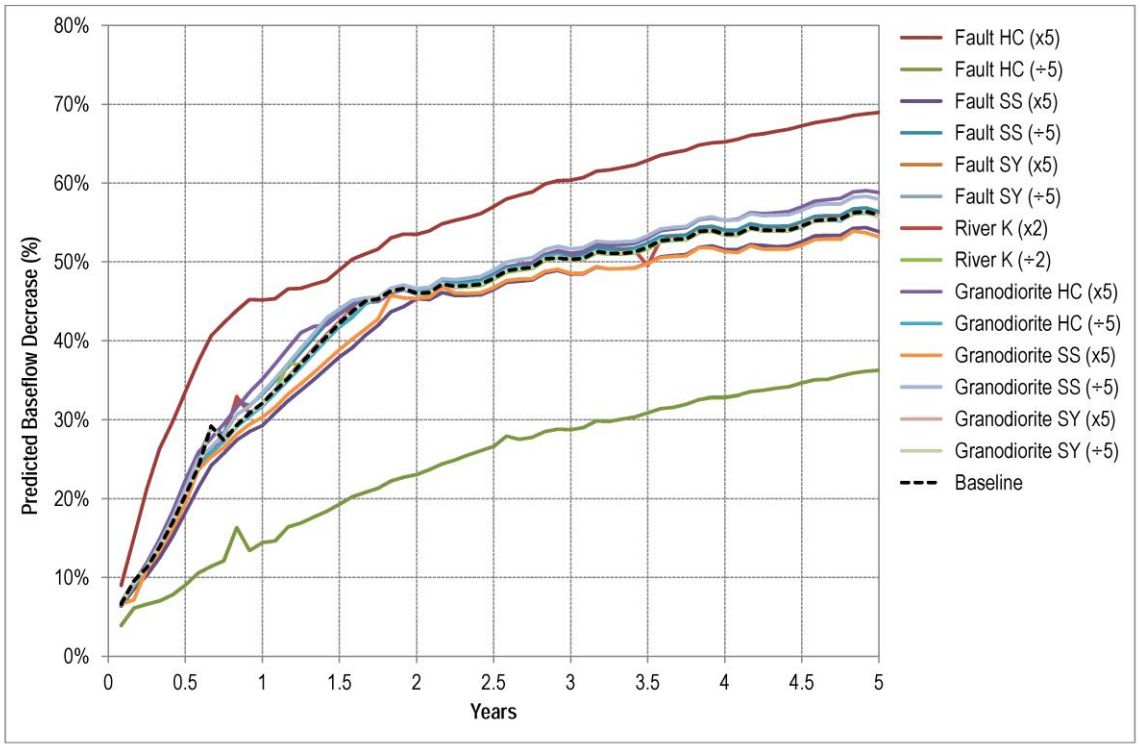

Figure 28: Stream flow sensitivity – lower Spring Creek % change

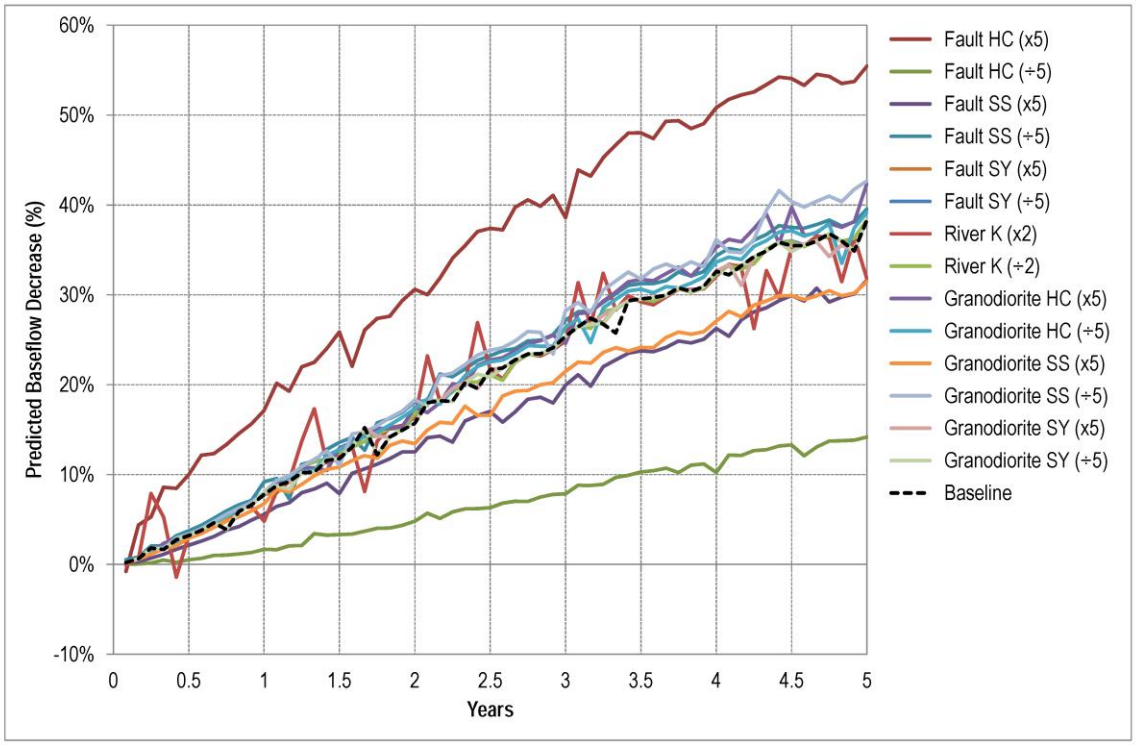

Figure 29: Stream flow sensitivity – Majors Creek % change

It is immediately apparent from these results that changing the hydraulic conductivity of the faults has the most impact on the baseflow to the lower section of Spring Creek and Majors Creek, with the other parameters being relatively insensitive.

The analysis also examined the sensitivity of groundwater recovery post mining to changes in parameter values. Figure 30 presents the predicted groundwater levels for all the sensitivity runs.

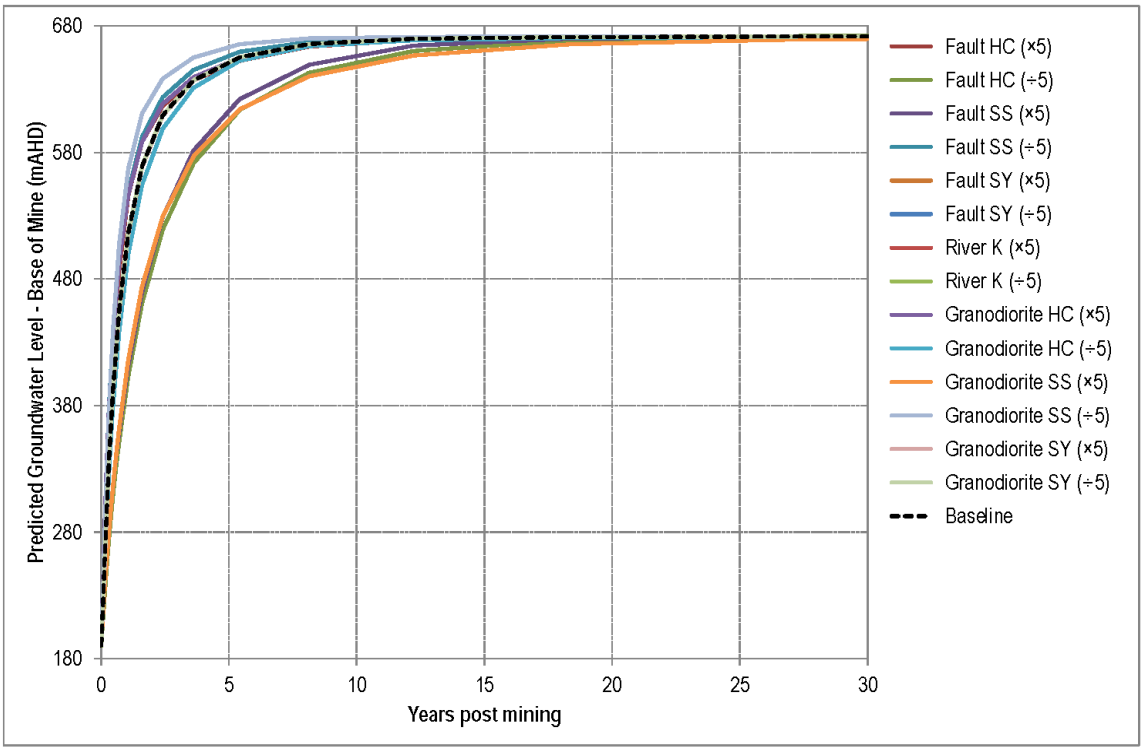

Figure 30: Groundwater level recovery post mining - sensitivity

The modelling indicates that all scenarios recover to the predicted pre-mine water levels, and this is generally achieved within 20 years post mining. Increasing the storage in the faults and the granodiorite results slows the recovery. Conversely increasing the storage reduces the recovery time, as there is less volume to fill.

In summary, the sensitivity analysis indicates that the hydraulic parameters assigned to the faults were relatively insensitive during calibration, but are sensitive to the predictions being made by the model. This is not to say that the model cannot be used for predictions in its current form, but rather this result should guide further data collection in the future to help reduce the uncertainty of the applied fault hydraulic parameters.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Unity Mining Limited conducted baseline water monitoring for the Dargues Gold Mine Project between 2010 and 2013. Groundwater levels and quality have been measured in a network of monitoring bores and open exploration holes. Flow rates and surface water quality have also been monitored in Spring Creek and Majors Creek.

Above average rainfall has resulted in groundwater levels generally rising over the three-year baseline monitoring period. The groundwater model was recalibrated using measured groundwater levels and has been able to reproduce the rising water levels at most bores. Although there is some flow gauging data available for the creek systems, the short time period was insufficient to determine baseflow for use in the model recalibration.

The recalibration of the groundwater model resulted in slightly different hydraulic properties being adopted in the groundwater model, than compared to the values used by AGE (2010) for the EA. The most significant were a higher hydraulic conductivity in the granodiorite, and a lower specific yield for all layers.

The recalibrated model simulated the underground mining project for a period of five years. The model generally predicted impacts of a similar or lesser magnitude than those predicted for the EA by AGE (2010). The model indicates groundwater seepage to the mine is likely to be largely within the range of 8 L/sec to 10 L/sec. Depressurisation of the groundwater levels will be slightly less extensive than previously predicted and will not impact on any private bores. The impact on creek system baseflow is most significant in close proximity to the mine works and reduces with distance. An important outcome of the recalibration was that the upper catchment of Spring Creek may go dry naturally in response to below average rainfall. Post mining groundwater levels will recover within 10 to 20 years and flow of groundwater through the paste fill will be minimal. It is improbable that the paste fill within the mine will impact on the quality of baseflow in the creek systems.

It is recommended Unity Mining consider the following items to improve the data collection and future modelling efforts:

- installing electronic water level loggers in selected key monitoring bores, if more cost effective than the current manual measurement program;
- installing multi-level vibrating wire pressure sensors in selected open exploration bores in proximity to the mine workings if significant seepages are intersected in faults zones during mining;
- analysing water samples for environmental isotopes, if the seepage rate to the underground mine exceeds the model predicted volumes - this may help to determine the source of the seepage and potential interconnection with surface water; and
- monitoring of the upper spring zone in Spring Creek with a v-notch weir as this may go dry naturally due to climate variability.

8.0 REFERENCES

Australasian Groundwater and Environmental Consultants Pty Ltd, (2010), *"Dargues Reef Gold Project Groundwater Assessment"*, June 2010, Project No. G1494

Australasian Groundwater and Environmental Consultants Pty Ltd, (2012), *"Dargues Reef Gold Project Modification Groundwater Assessment"*, April 2012, Project No. G1494A

Barnett et al, (2012), *"Australian Groundwater Modelling Guidelines, Waterlines Report"*, National Water Commission, Canberra,

Geoscience Australia, (2011), *"1 arc second DSM, DEM, DEM-S & DEM-H"*, Version 1.0.4, October 2011

Morton, F. I., (1983), *"Operational estimates of areal evapotranspiration and their significance to the science and practice of hydrology"*, Journal of hydrology, Vol 66, page 1-77.

Doherty, J., (2004), *"PEST – Model – Independent Parameter Estimation"*, User Manual, 5th Edition, Watermark Numerical Computing, Corinda, July 2004.

AUSTRALASIAN GROUNDWATER AND ENVIRONMENTAL CONSULTANTS PTY LTD

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Groundwater Modeller

JAMES TOMLIN
Principal Modeller

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LIMITATIONS OF REPORT

Australasian Groundwater and Environmental Consultants Pty Ltd (AGE) has prepared this report for the use of Unity Mining Limited in accordance with the usual care and thoroughness of the consulting profession. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report. It is prepared in accordance with the scope of work and for the purpose outlined in the Proposal emailed on the 21 February 2013.

The methodology adopted and sources of information used by AGE are outlined in this report. AGE has made no independent verification of this information beyond the agreed scope of works and AGE assumes no responsibility for any inaccuracies or omissions. No indications were found during our investigations that information contained in this report as provided to AGE was false.

This study was undertaken between 5 March 2013 and 7 May 2013 and is based on the conditions encountered and the information available at the time of preparation of the report. AGE disclaims responsibility for any changes that may occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. It may not contain sufficient information for the purposes of other parties or other users. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

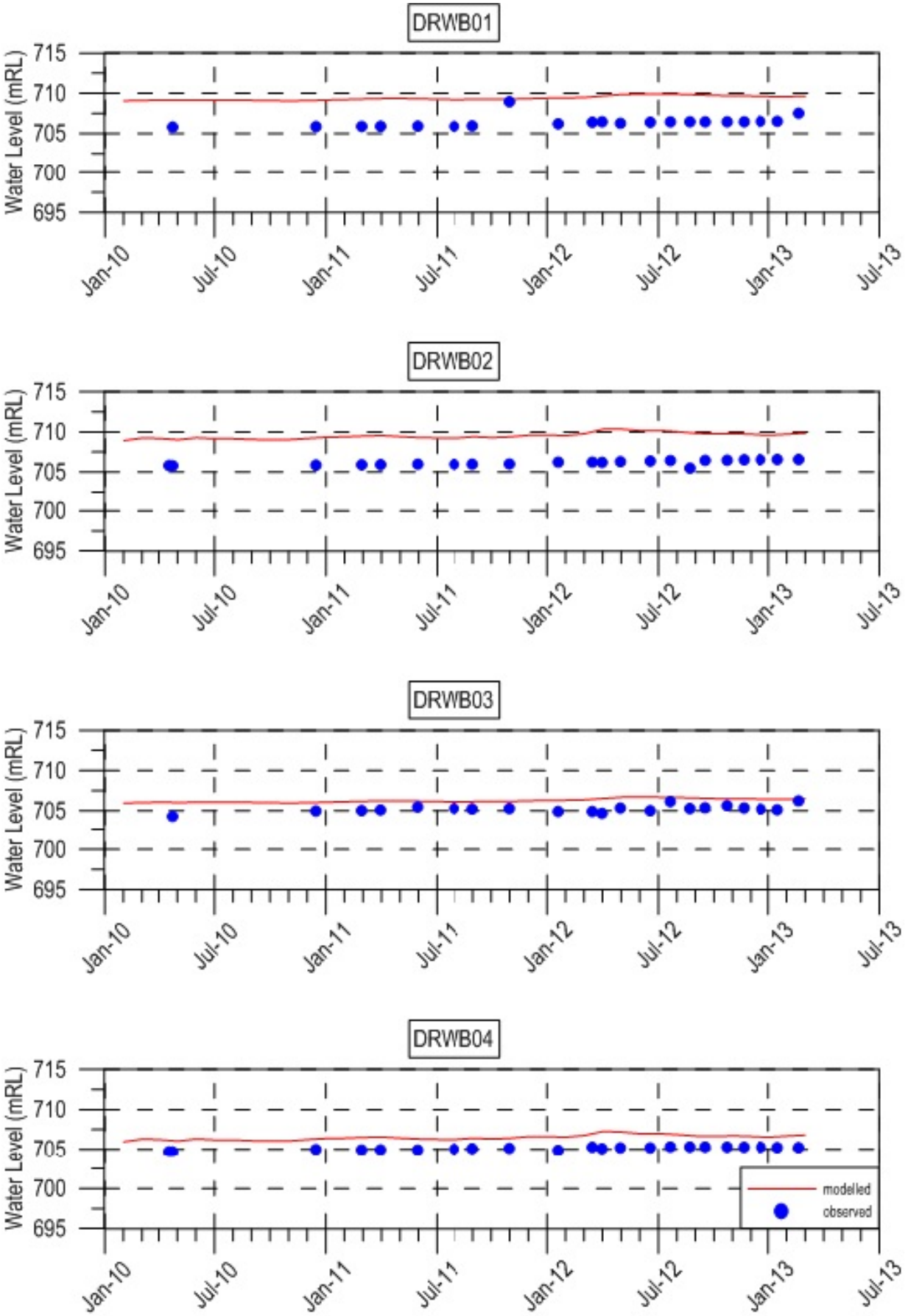
This report contains information obtained by inspection, sampling, testing and other means of investigation. This information is directly relevant only to the points in the ground where they were obtained at the time of the assessment. Where borehole logs are provided they indicate the inferred ground conditions only at the specific locations tested. The precision with which conditions are indicated depends largely on the frequency and method of sampling, and the uniformity of the site, as constrained by the project budget limitations. The behaviour of groundwater is complex. Our conclusions are based upon the analytical data presented in this report and our experience.

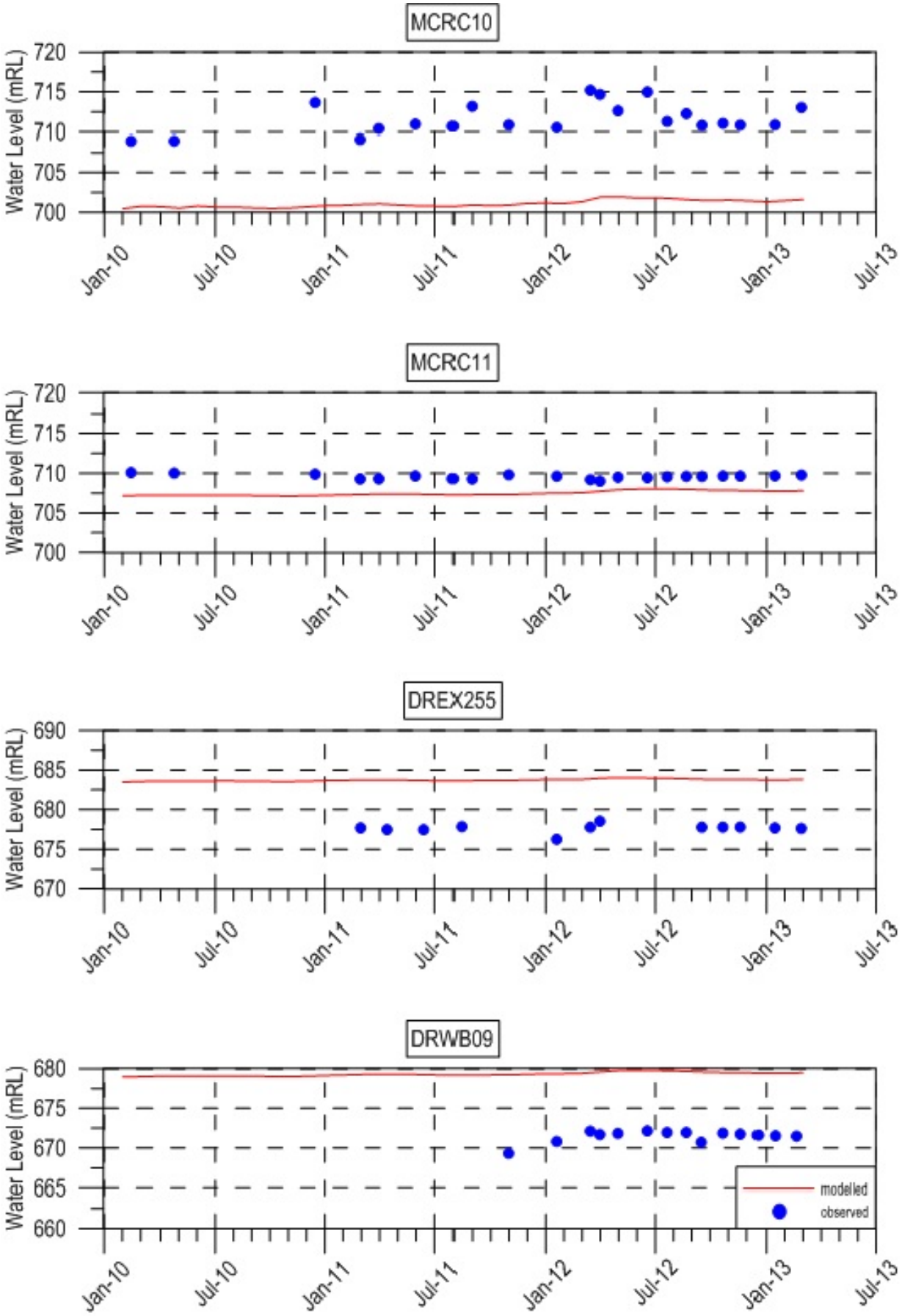
Where conditions encountered at the site are subsequently found to differ significantly from those anticipated in this report, AGE must be notified of any such findings and be provided with an opportunity to review the recommendations of this report.

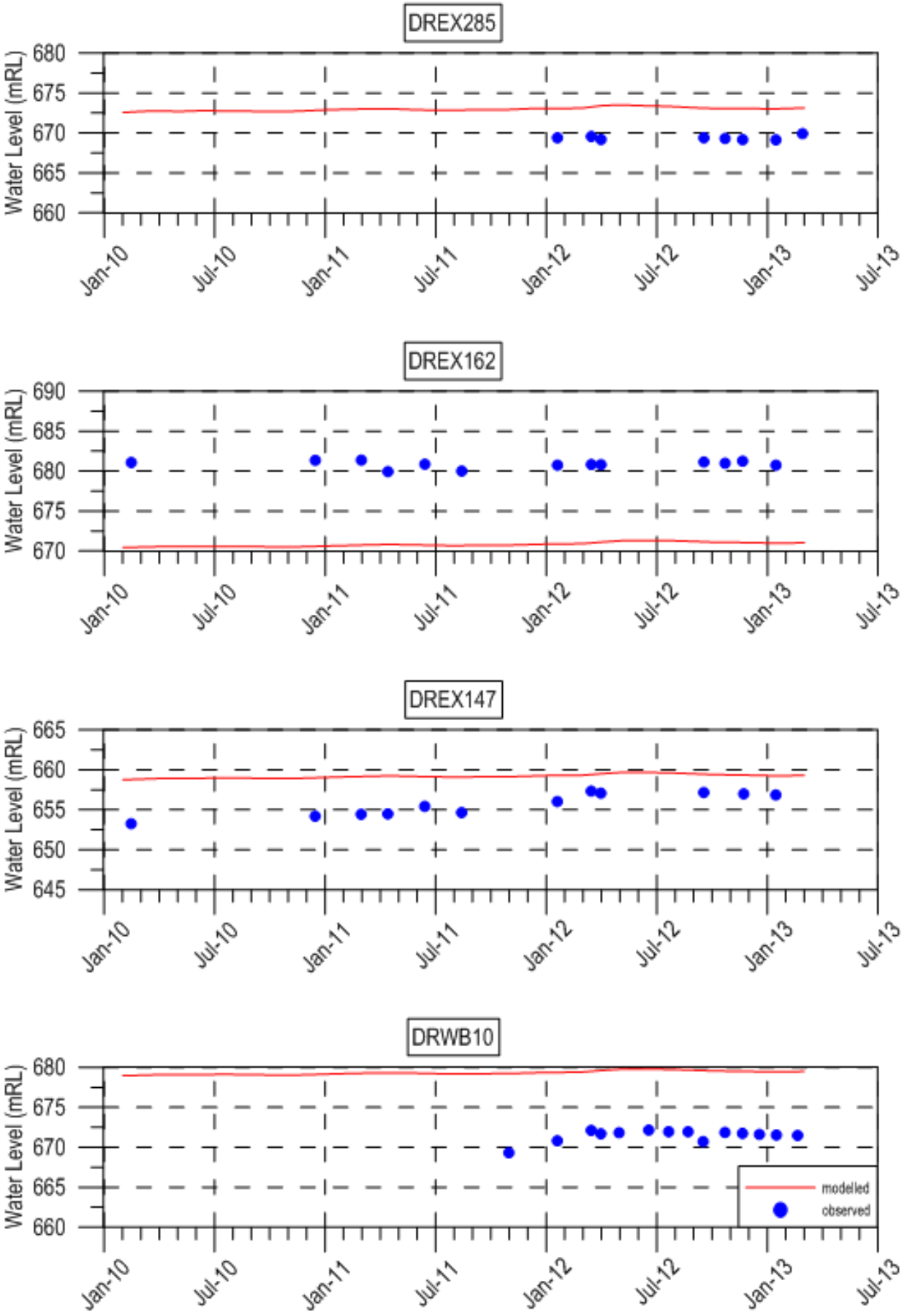
Whilst to the best of our knowledge, information contained in this report is accurate at the date of issue, subsurface conditions, including groundwater levels can change in a limited time. Therefore this document and the information contained herein should only be regarded as valid at the time of the investigation unless otherwise explicitly stated in this report.

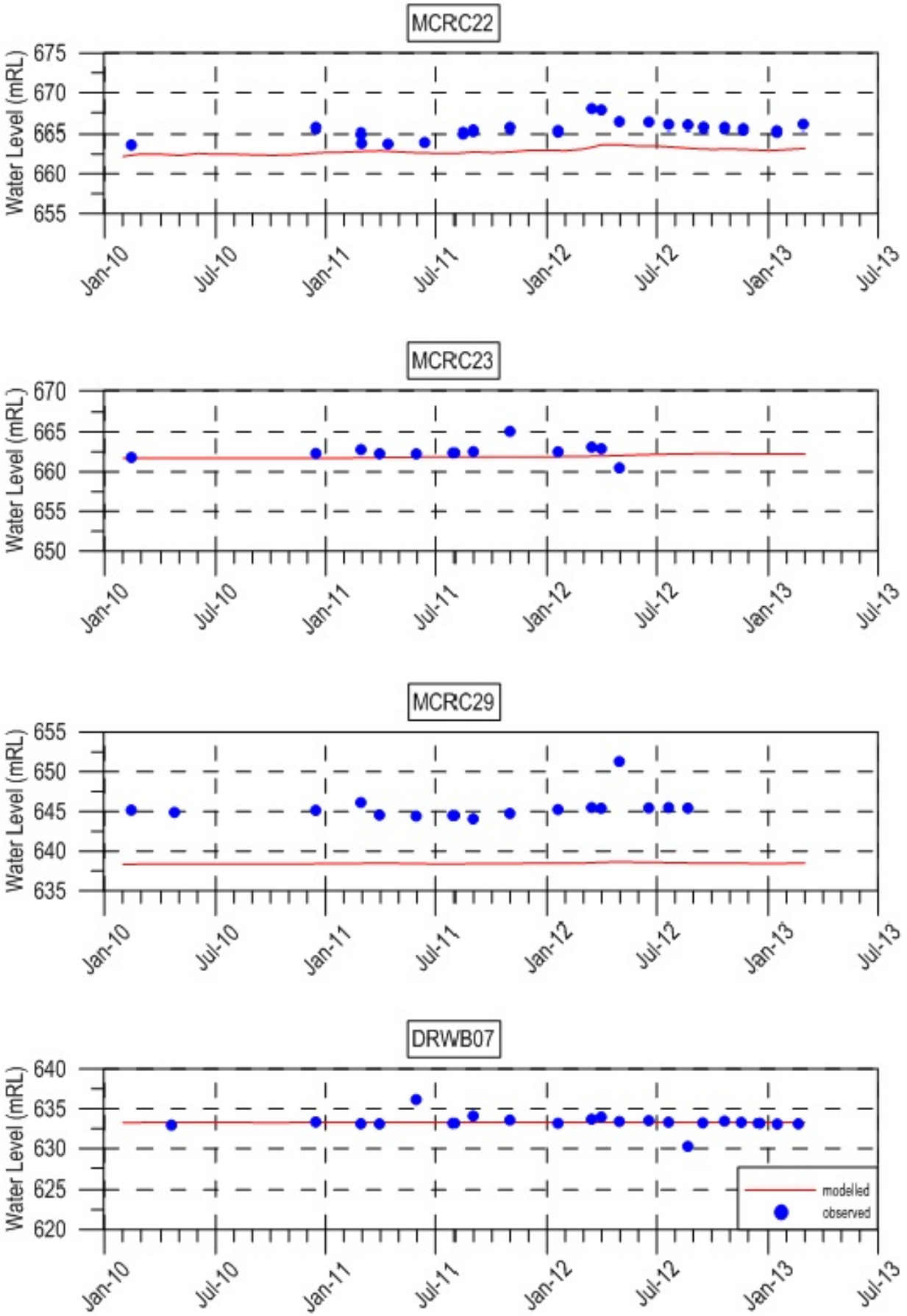
Appendix 1

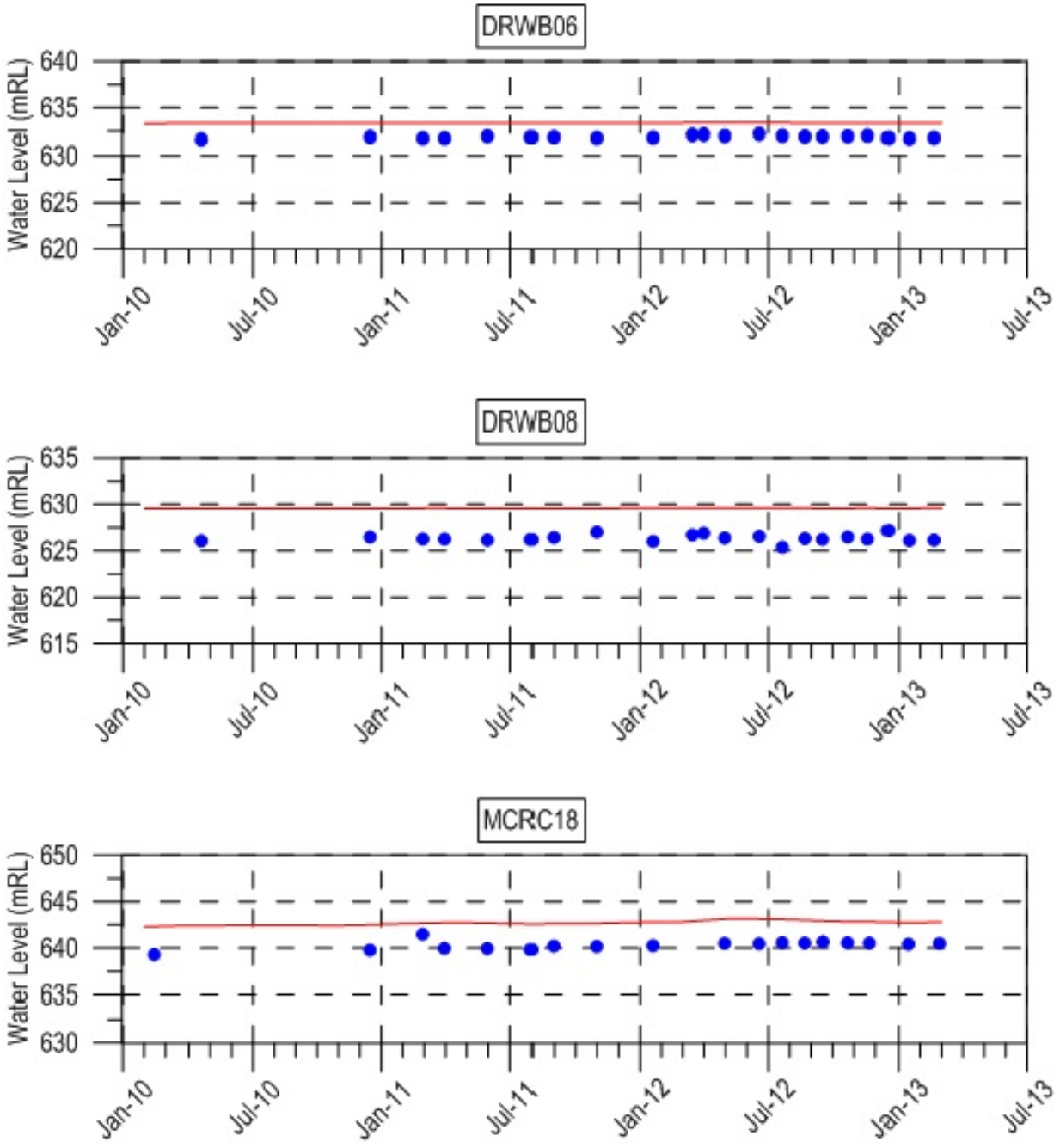
CALIBRATION HYDROGRAPHS


DRWB01
DRWB02
DRWB03
DRWB04
Water Level (mRL)
715
710
705
700
695
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
modelled
observed


MCRC10
Water Level (mRL)
720
715
710
705
700
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
MCRC11
Water Level (mRL)
720
715
710
705
700
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
DREX255
Water Level (mRL)
690
685
680
675
670
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
DRWB09
Water Level (mRL)
680
675
670
665
660
modelled
observed
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13


DREX285
Water Level (mRL)
680
675
670
665
660
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
DREX162
Water Level (mRL)
690
685
680
675
670
DREX147
Water Level (mRL)
665
660
655
650
645
DRWB10
Water Level (mRL)
680
675
670
665
660
modelled
observed


MCRC22
Water Level (mRL)
675
670
665
660
655
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
MCRC23
Water Level (mRL)
670
665
660
655
650
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
MCRC29
Water Level (mRL)
655
650
645
640
635
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
DRWB07
Water Level (mRL)
640
635
630
625
620
modelled
observed
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13


DRWB06
Water Level (mRL)
640
635
630
625
620
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
DRWB08
Water Level (mRL)
635
630
625
620
615
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13
MCRC18
Water Level (mRL)
650
645
640
635
630
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
Jul-12
Jan-13
Jul-13