

Memo

Date 11 November 2015
To James Duggleby
From Chris Richard
Ref 2200566A-RES-MEM-001 RevB
Subject Gloucester Gas Project - FY16 Monitoring Update - October 2015

This memo presents updated hydrographs for all Gloucester Gas Project groundwater monitoring bores and hydrograph and salinity traces (measured as electrical conductivity (EC)) for surface water monitoring sites from June 2015 to October 2015. Full analysis and discussion of these results will be presented in the comprehensive 2016 Annual Report which will detail all groundwater and surface water level and quality results for the 2015/16 monitoring period.

For this monitoring period:

- Groundwater level data from TCMB02 could not be recovered and will be included in the January 2016 monitoring update.
- The data logger at TCMB04 failed 17 June 2015 and was replaced 10 July 2015.
- The data logger at FKMB01A failed 4 June 2015 and was replaced 10 July 2015.
- The data logger at WKMB06B failed 2 July 2015 and was replaced 20 July 2015.
- The EC sensor failed at WKSW03 on 1 August 2015 and has been replaced.
- The datalogger at TTMB03 was reinstated on 10 July 2015.
- Groundwater levels for new monitoring bore NS725R have been plotted on Figure 12 and water level data are corrected to ground level elevation (mAHD). Water level corrections will be revised once surveyed data of the monitoring bore at top of casing are available.
- Water quality sampling took place in June 2015. Drops in water levels at S4MB, S5MB, WKMB and WRMB locations are in response to sampling.

Figures 1 - 8: Groundwater hydrographs for Stage 1 and 2 nested monitoring bore sites.

Figures 9 and 10: Water levels and electrical conductivity for all surface water monitoring sites.

Figure 11: Groundwater levels at the PL03 Vibrating Wire Piezometer and WKMB05.

Figure 12: Groundwater levels at NS729R.

Figures A.1 – A.22: Individual Stage 1 and 2 groundwater monitoring bore hydrographs.

Figures A.23 – A.30: Individual surface water level and electrical conductivity hydrographs.

Figure A.31: Individual PL03 Vibrating Wire Piezometer hydrographs.

Figures A.32 – A.34: Individual hydrographs from WKMB05 sensors.

Figure A.35: Individual hydrograph for NS725R

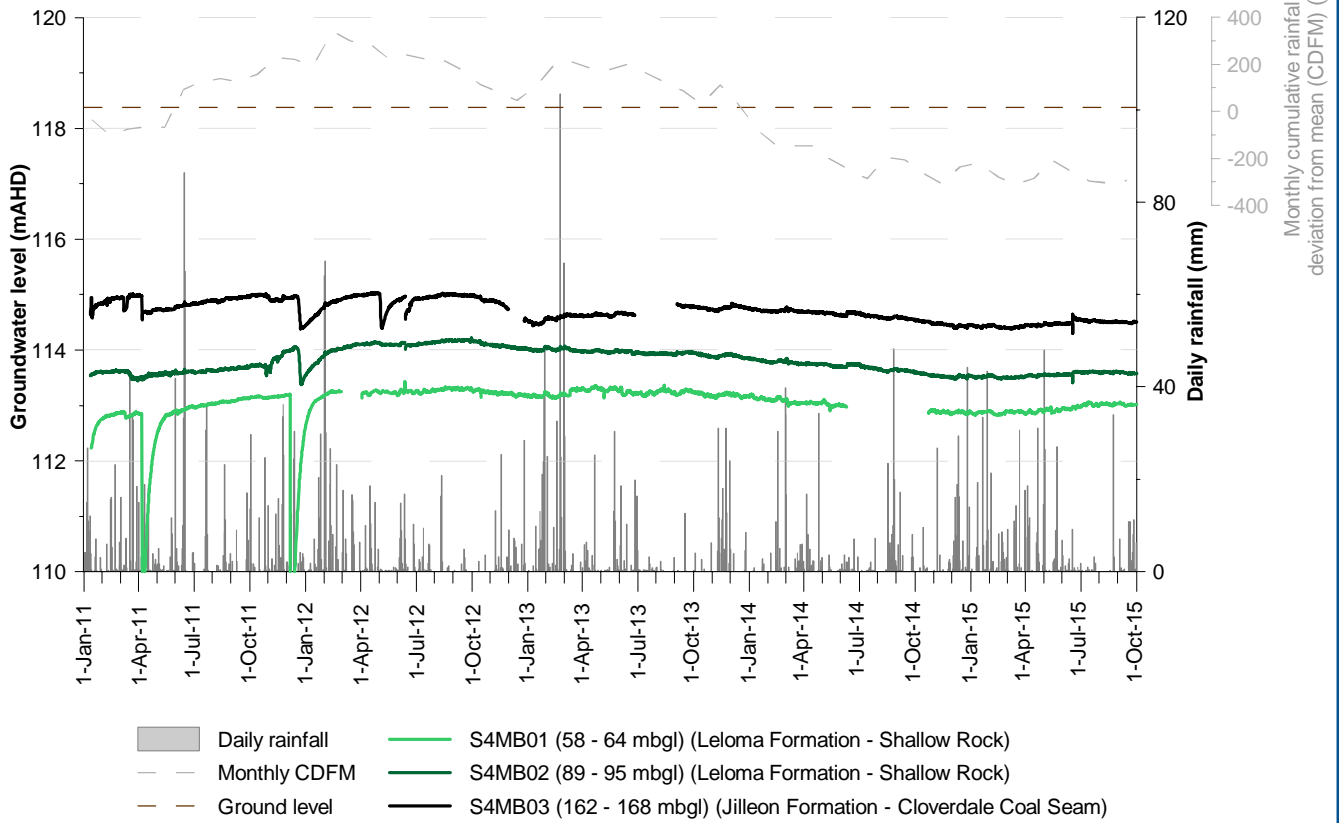
Groundwater and surface water monitoring is undertaken on a four-monthly basis. The next monitoring round will take place in January 2016.

Yours sincerely



Chris Richard
Environmental Scientist

S4MB



S5MB

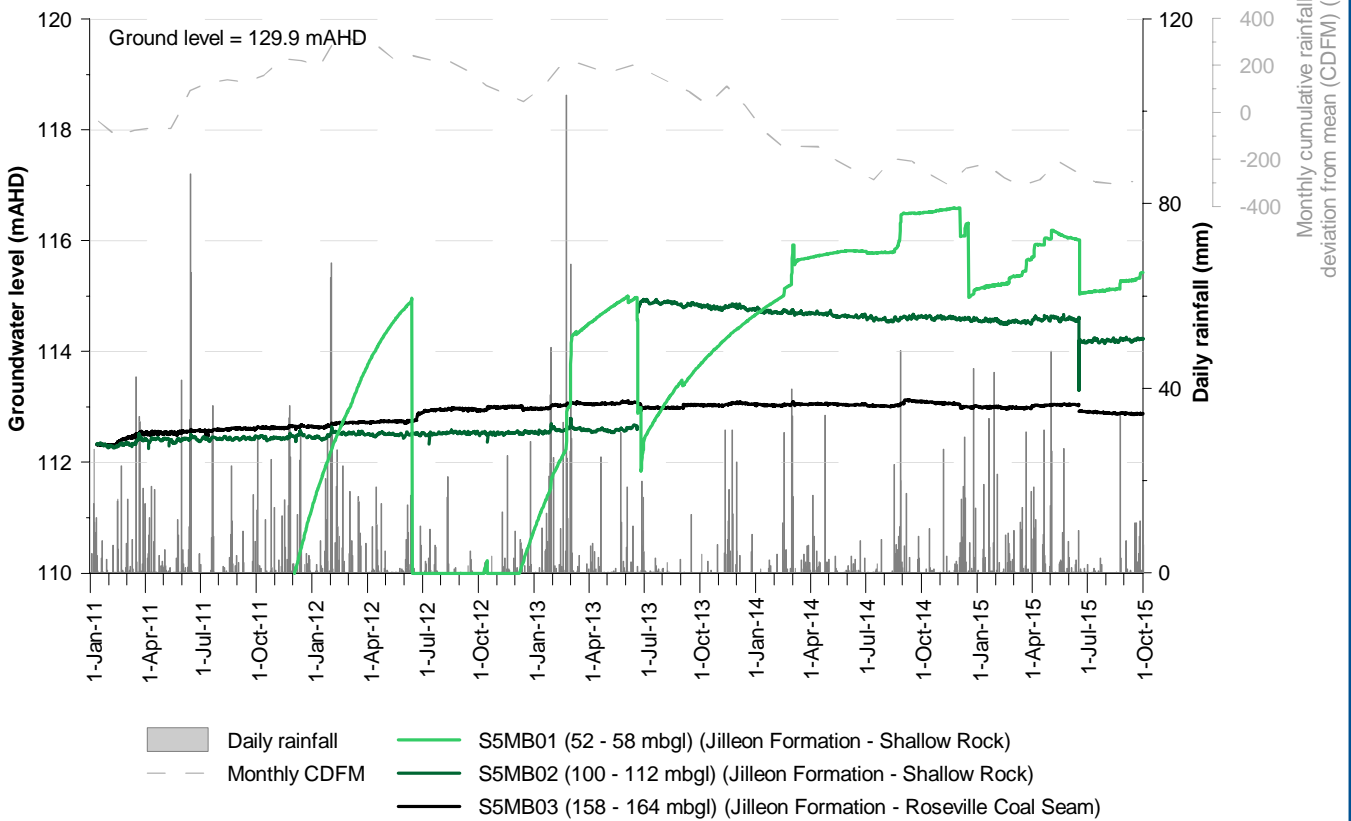


Figure 1: S4MB and S5MB monitoring bores

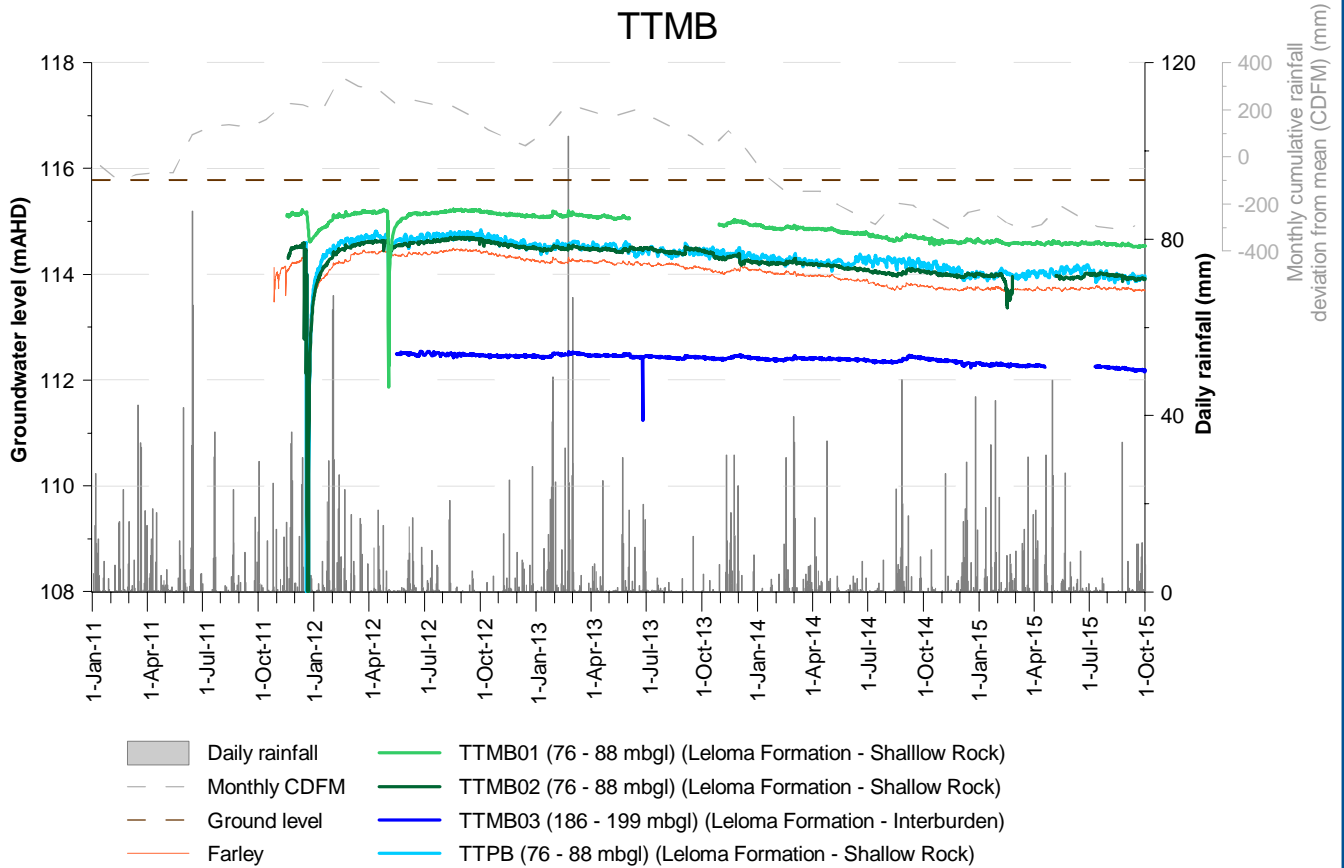
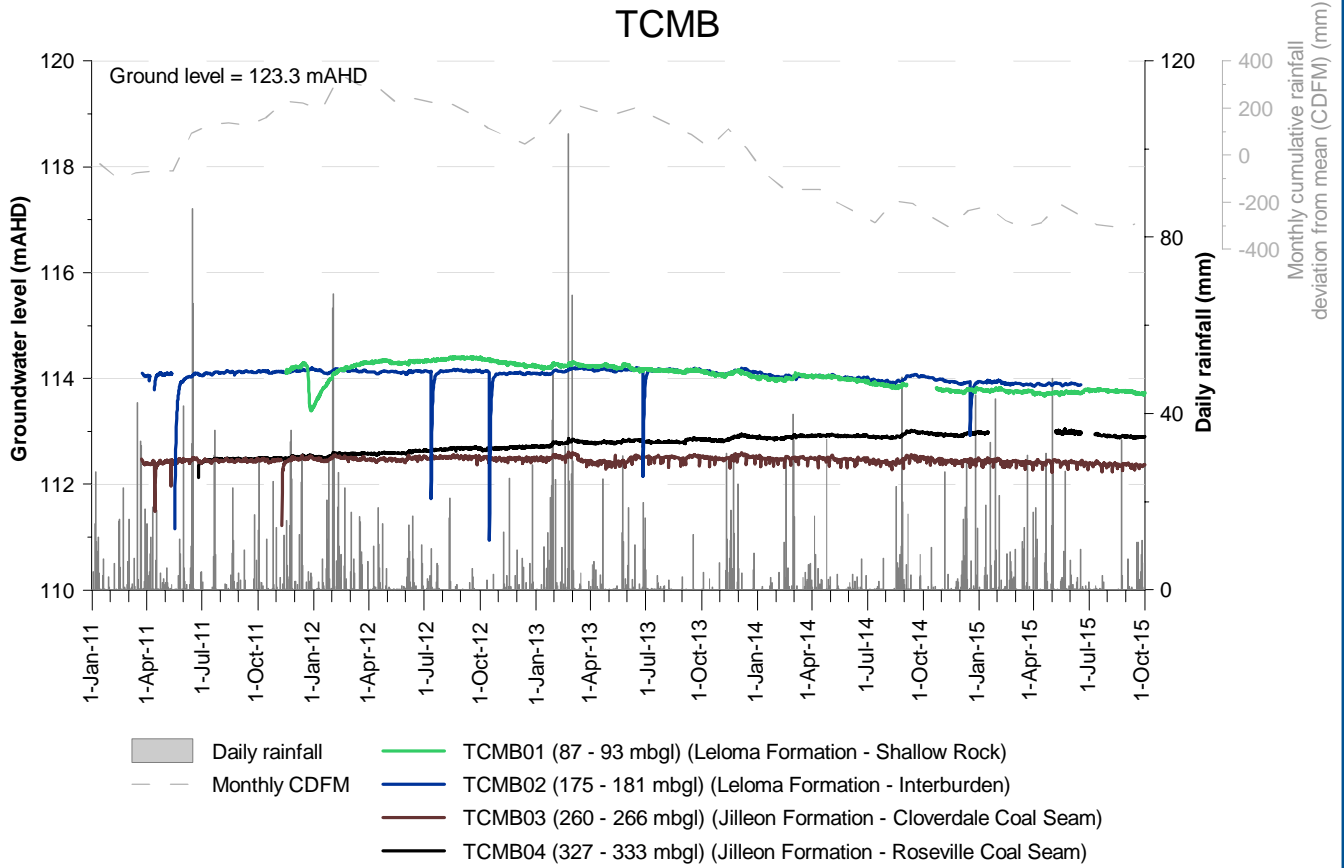


Figure 2: TCMB and TTMB monitoring bores

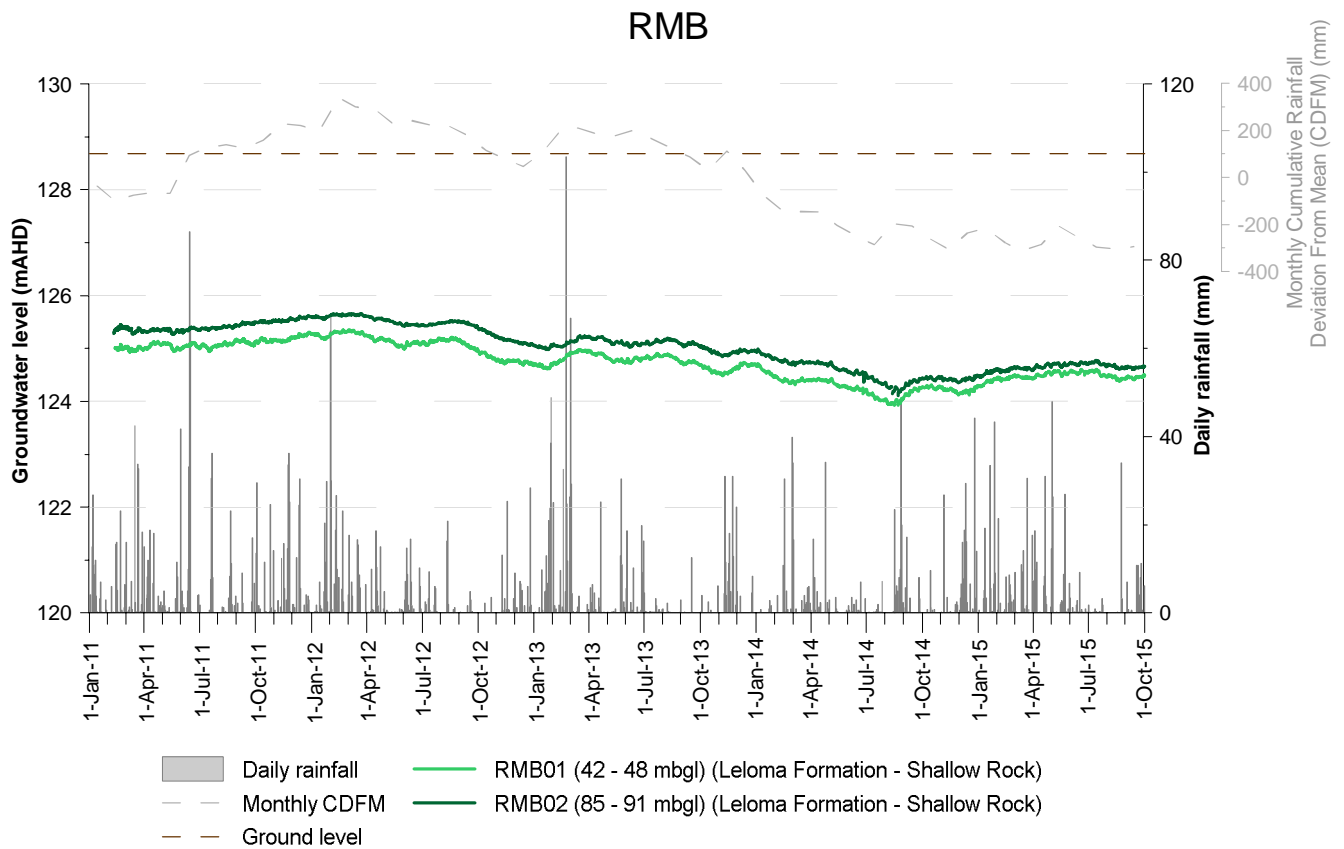
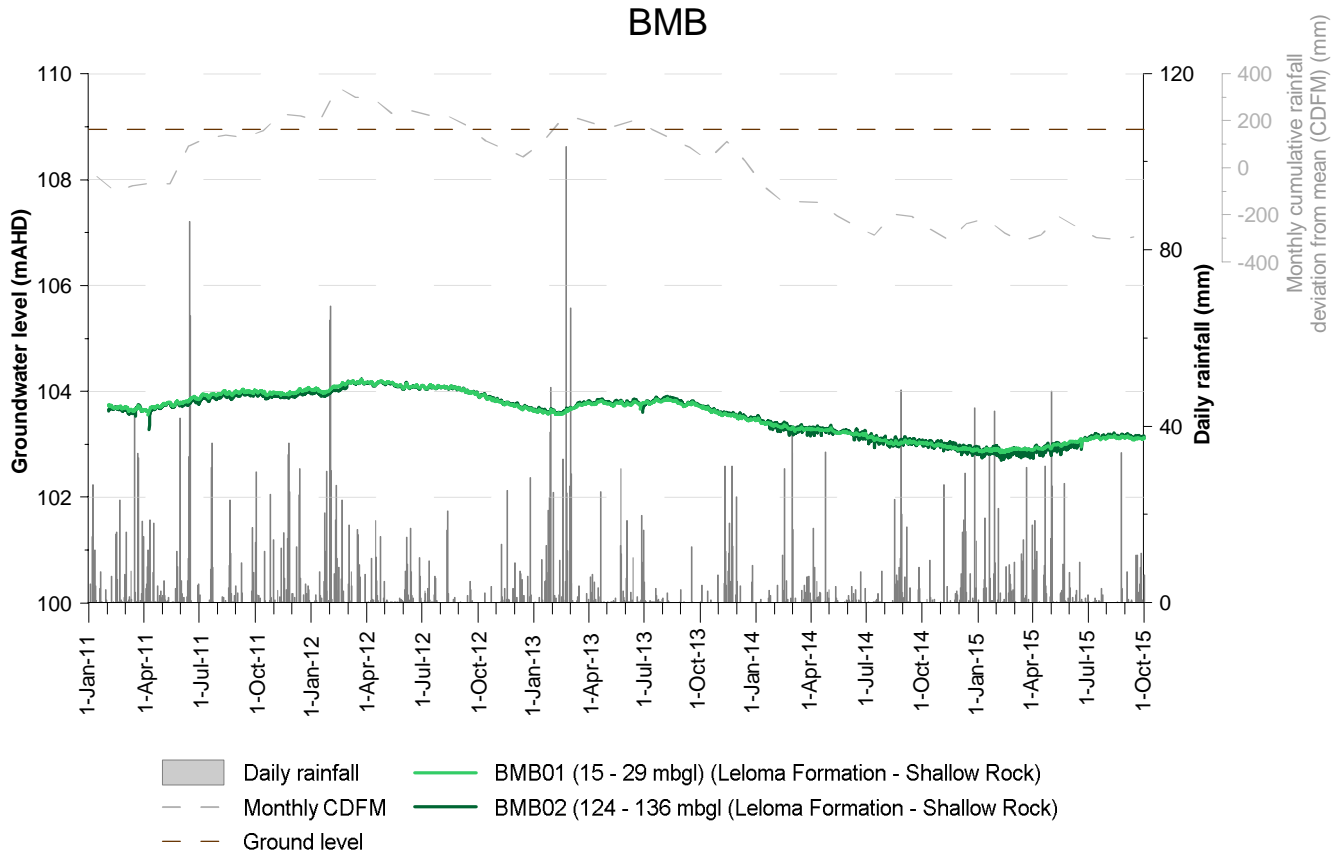


Figure 3: BMB and RMB monitoring bores

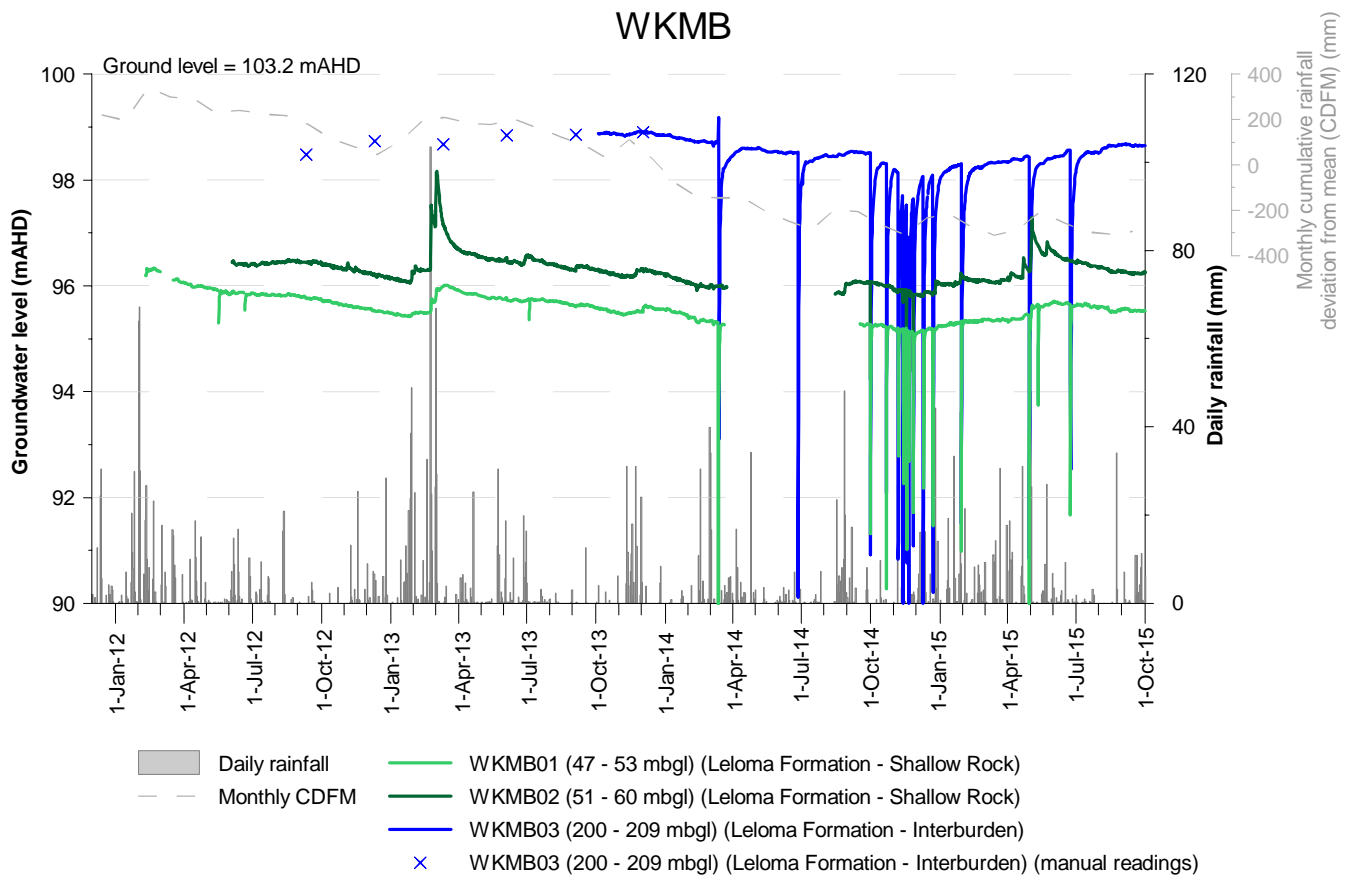
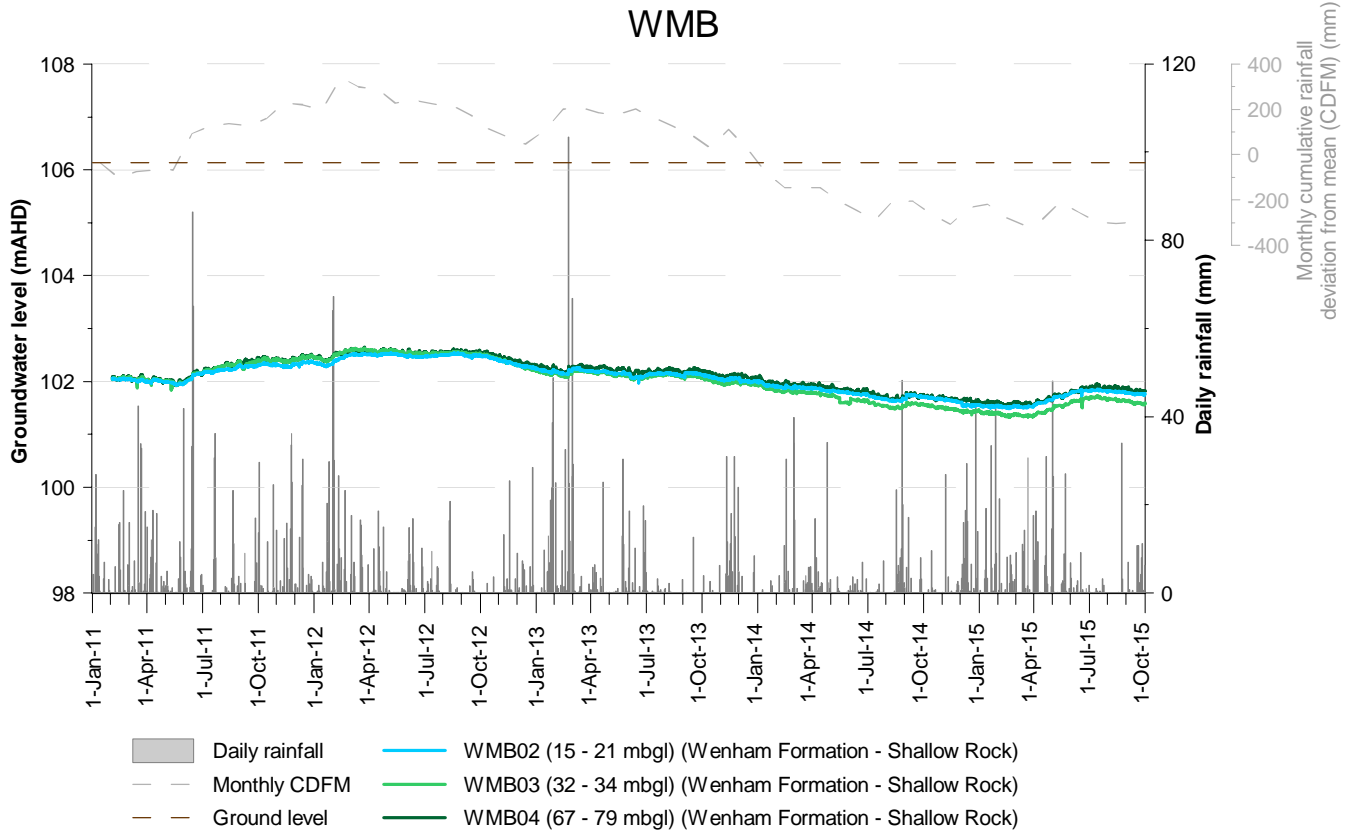


Figure 4: WMB and WKMB monitoring bores

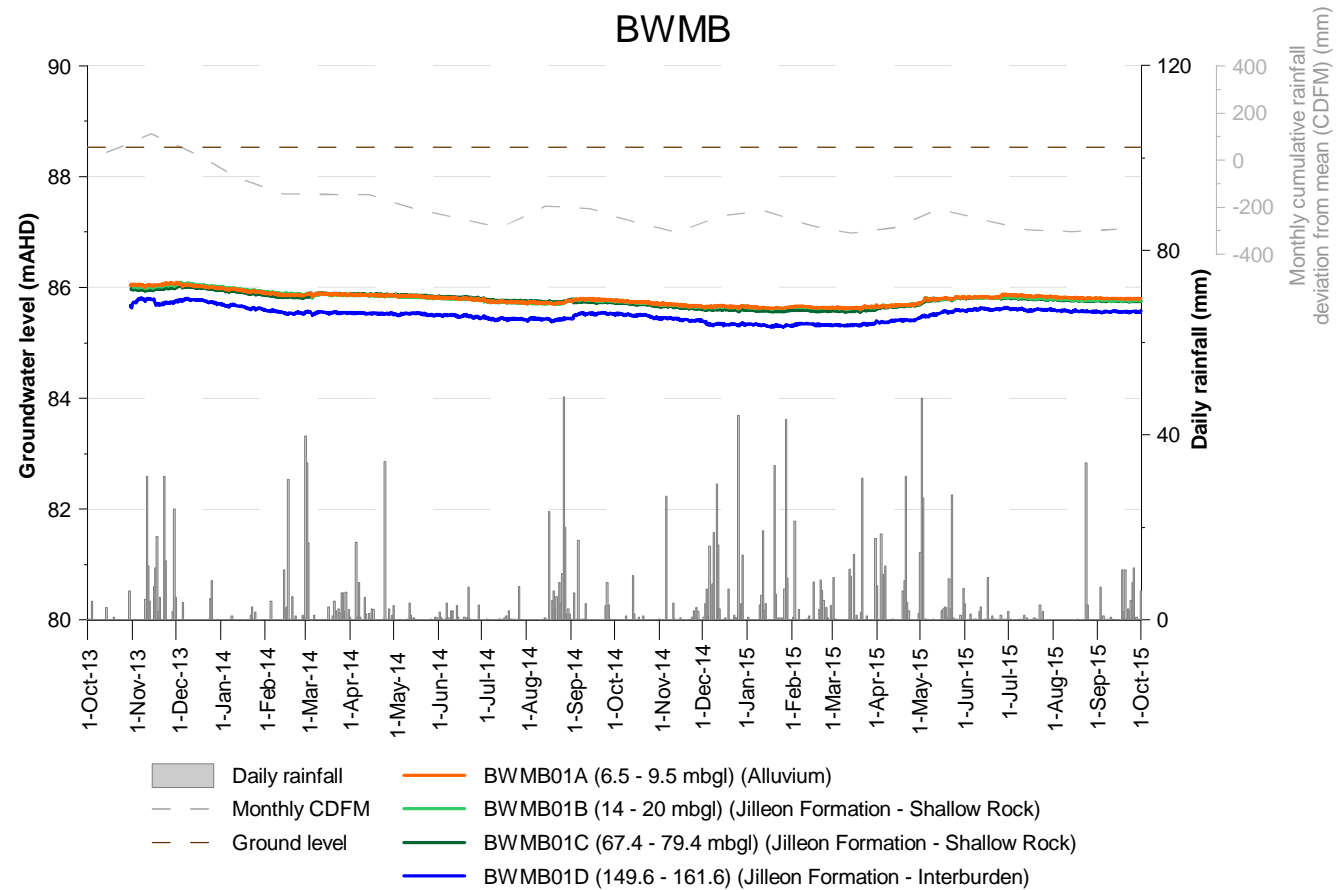
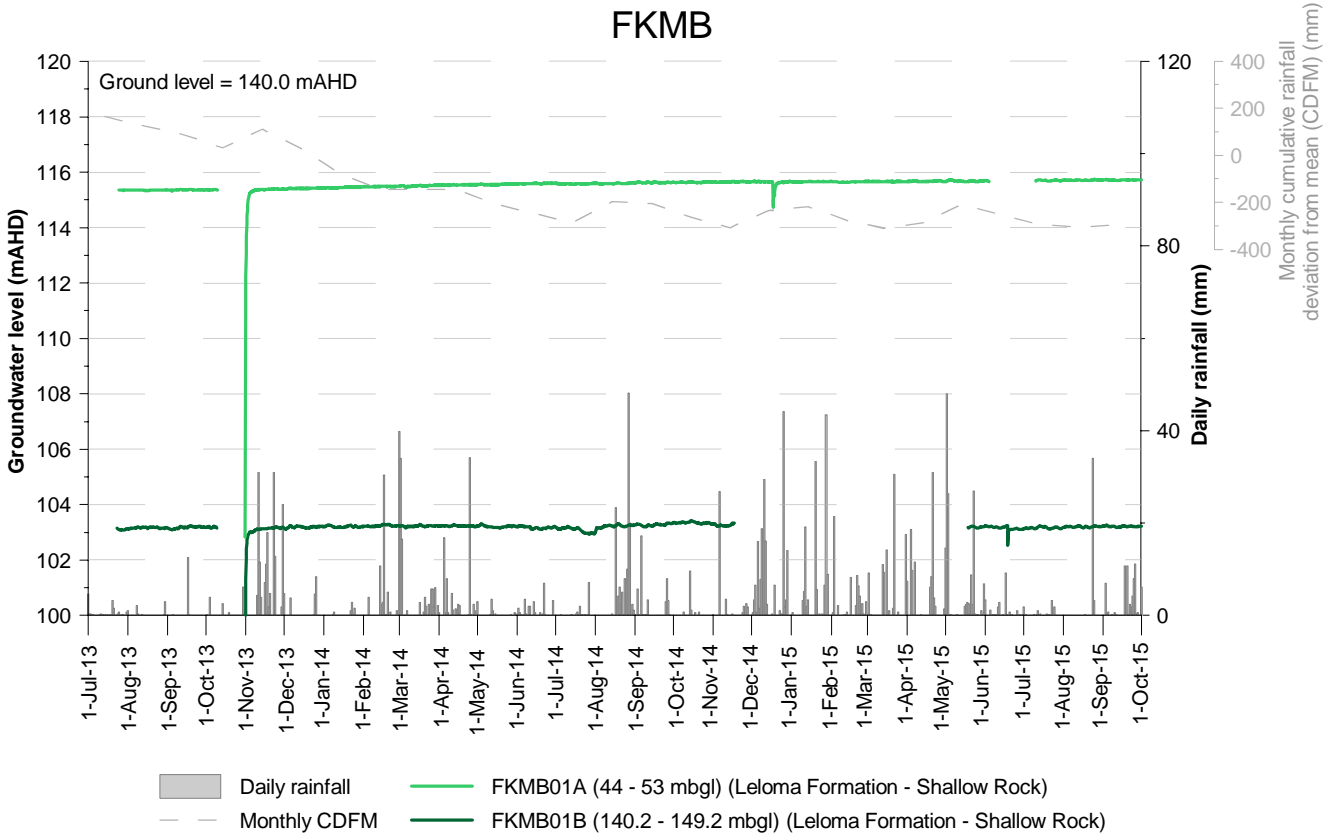
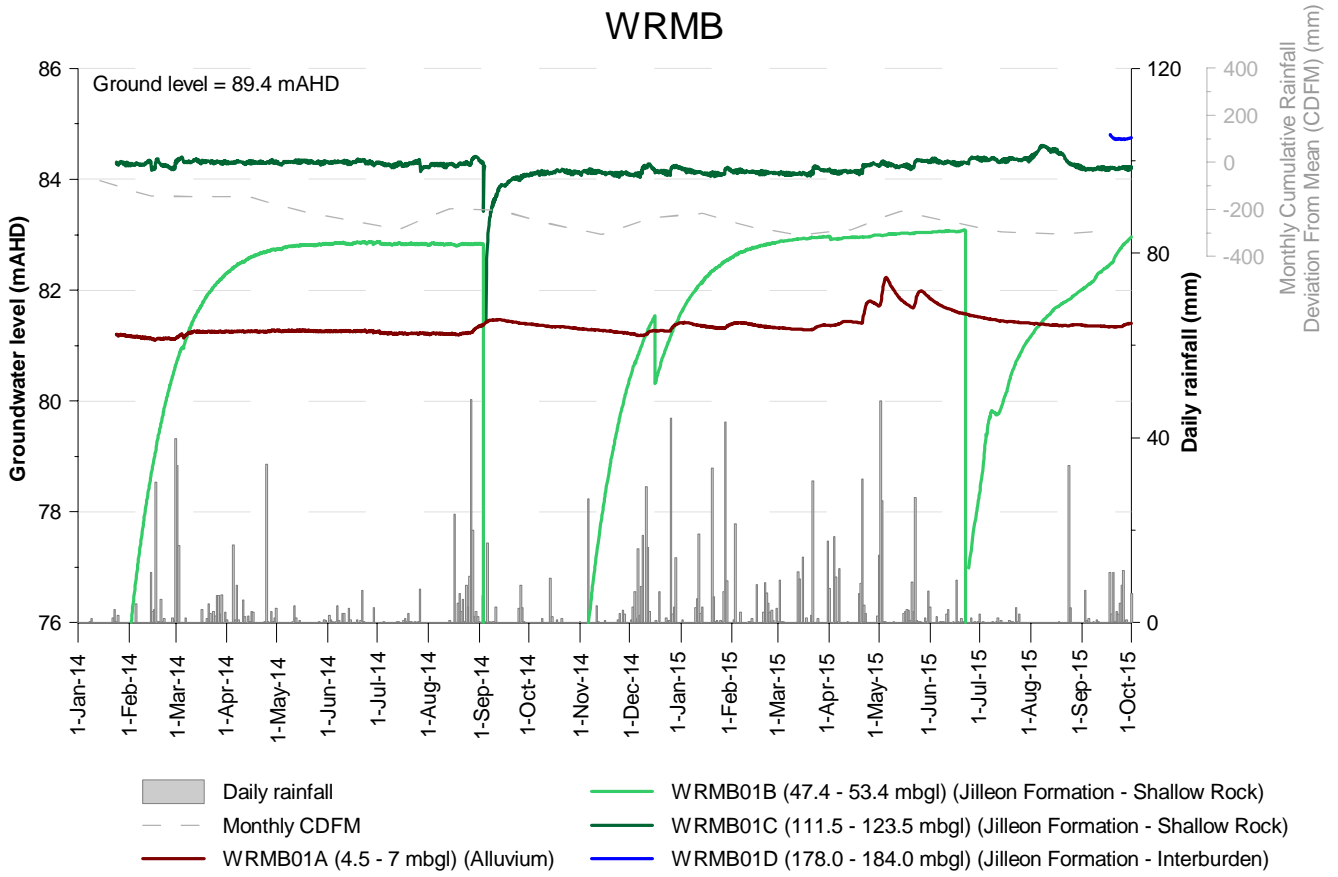


Figure 5: FKMB and BWMB monitoring bores

WRMB



WKMB06

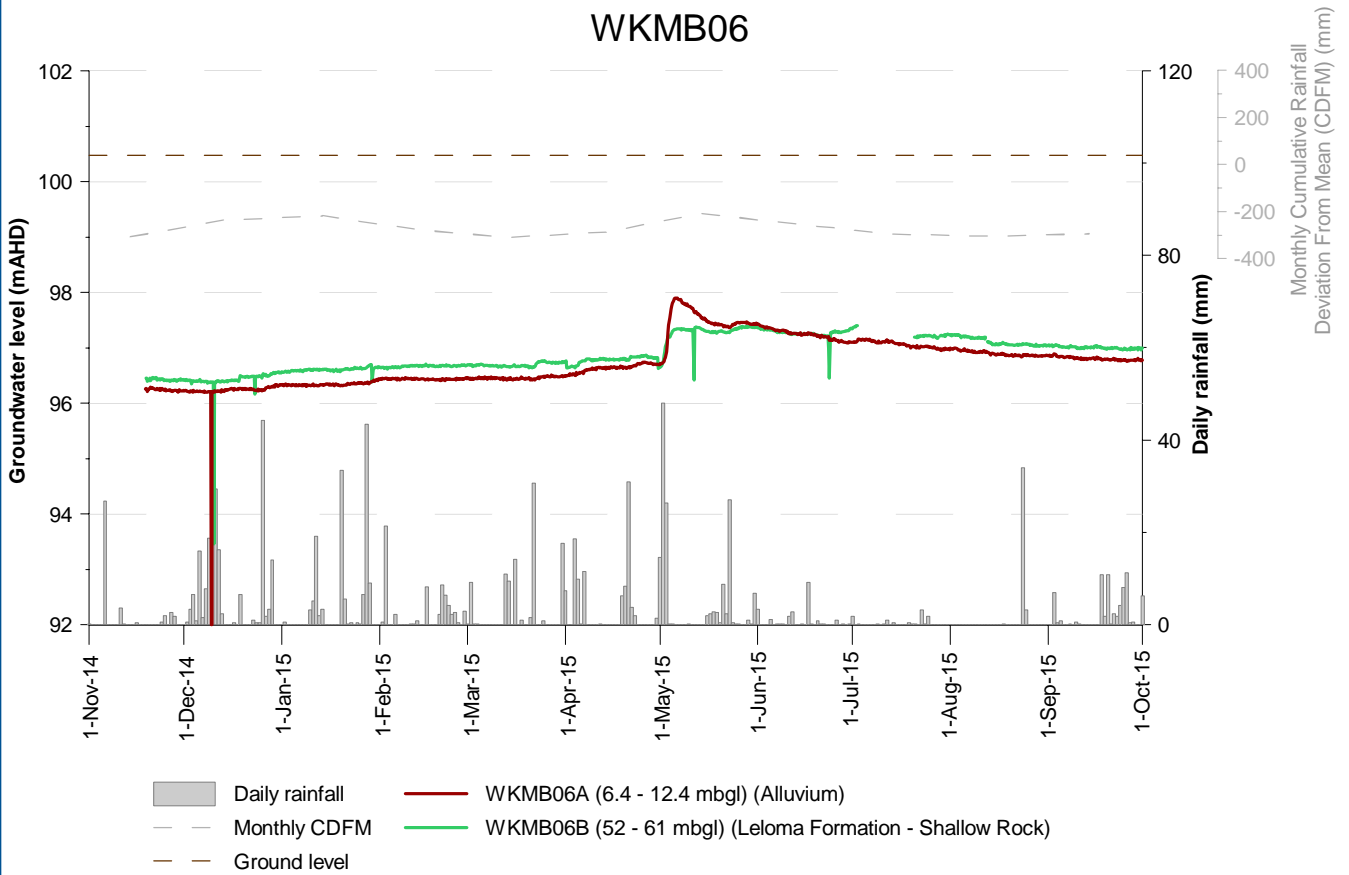


Figure 6: WRMB and WKMB06 monitoring bores

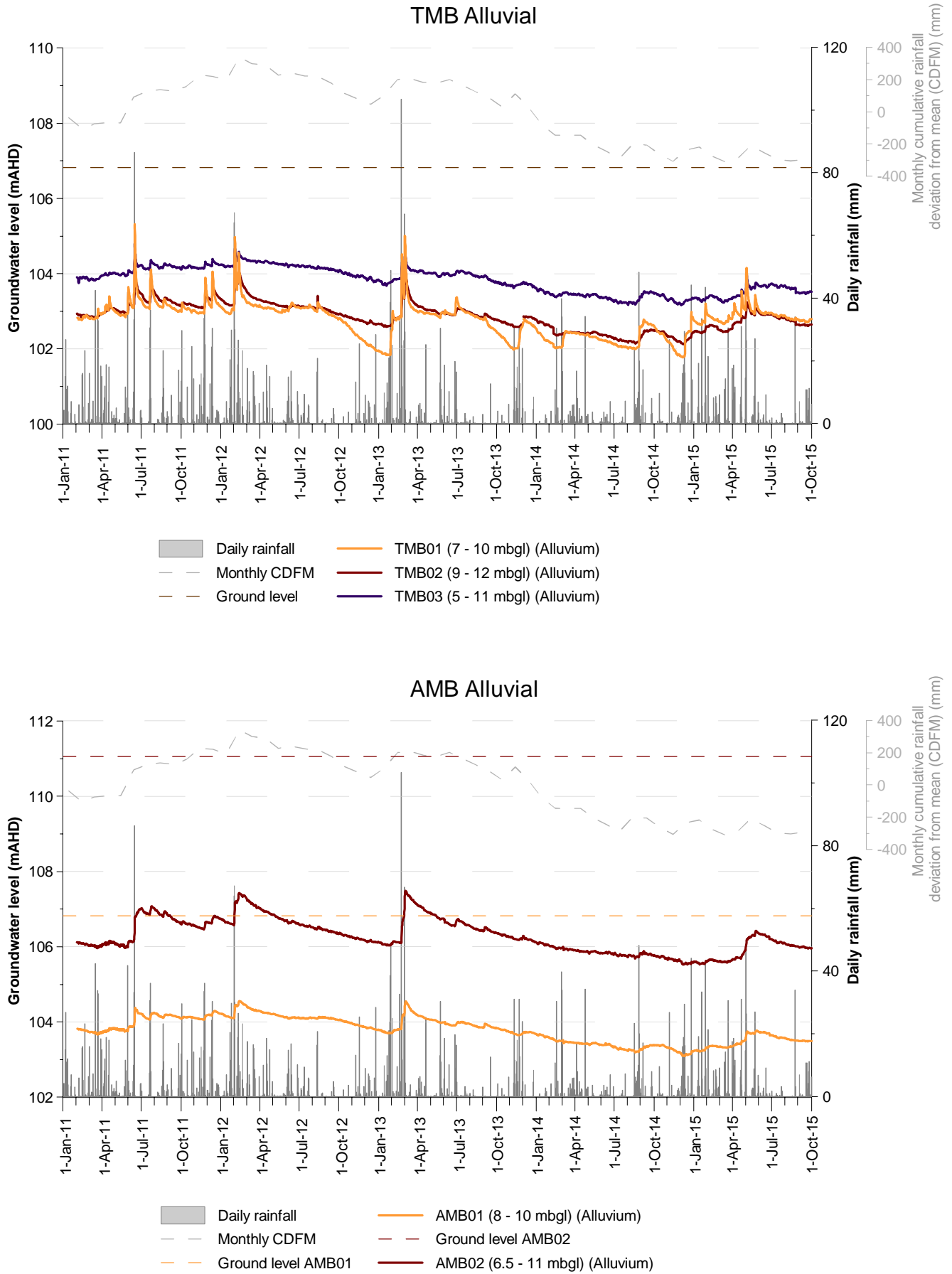


Figure 7: TMB and AMB Alluvial monitoring bores

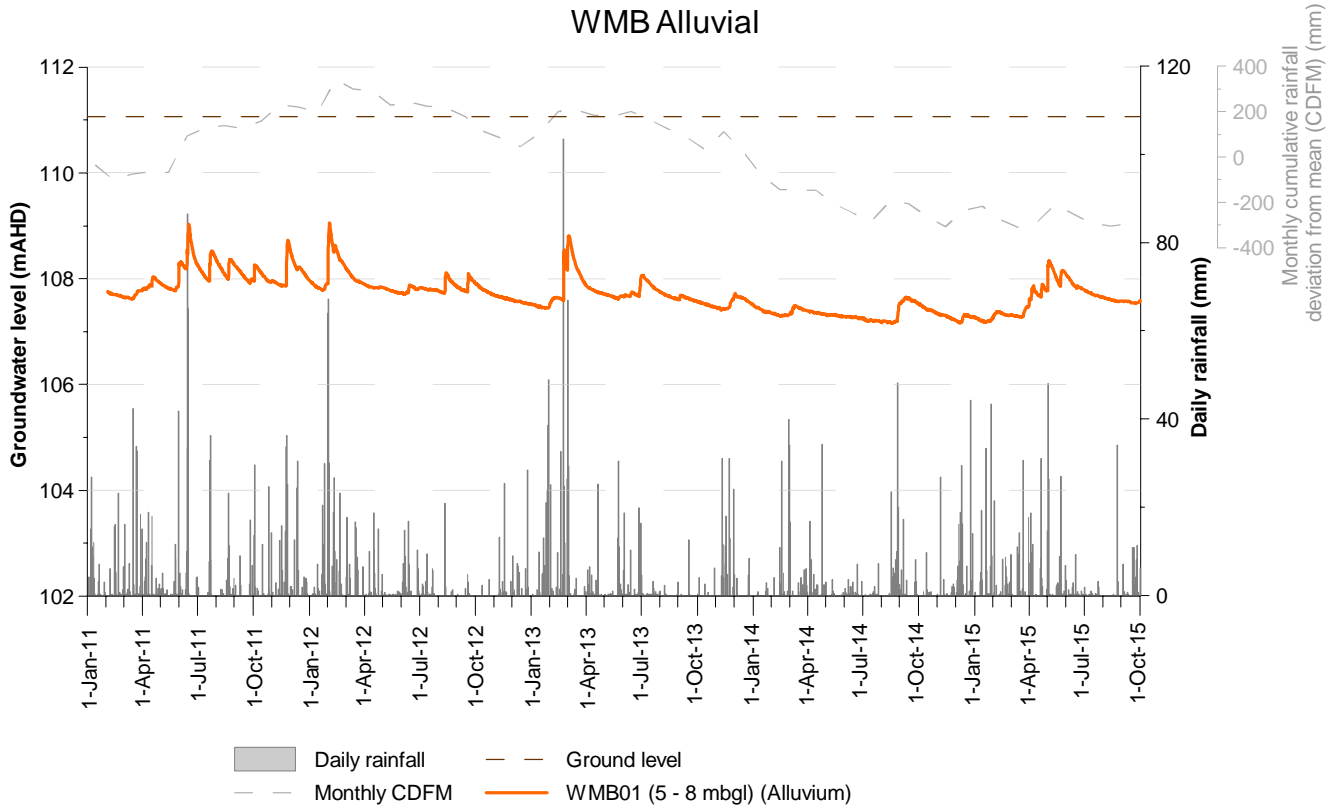


Figure 8: WMB Alluvial monitoring bore

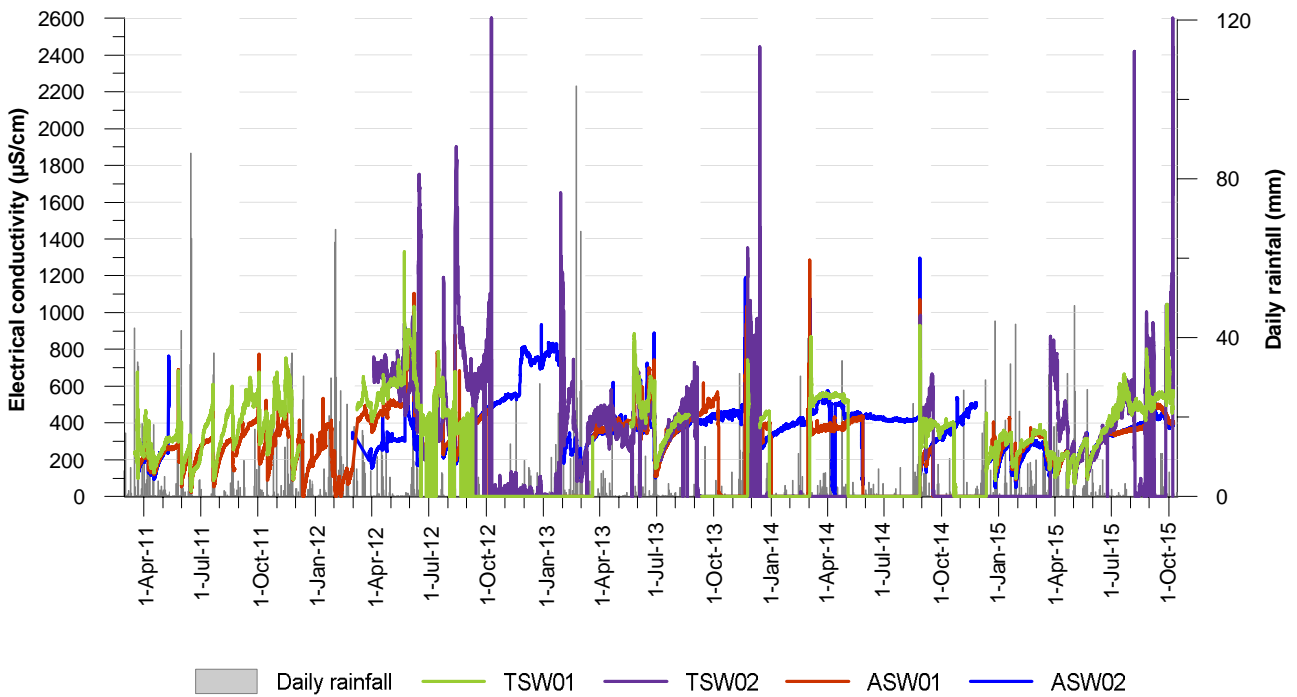
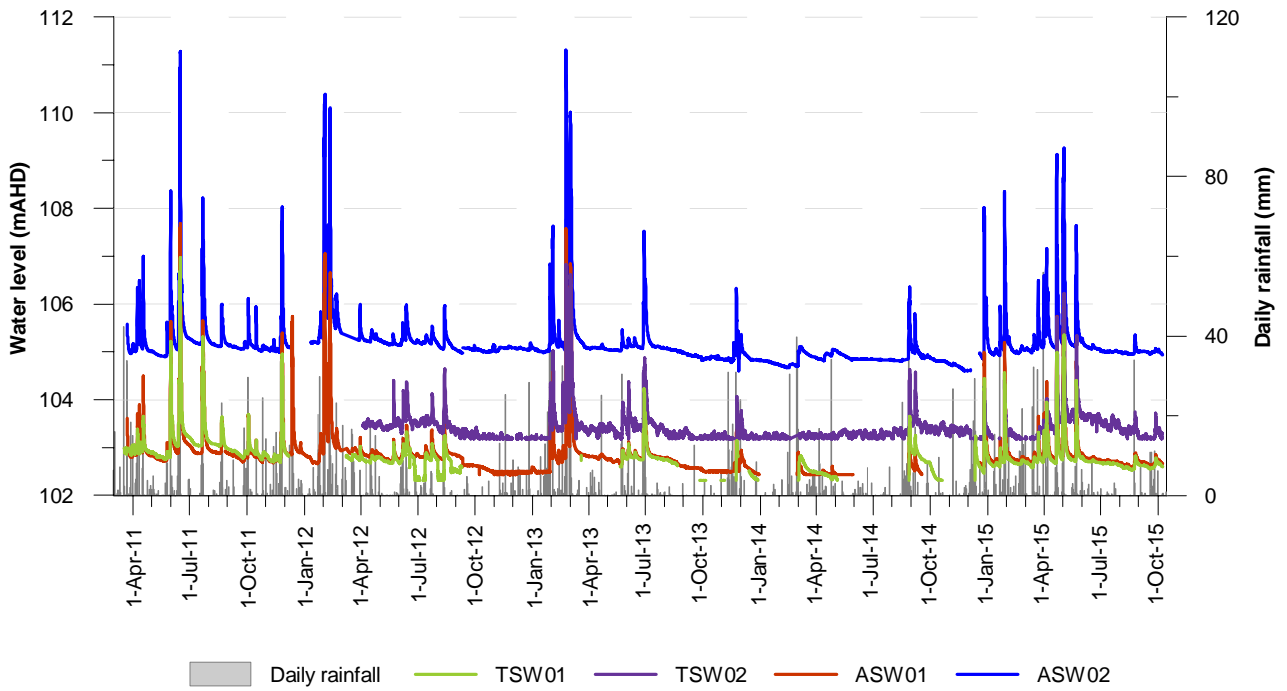


Figure 9: TSW01, TSW02, ASW01 and ASW02 surface water levels and electrical conductivity

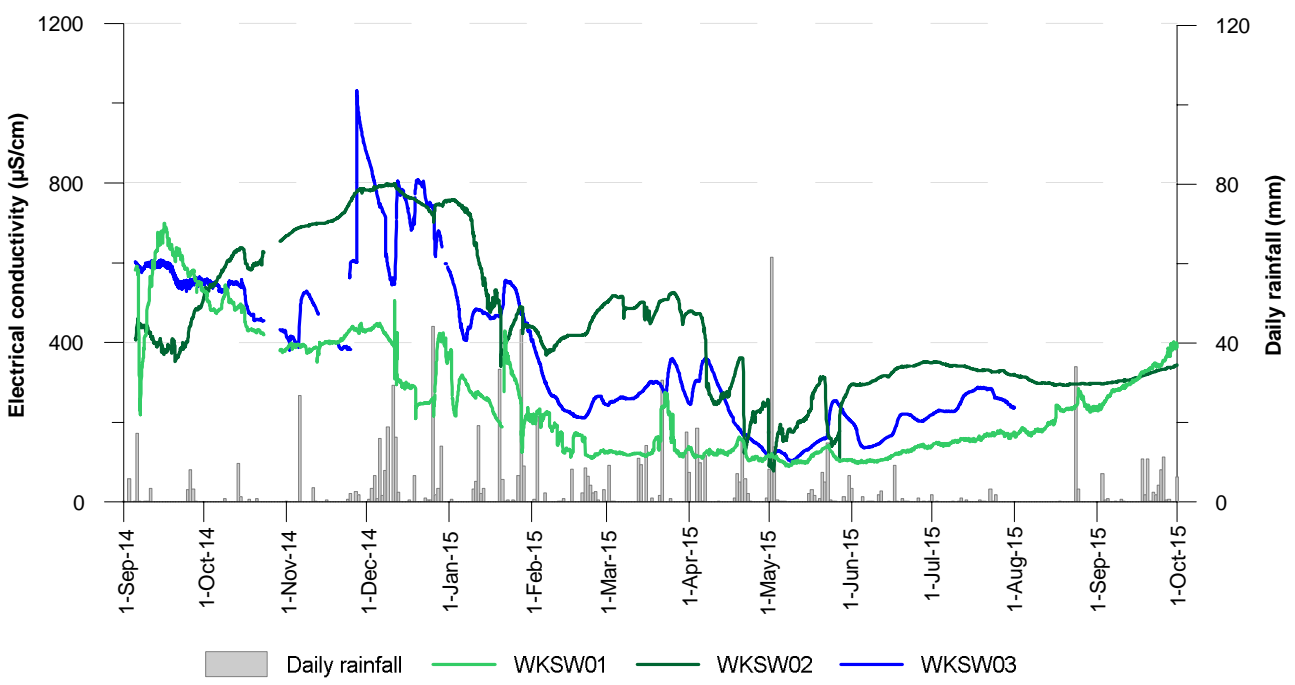
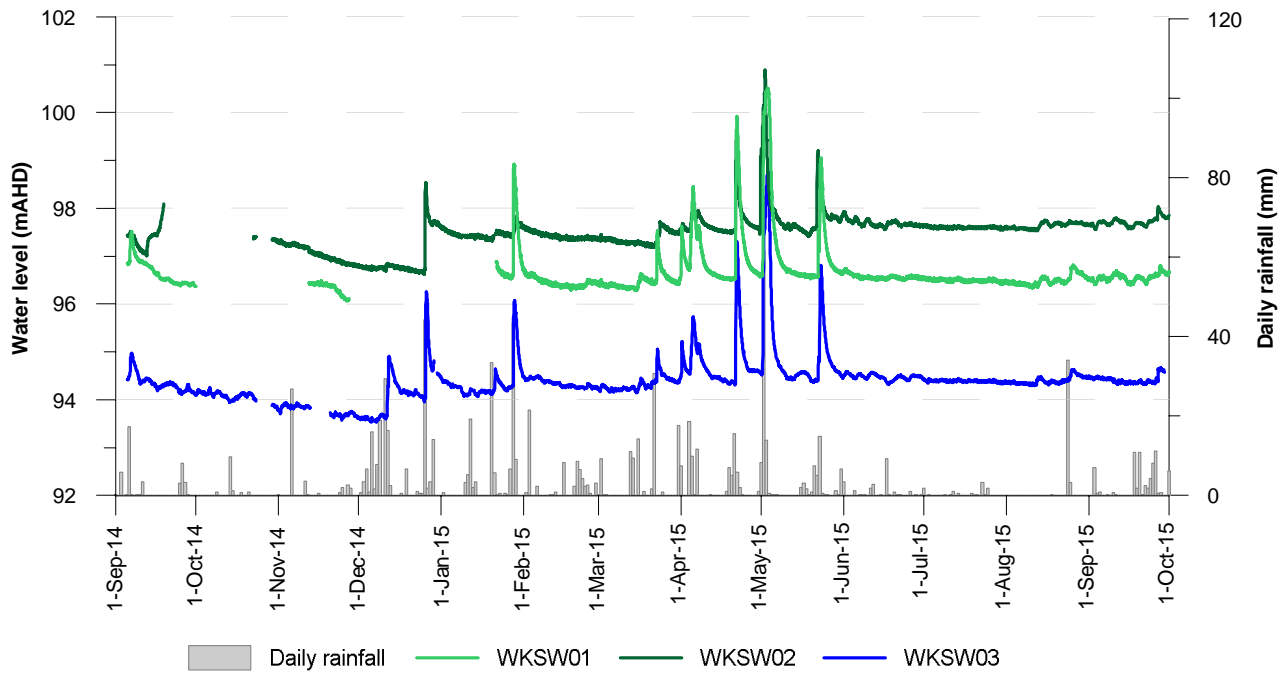


Figure 10: WKS01, WKS02 and WKS03 surface water levels and electrical conductivity

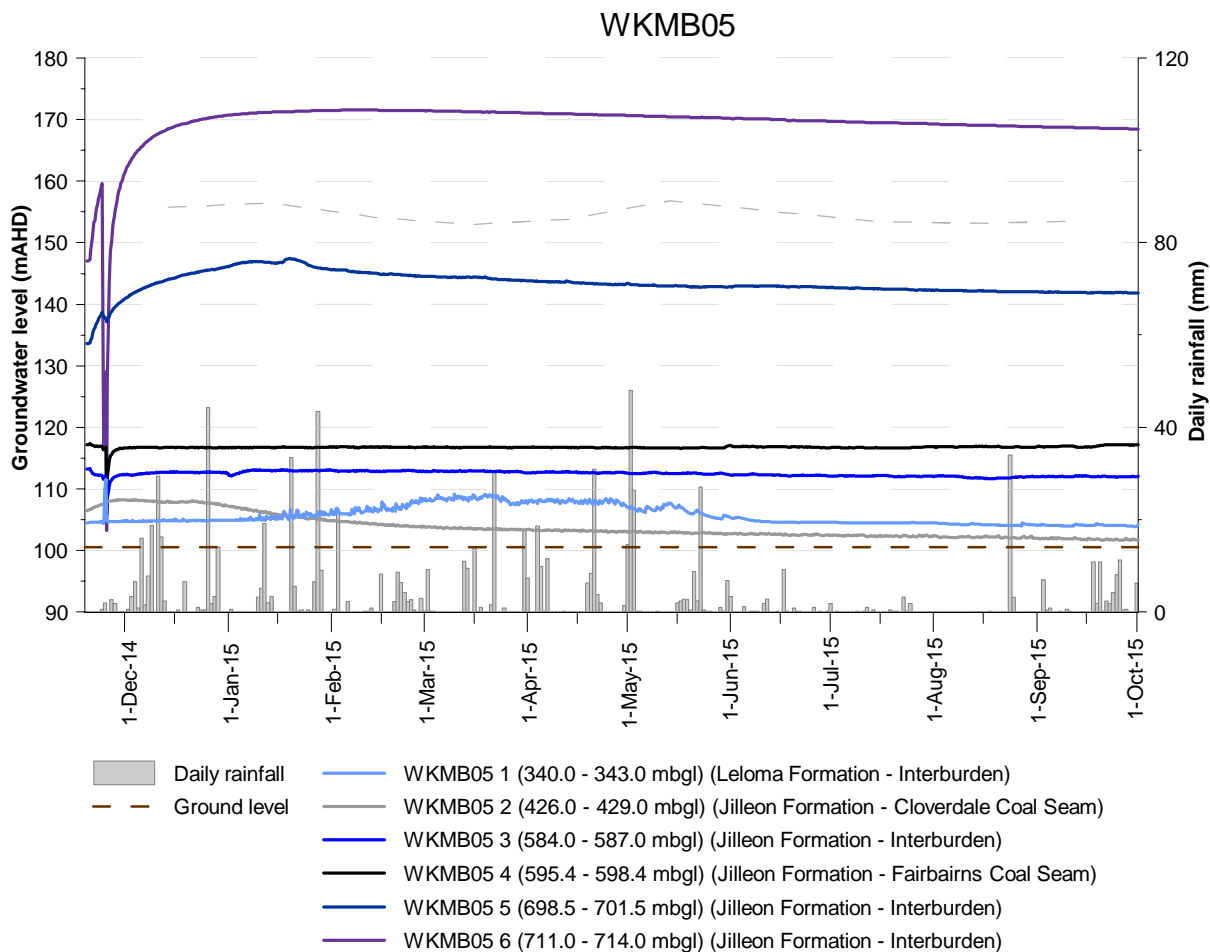
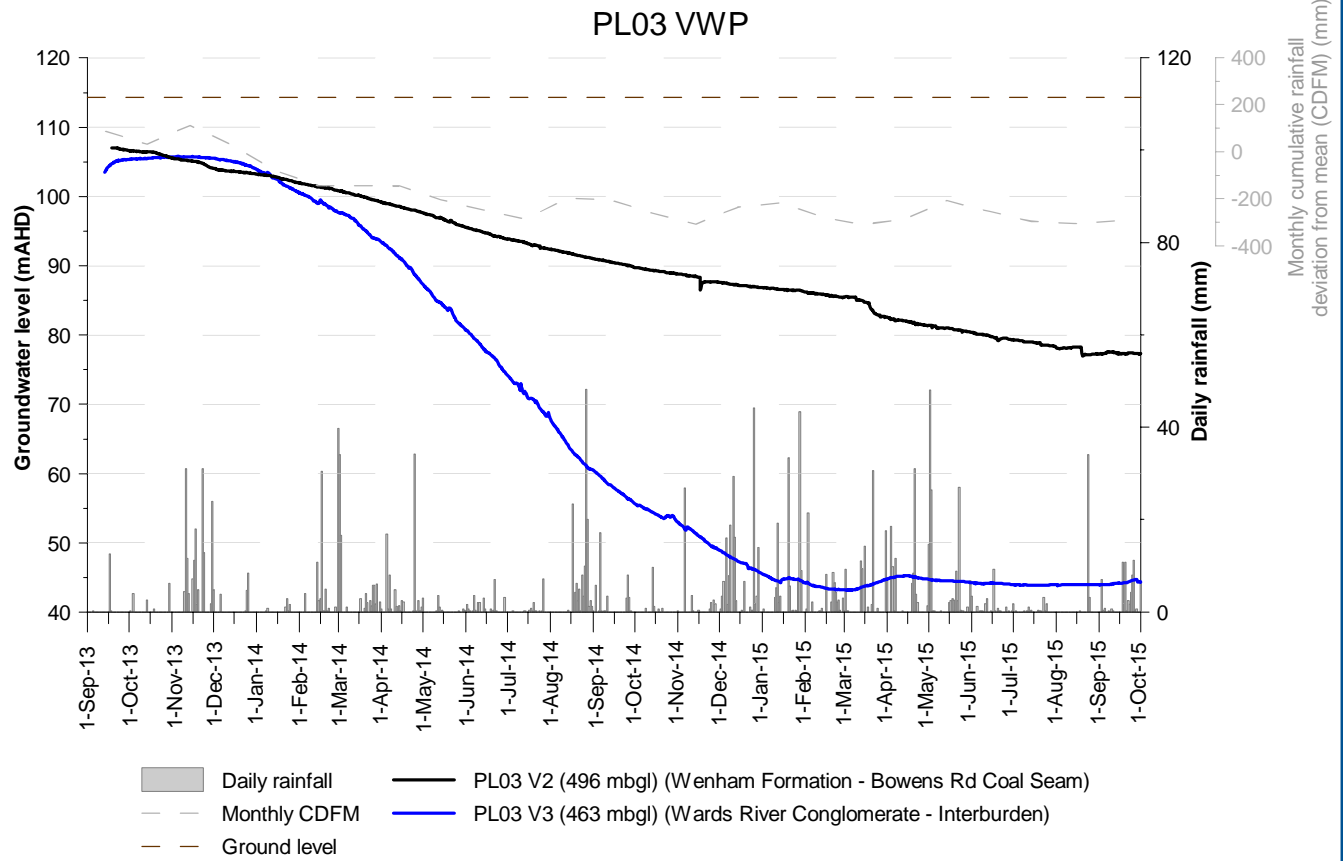


Figure 11: PL03 vibrating wire piezometer and WKMB05 multizone monitoring well

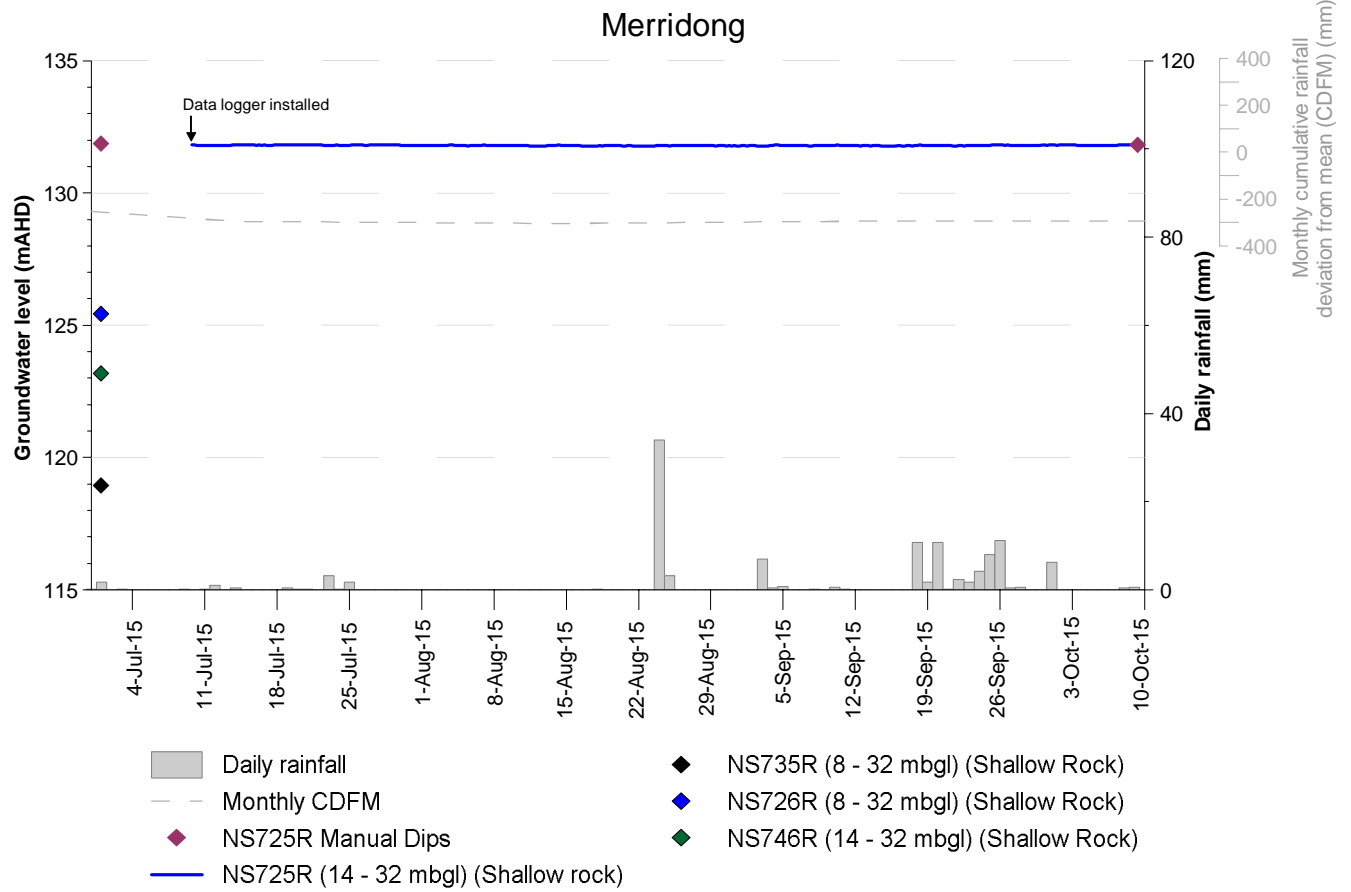


Figure 12: Merridong monitoring bores

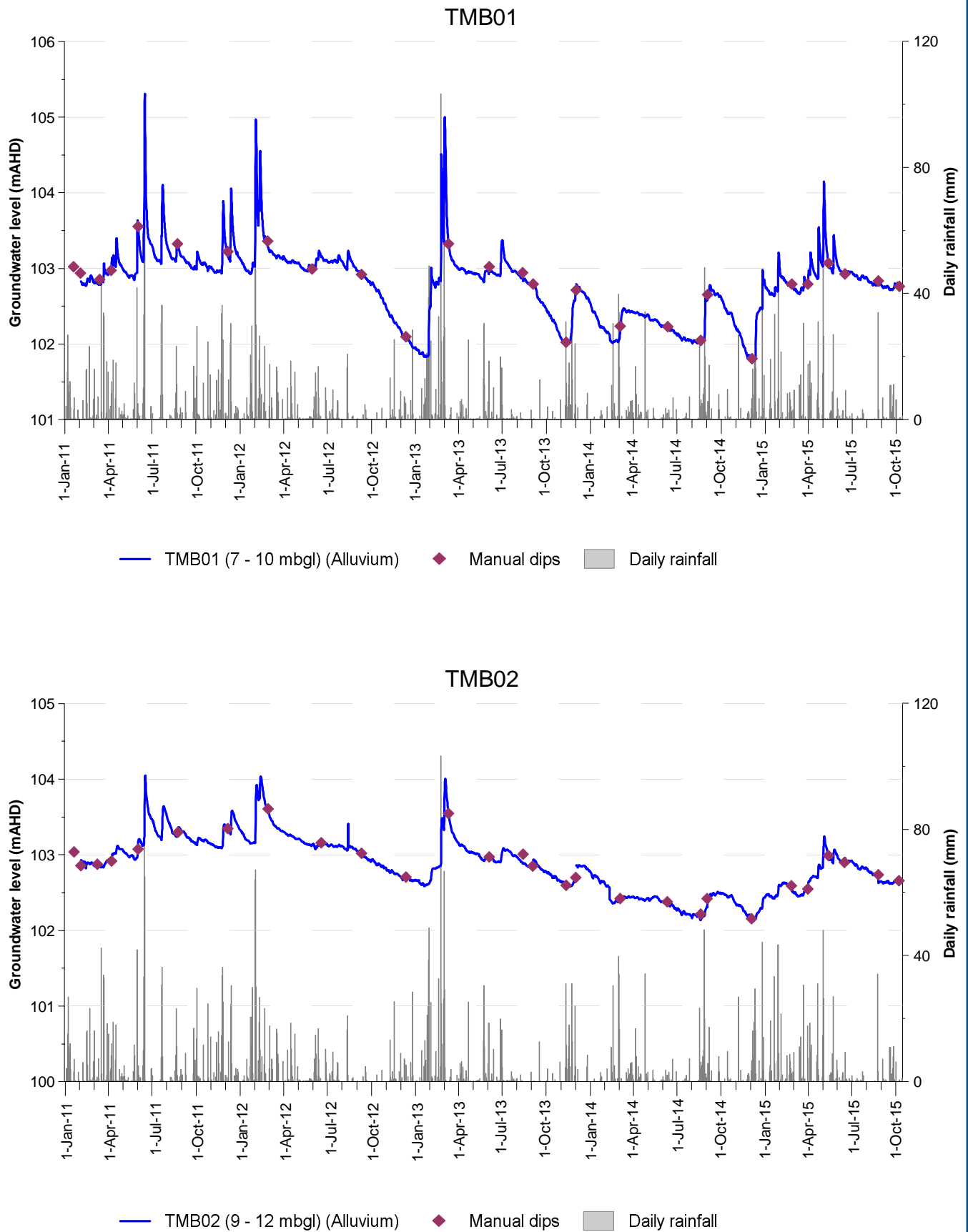


Figure A.1: TMB01 and TMB02 monitoring bores

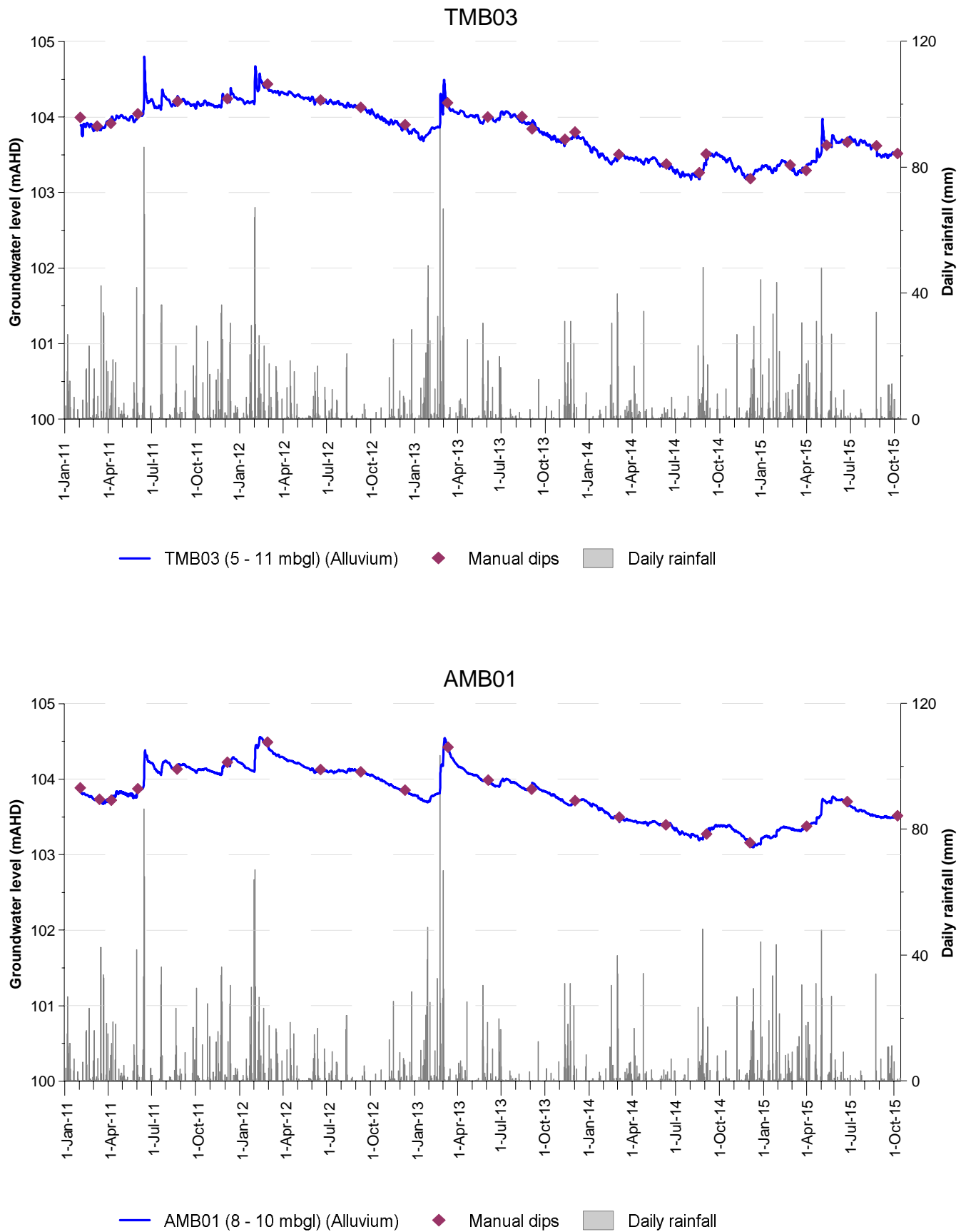


Figure A.2: TMB03 and AMB01 monitoring bores

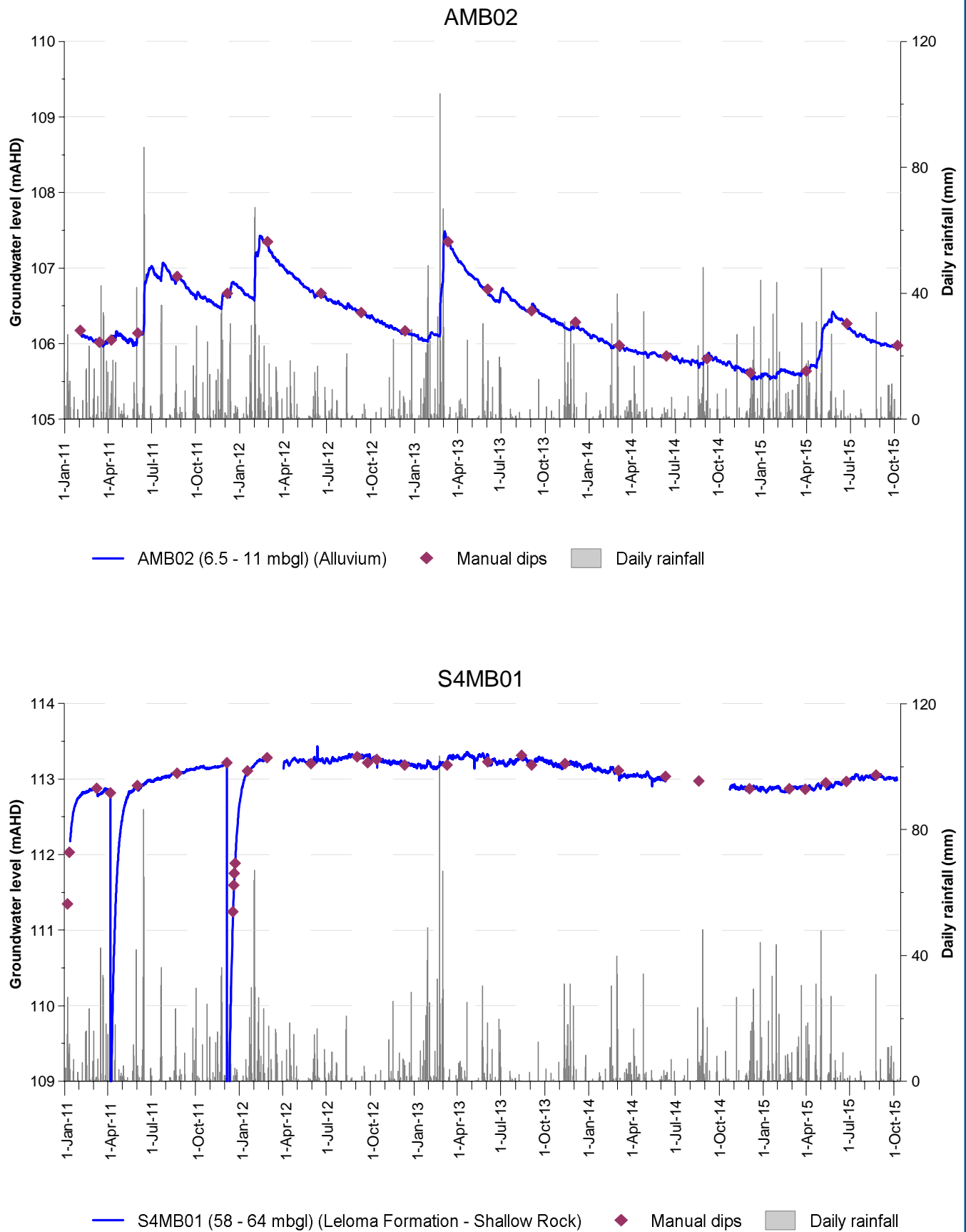


Figure A.3: AMB02 and S4MB01 monitoring bores

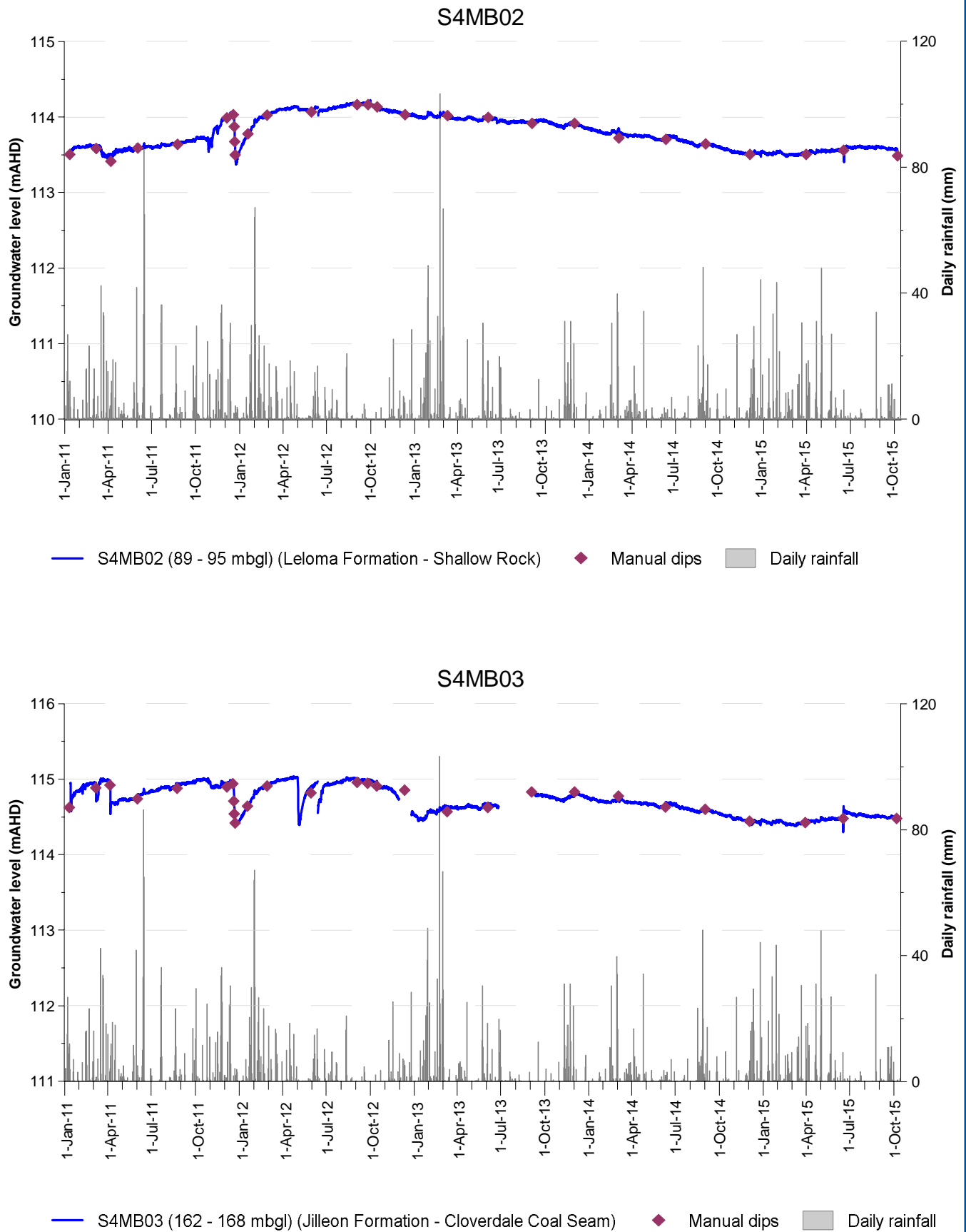


Figure A.4: S4MB02 and S4MB03 monitoring bores

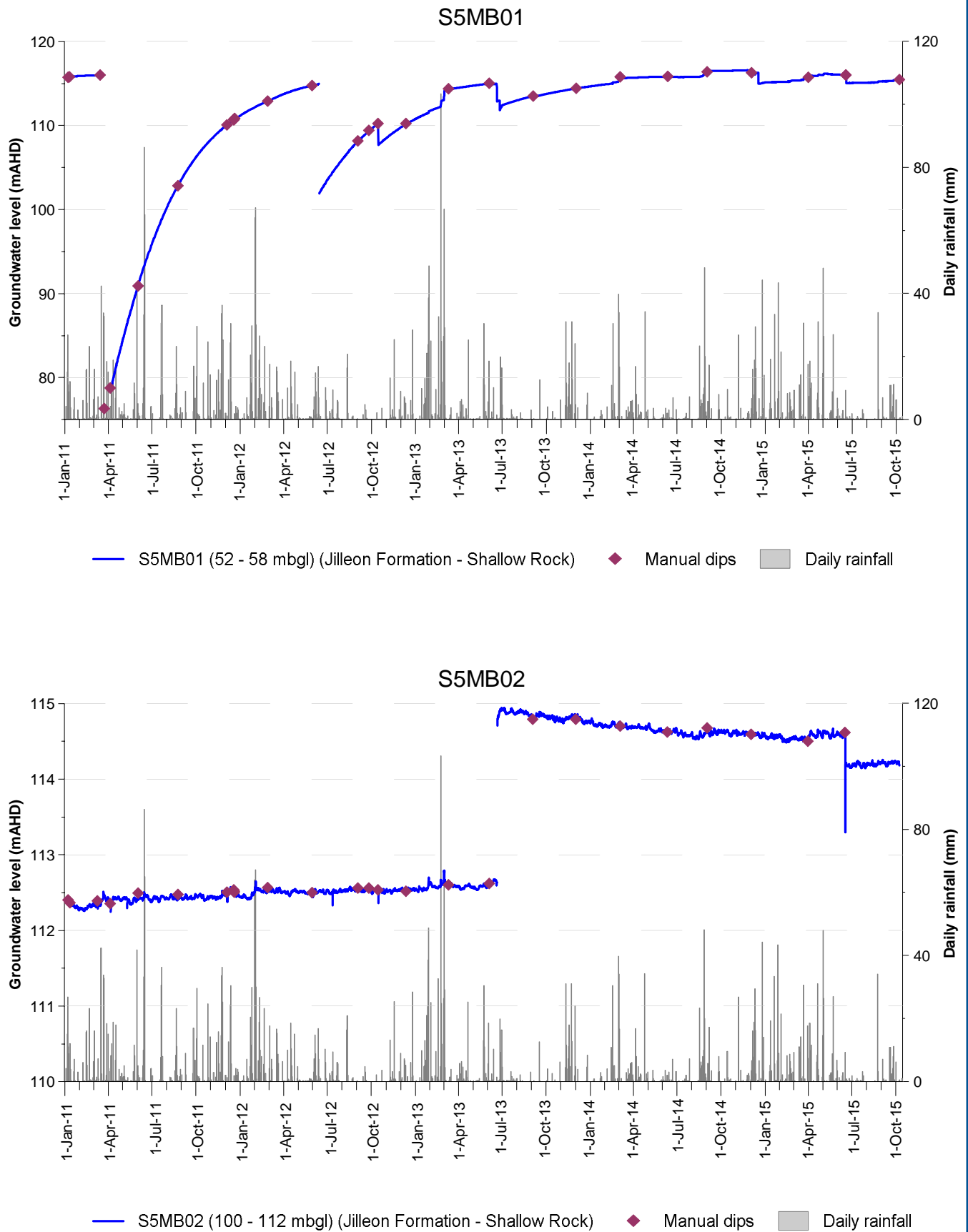


Figure A.5: S5MB01 and S5MB02 monitoring bores

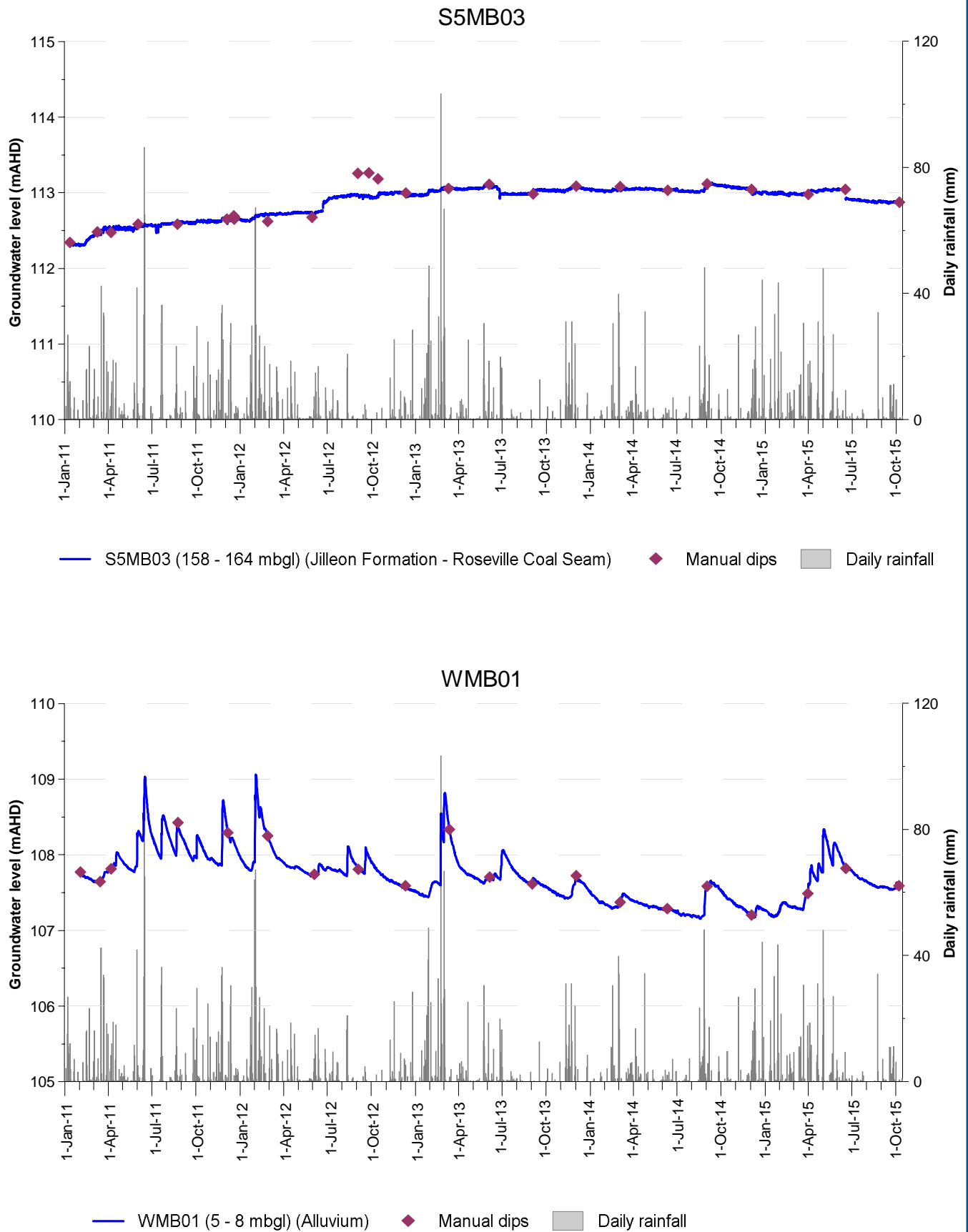


Figure A.6: S5MB03 and WMB01 monitoring bores

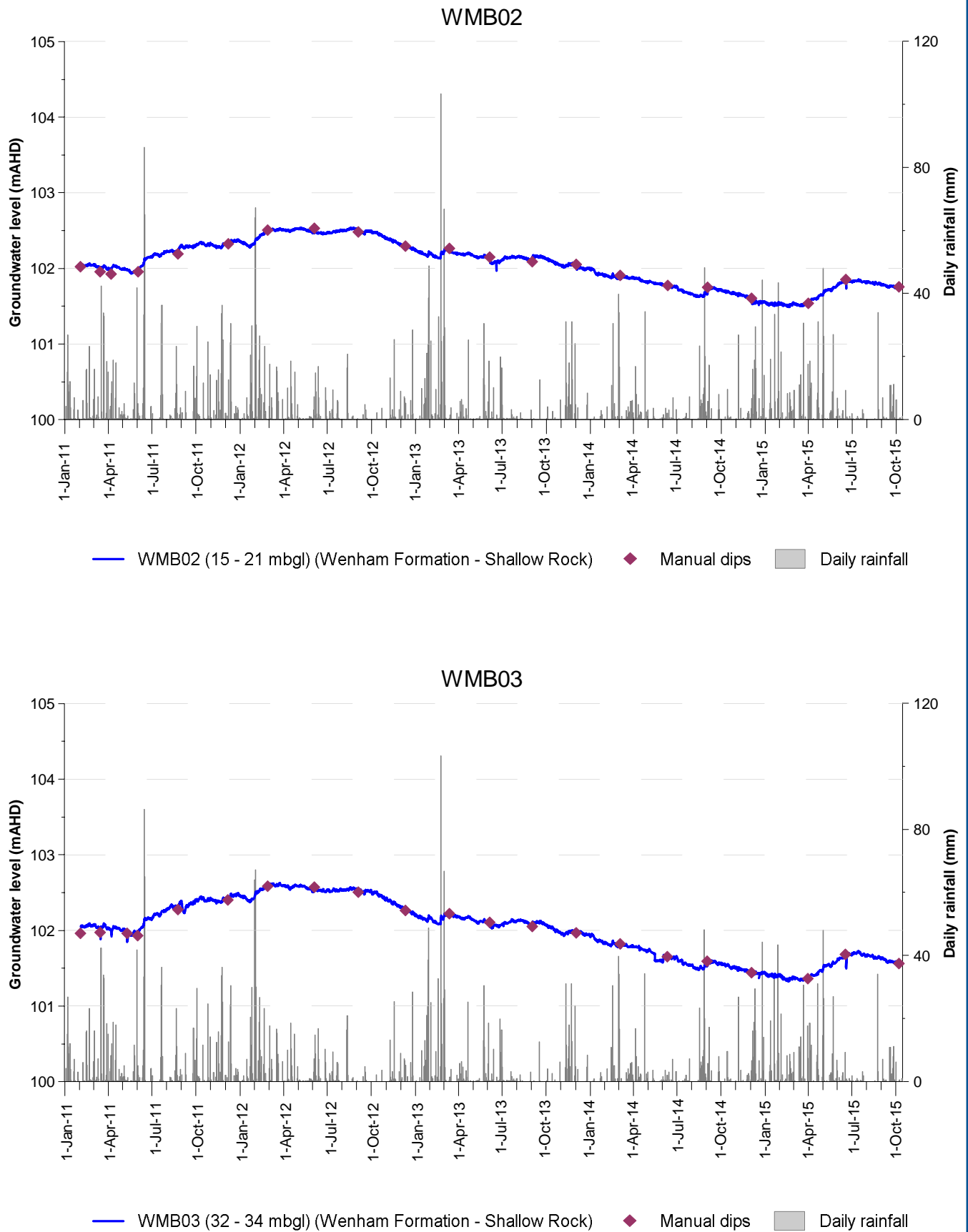


Figure A.7: WMB02 and WMB03 monitoring bores

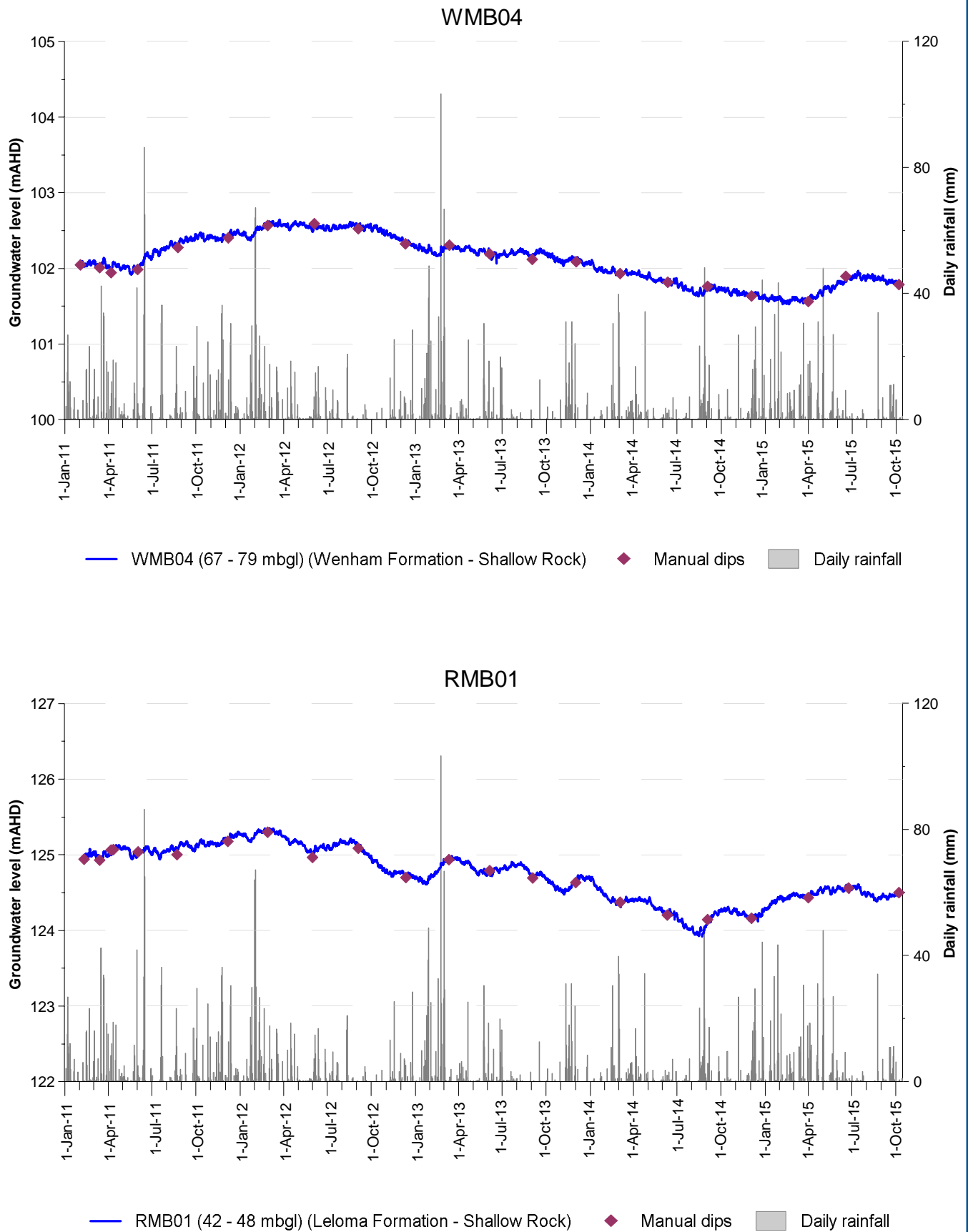


Figure A.8: WMB04 and RMB01 monitoring bores

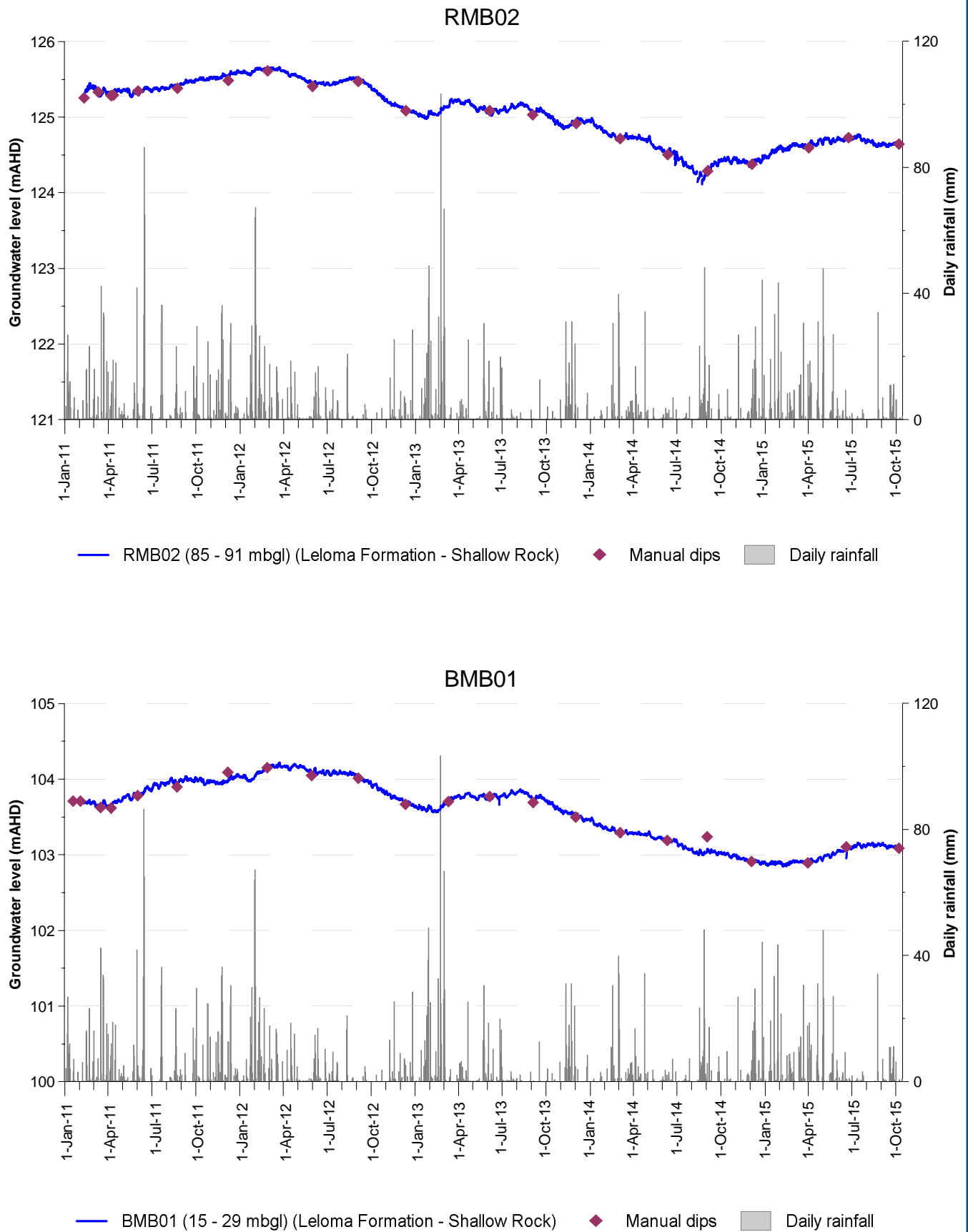


Figure A.9: RMB02 and BMB01 monitoring bores

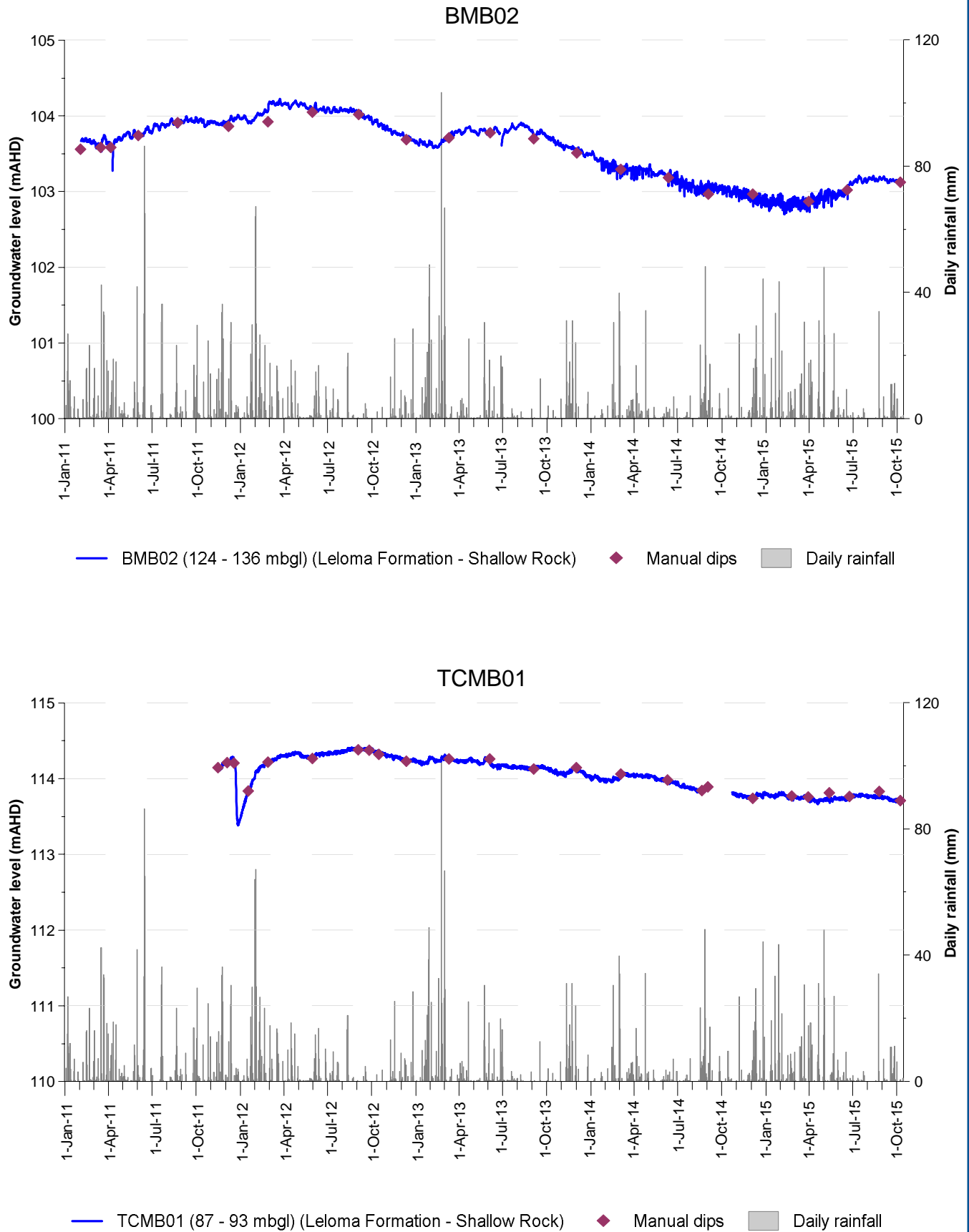


Figure A.10: BMB02 and TCMB01 monitoring bores

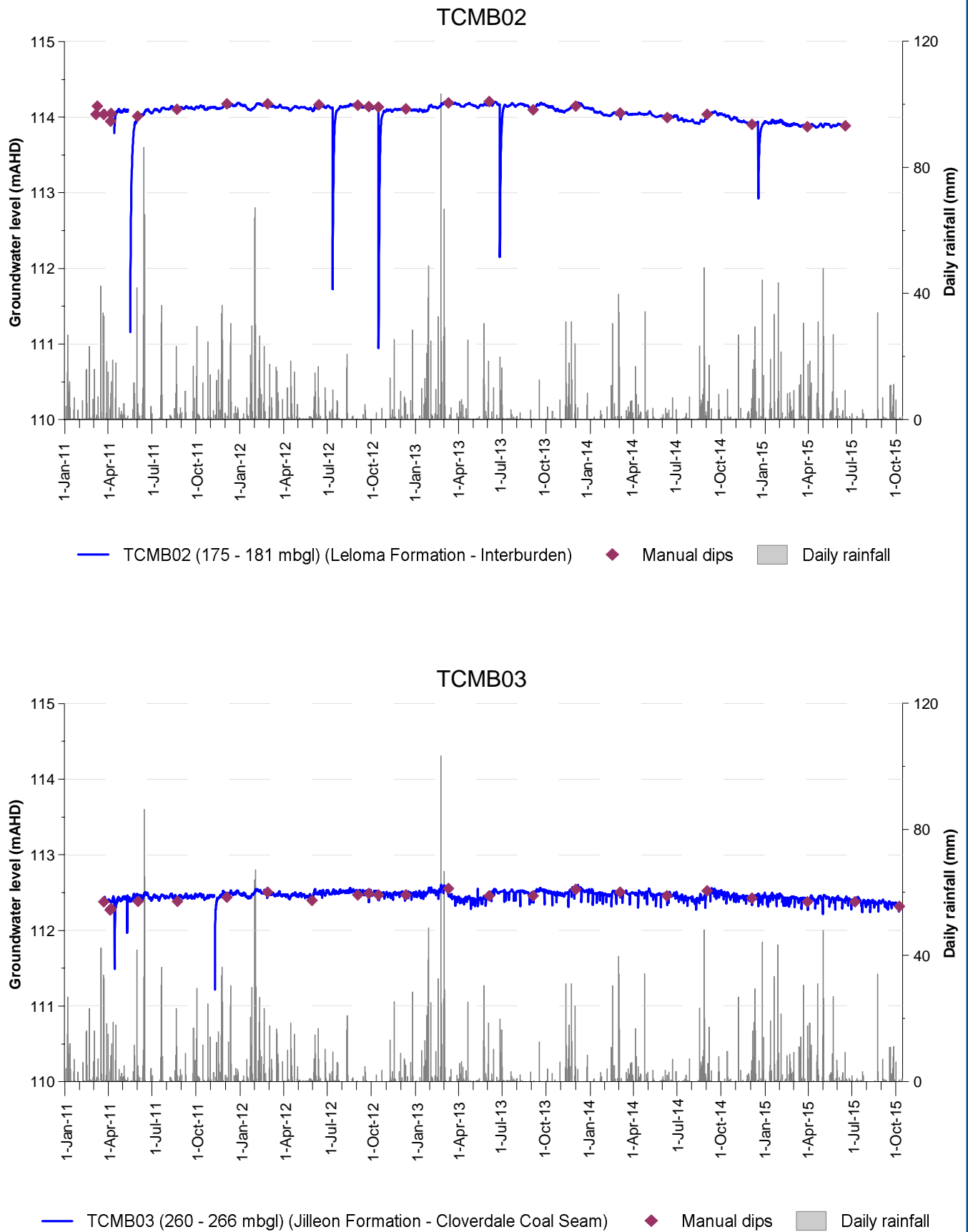


Figure A.11: TCMB02 and TCMB03 monitoring bores

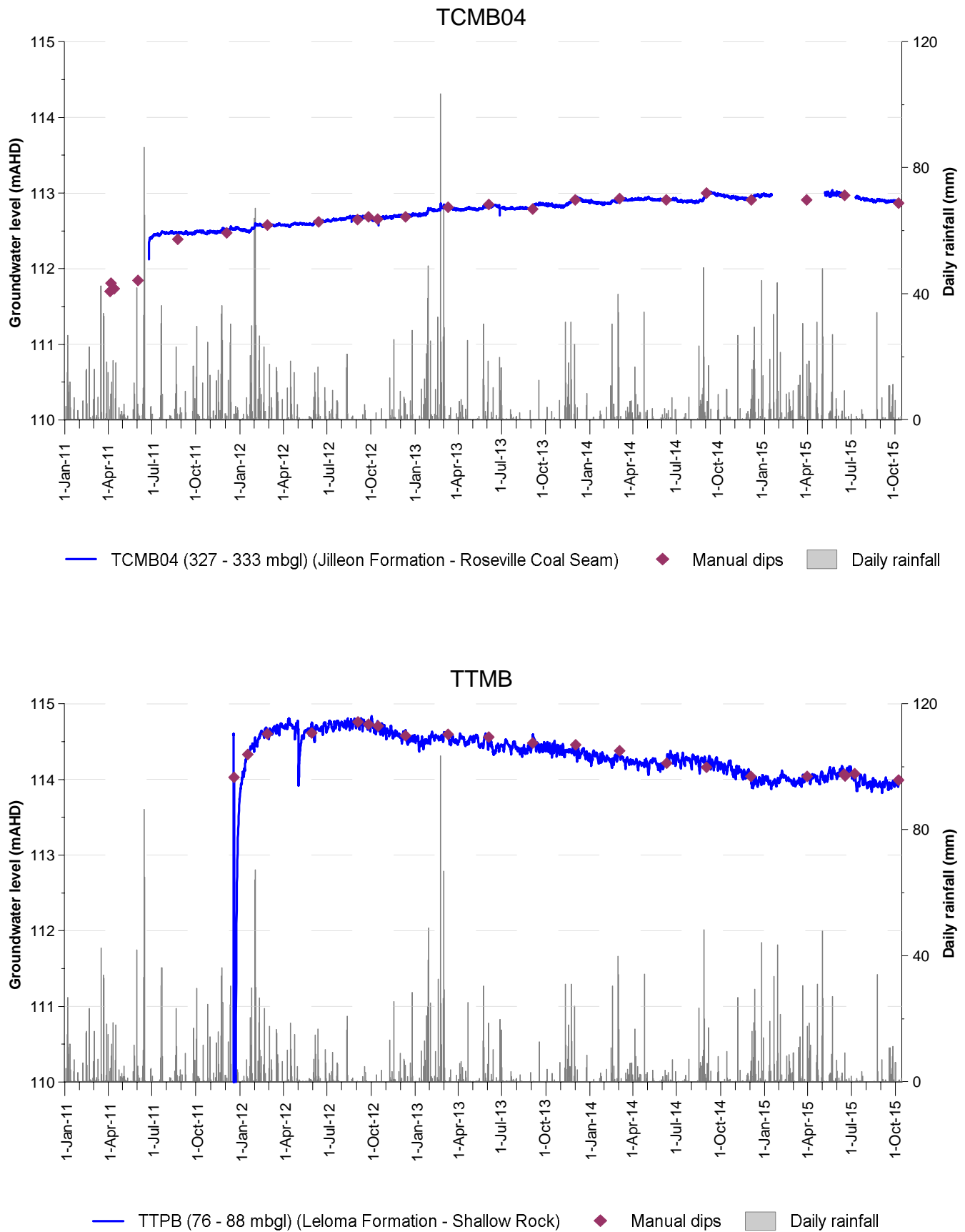


Figure A.12: TCMB04 and TTMB monitoring bores

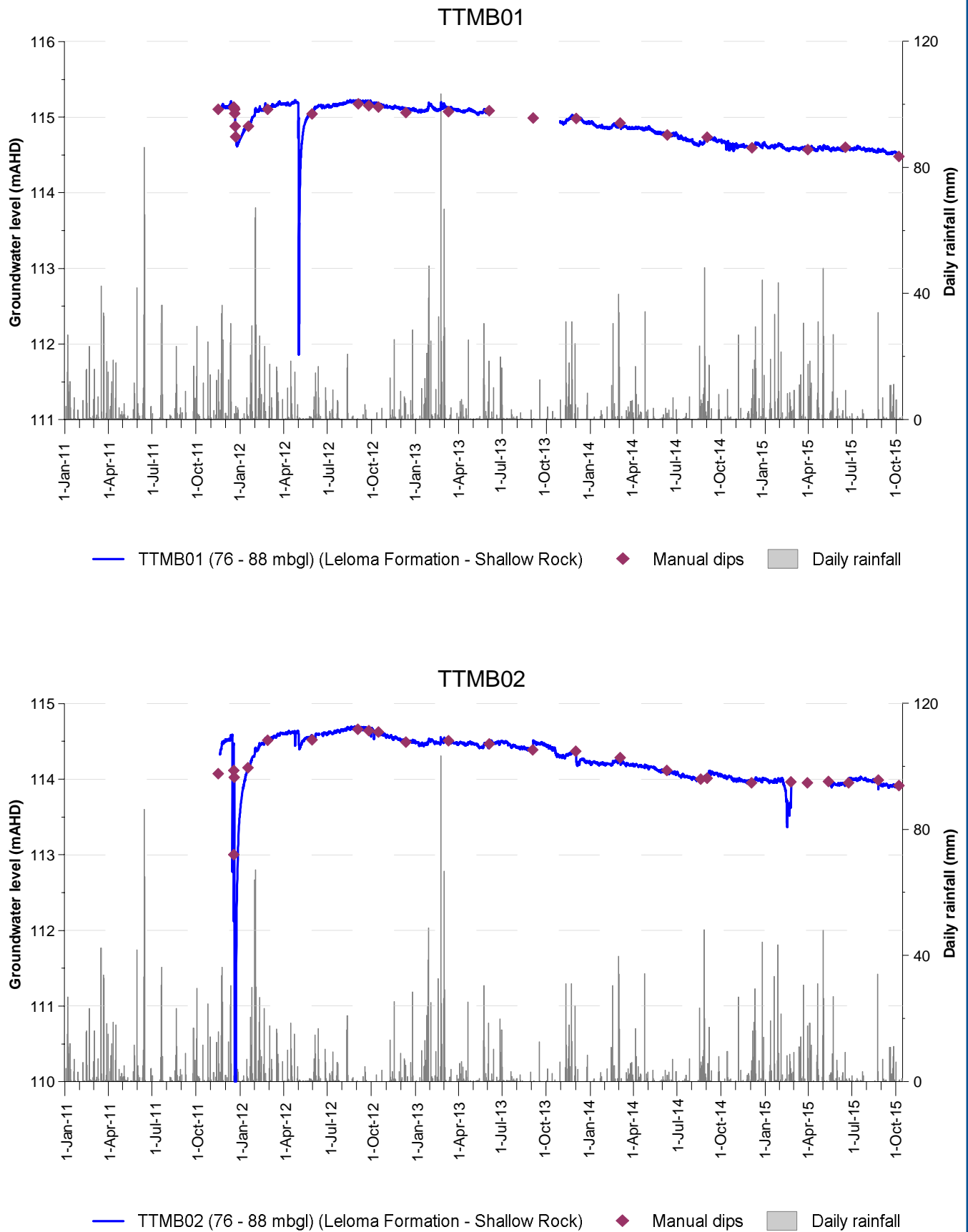


Figure A.13: TTMB01 and TTMB02 monitoring bores

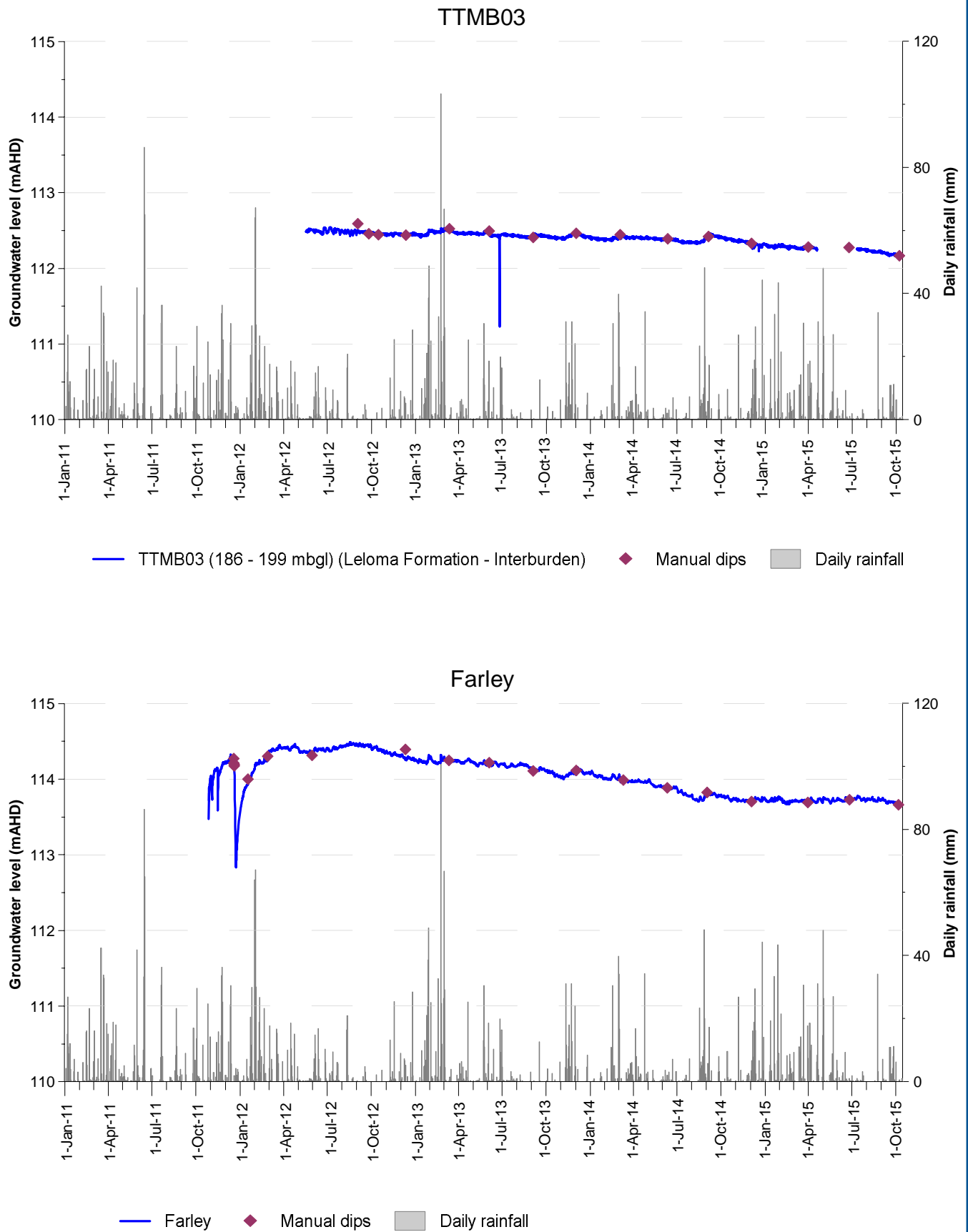


Figure A.14: TTMB03 and Farley monitoring bores

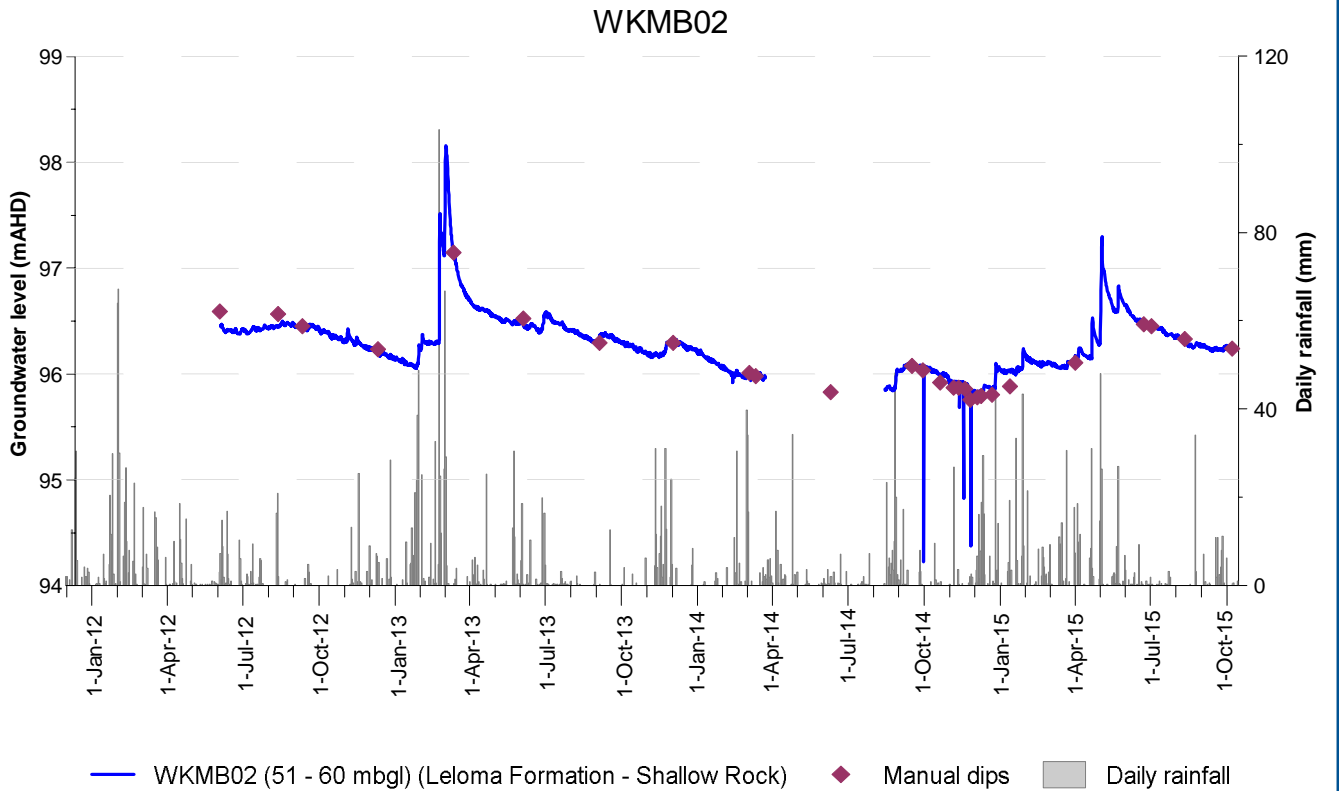
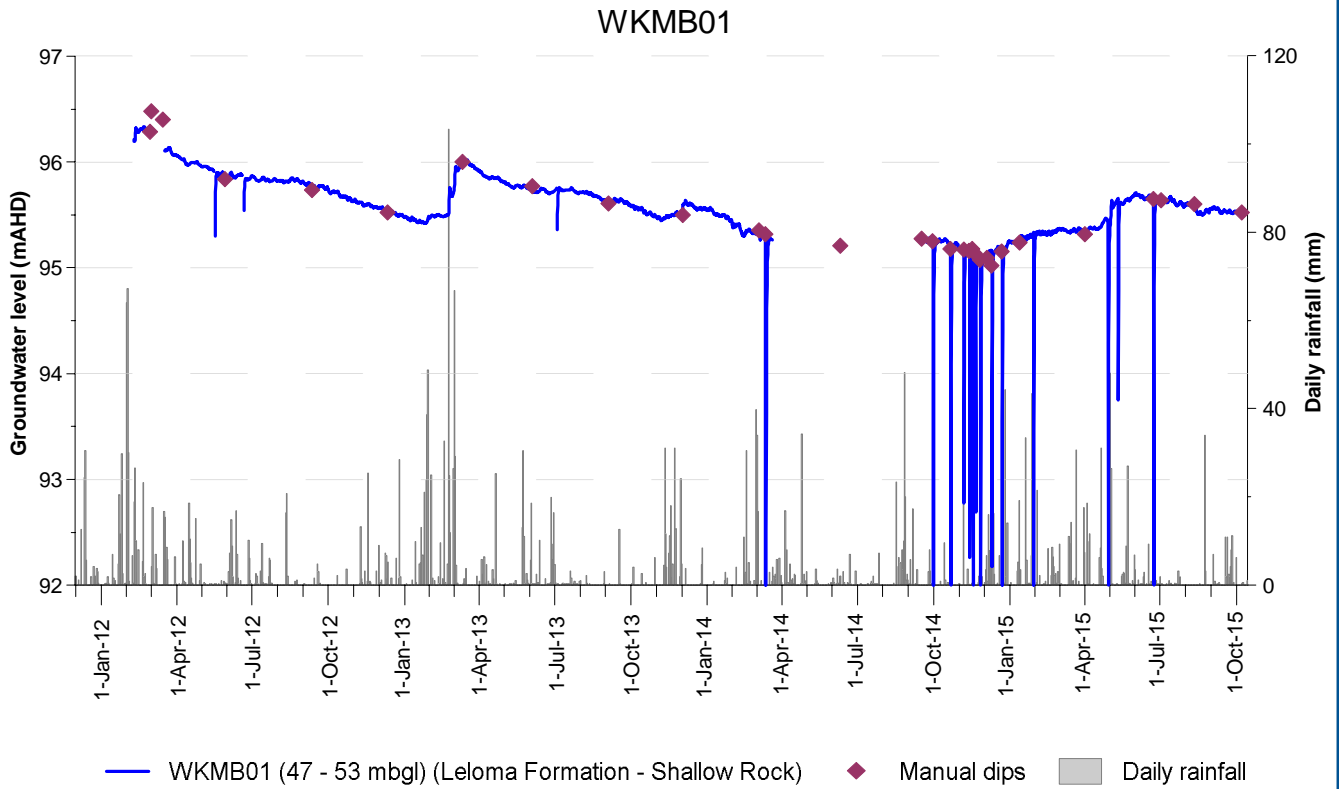


Figure A.15: WKMB01 and WKMB02 monitoring bores

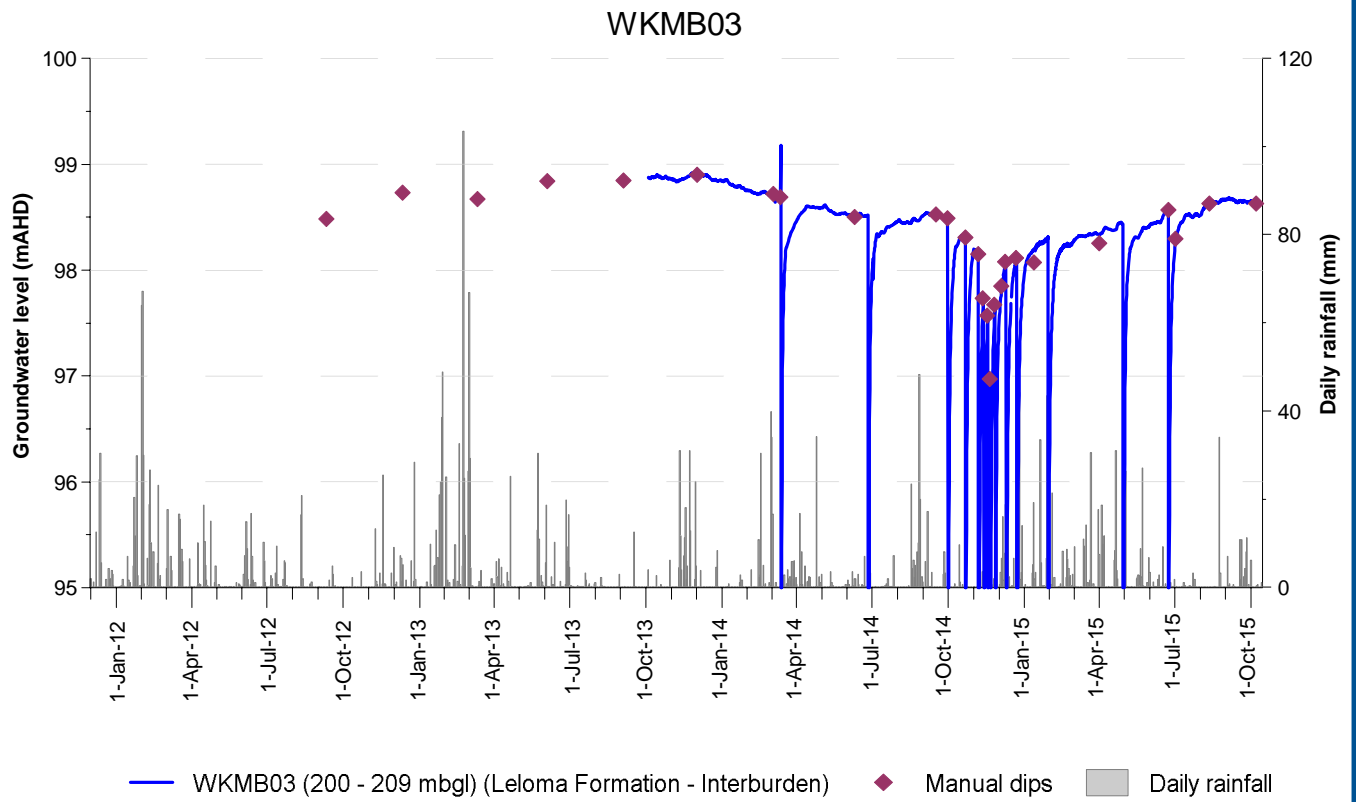


Figure A.16: WKMB03 monitoring bore

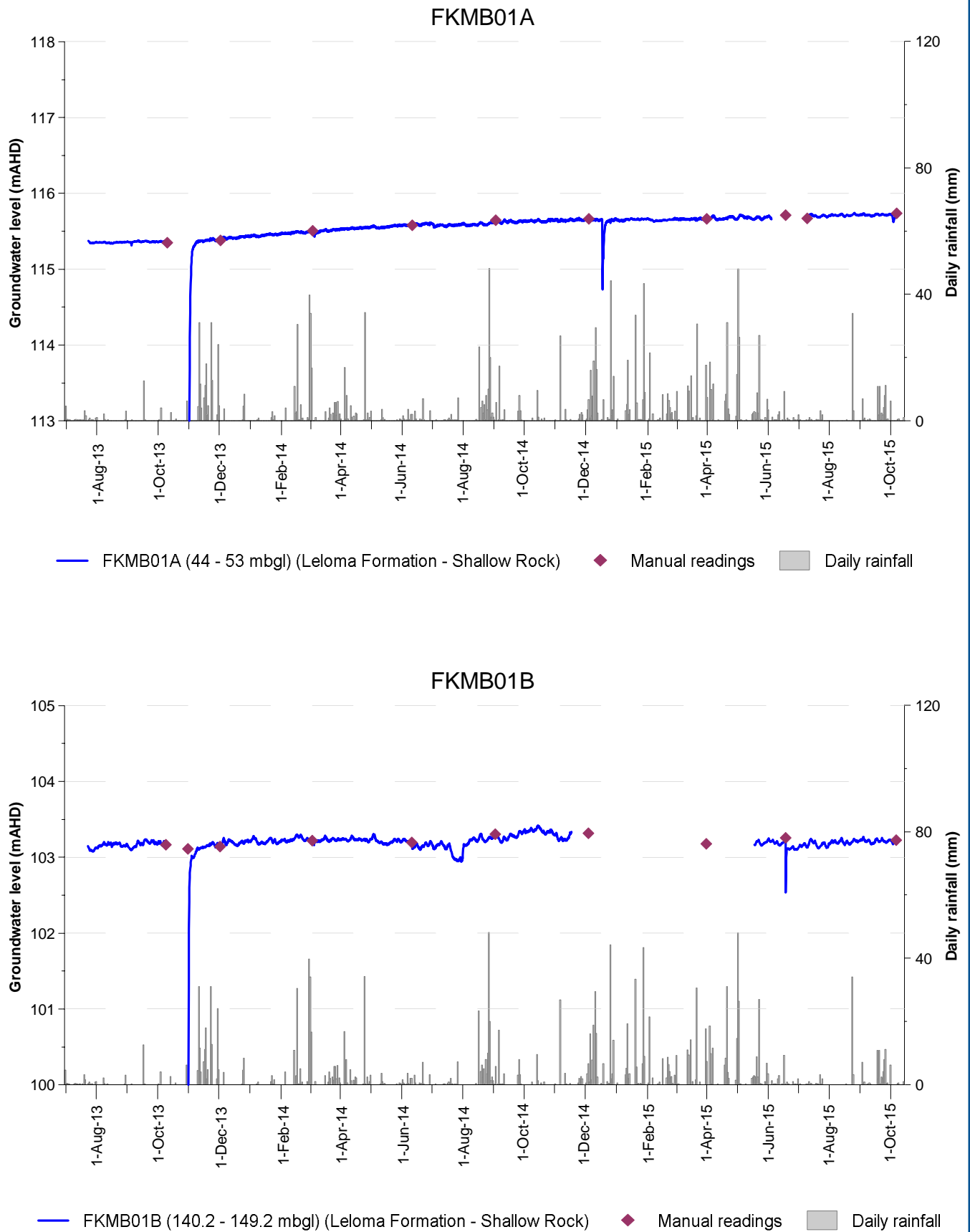


Figure A.17: FKMB01A and FKMB01B monitoring bores

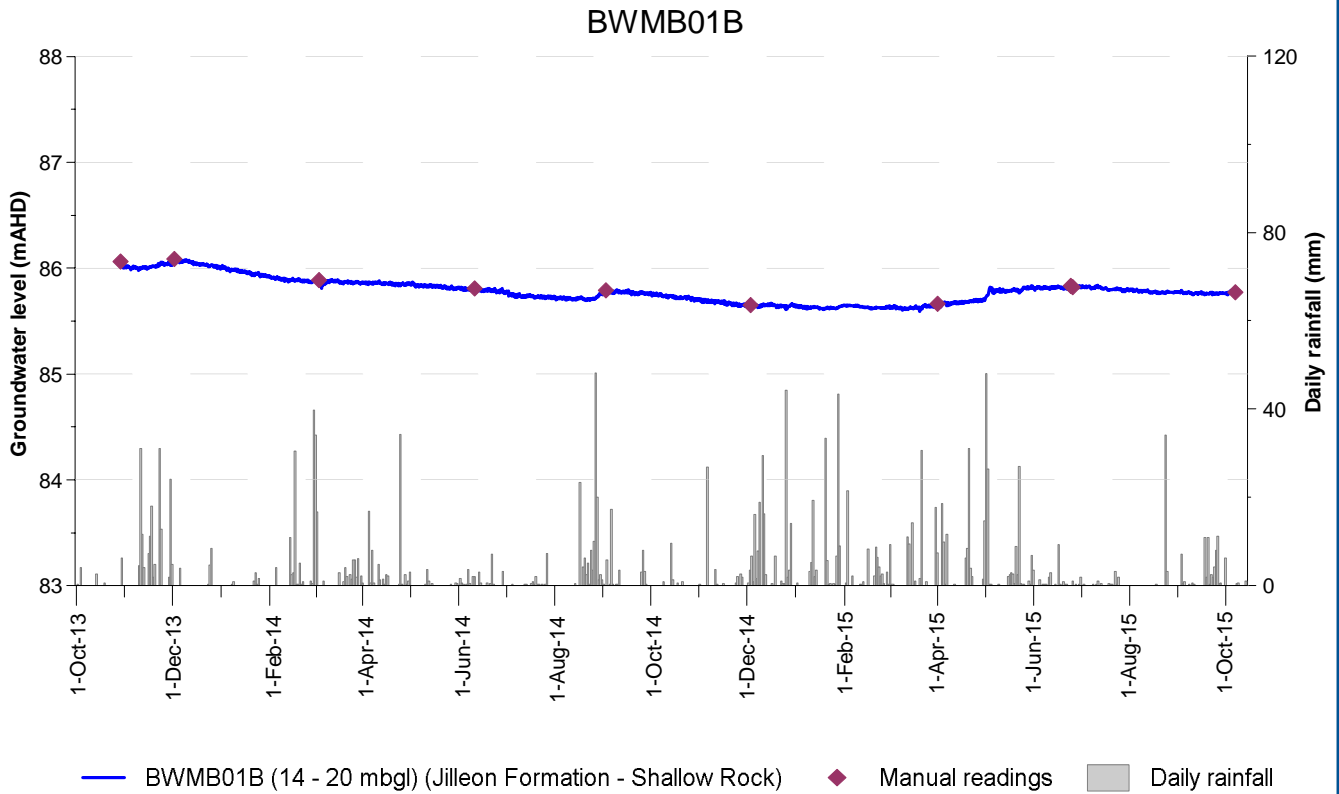
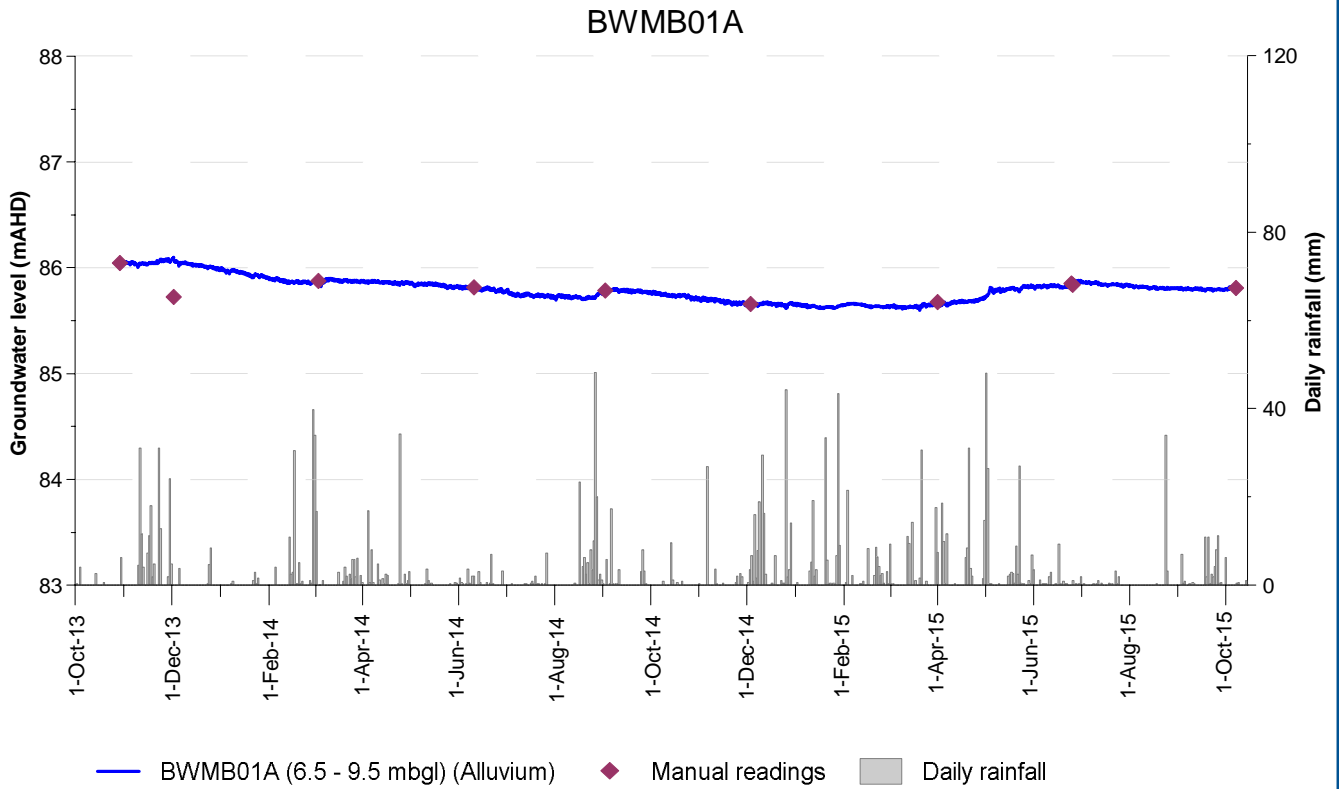


Figure A.18: BWMB01A and BWMB01B monitoring bores

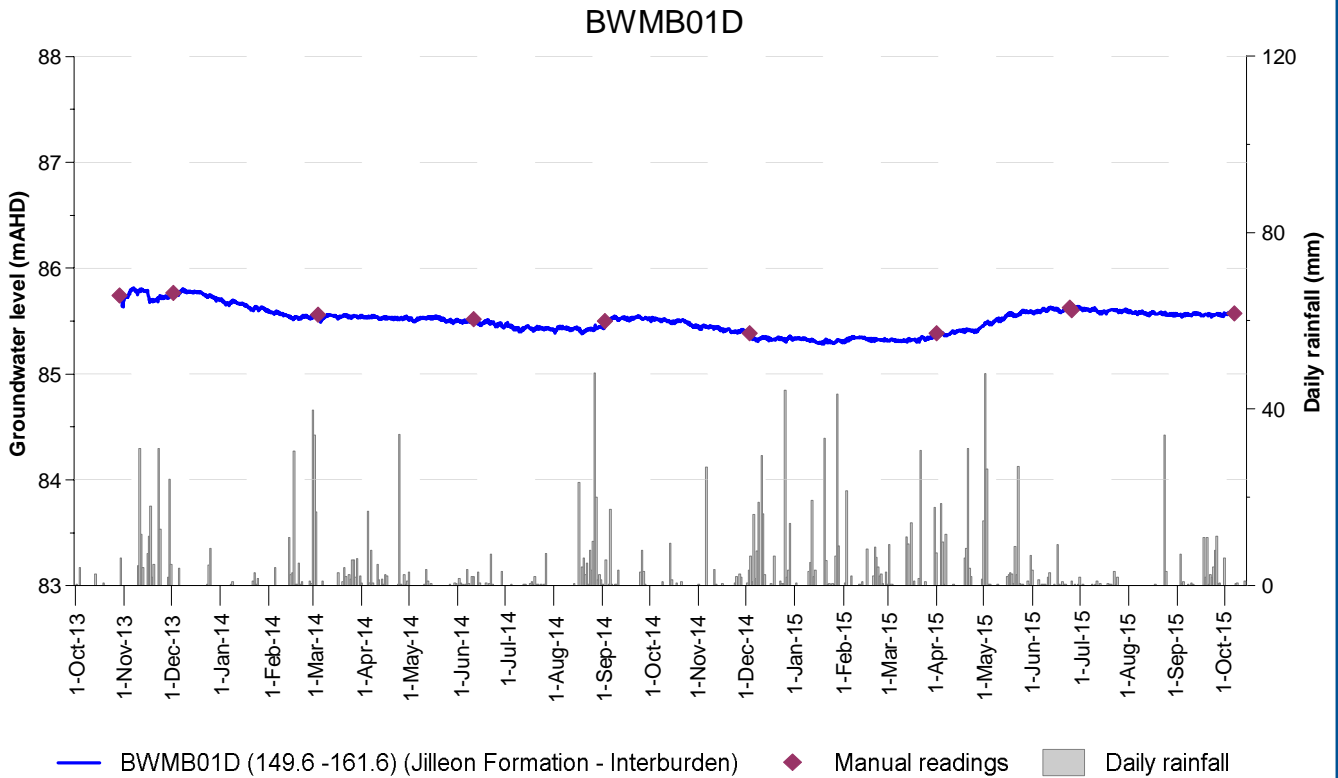
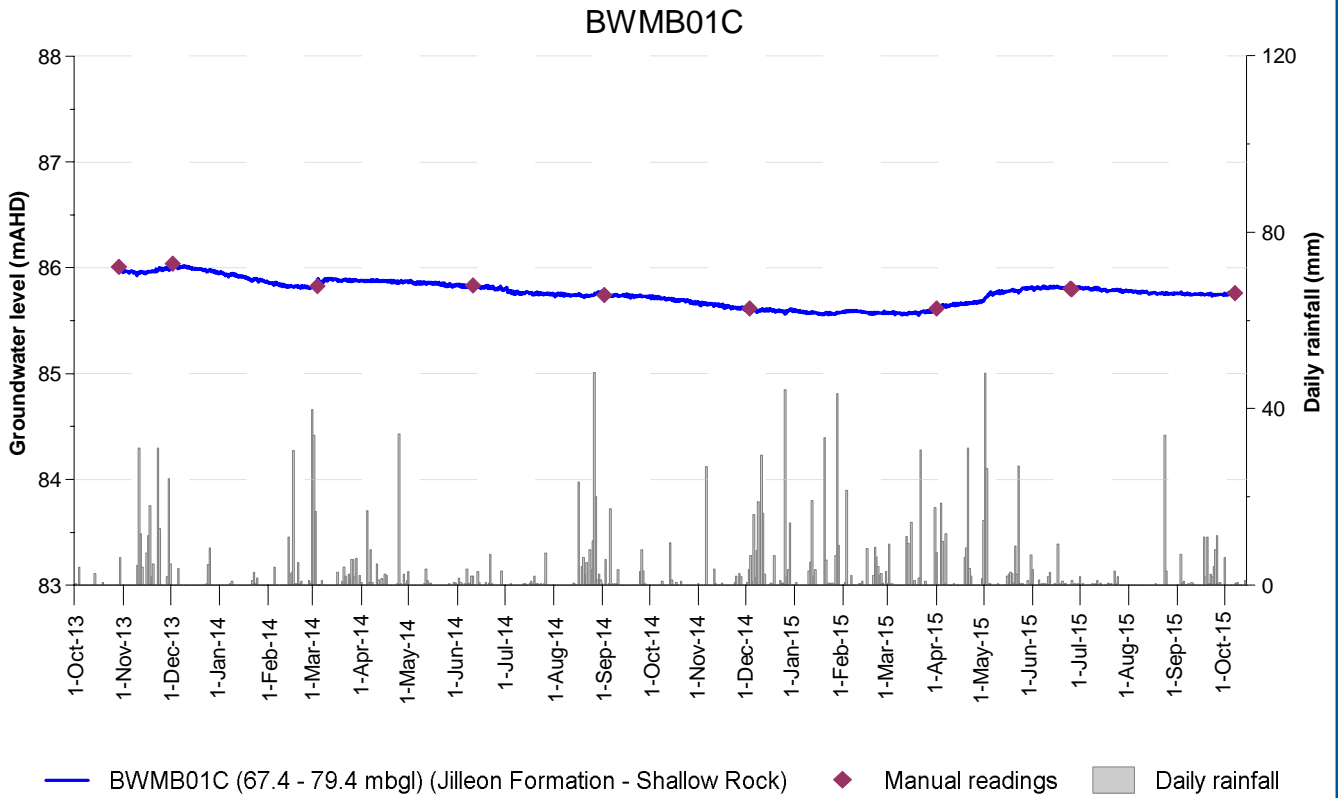


Figure A.19: BWMB01C and BWMB01D monitoring bores

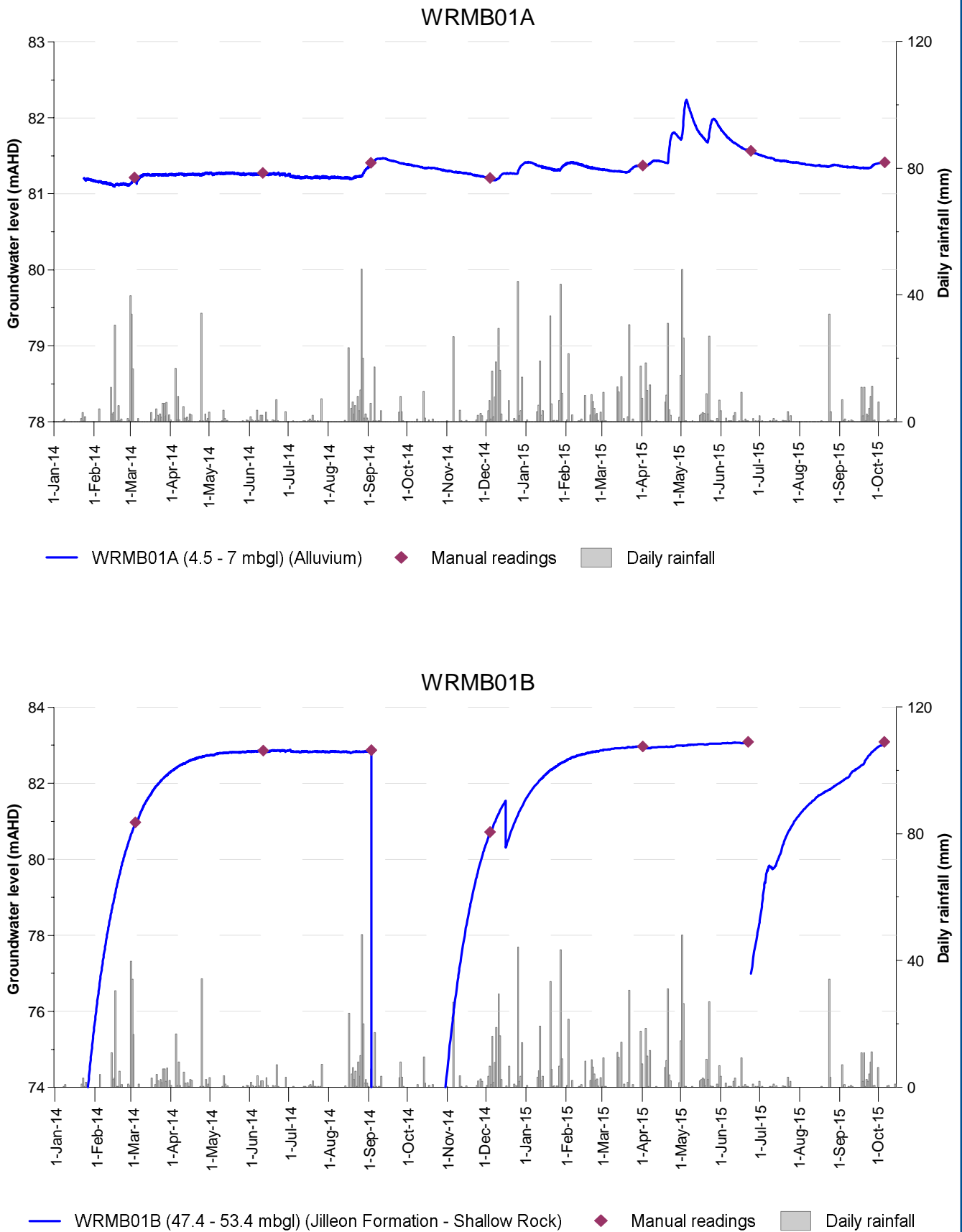


Figure A.20: WRMB01A and WRMB01B monitoring bores

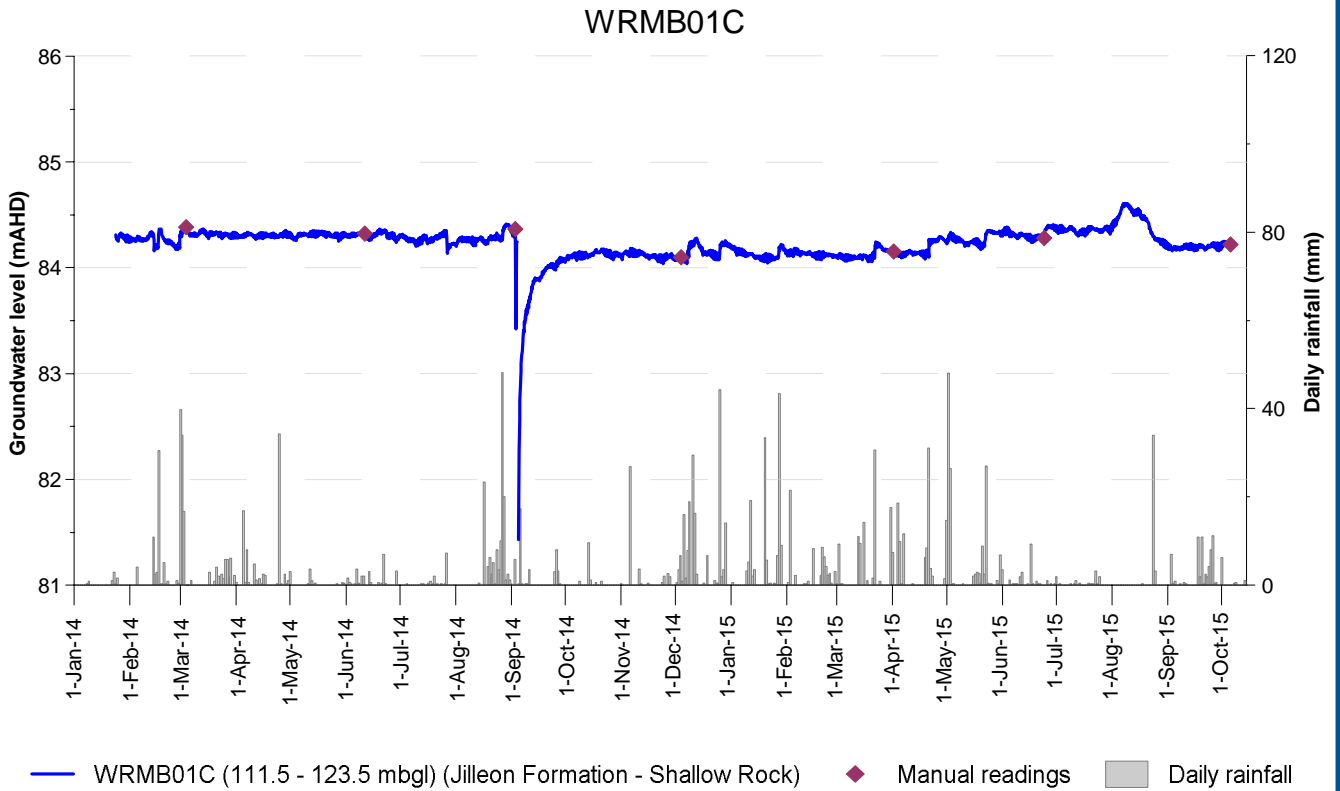


Figure A.21: WRMB01C monitoring bore

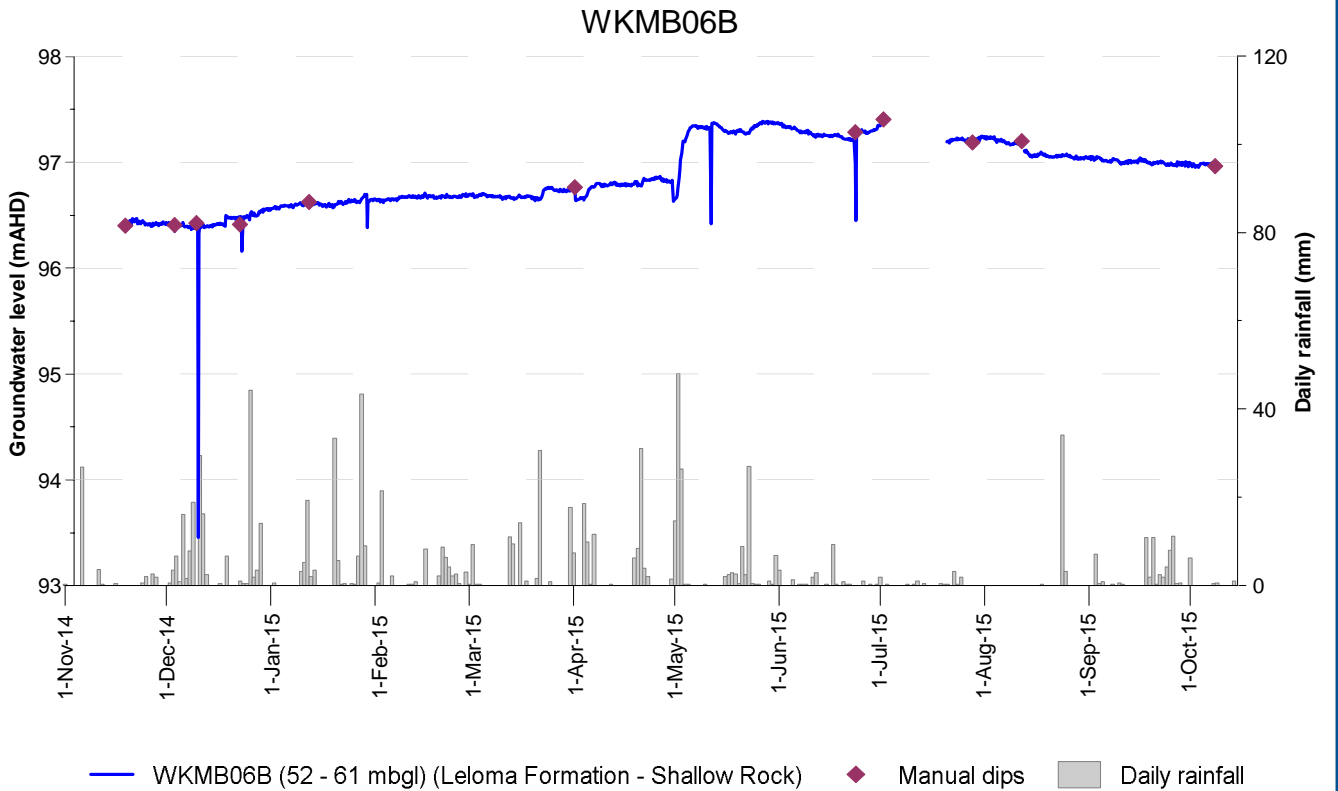
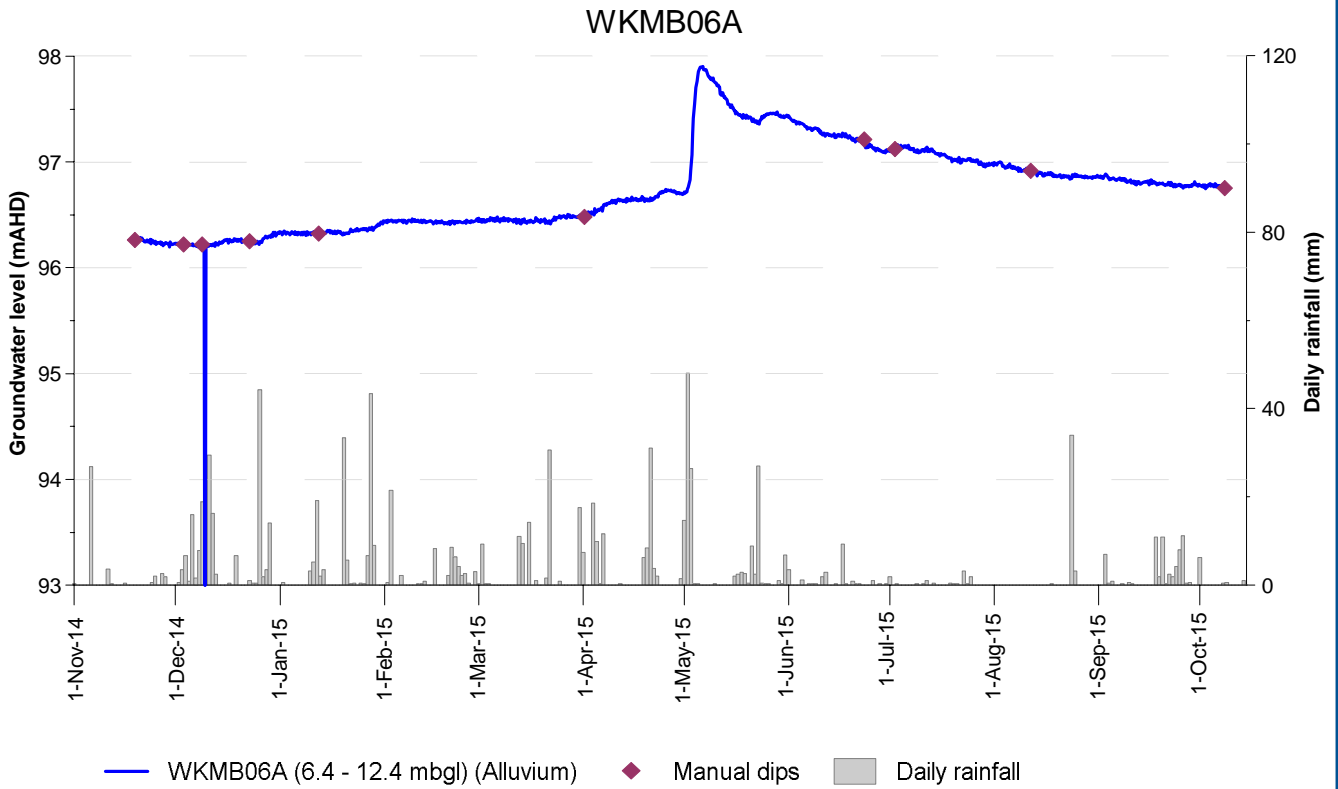


Figure A.22: WKMB06A and WKMB06B monitoring bores

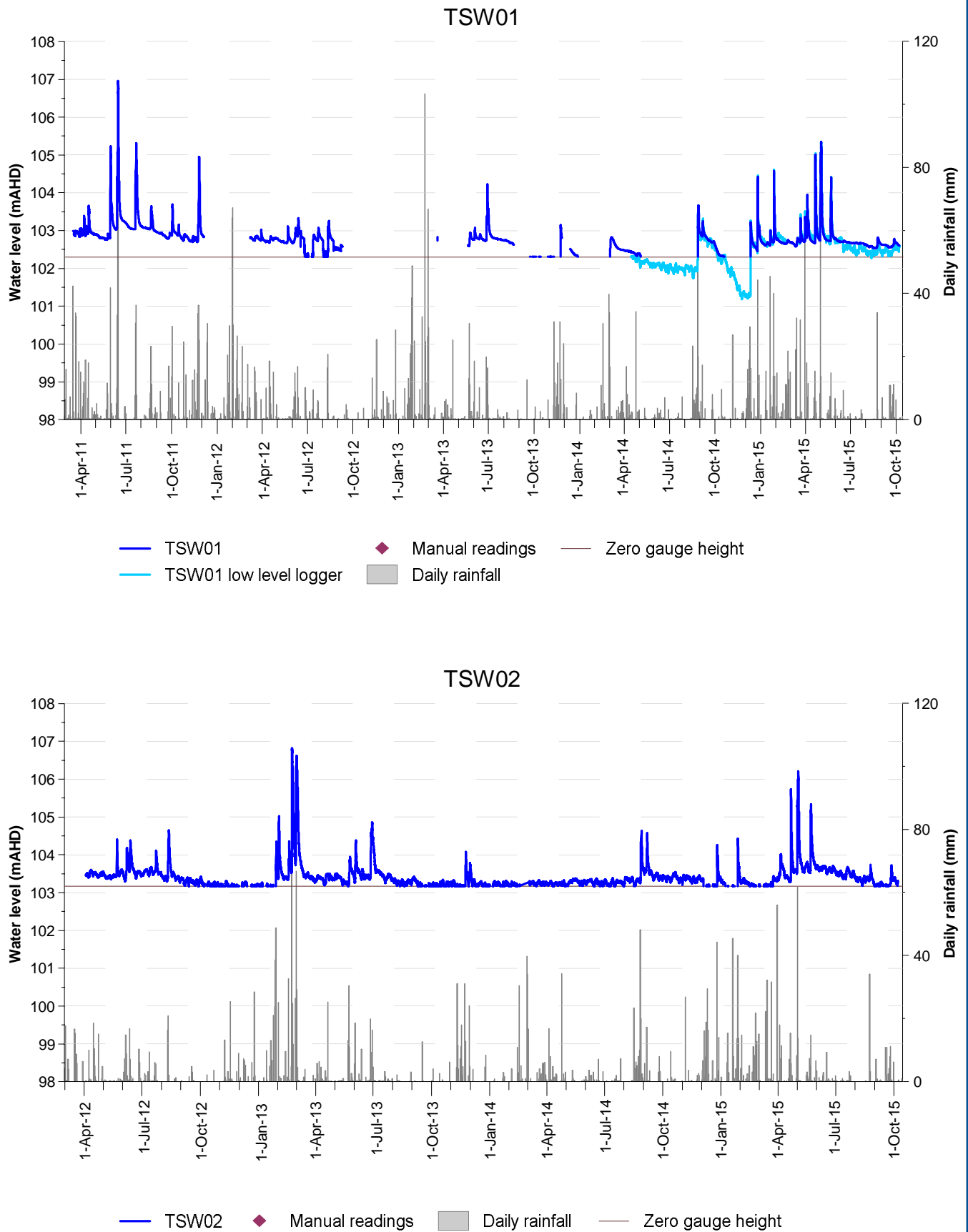


Figure A.23: TSW01 and TSW02 stream levels

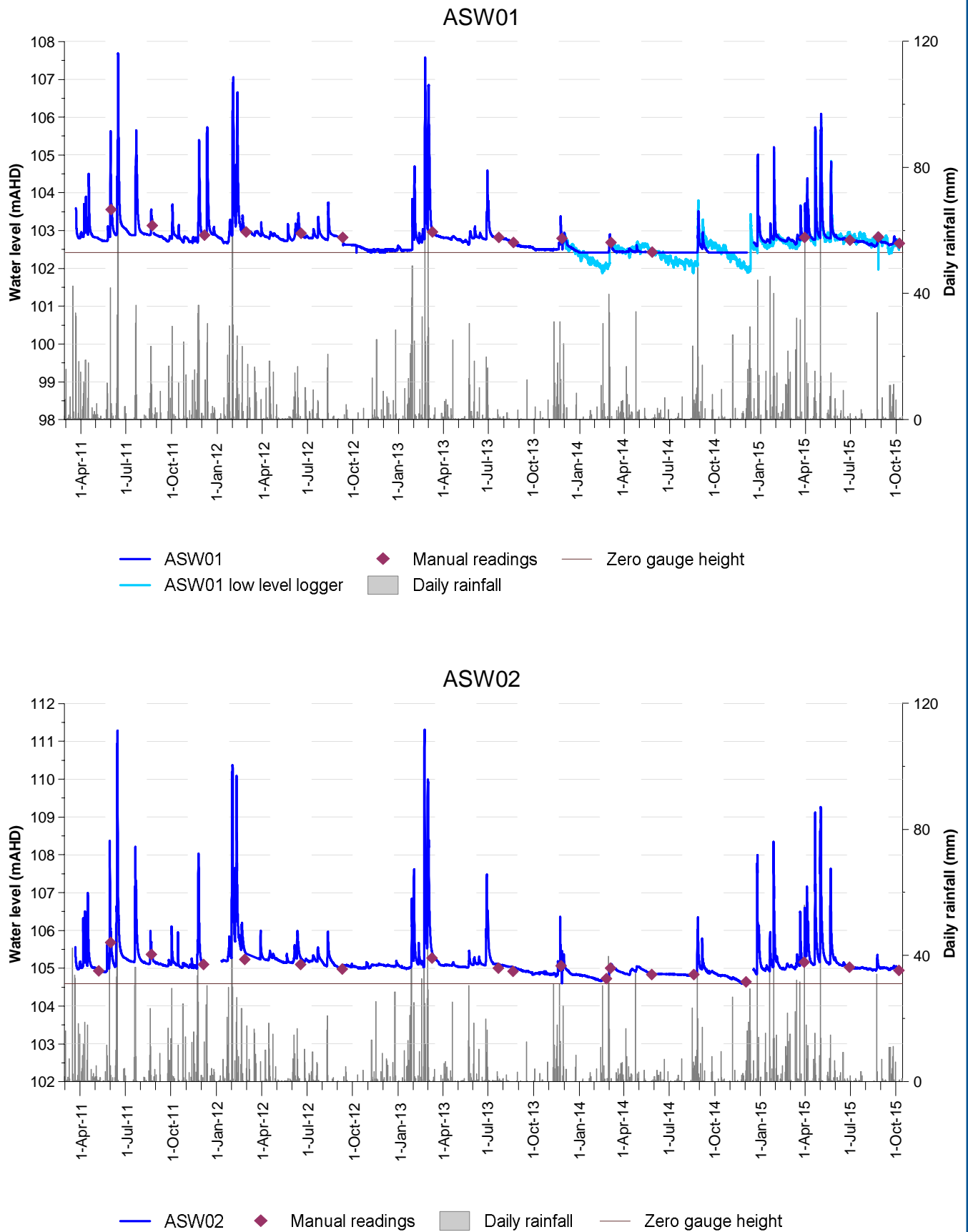
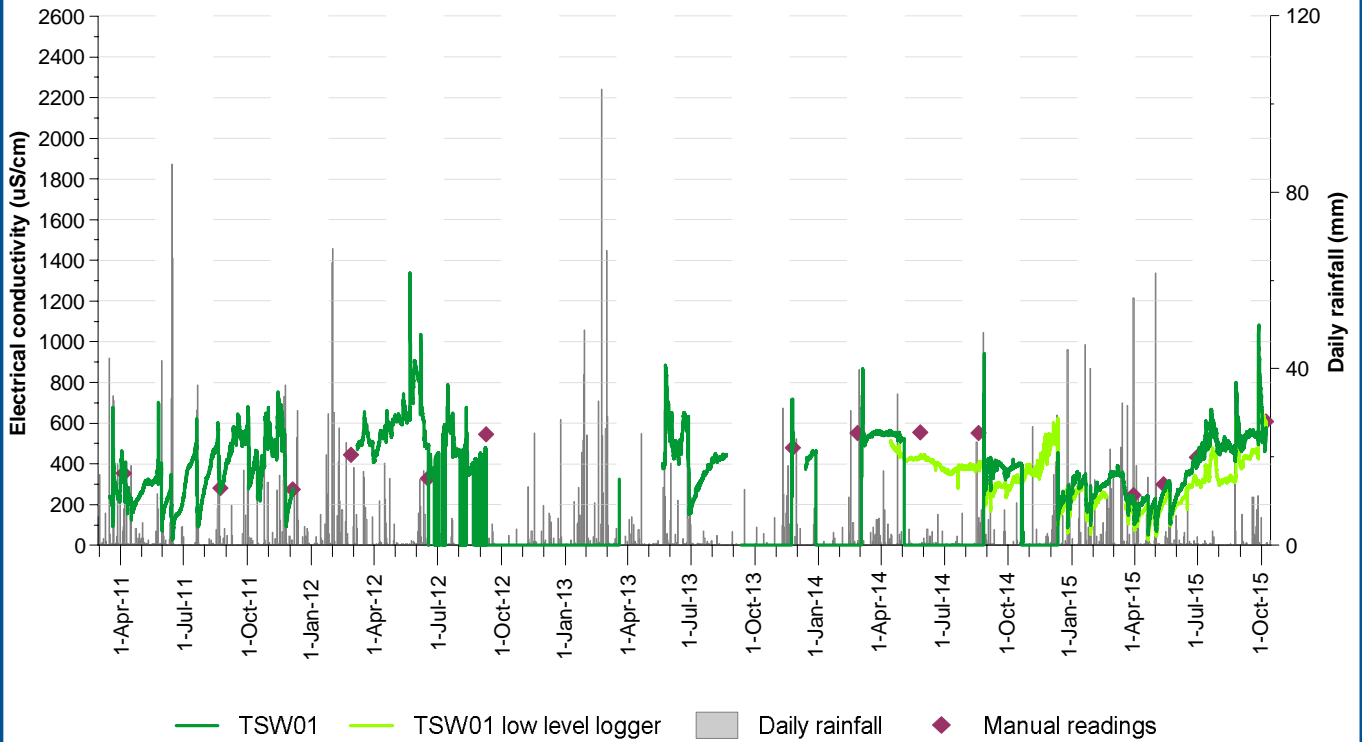


Figure A.24: ASW01 and ASW02 stream levels

TSW01



TSW02

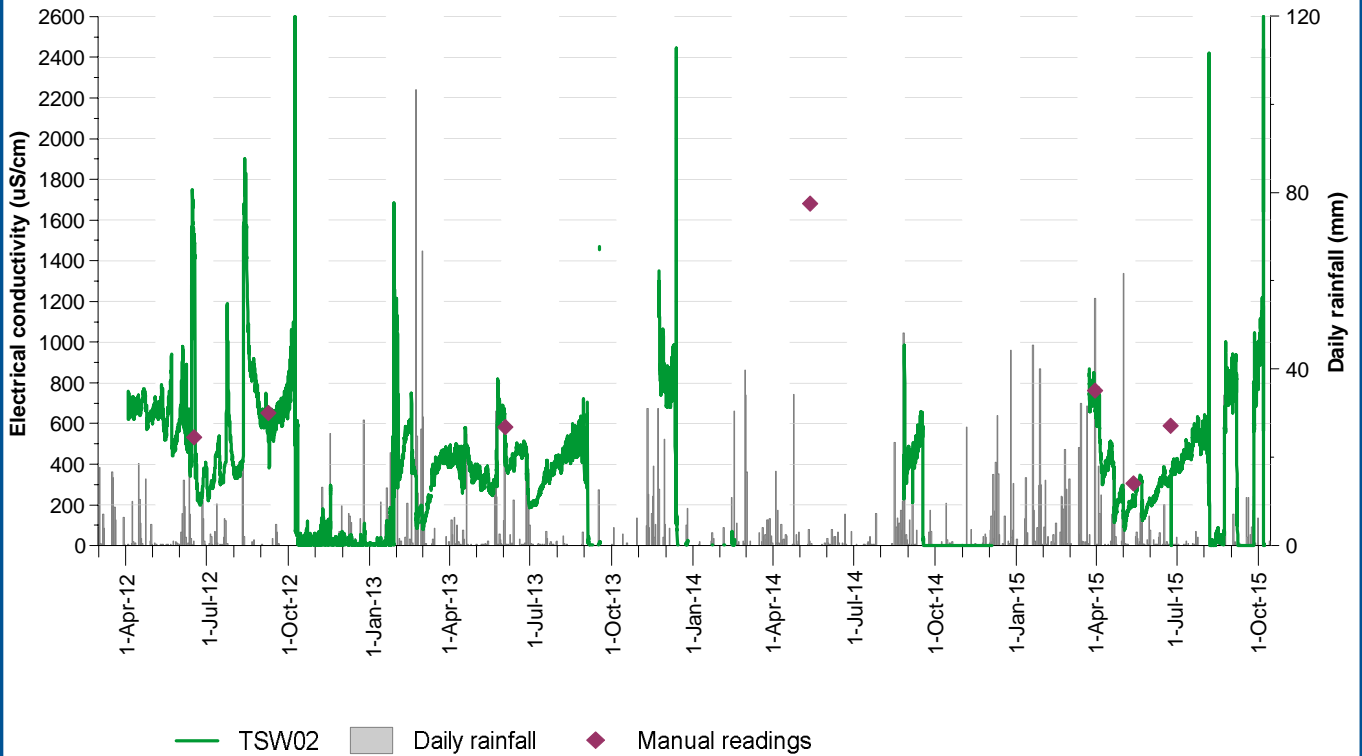
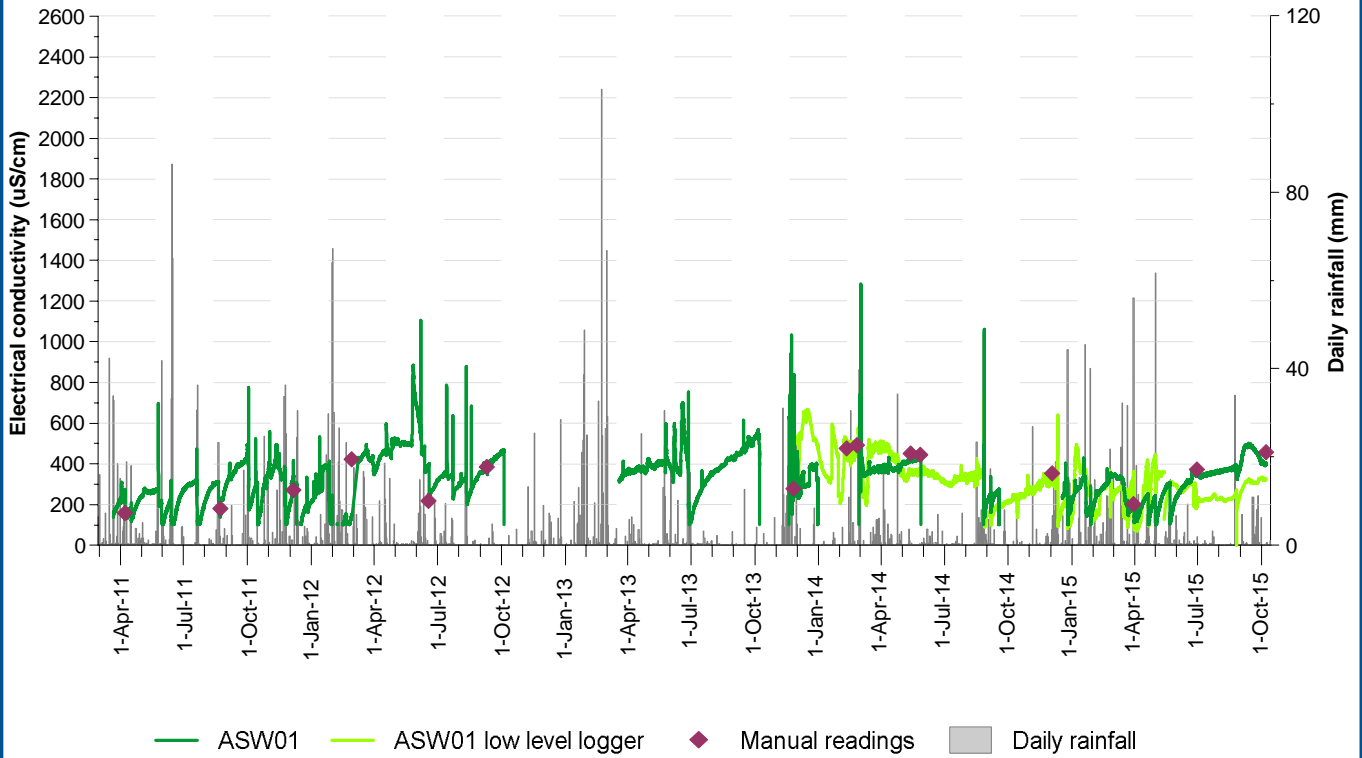


Figure A.25: TSW01 and TSW02 electrical conductivity

ASW01



ASW02

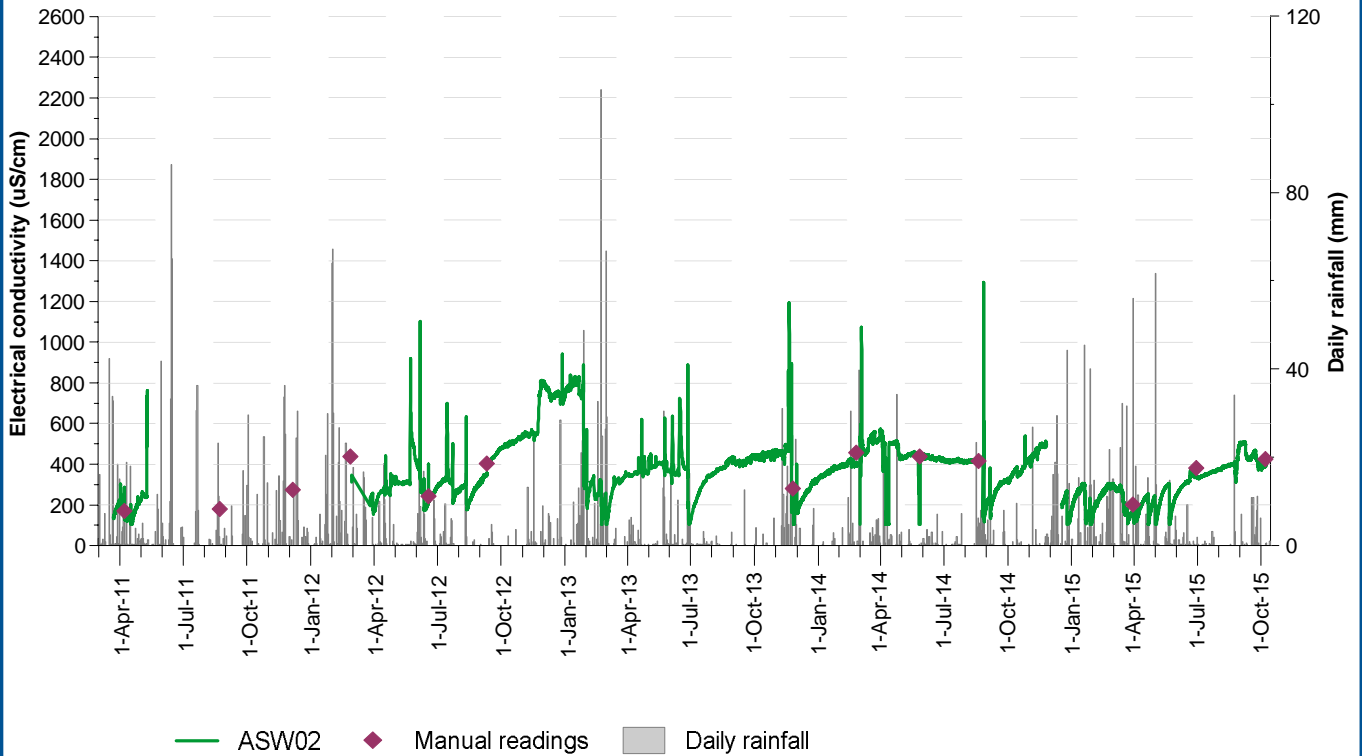


Figure A.26: ASW01 and ASW02 electrical conductivity

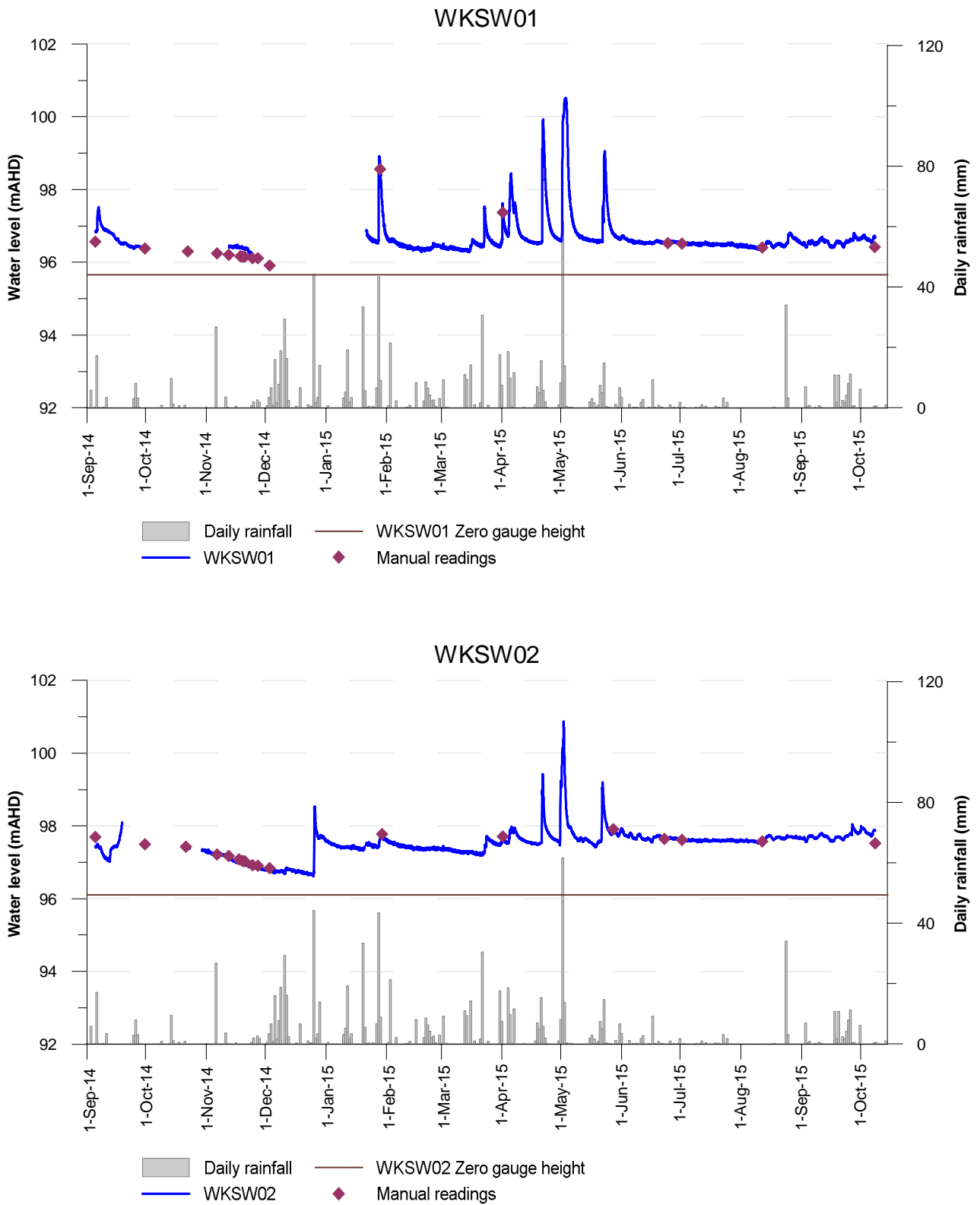


Figure A.27: WKS01 and WKS02 stream levels

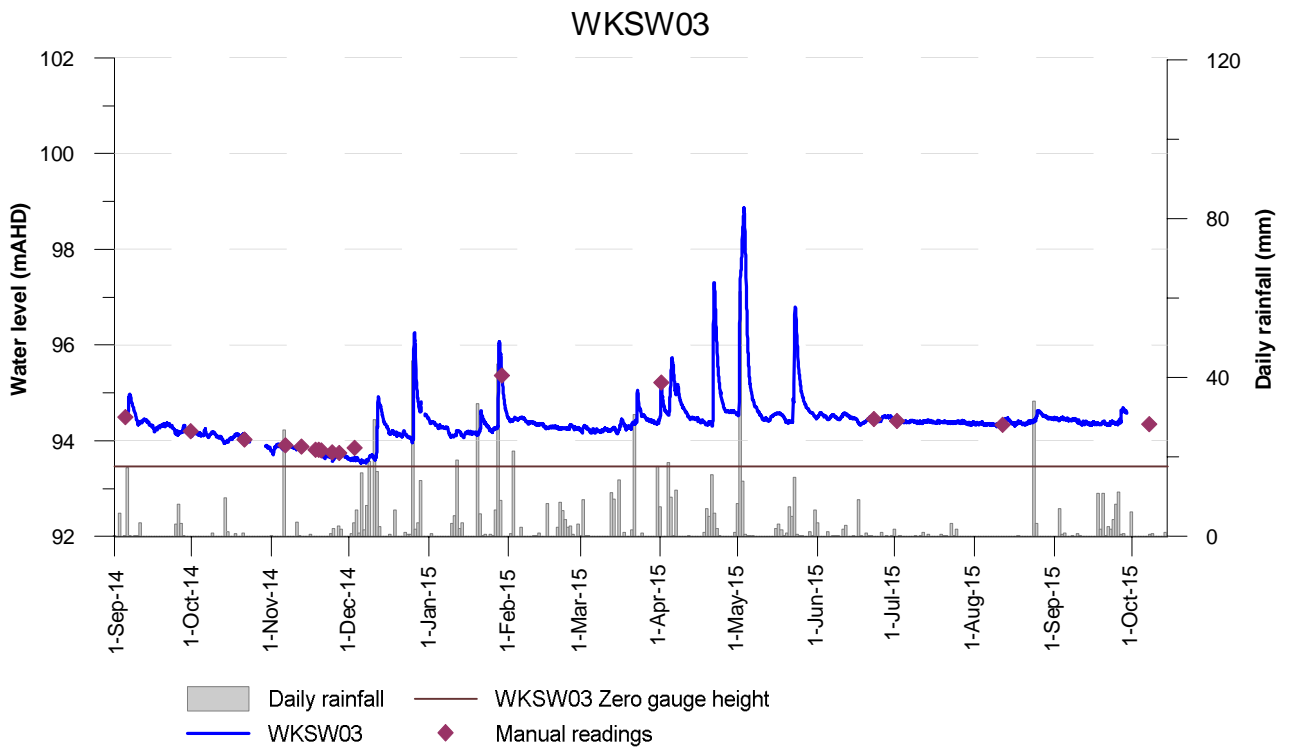


Figure A.28: WКСW03 stream levels

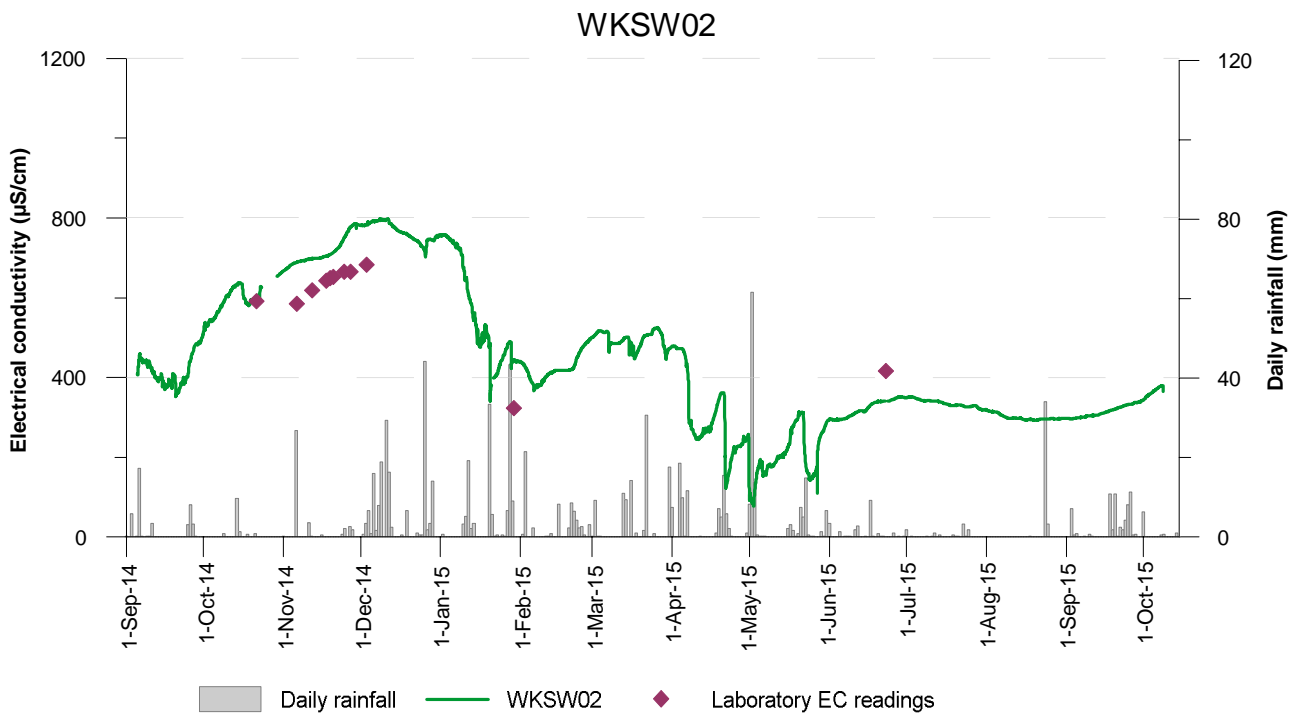
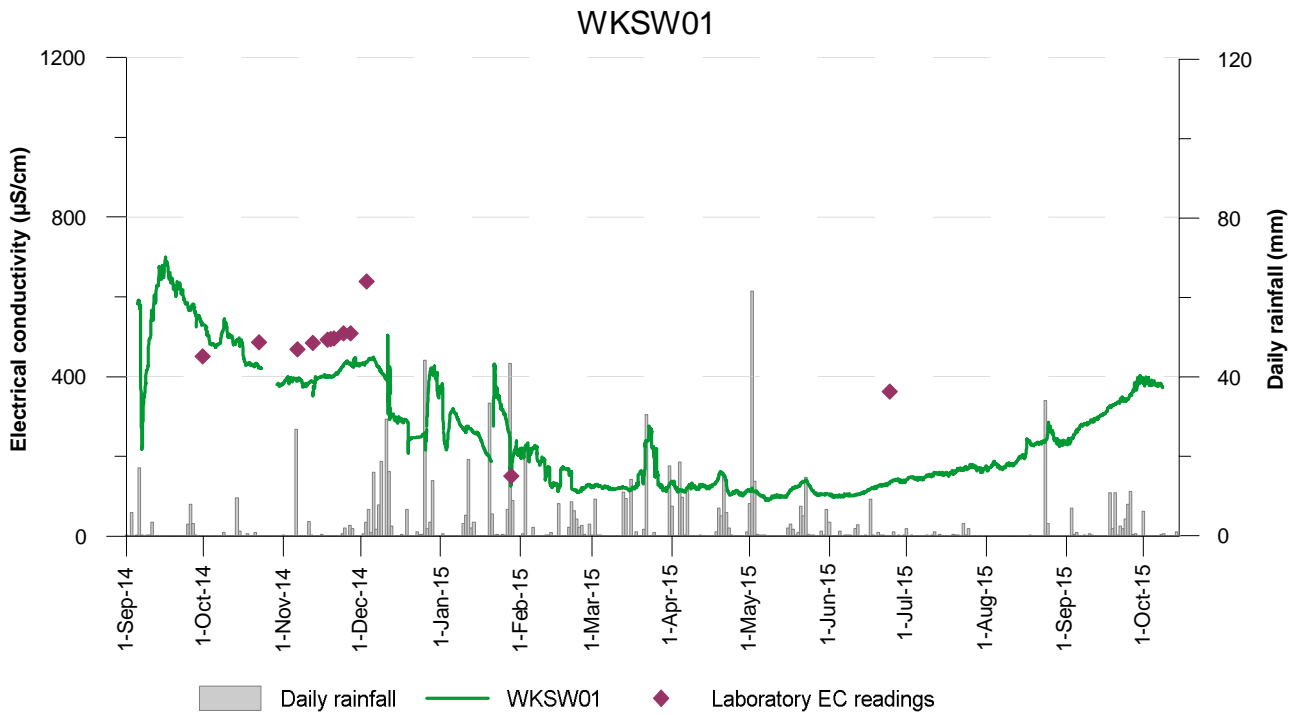


Figure A.29: WKSW01 and WKSW02 electrical conductivity

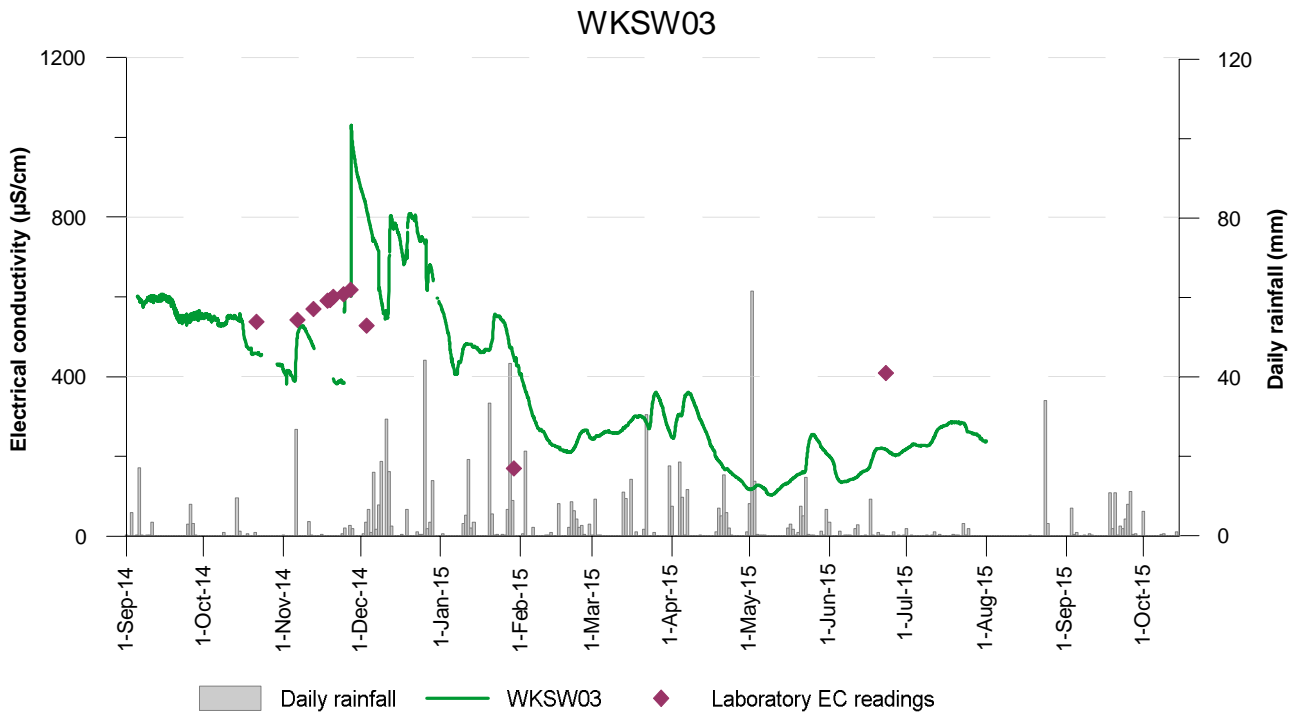


Figure A.30: WКСW03 electrical conductivity

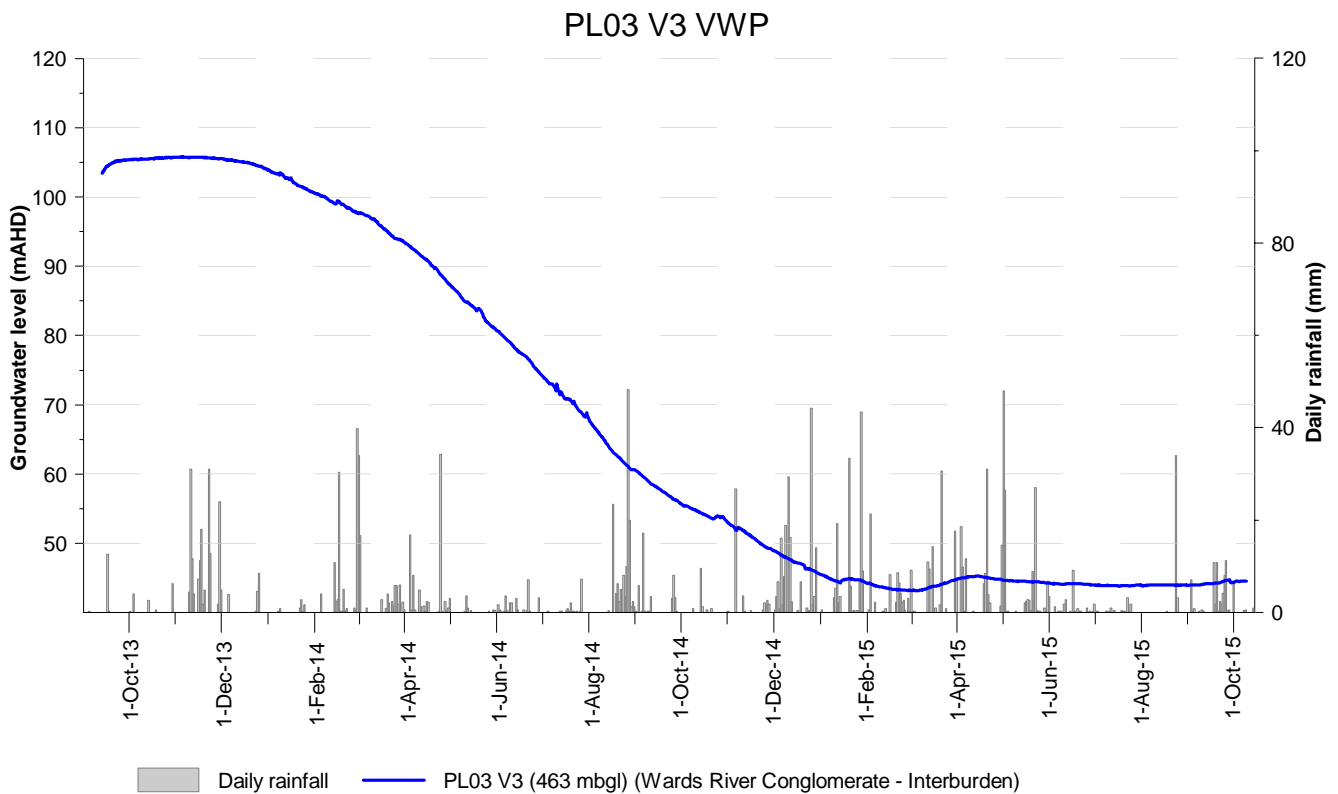
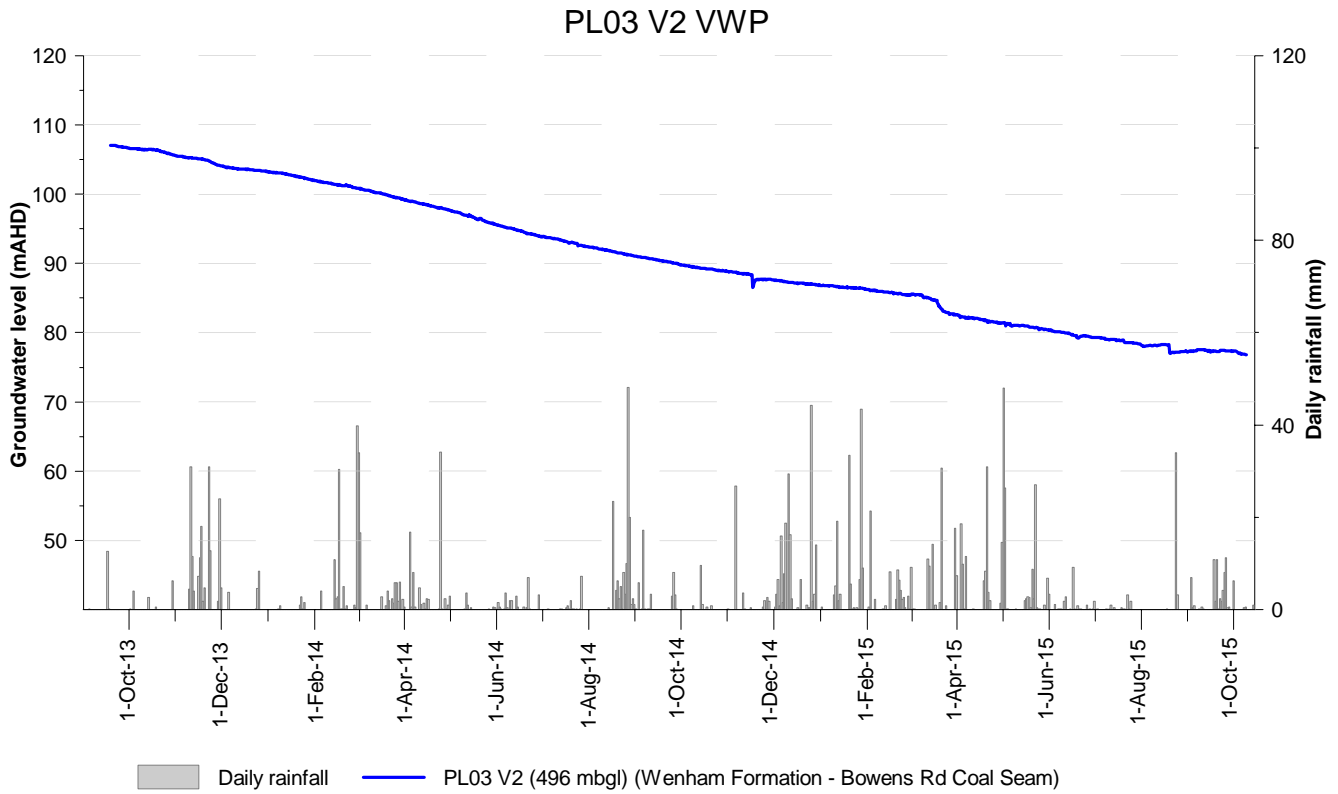


Figure A.31: PL03 VWP

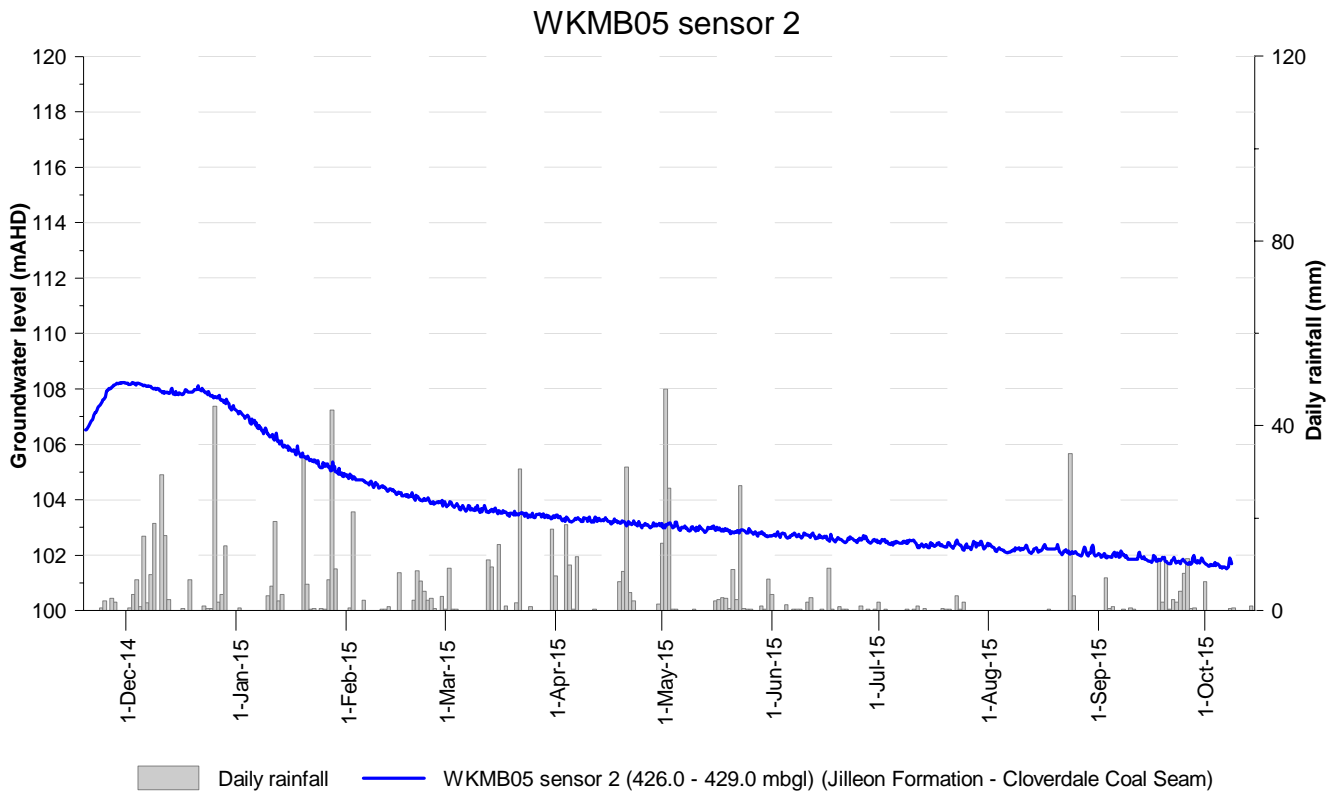
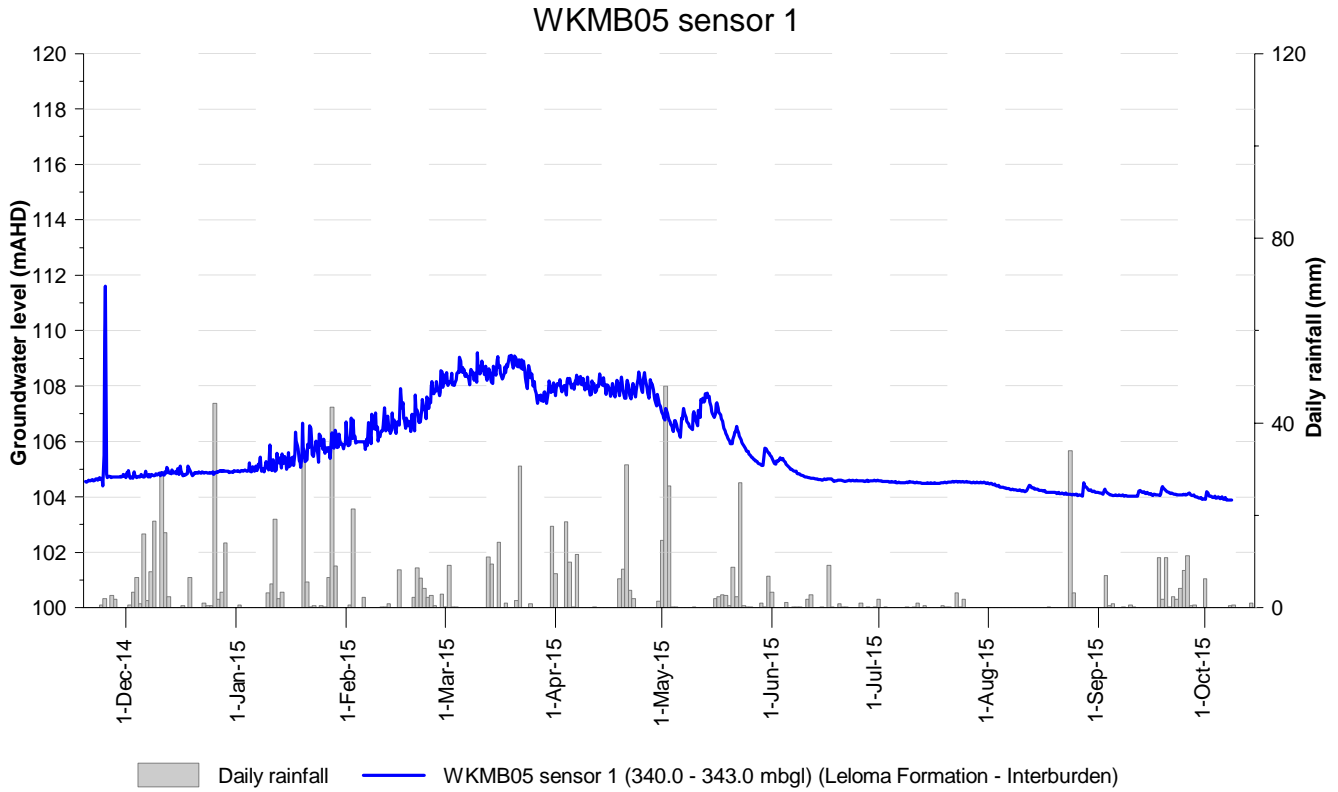
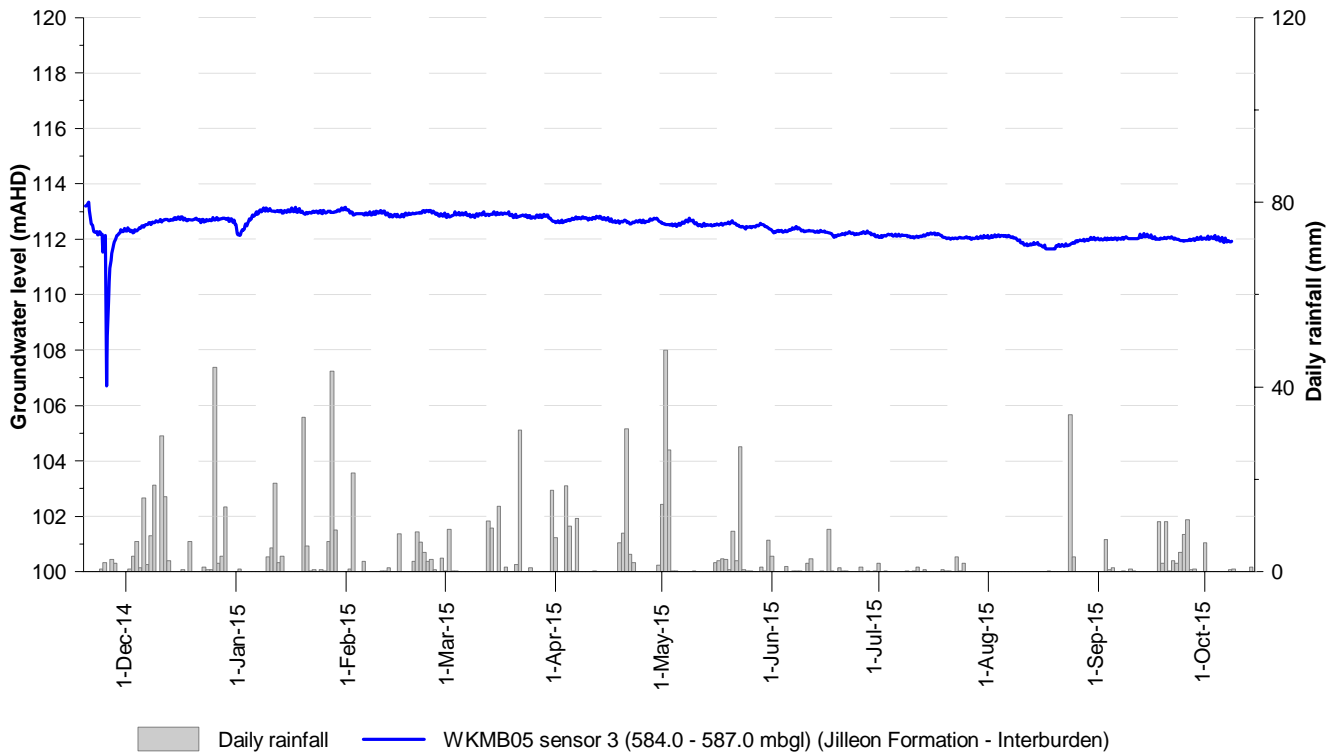


Figure A.32: WKMB05 sensors 1 and 2

WKMB05 sensor 3



WKMB05 sensor 4

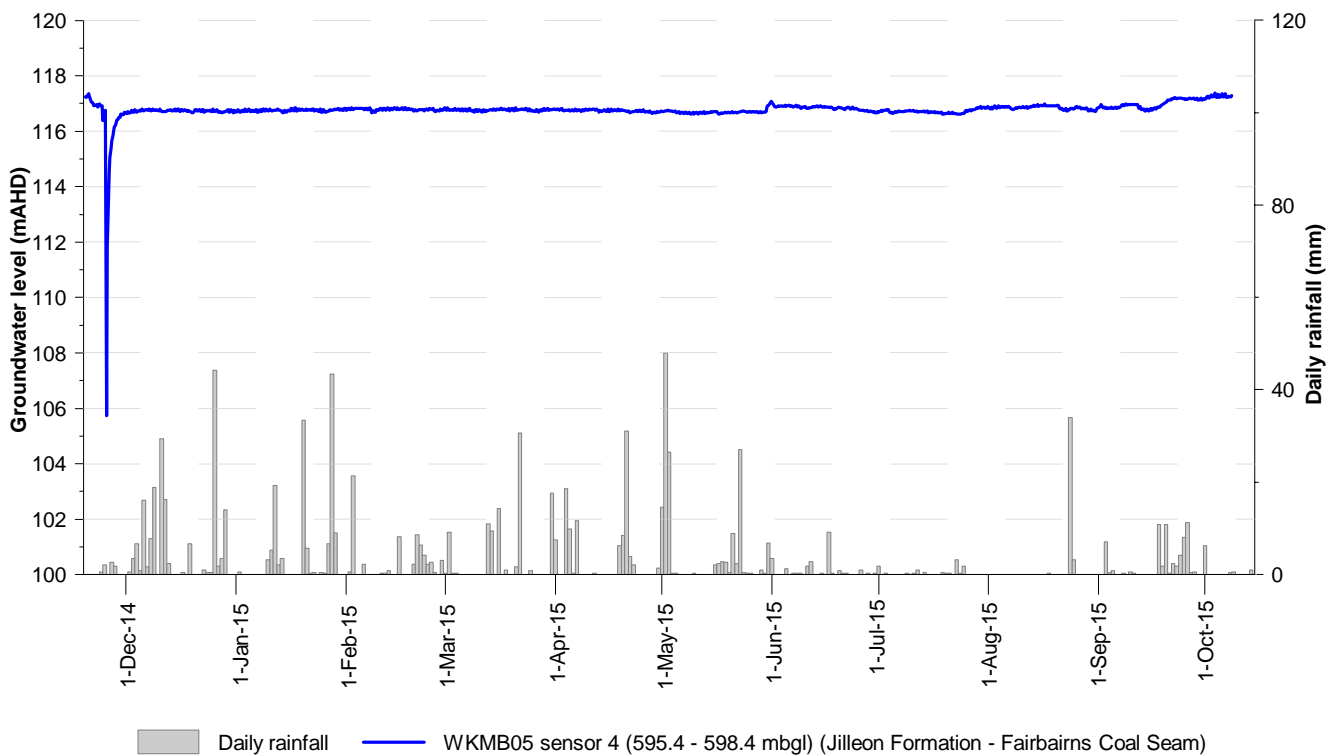
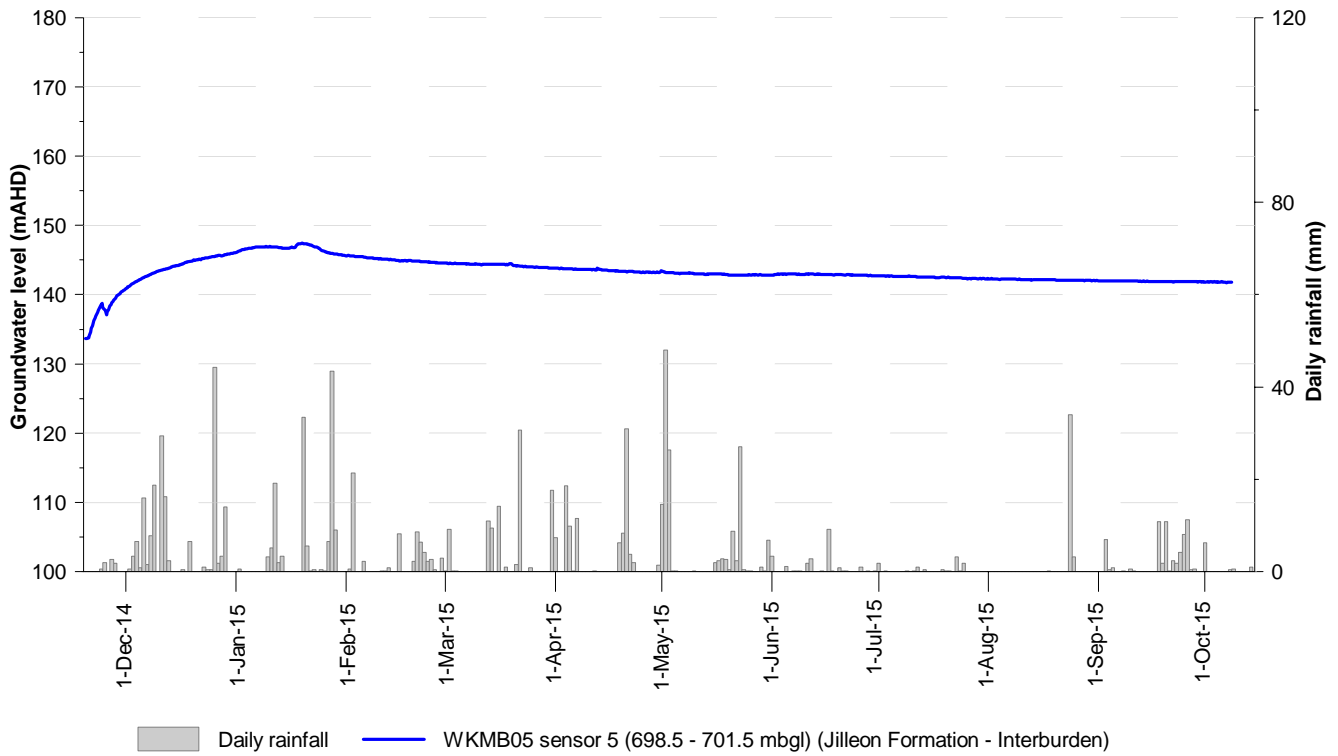


Figure A.33: WKMB05 sensors 3 and 4

WKMB05 sensor 5



WKMB05 sensor 6

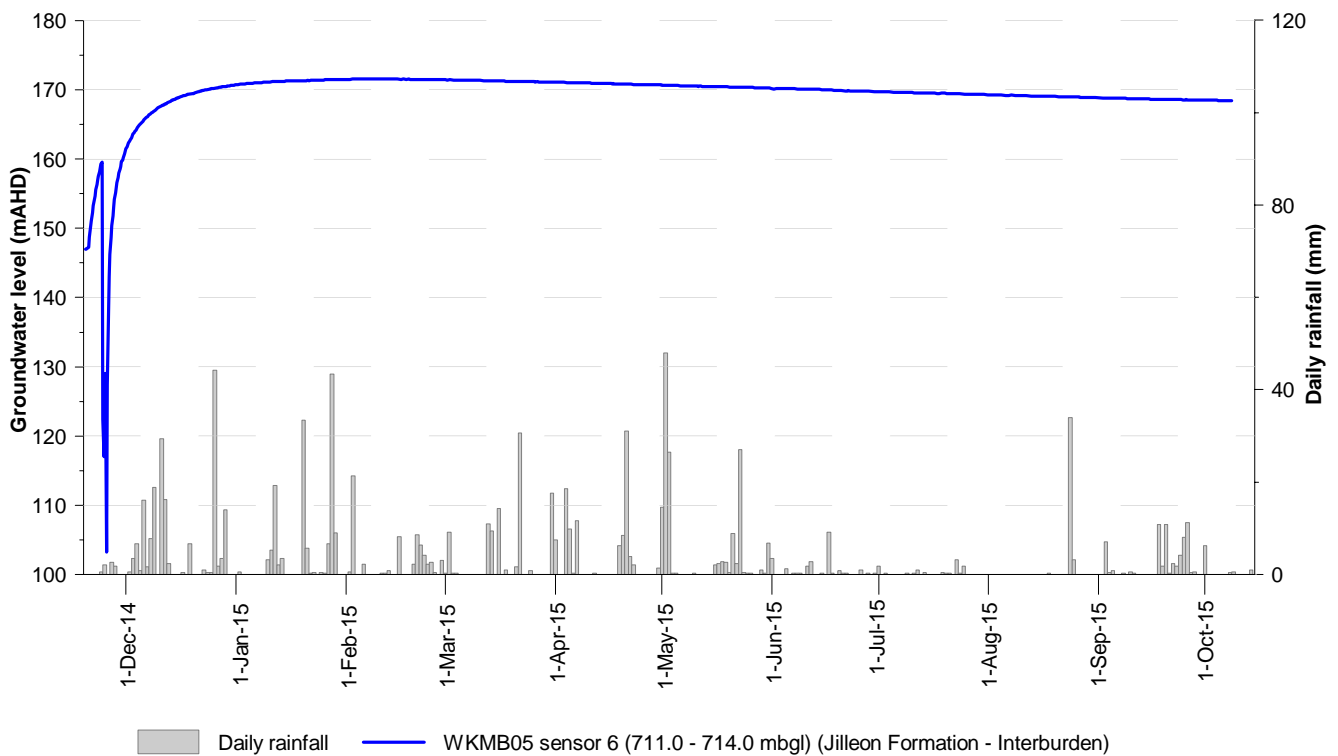


Figure A.34: WKMB05 sensors 5 and 6

NS725R

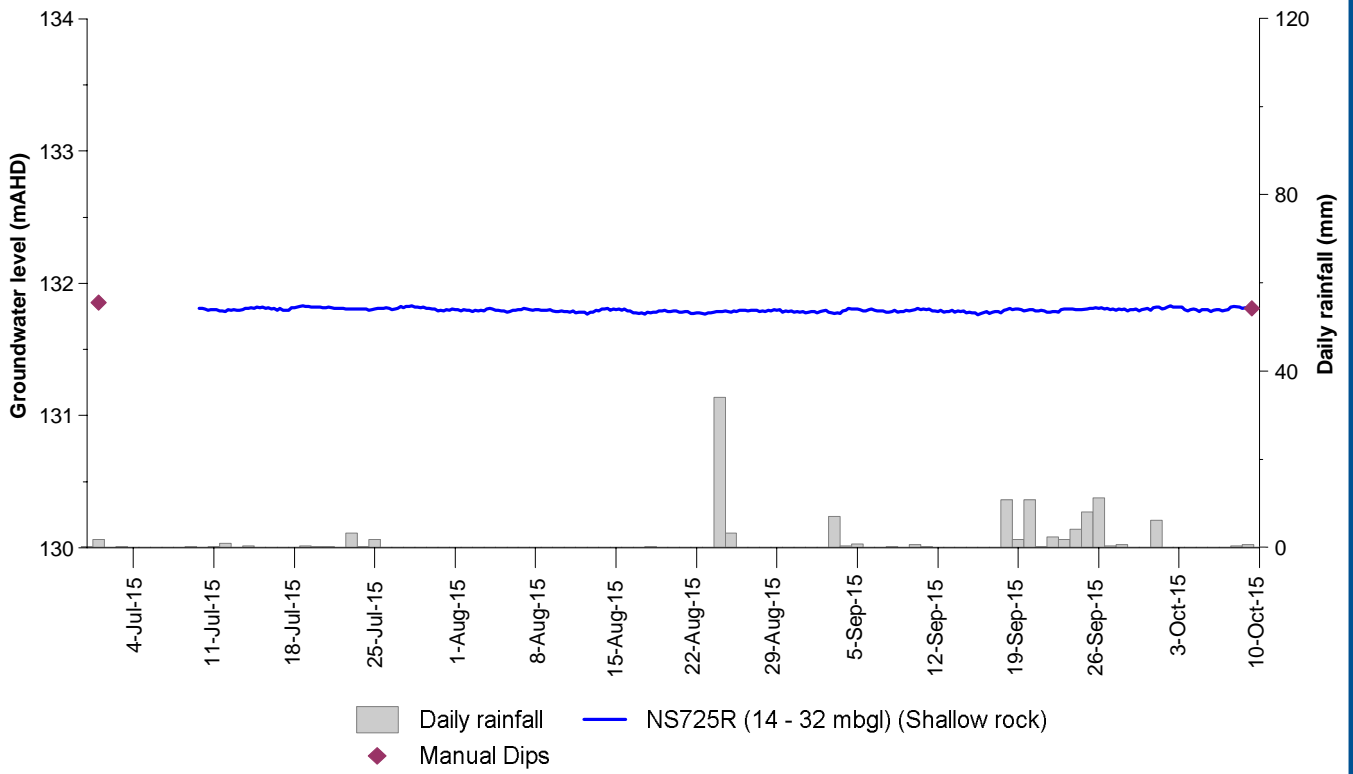


Figure A.35: NS725R monitoring bore