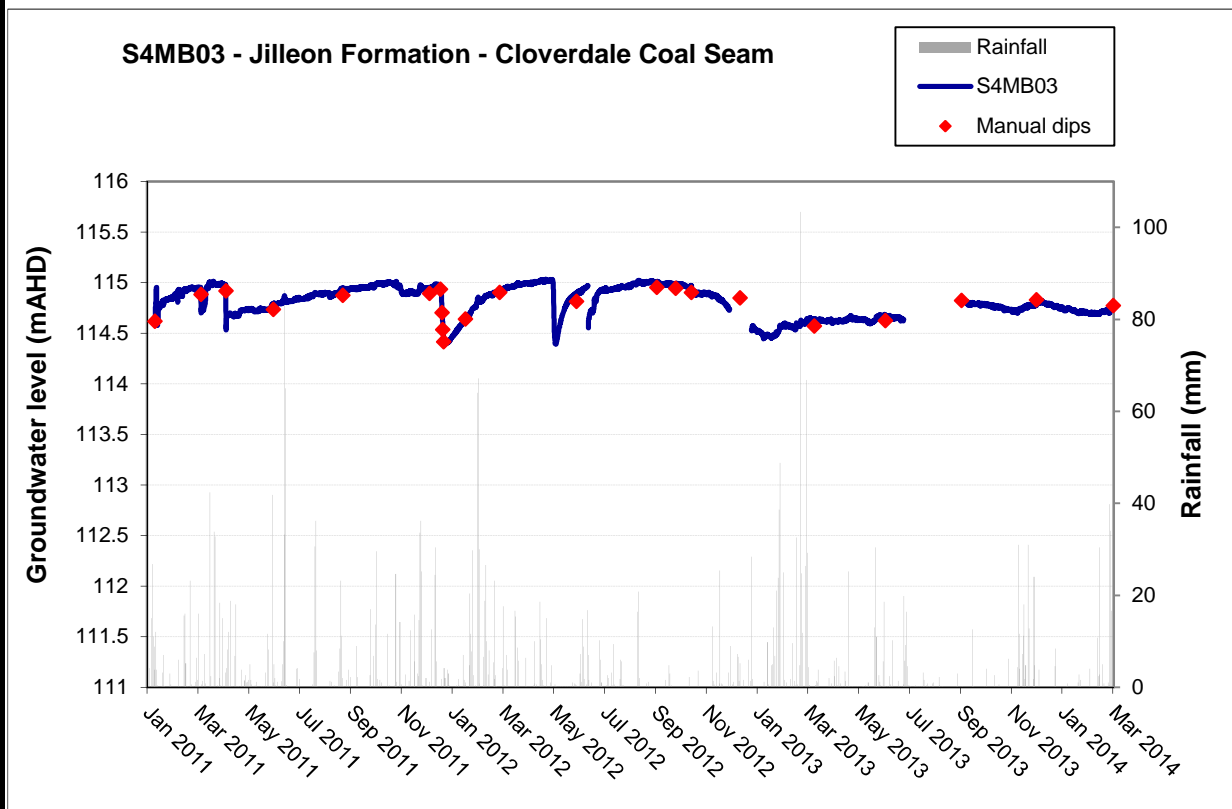




Figure A-9 Groundwater levels and rainfall at S5MB01

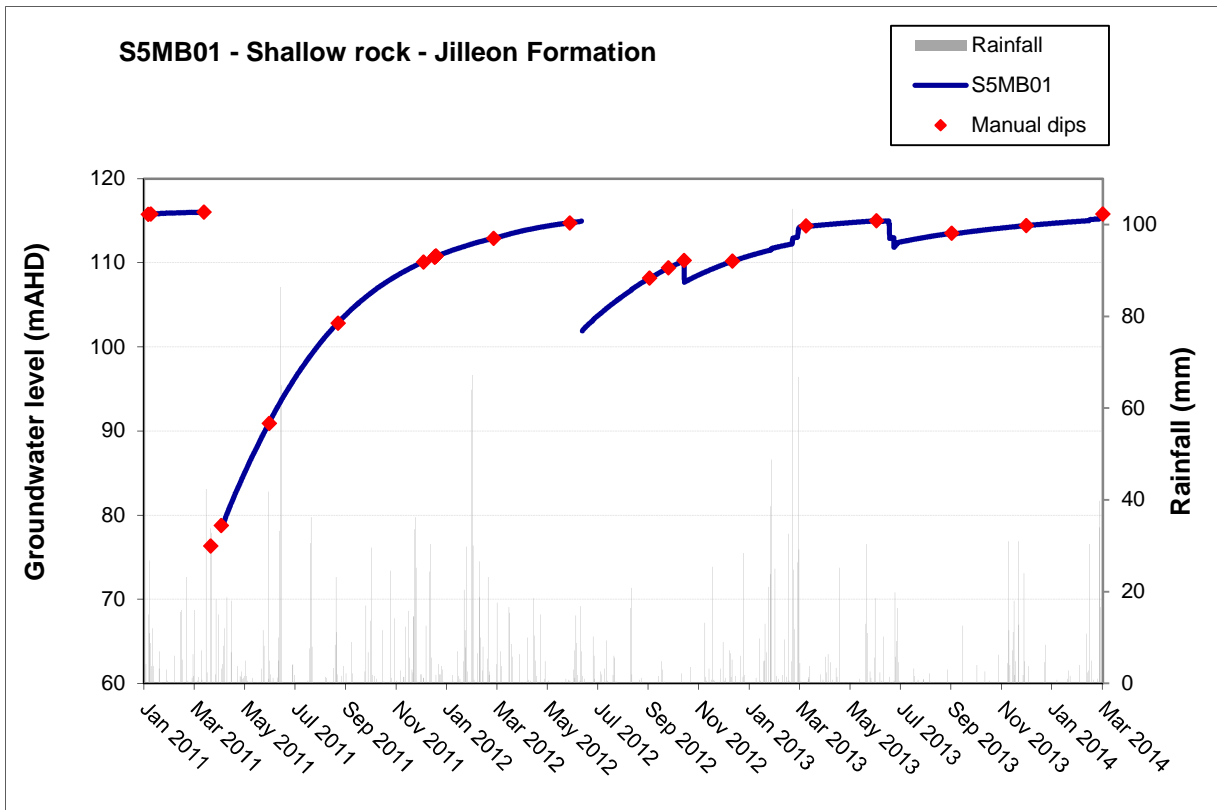


Figure A-10 Groundwater levels and rainfall at S5MB02

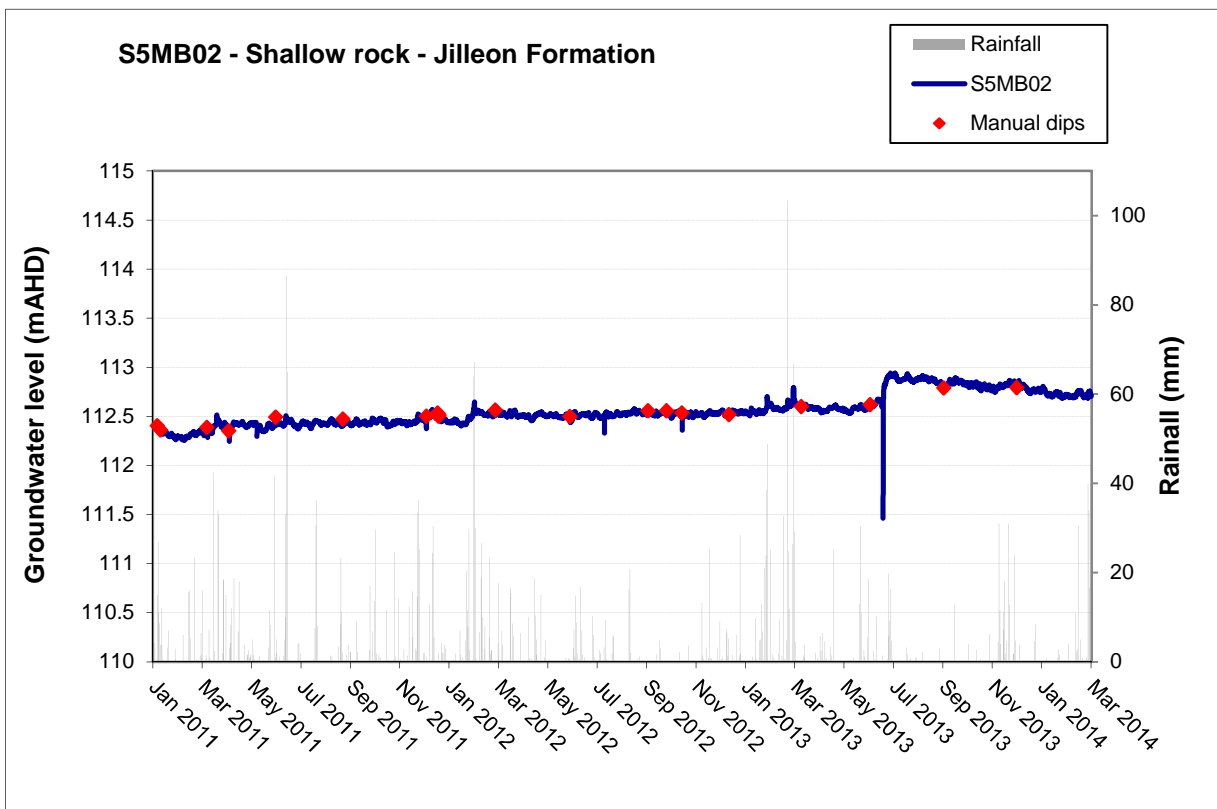


Figure A-11 Groundwater levels and rainfall at S5MB03

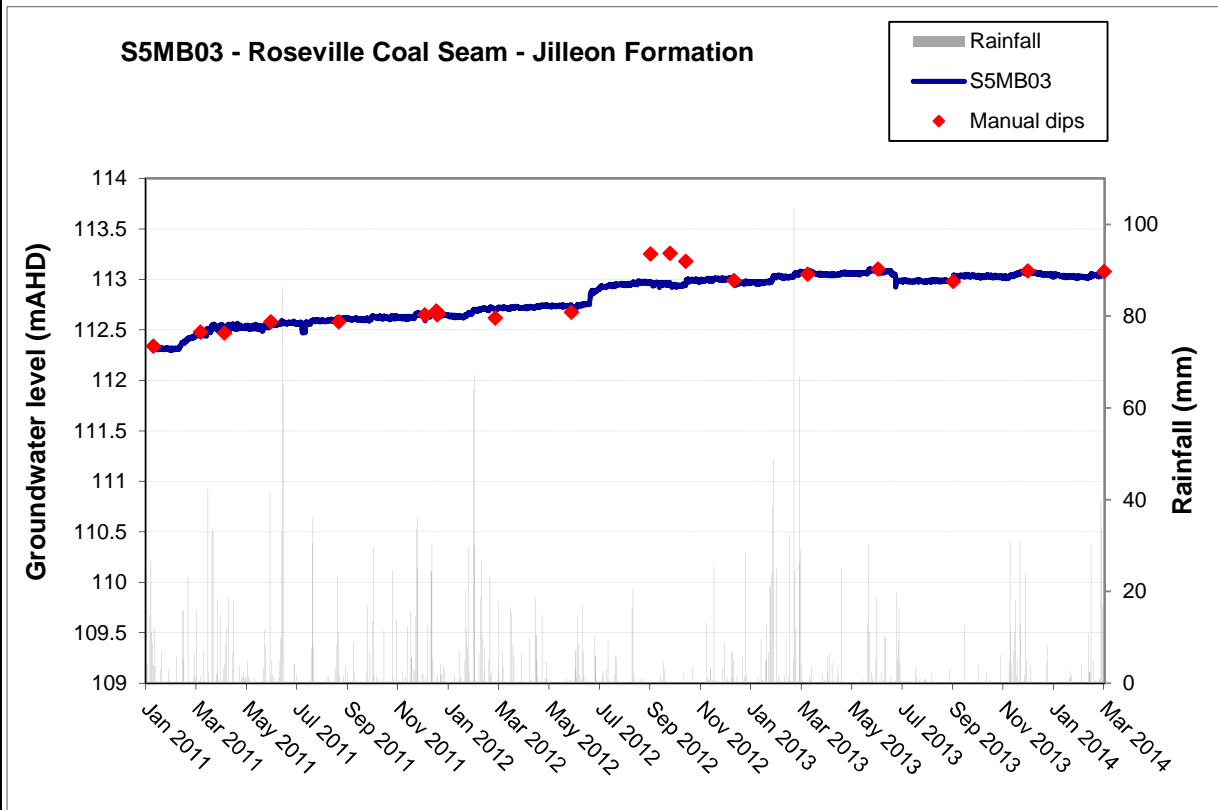


Figure A-12 Groundwater levels and rainfall at WMB01

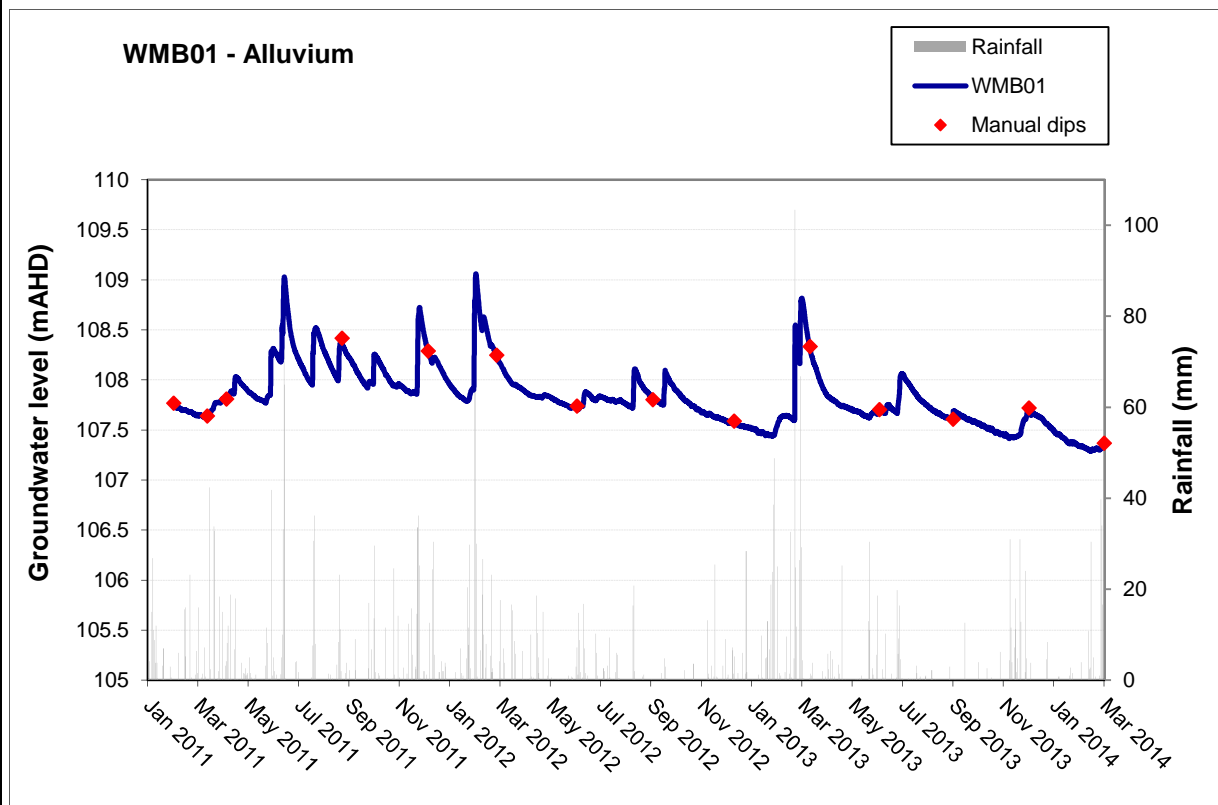


Figure A-13 Groundwater levels and rainfall at WMB02

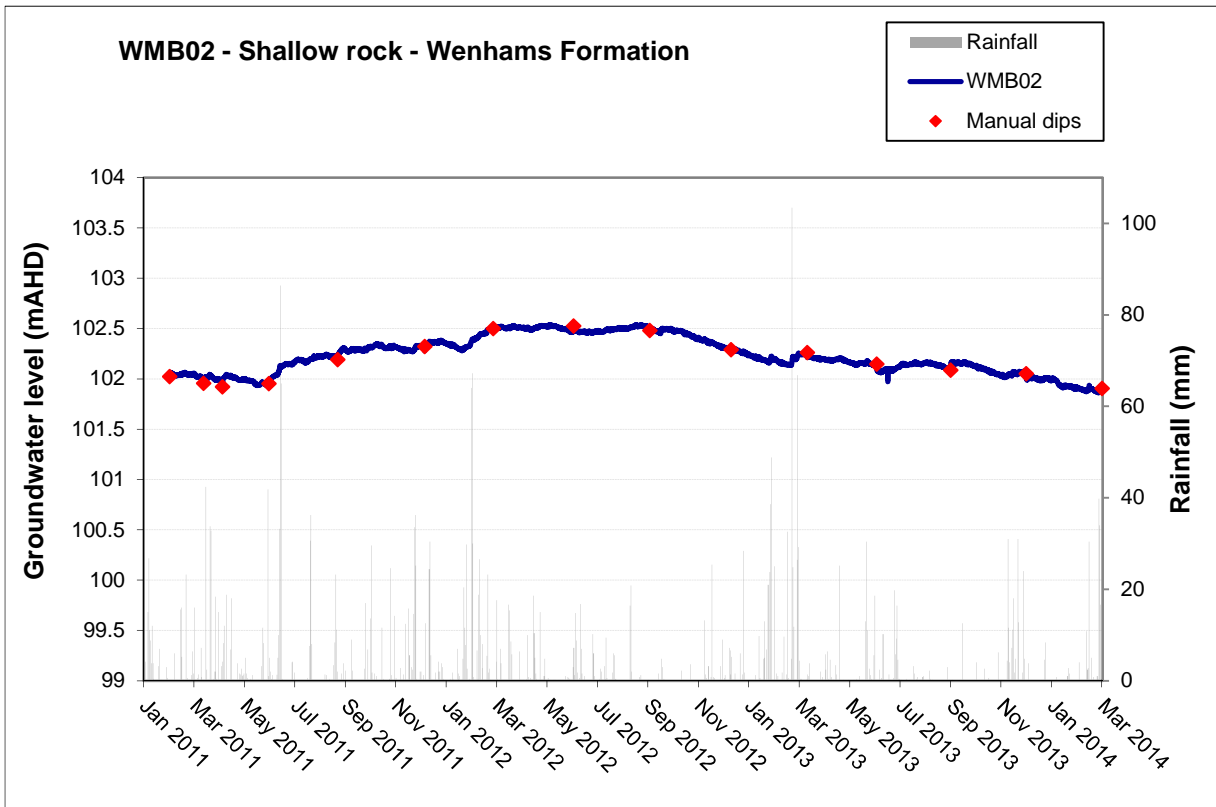


Figure A-14 Groundwater levels and rainfall at WMB03

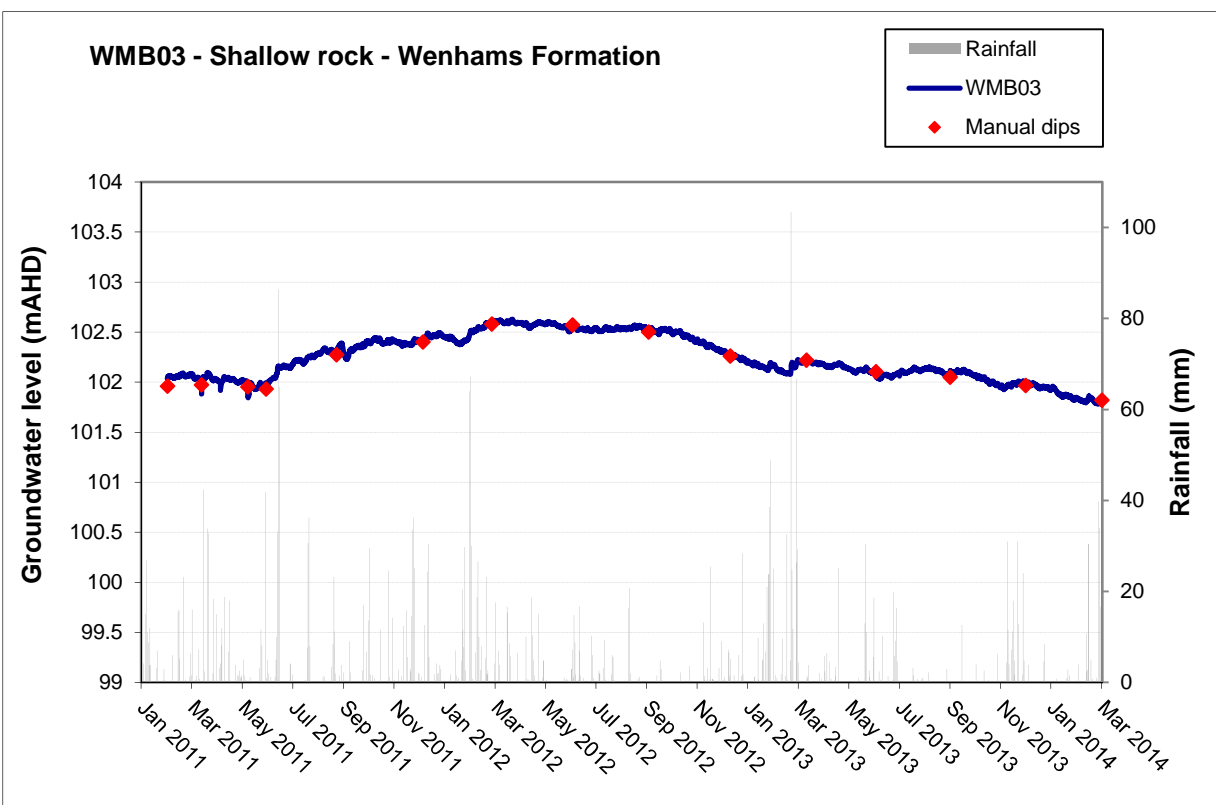


Figure A-15 Groundwater levels and rainfall at WMB04

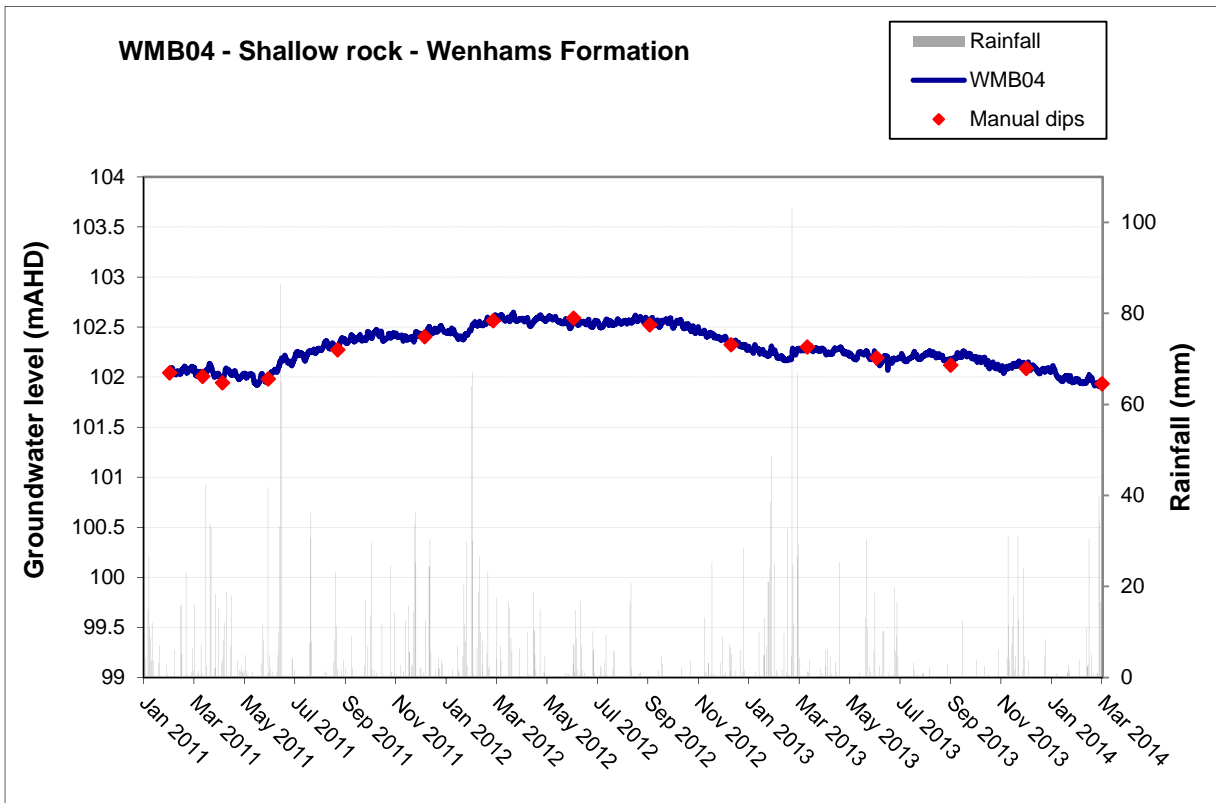


Figure A-16 Groundwater levels and rainfall at RMB01

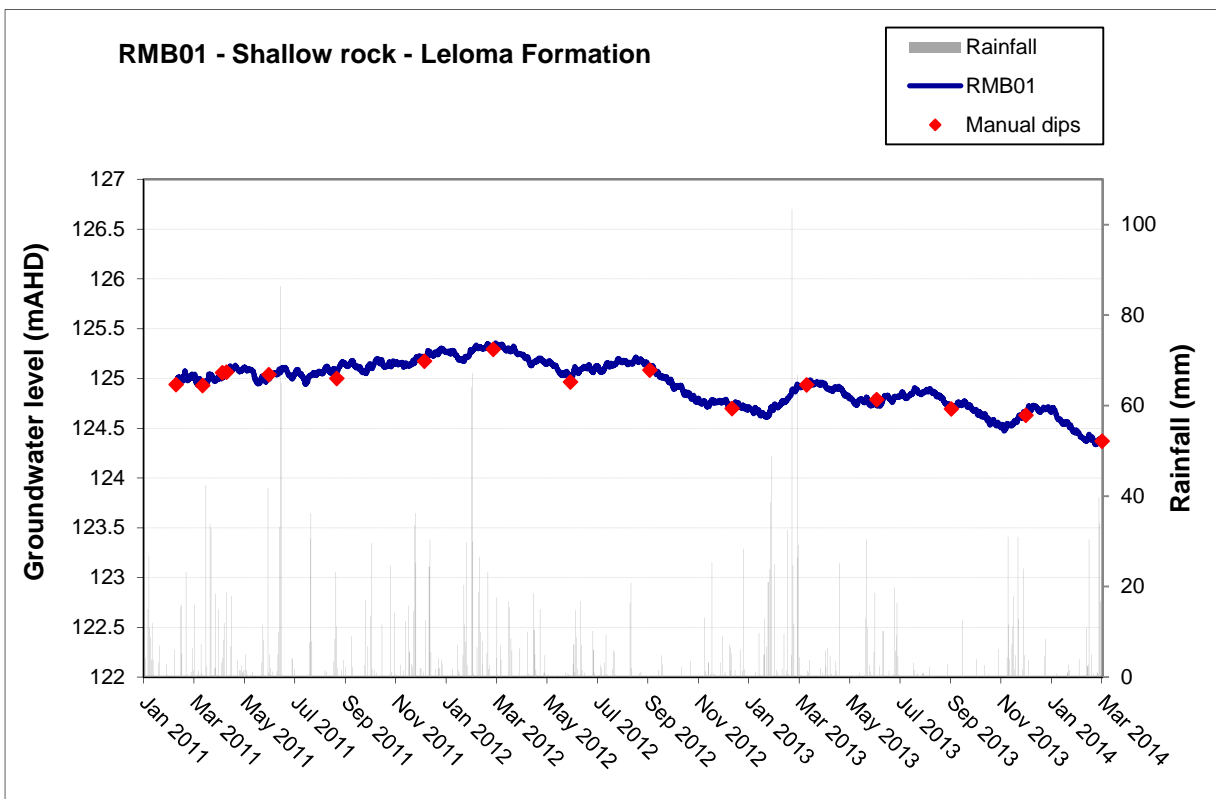


Figure A-17 Groundwater levels and rainfall at RMB02

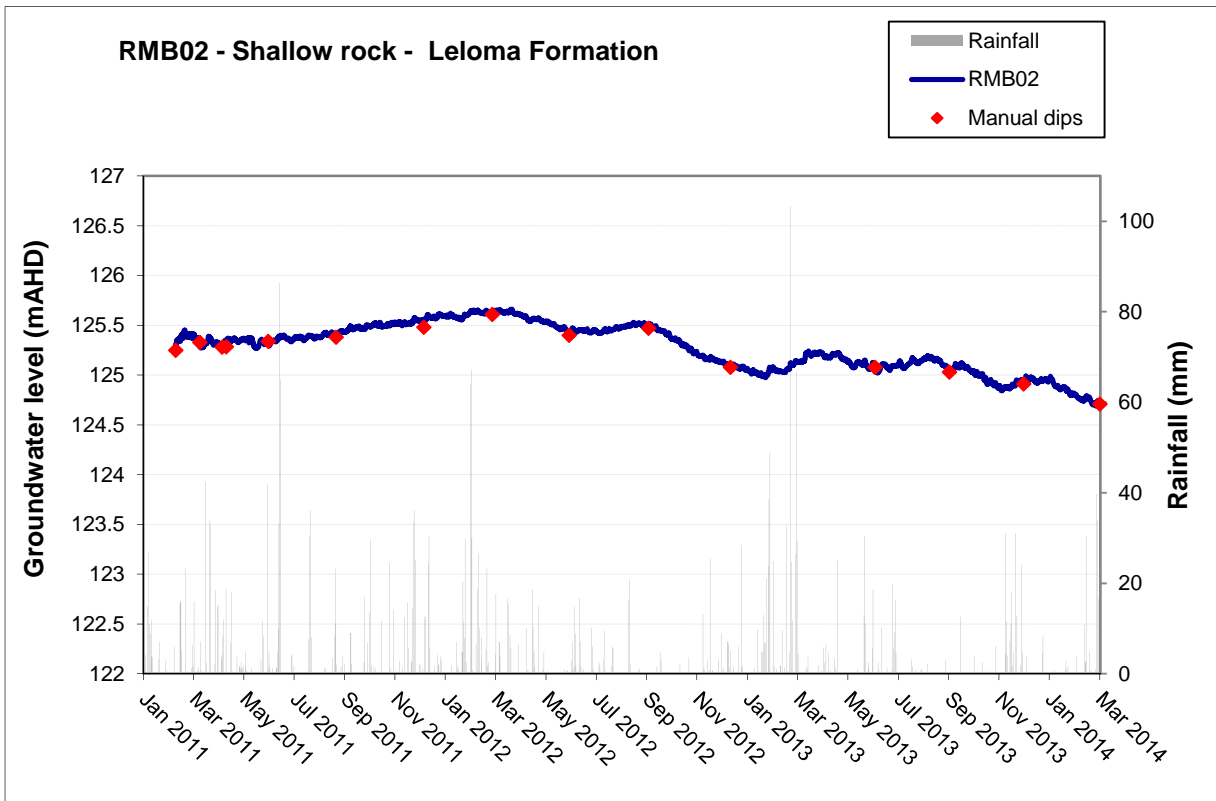


Figure A-18 Groundwater levels and rainfall at BMB01

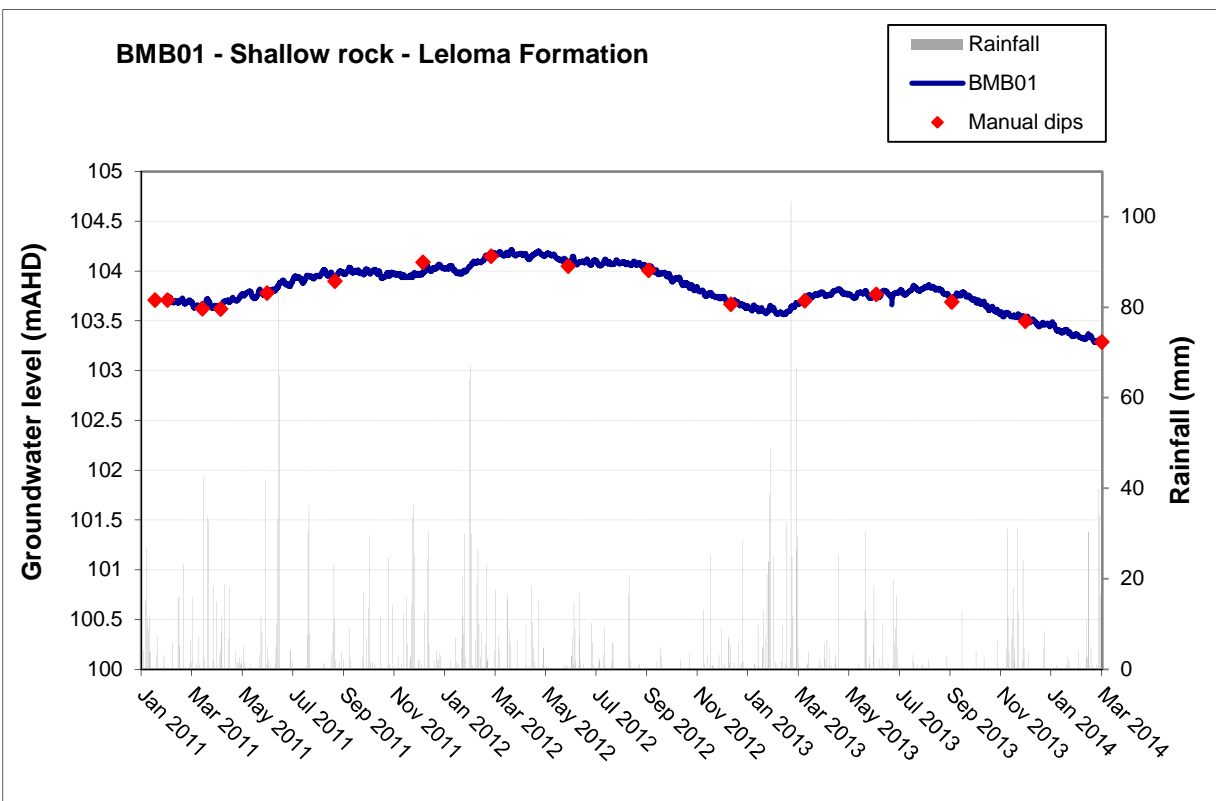


Figure A-19 Groundwater levels and rainfall at BMB02

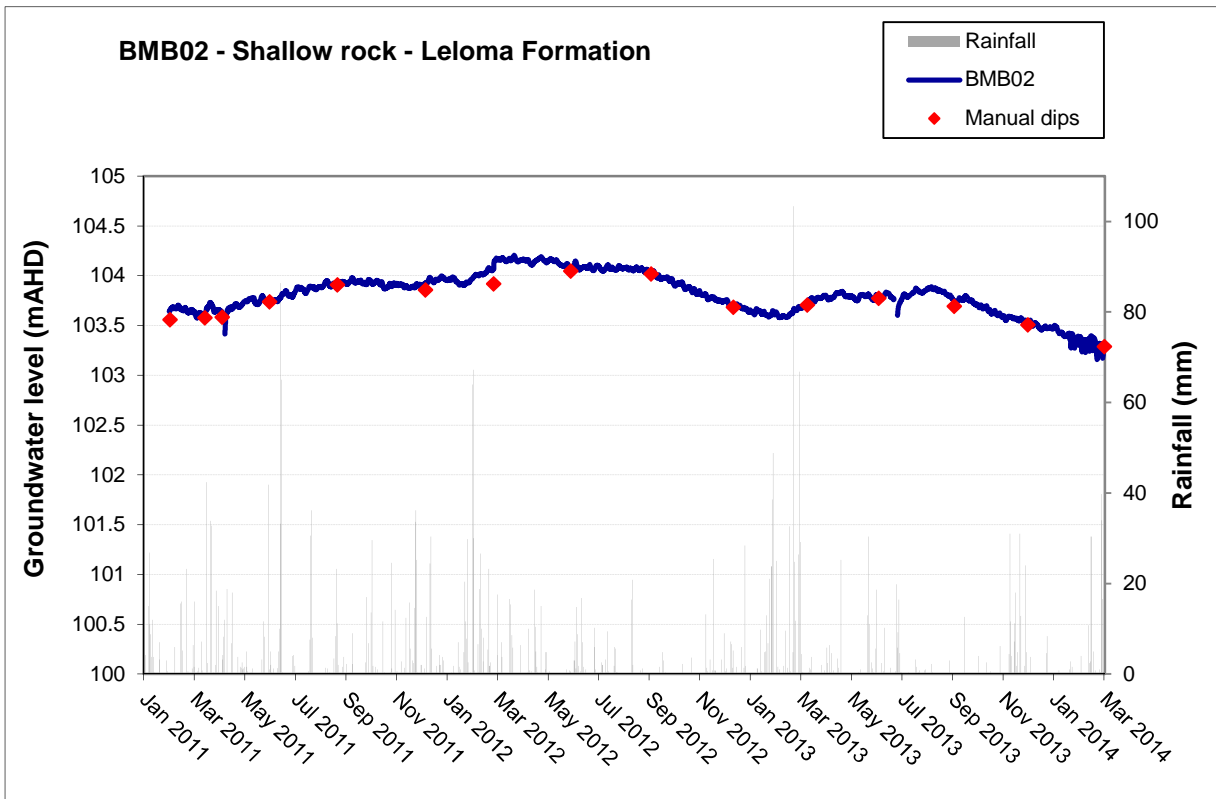


Figure A-20 Groundwater levels and rainfall at TCMB01

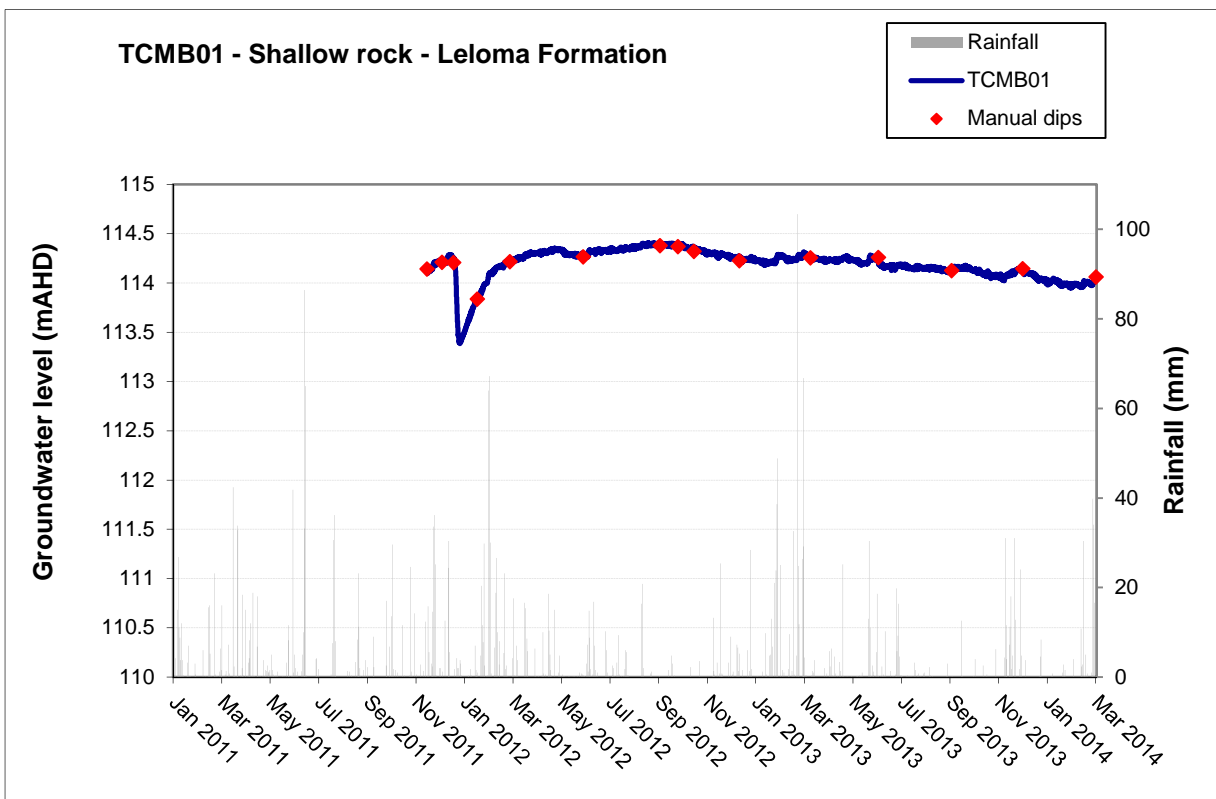


Figure A-21 Groundwater levels and rainfall at TCMB02

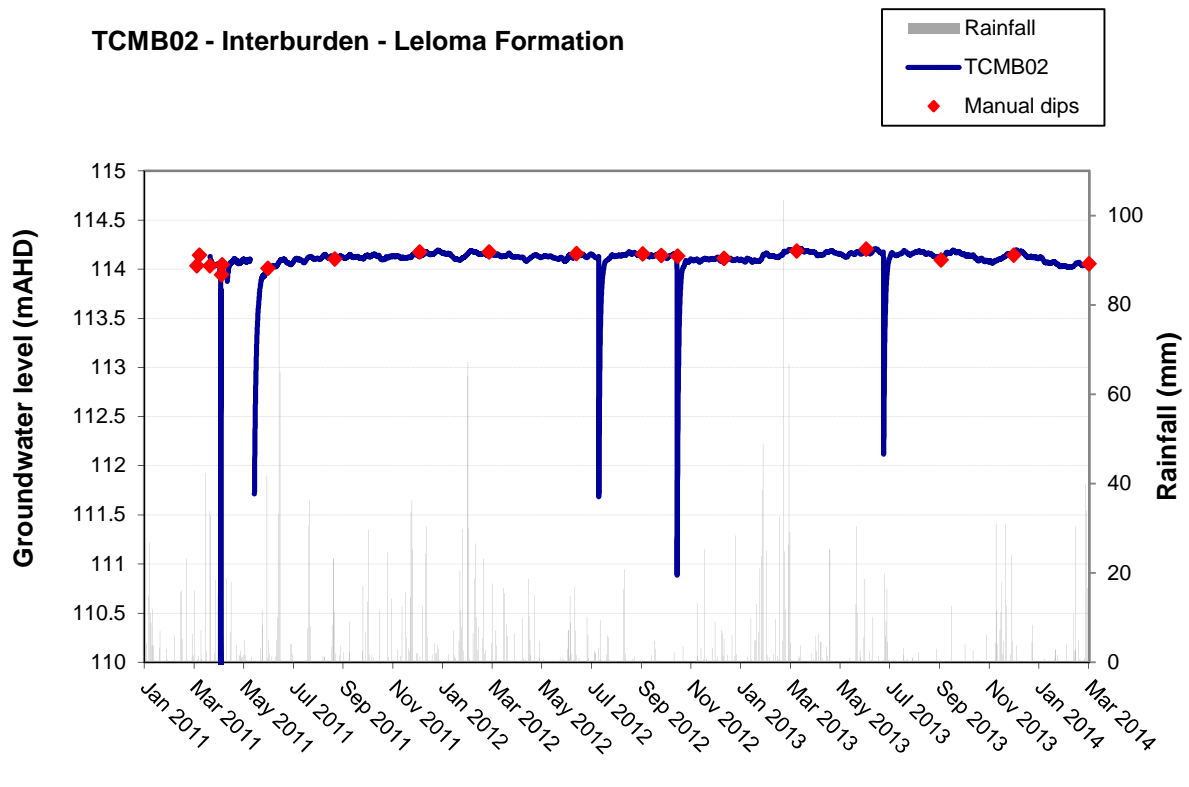


Figure A-22 Groundwater levels and rainfall at TCMB03

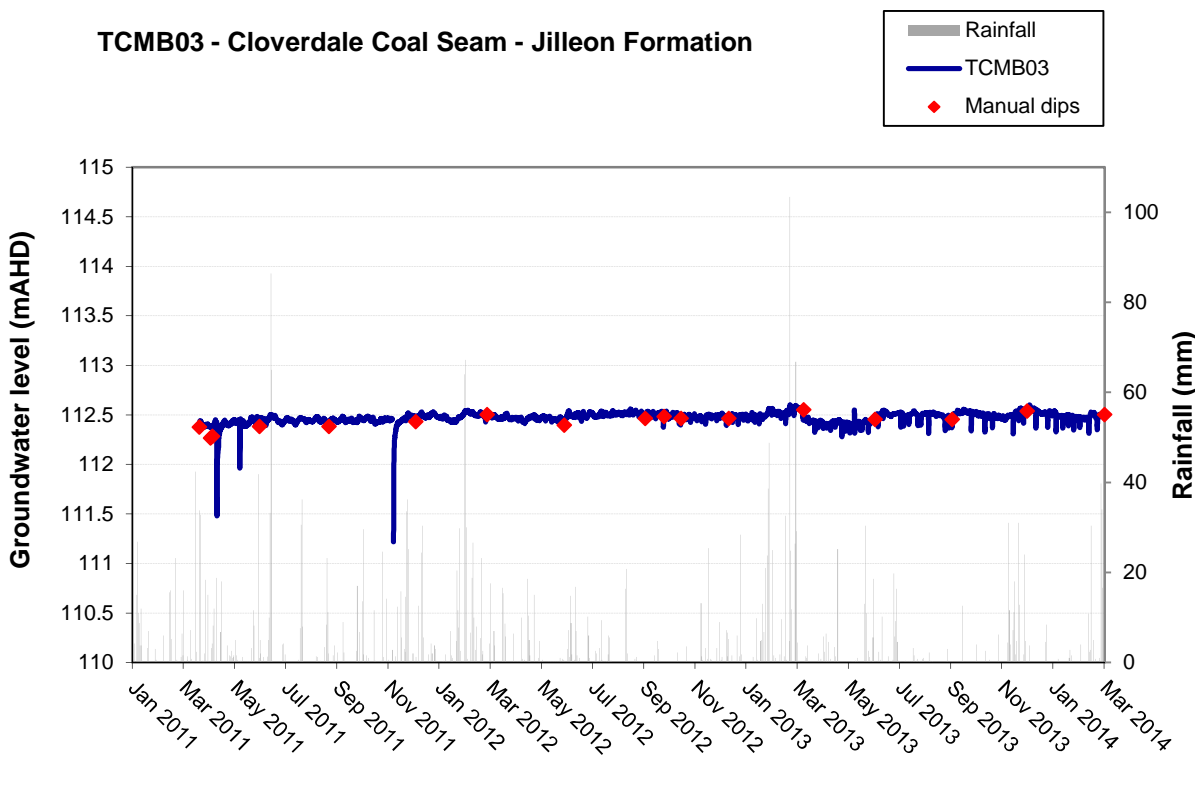


Figure A-23 Groundwater levels and rainfall at TCMB04

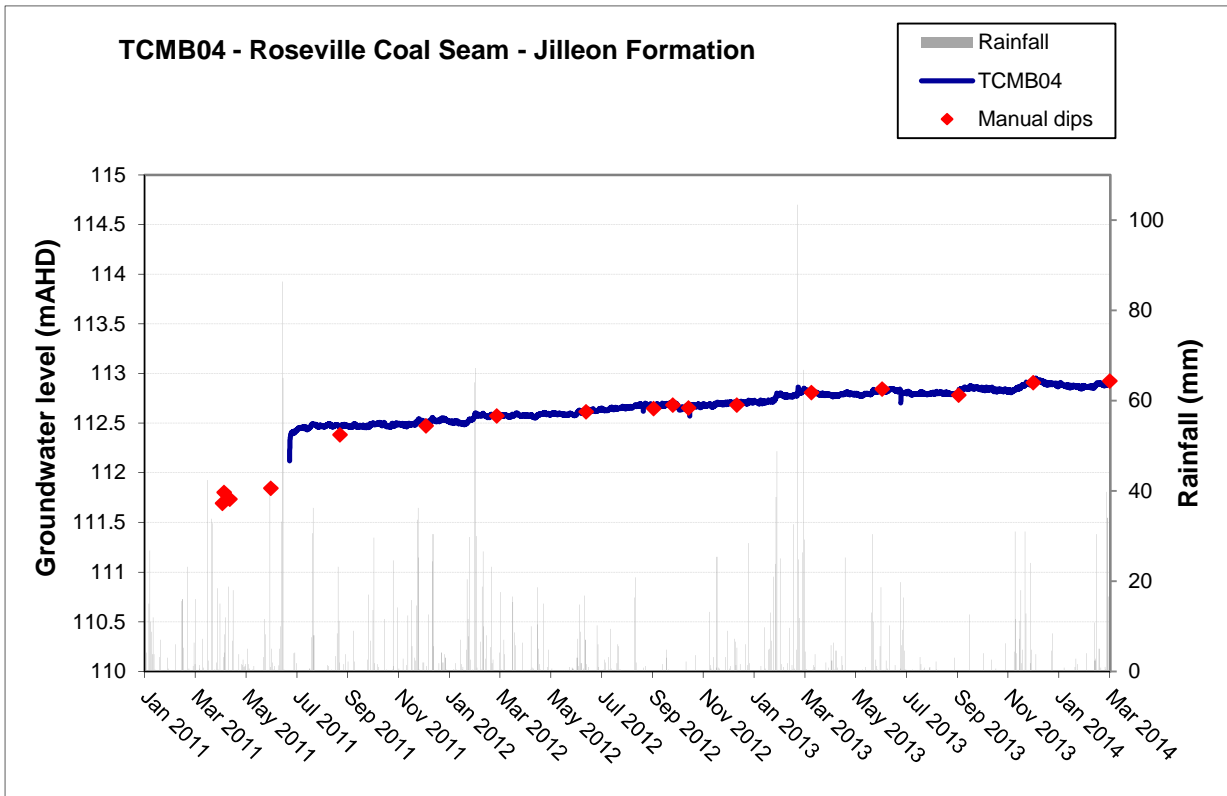


Figure A-24 Groundwater levels and rainfall at TTPB

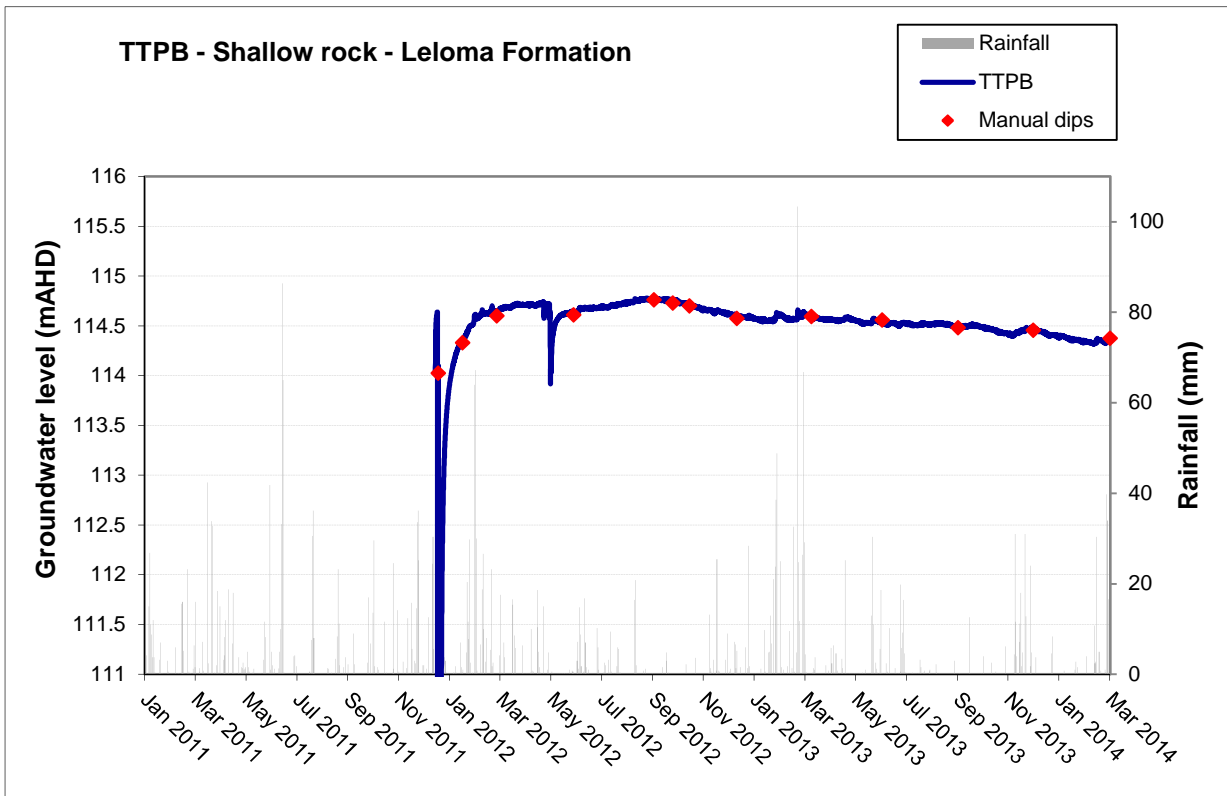




Figure A-25 Groundwater levels and rainfall at TTMB01

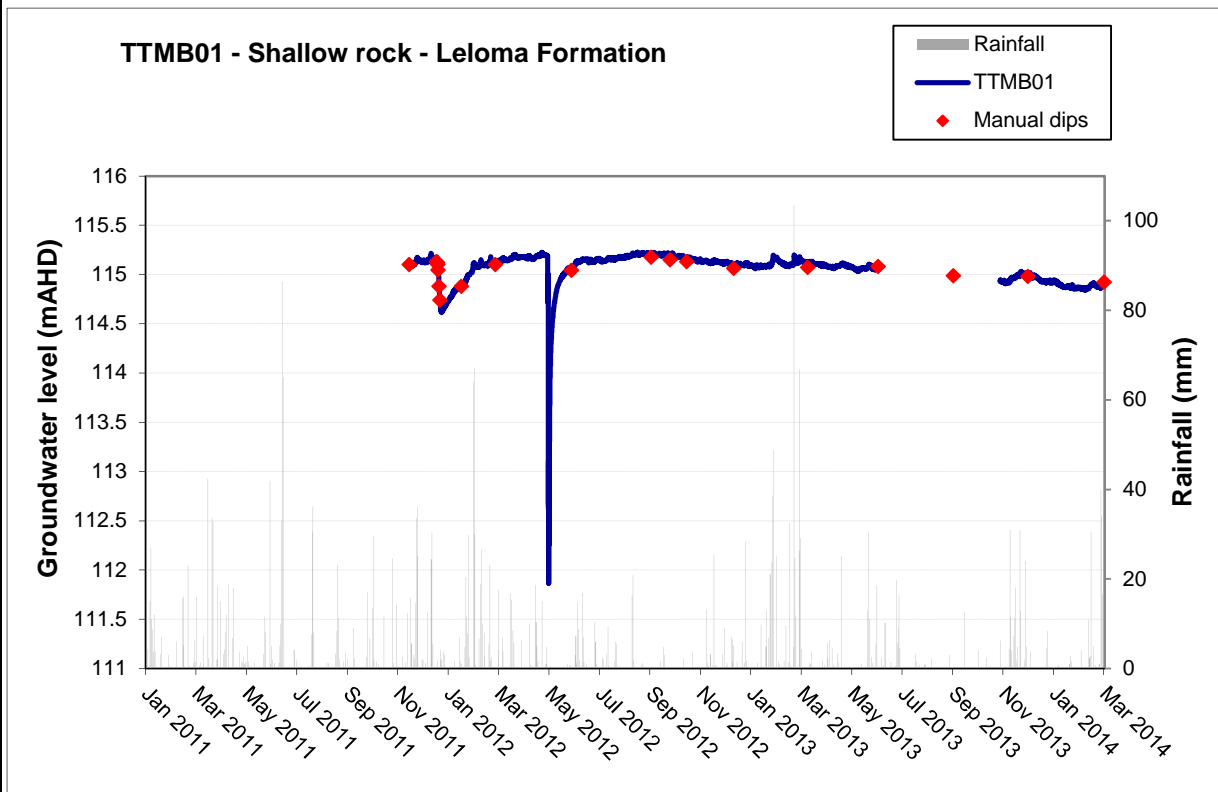


Figure A-26 Groundwater levels and rainfall at TTMB02

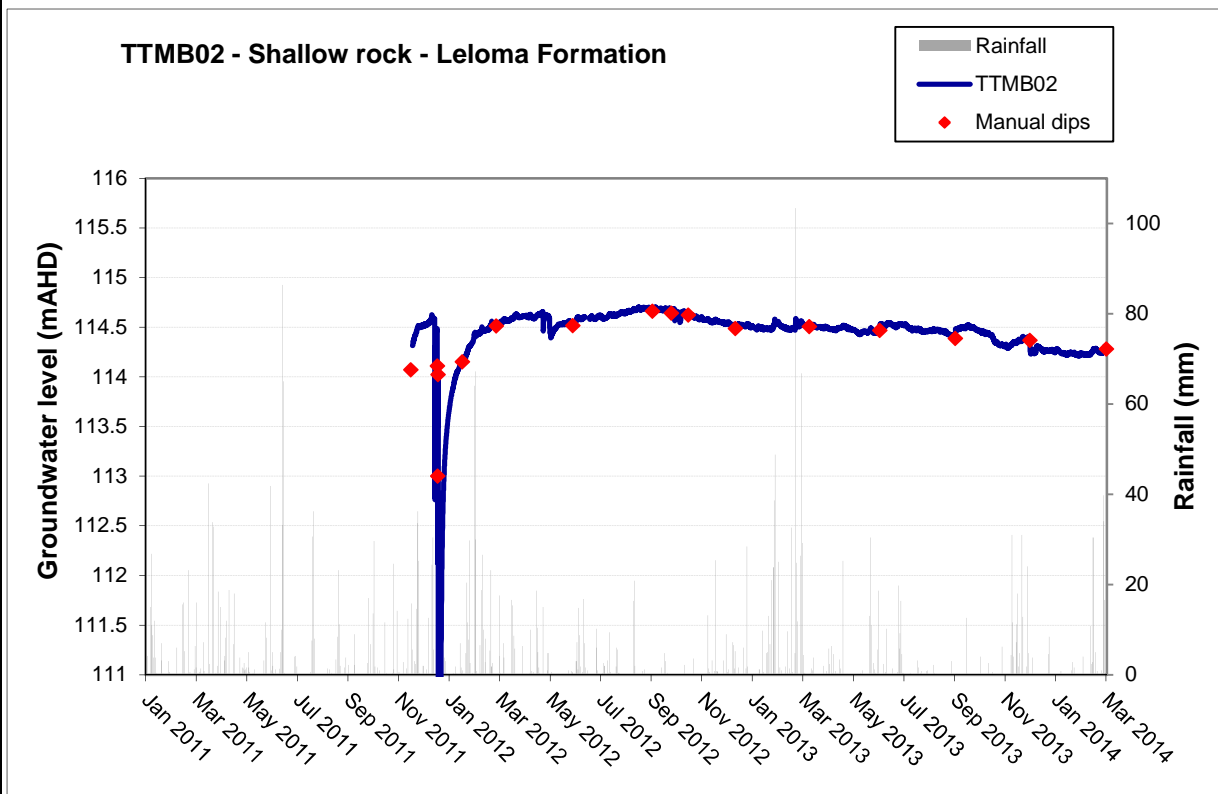


Figure A-27 Groundwater levels and rainfall at TTMB03

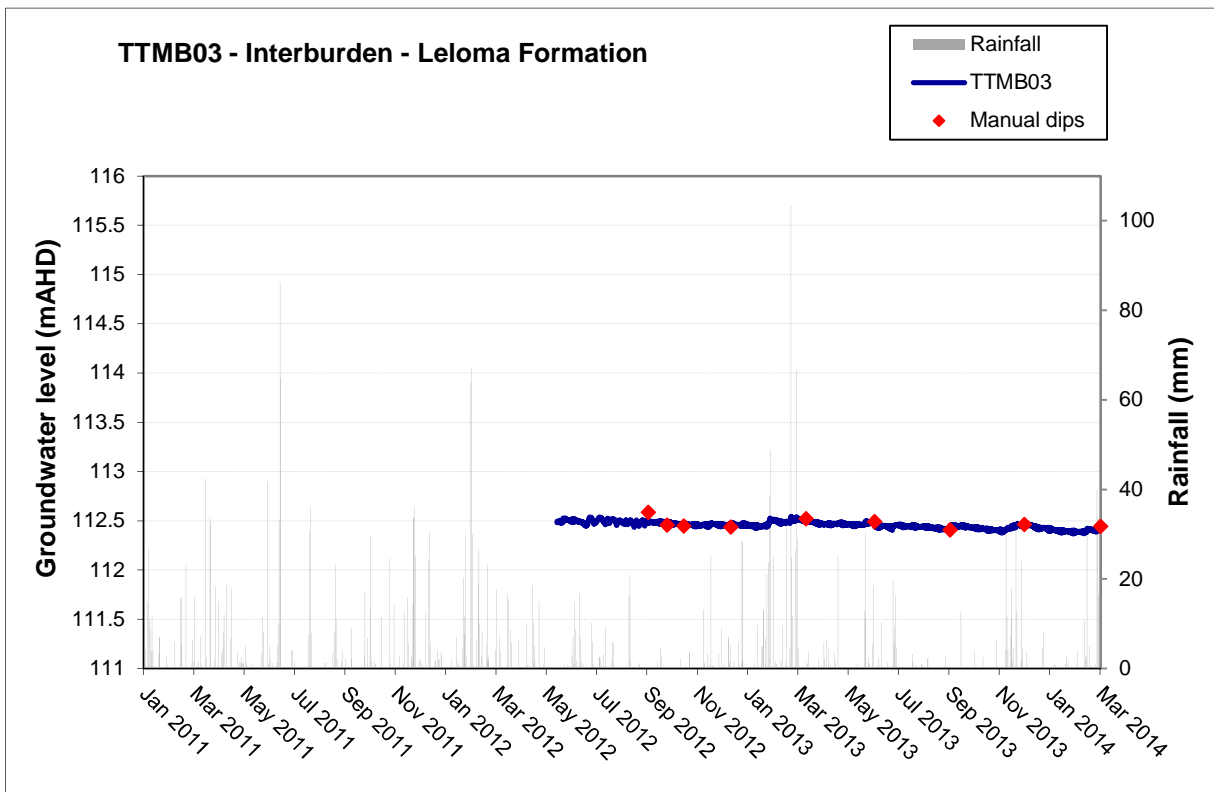


Figure A-28 Groundwater levels and rainfall at Farley

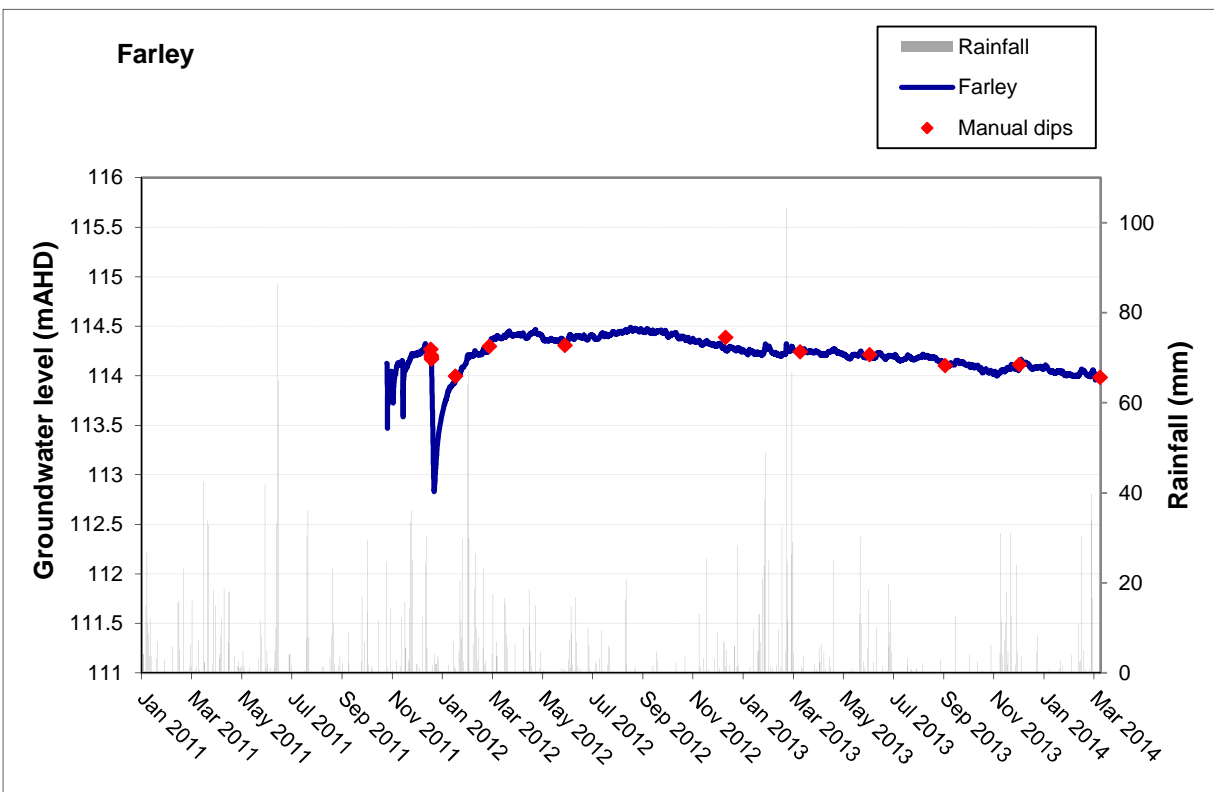


Figure A-29 Groundwater levels and rainfall at WKMB01

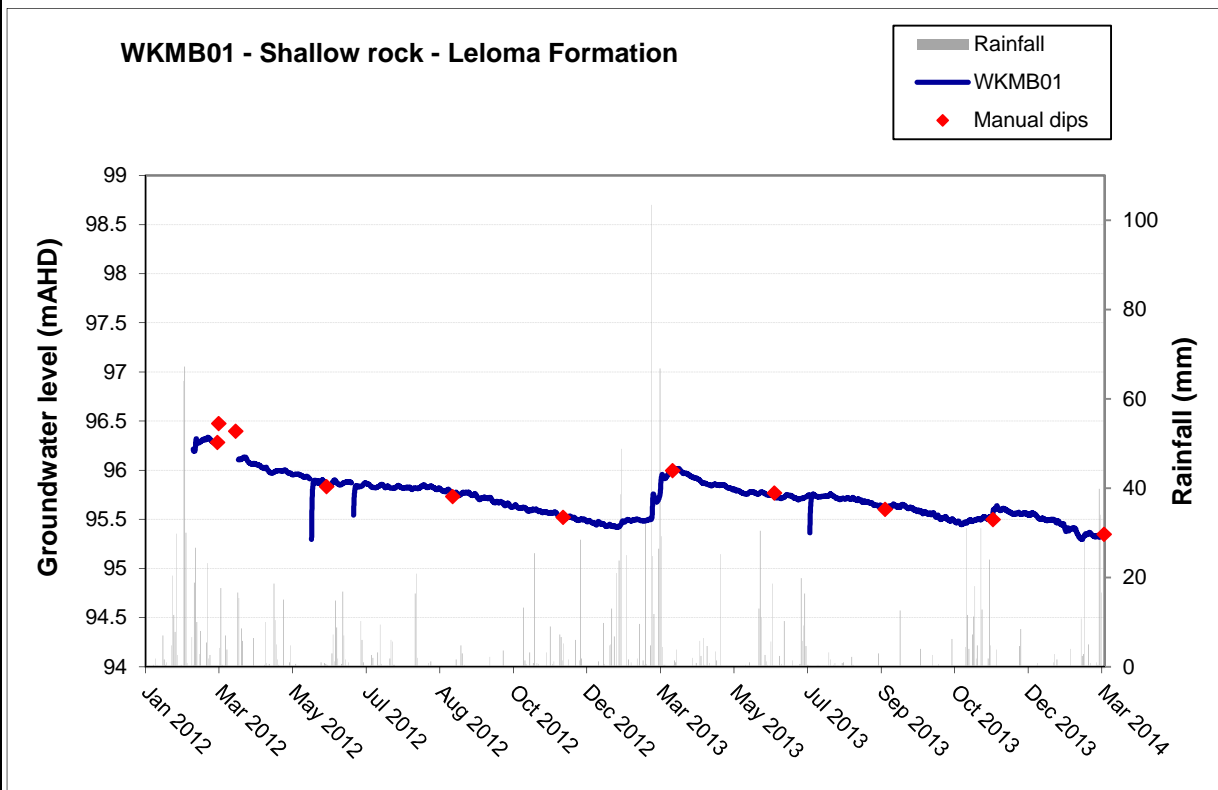


Figure A-30 Groundwater levels and rainfall at WKMB02

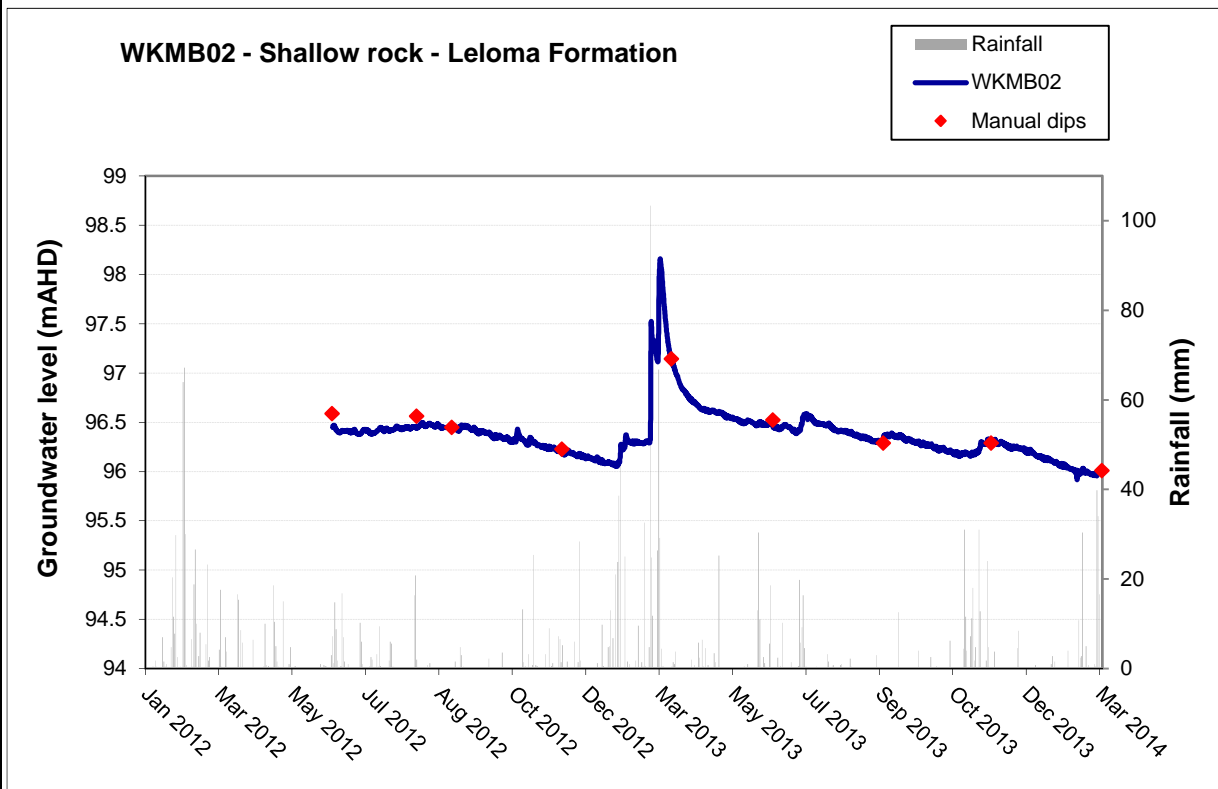


Figure A-31 Groundwater levels and rainfall at WKMB03

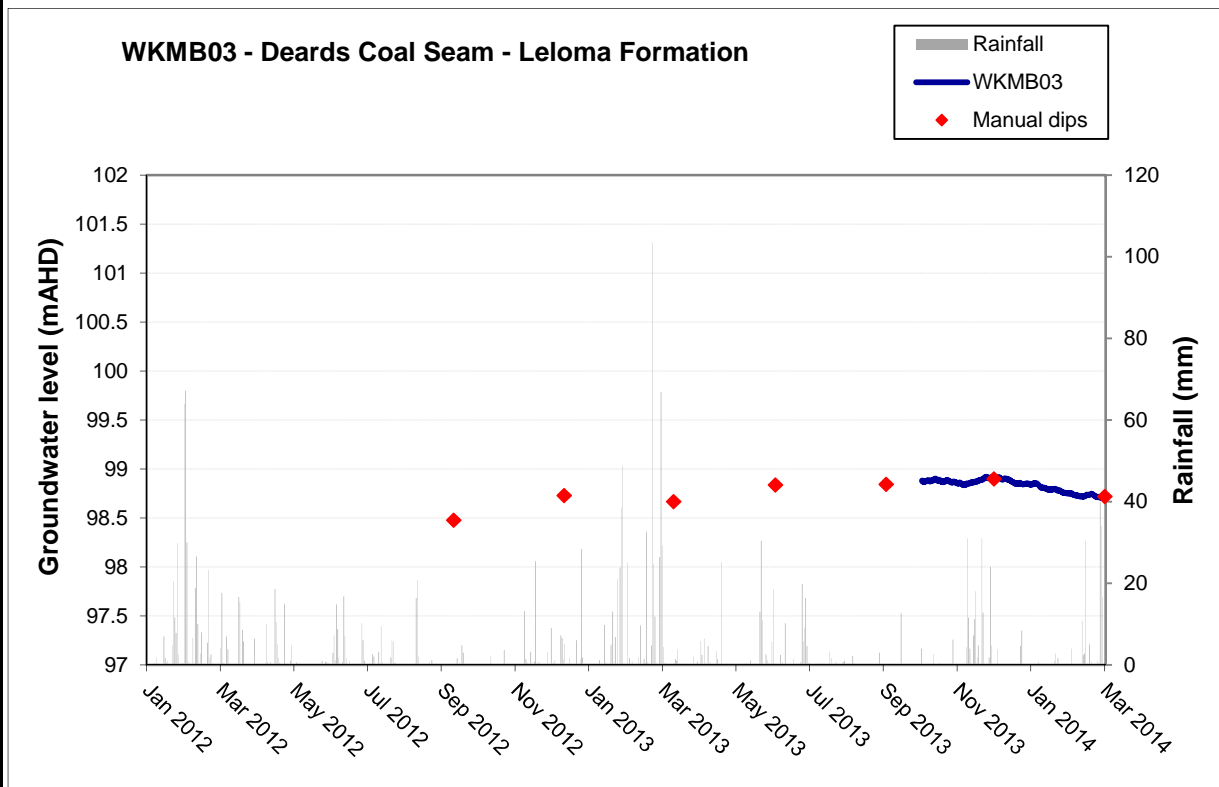


Figure A-32 Groundwater levels and rainfall FKMB01A

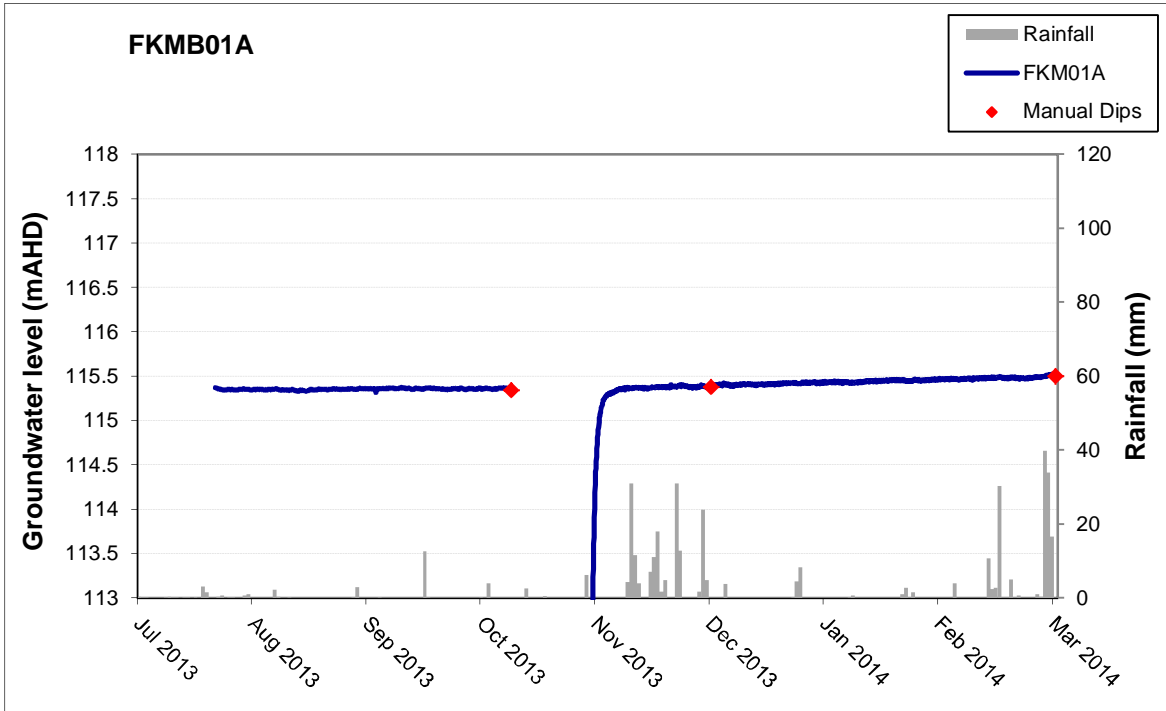


Figure A-33 Groundwater levels and rainfall at FKMB01B

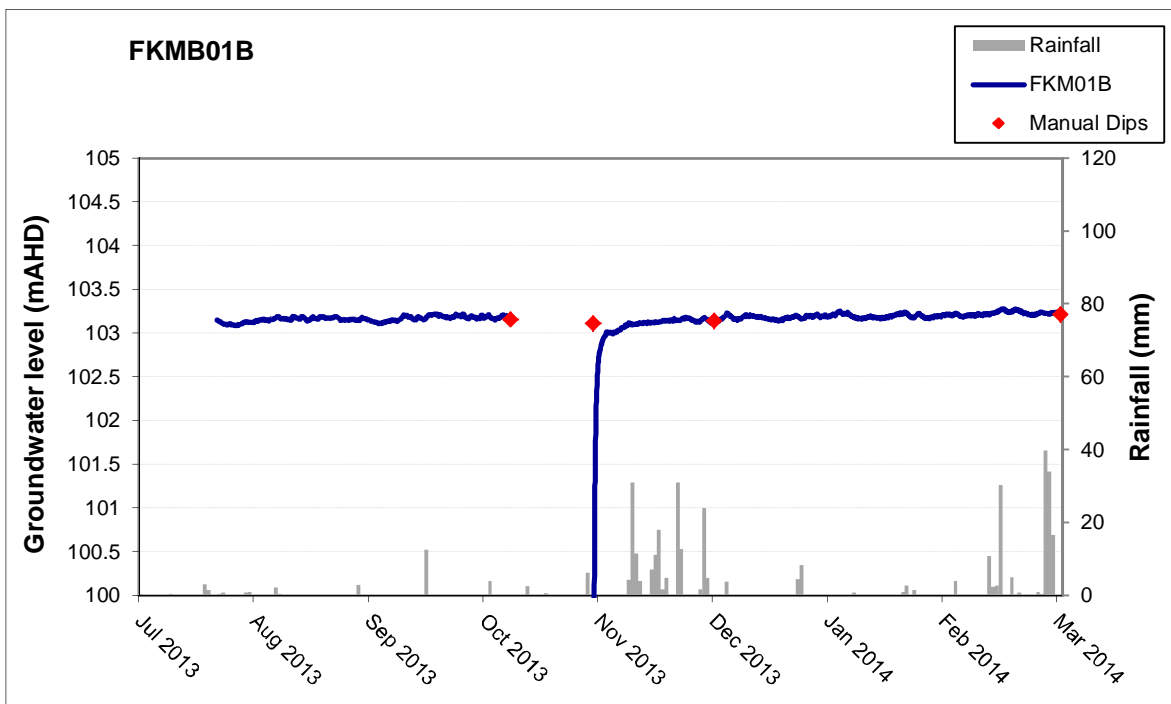


Figure A-34 Groundwater levels and rainfall at BWMB01A

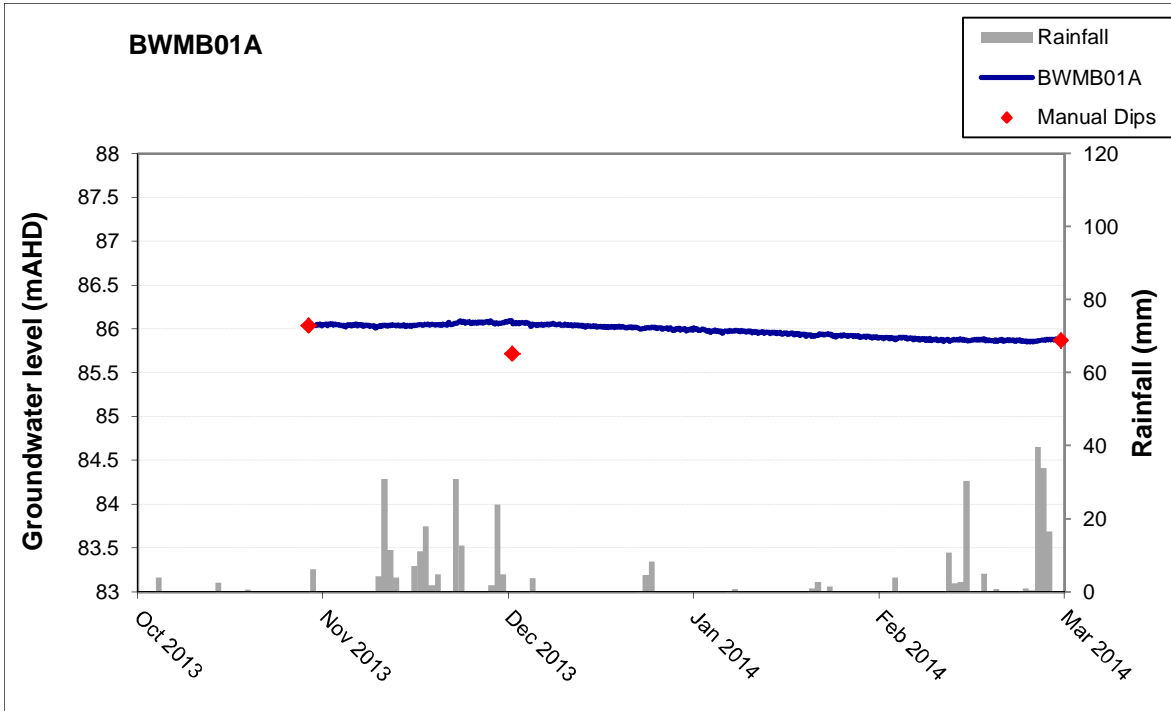


Figure A-35 Groundwater levels and rainfall at BWMB01B

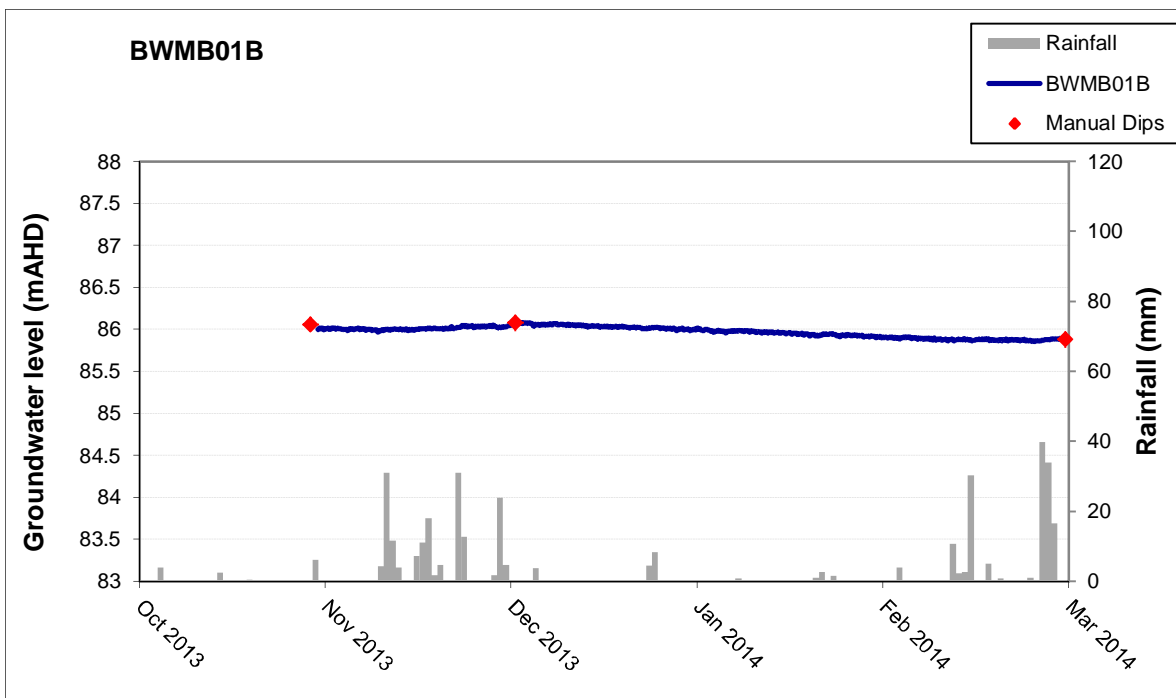


Figure A-36 Groundwater levels and rainfall at BWMB01C

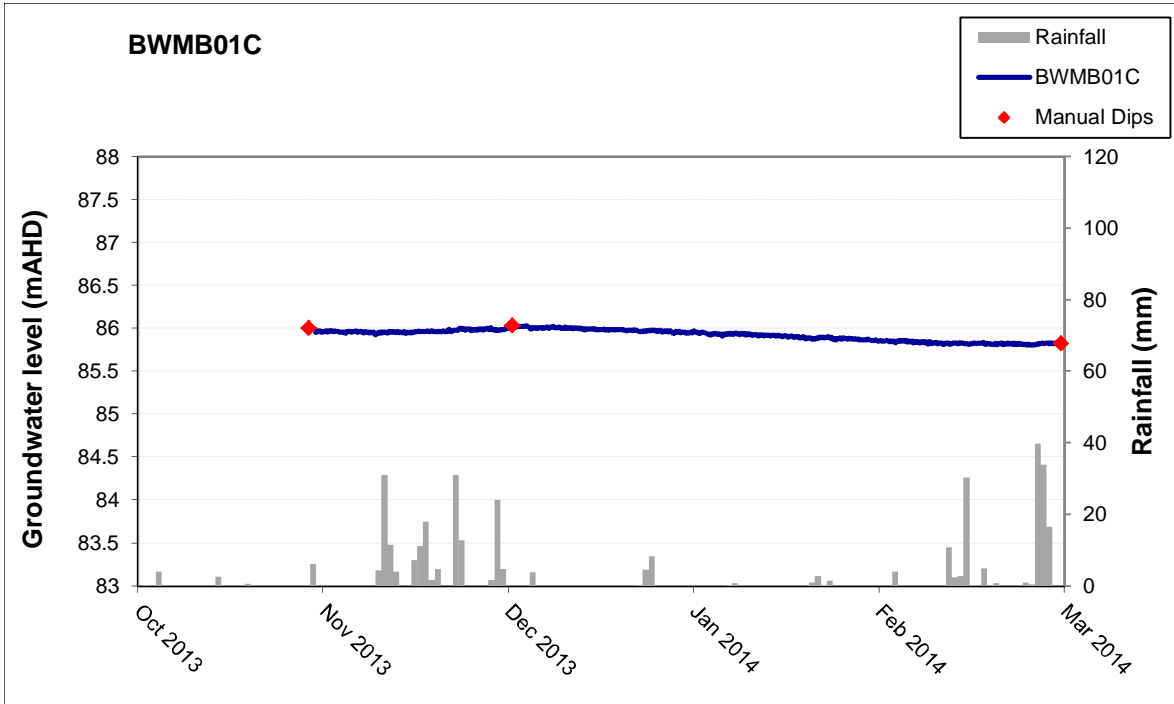


Figure A-37 Groundwater levels and rainfall at BWMB01D

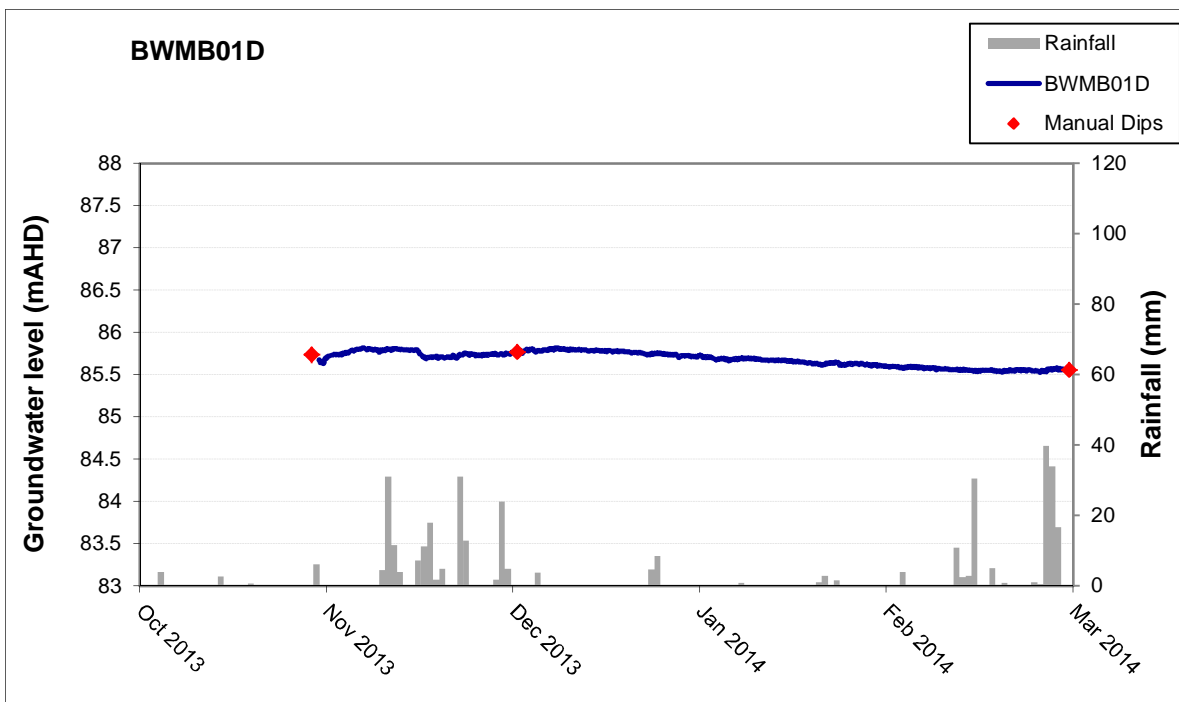
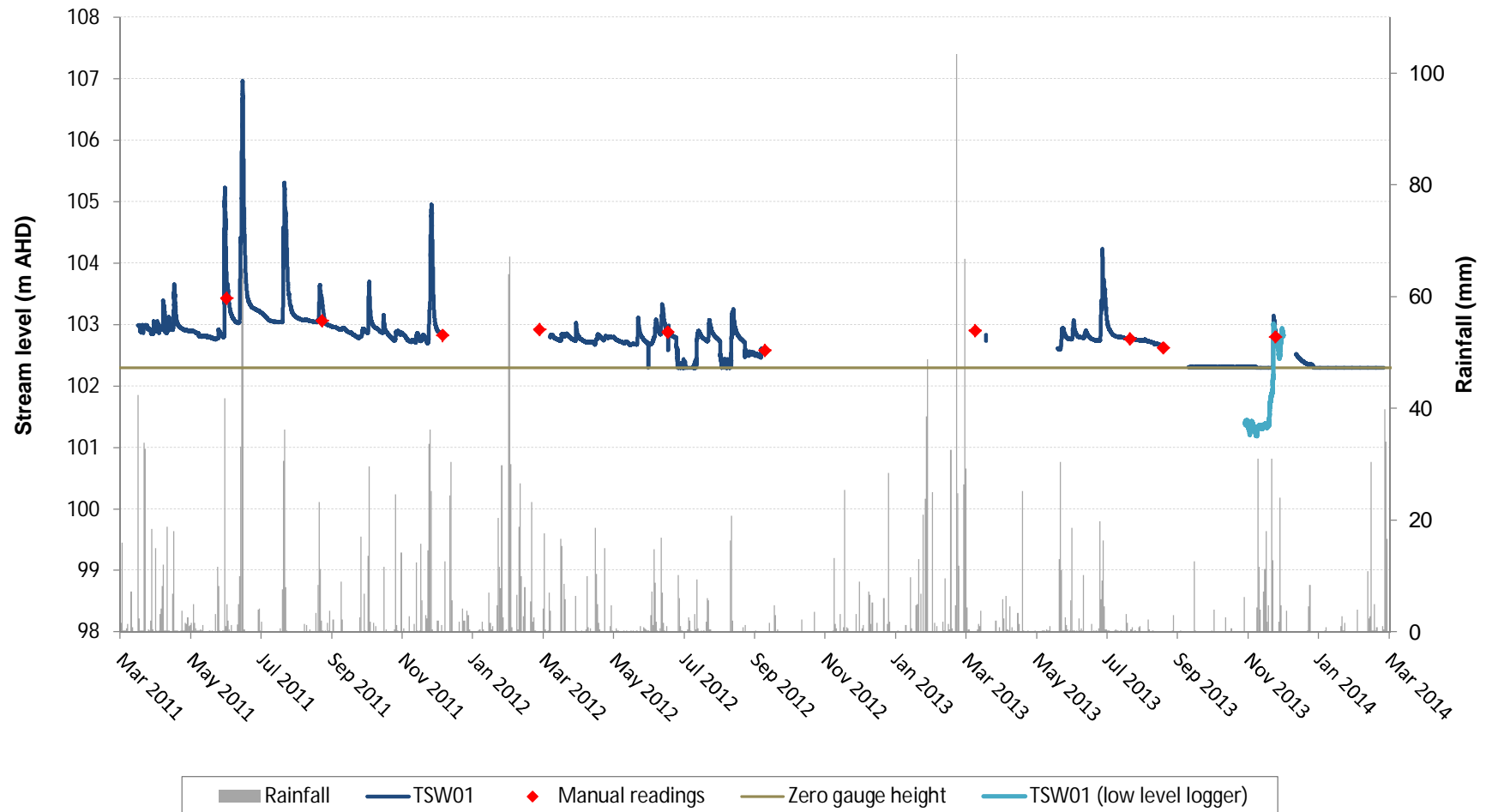


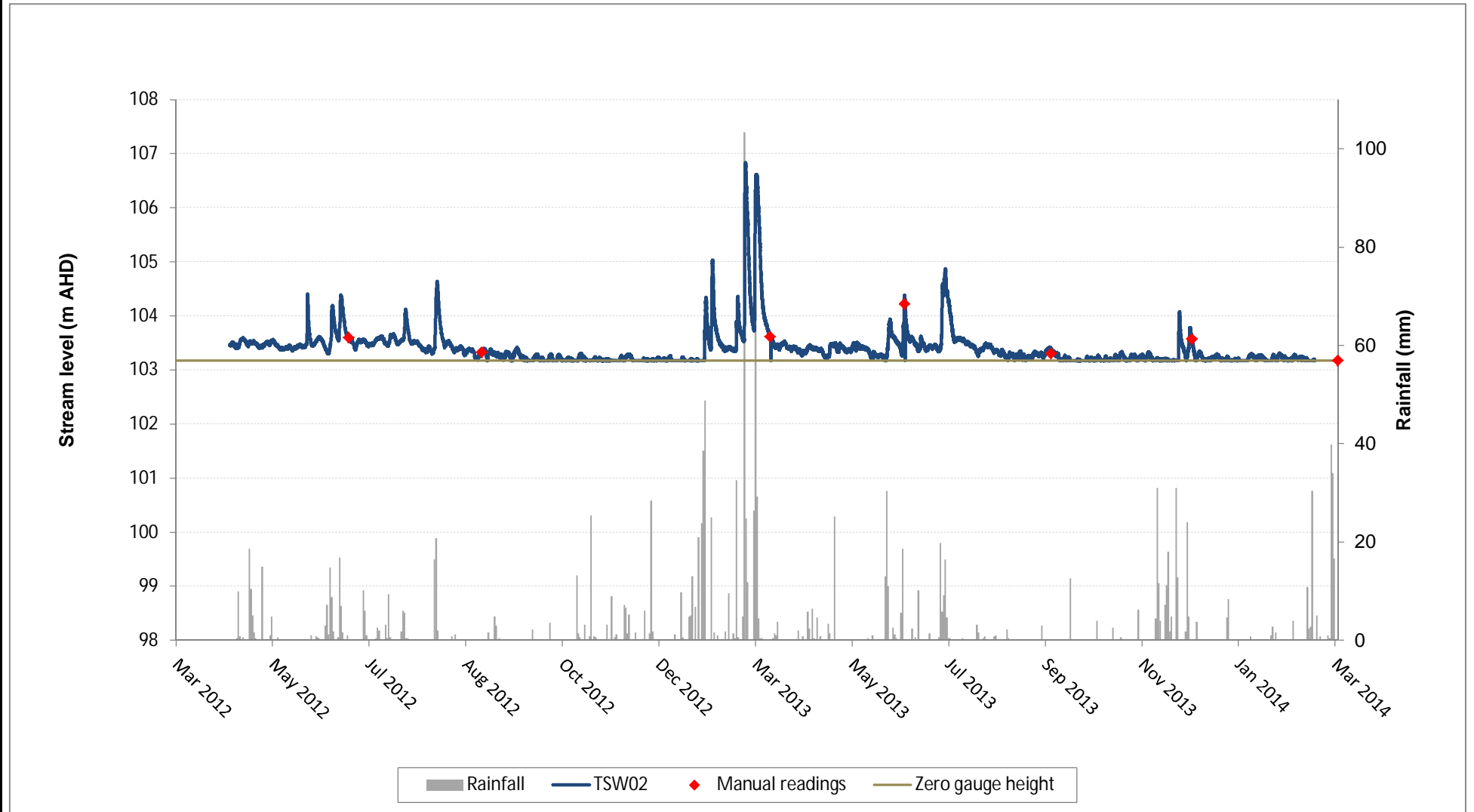
Figure A-38 Stream levels and rainfall at TSW01



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW

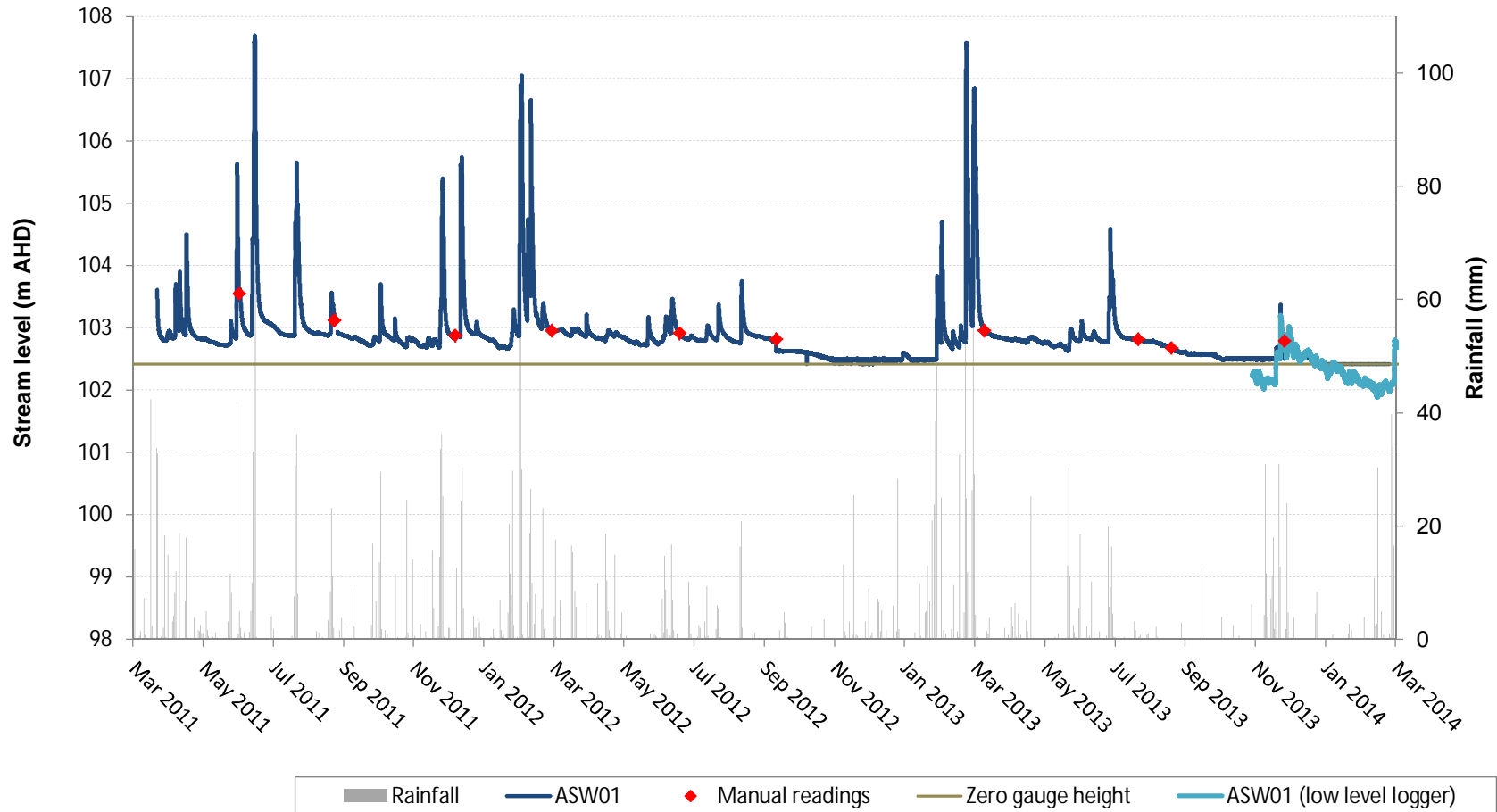


Figure A-39 Stream levels and rainfall at TSW02



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW

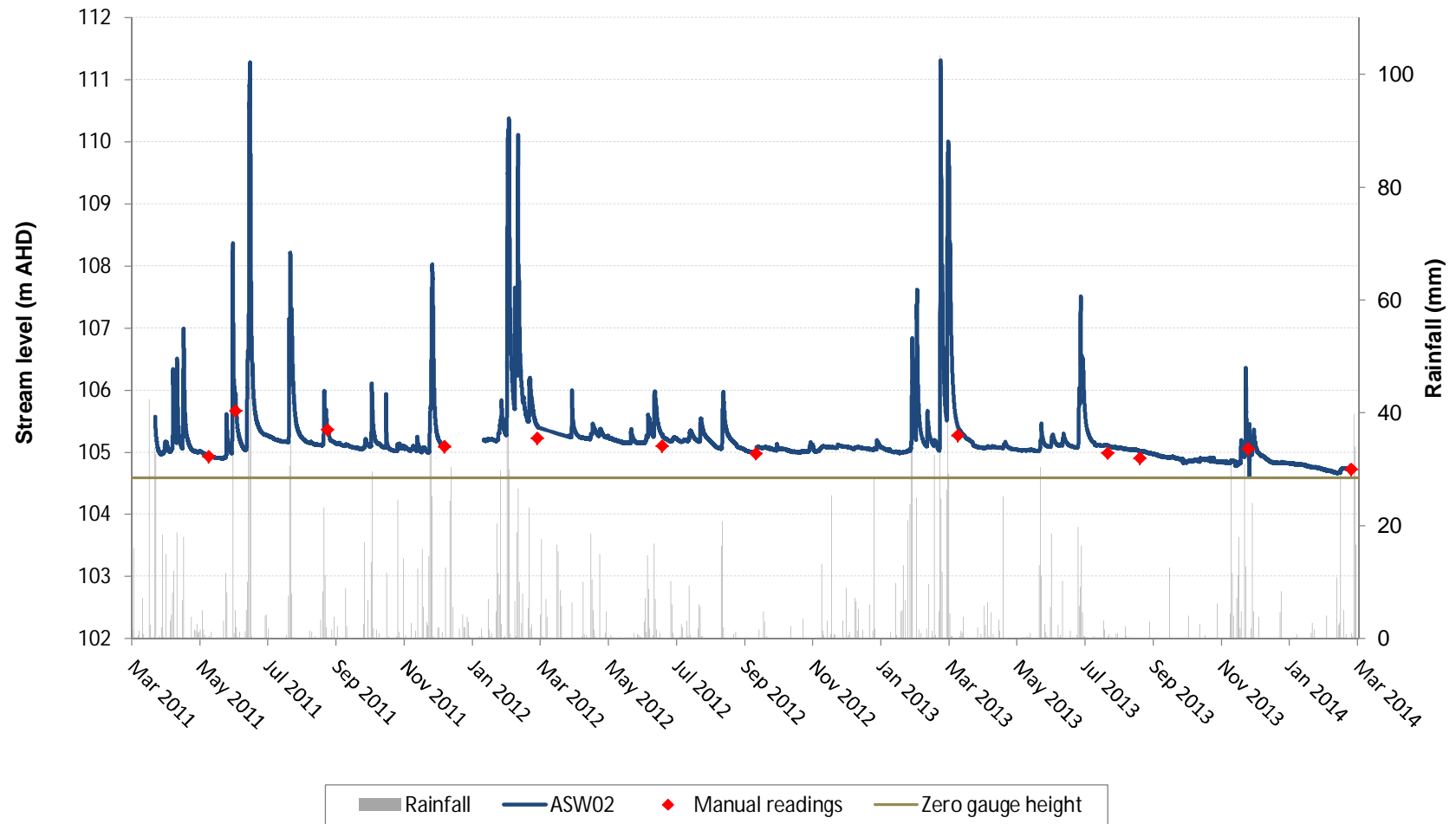
Figure A-40 Stream levels and rainfall at ASW01



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW

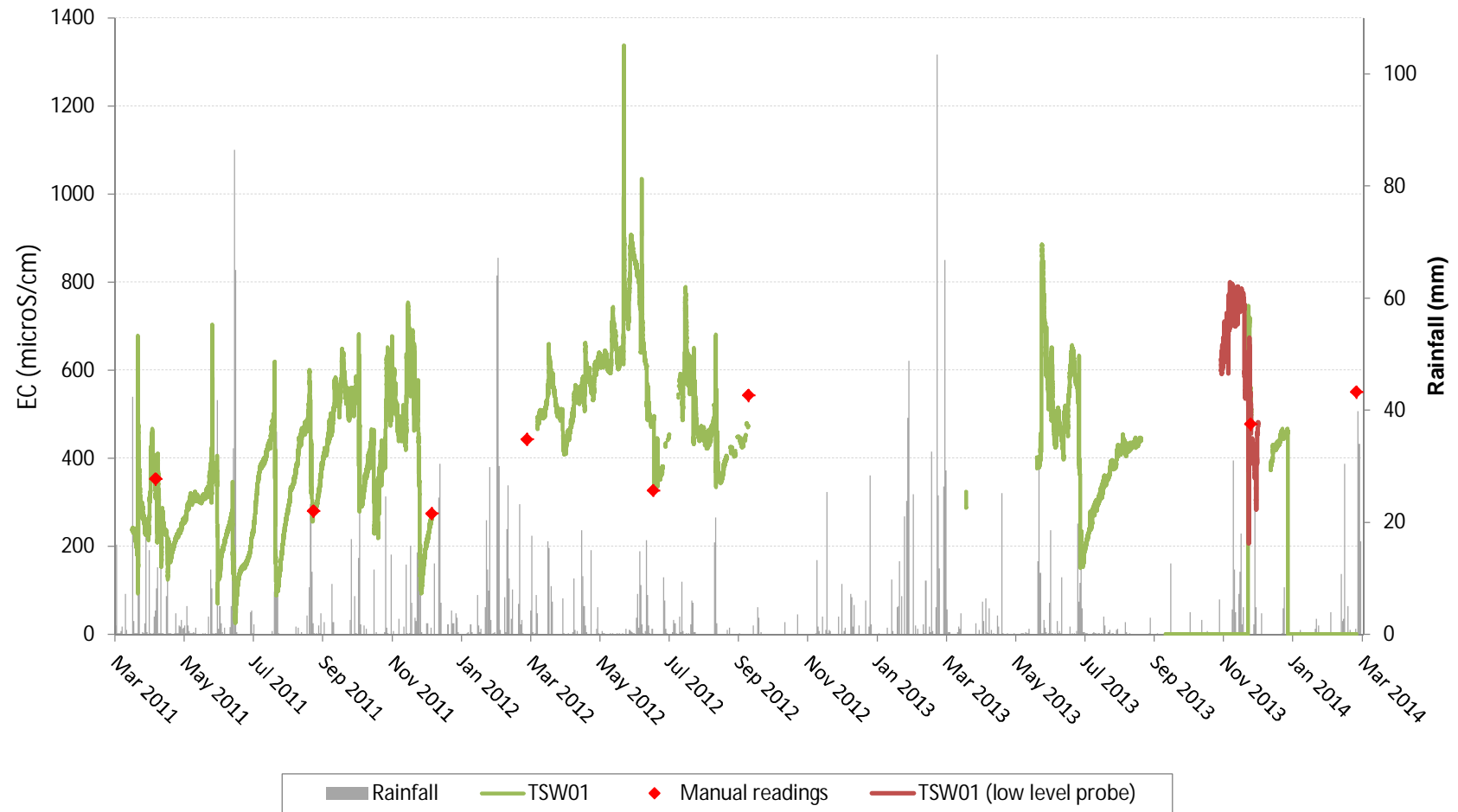


Figure A-41 Stream levels and rainfall at ASW02



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW

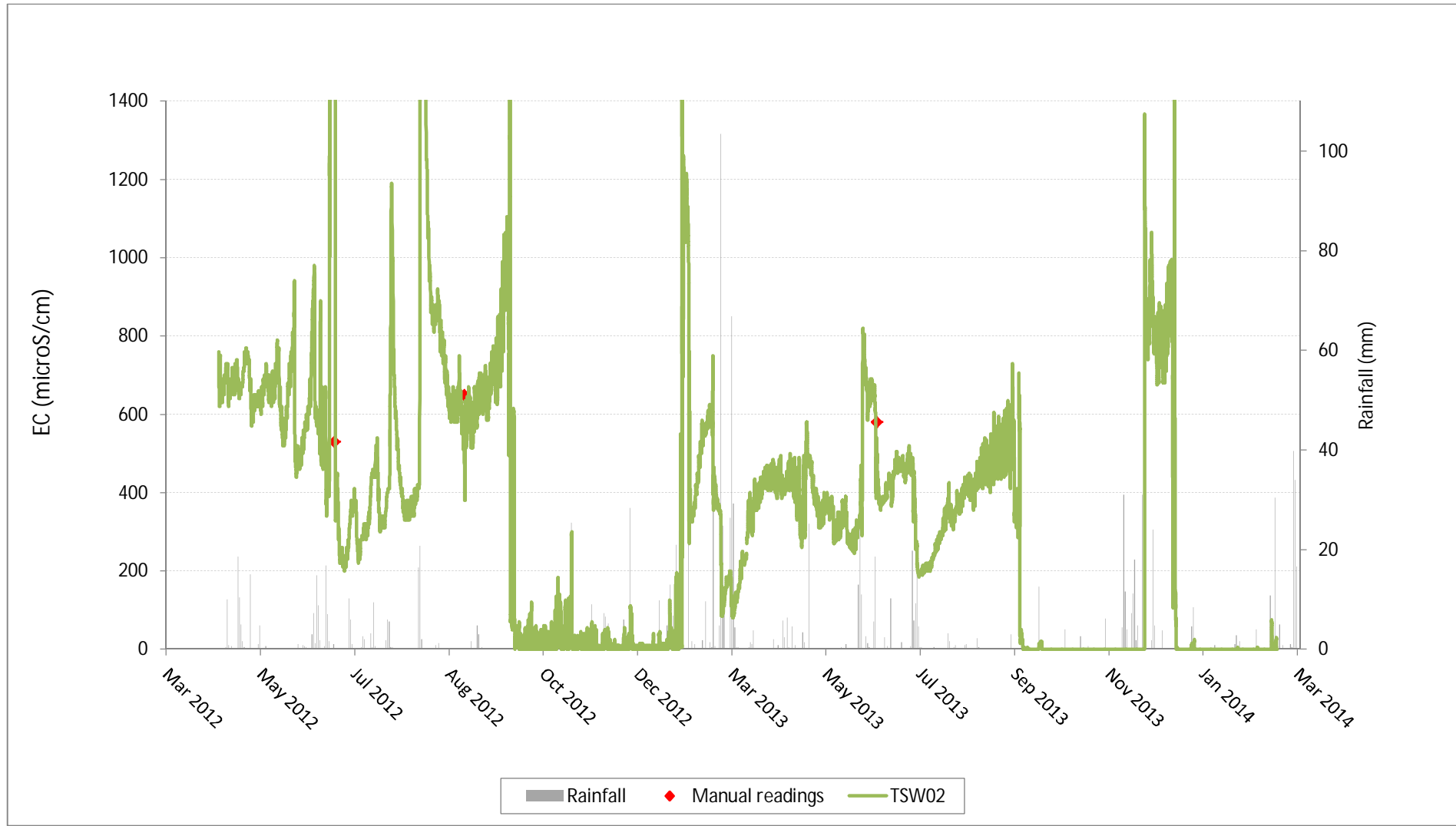
Figure A-42 EC and rainfall at TSW01



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW



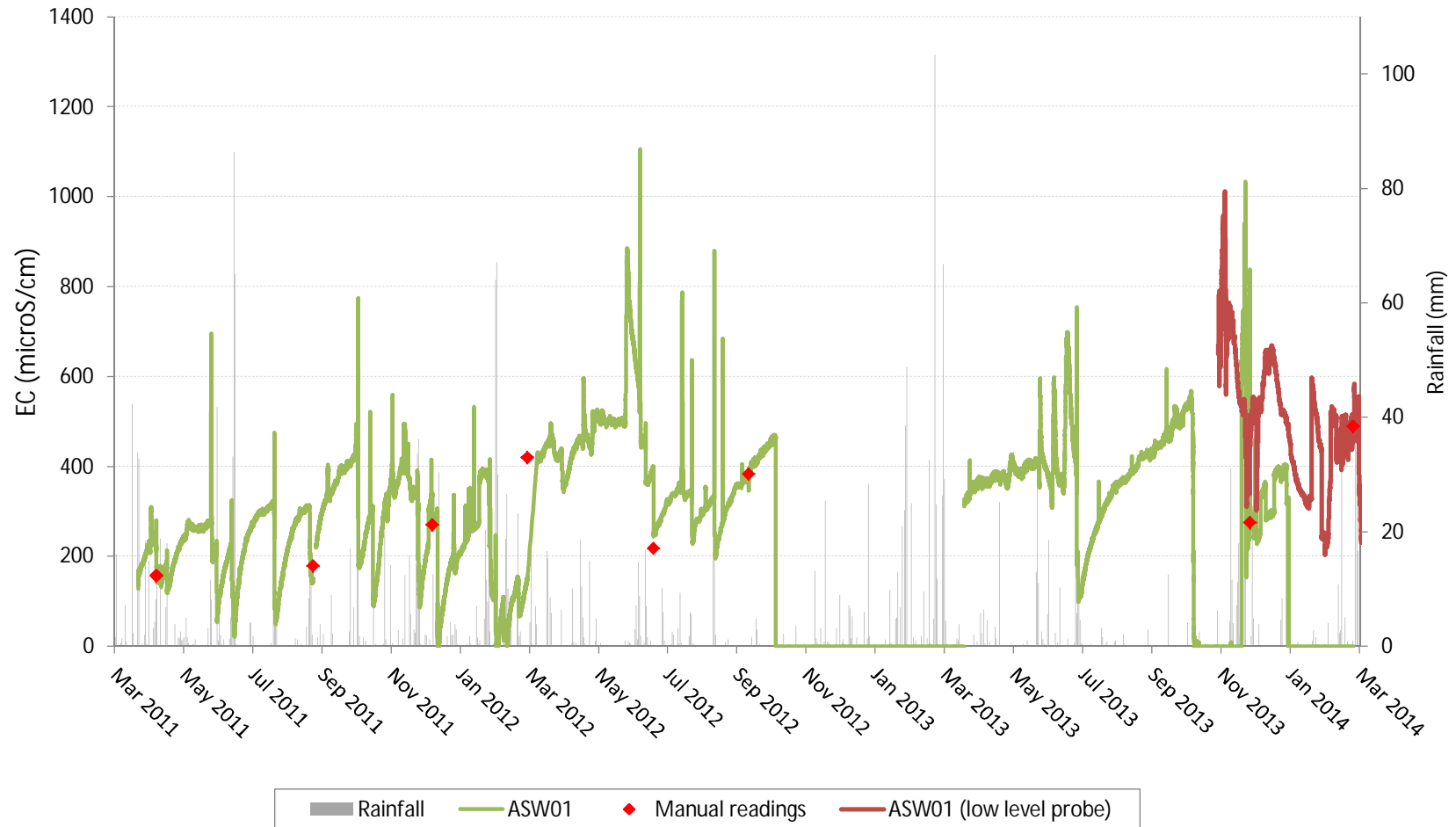
Figure A-43 EC and rainfall at TSW02



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW



Figure A-44 EC and rainfall at ASW01



Client: AGL Upstream Gas Pty Ltd  
Project: 2014 Gloucester Groundwater and Surface Water Monitoring  
Location: Gloucester, NSW



Figure A-45 EC and rainfall at ASW02

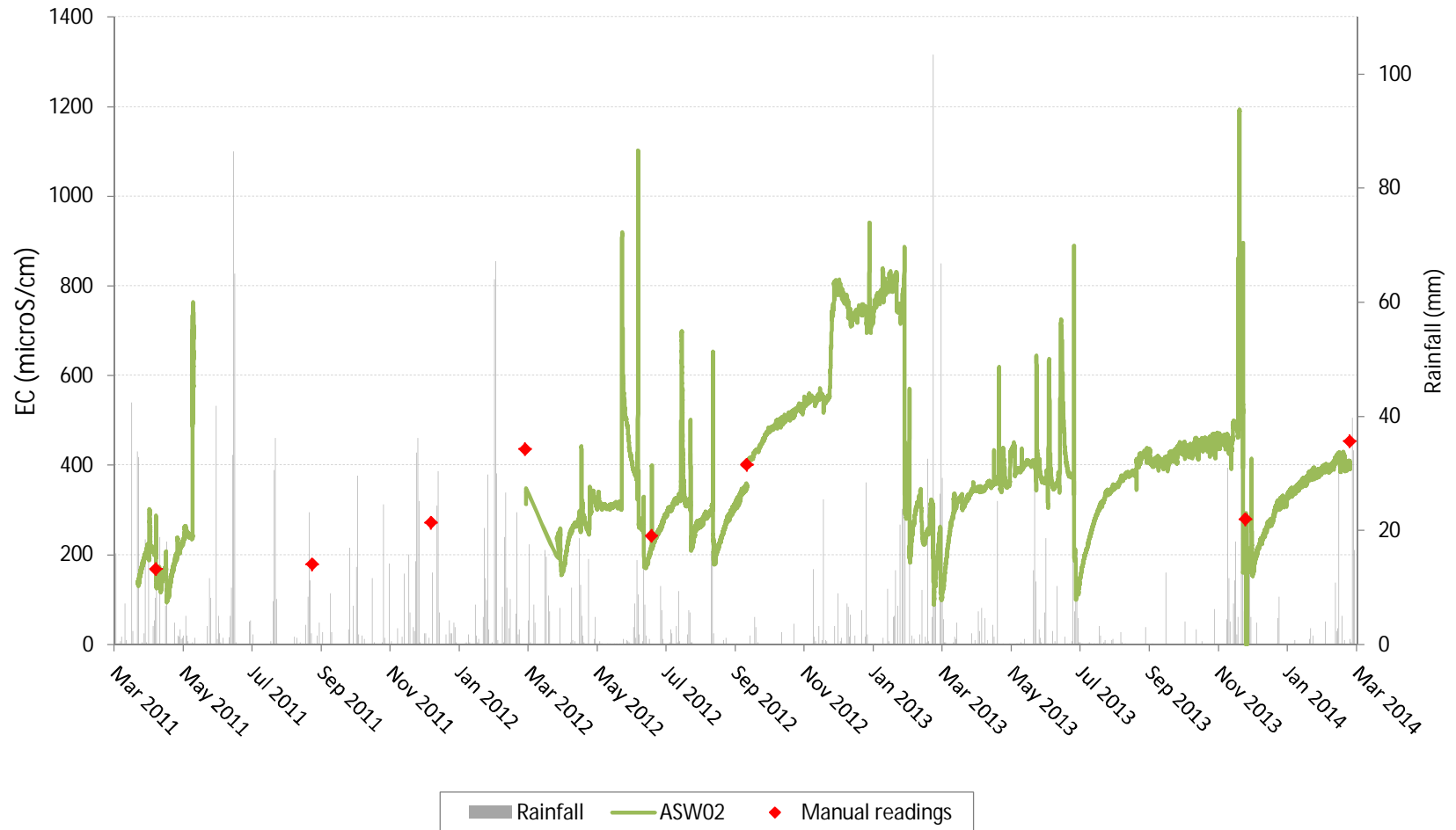


Figure A-46 Piezometric levels and rainfall at PL03 Piezo V2

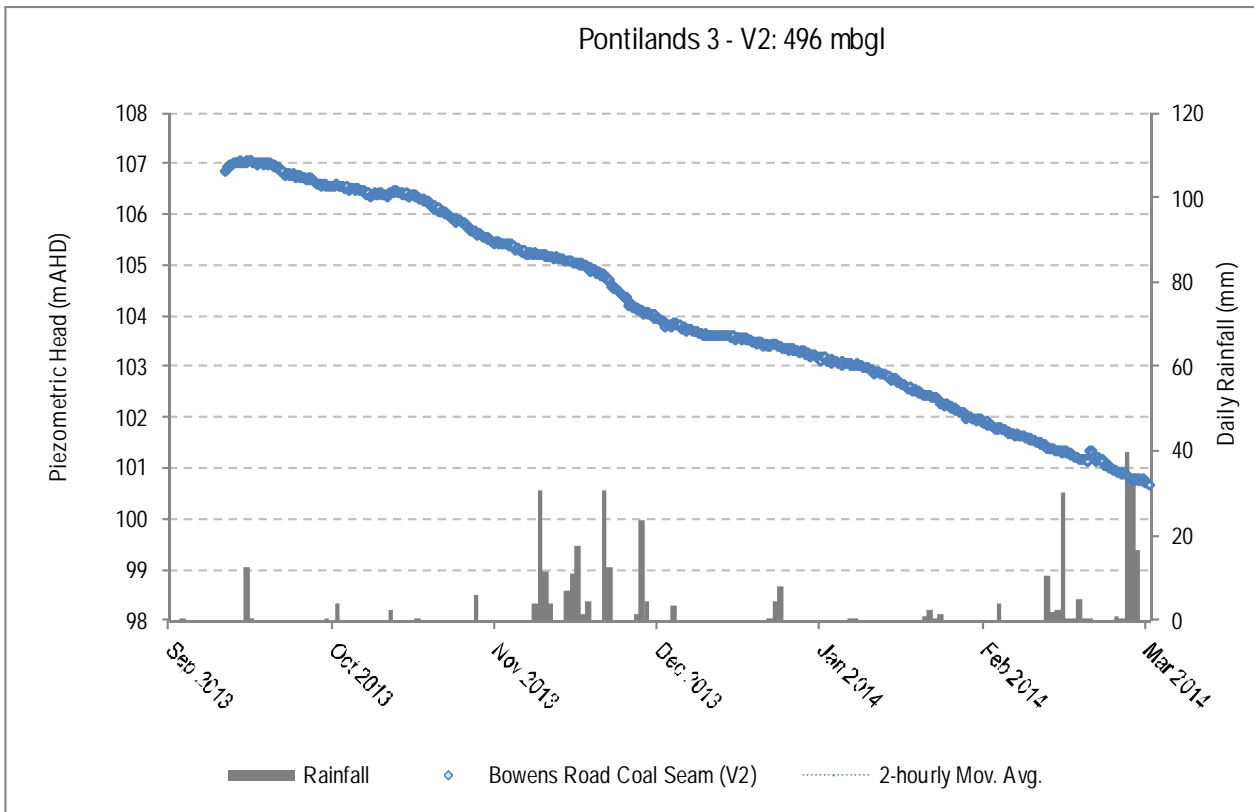


Figure A-47 Piezometric levels and rainfall at PL03 Piezo V3

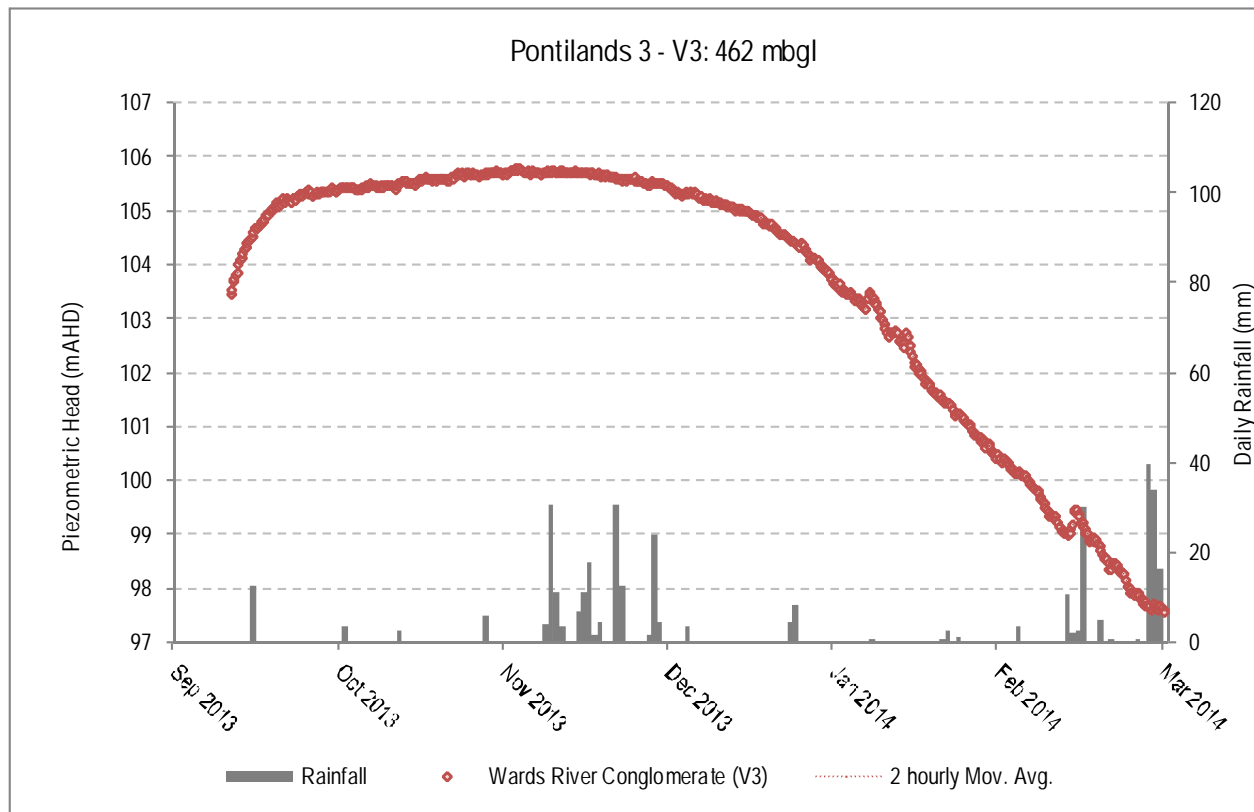




Figure A-48 Piezometric levels and rainfall at PL03

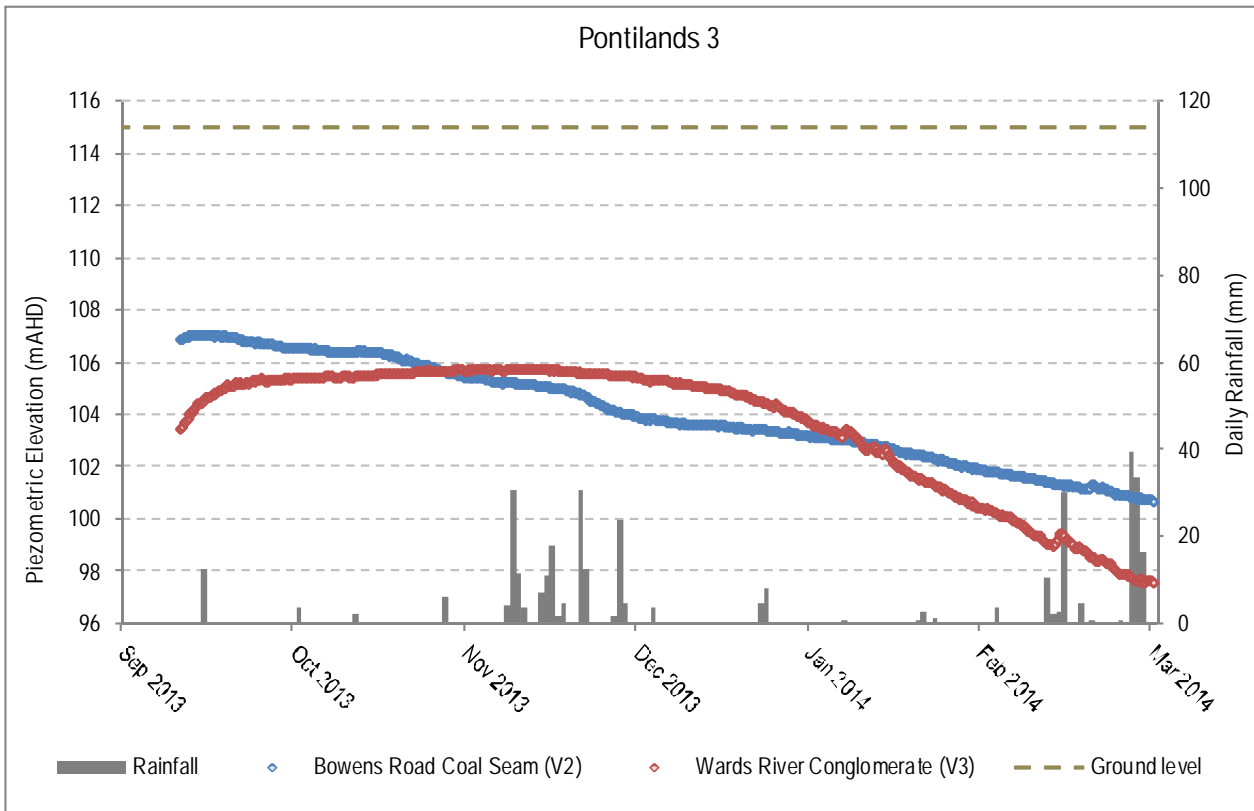


Table 1 - Shallow gas monitoring

TGMB01

Date/Time	Dip (mBGL)	GW level (mAHD)	Methane (% LEL)	GL (mAHD)	TOC (mAHD)	
3/12/2013 9:30	not dipped	n/a	0	TGMB01	133.66	134.43
11/03/2014 15:05	DRY	DRY	0	TGMB02	133.83	134.63

TGMB02

Date/Time	Dip (mBGL)	GW level (mAHD)	Methane (% LEL)
3/12/2013 9:30	not dipped	n/a	0
11/03/2014 15:05	DRY	DRY	0