Median water table elevation in Christchurch and surrounding area after the 4 September 2010 Darfield Earthquake Version 2

S. van Ballegooy, S. C. Cox, C. Thurlow,
H. K. Rutter, T. Reynolds, G. Harrington,
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GNS Science Report 2014/18 **May 2014**

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GNS Science Report 2014/18 May 2014

The following report is an update of the median water table elevation report for Christchurch and surrounding areas released in March 2013 (GNS Report 2013/01). The revision encompasses an extension of the period of groundwater monitoring (4 September 2010 to 30 November 2013) and new surfaces for improved definition of water table fluctuation.

BIBLIOGRAPHIC REFERENCE

S. van Ballegooy, S. C. Cox, C. Thurlow, H. K. Rutter, T. Reynolds, G. Harrington, J. Fraser, T. Smith, 2014. Median water table elevation in Christchurch and surrounding area after the 4 September 2010 Darfield Earthquake: Version 2. GNS Science Report 2014/18, 79 pages plus 8 appendices.

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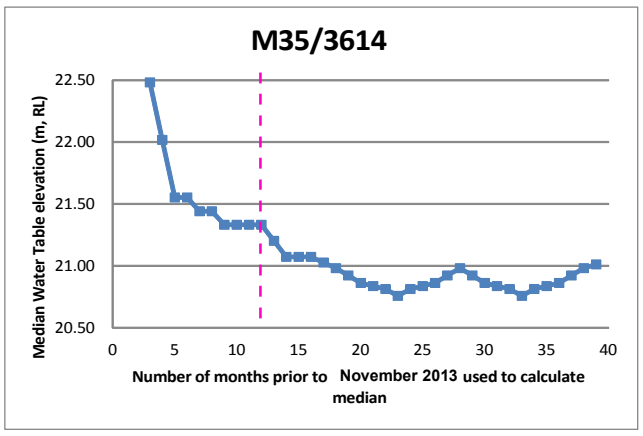
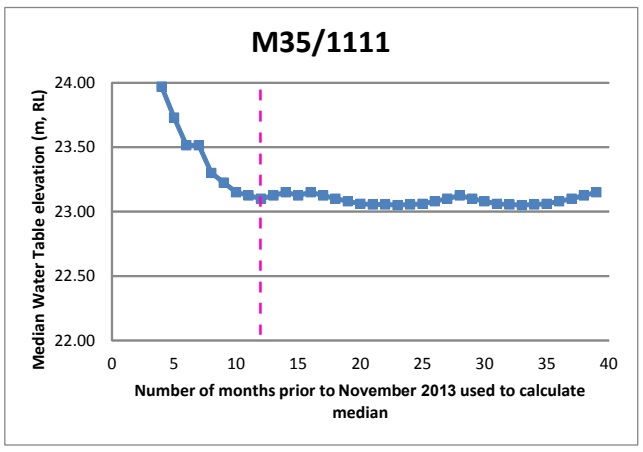
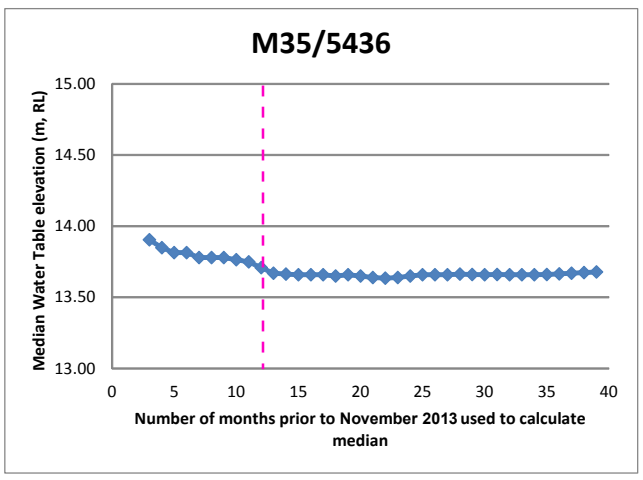
APPENDIX D: SENSITIVITY OF DATA SELECTION FOR MONITORING WELLS

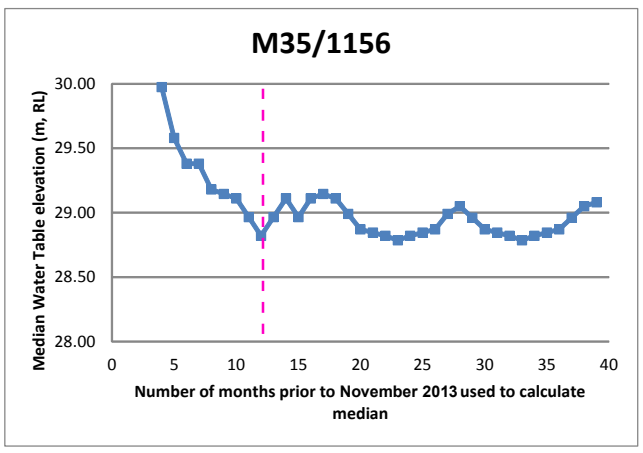
Date: 9/05/2014 Time: 2:41:26 p.m.

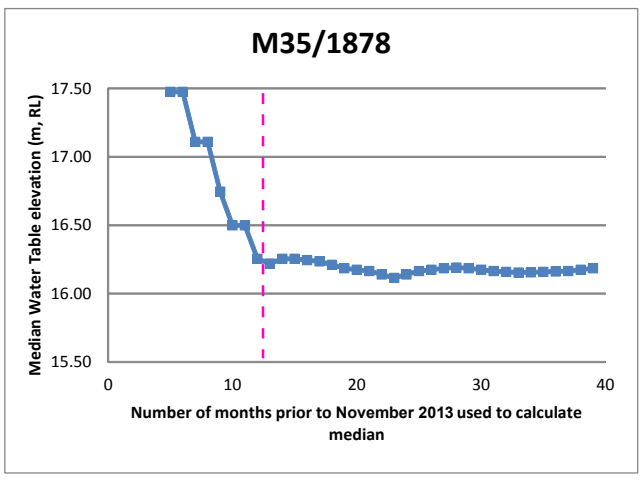
Inland Zone



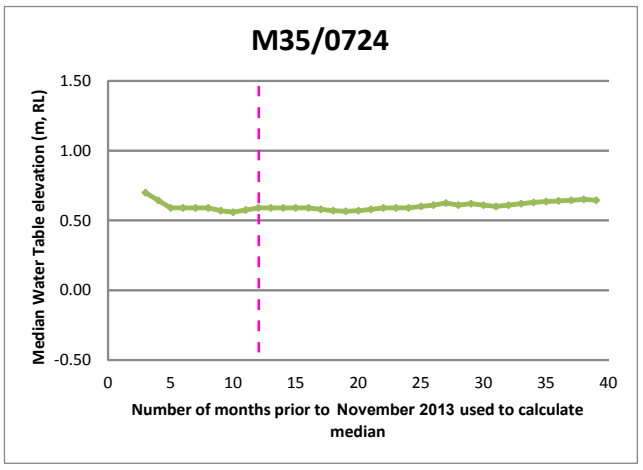


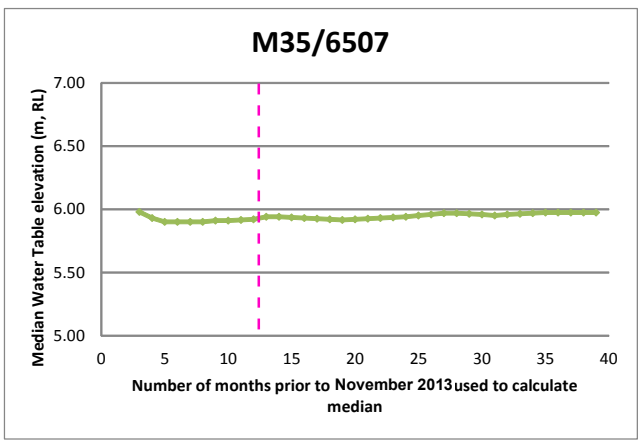


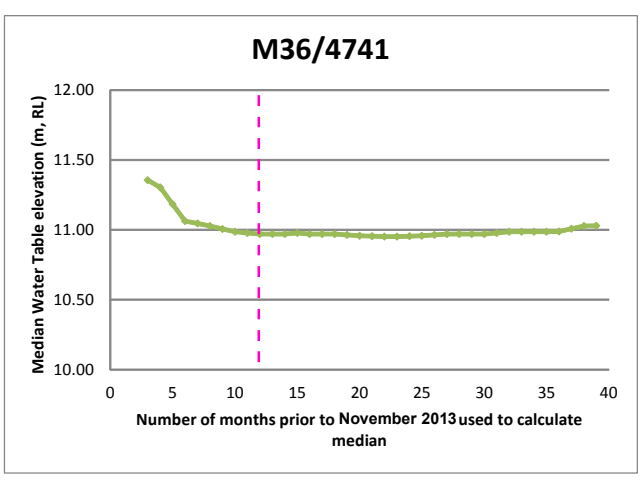


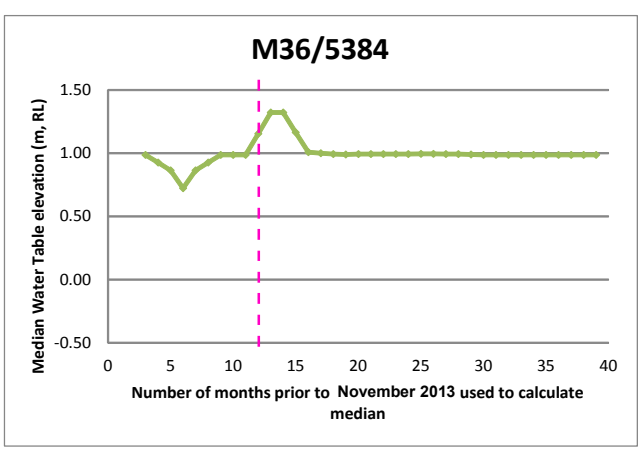


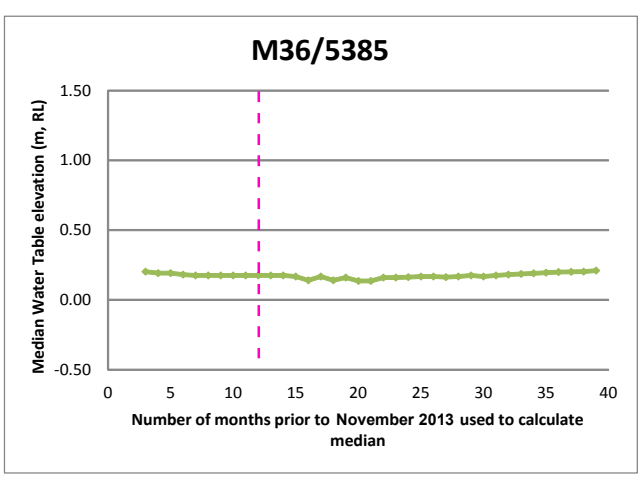
Eastern Coastal Zone











The ECan and CCC monitoring wells were typically measured at least once a month, and have been monitored in this way since their installation (prior to the September 2010 Darfield earthquake). The plots presented in this figure show the effect of data selection in relation to calculation of the median water table level for discrete monitoring well locations. The x-axis refers to the number of months prior to November 2013 which have been used to calculate a median value. It can be seen that a median based on 12 months (red dotted line) is less influenced by the seasonal effects caused by choosing a shorter duration to calculate the median (e.g. for a 6 month period). Generally the median calculated for a period of greater than 12 months is relatively consistent and not biased by seasonal effects. Note that the vertical scales of plot are all the same (2m) for ease of comparison

Notes:

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DRAWN	CXP	May.14
CHECKED		
APPROVED		

ARCFILE 52020-0200-CPT053

SCALE (AT A3 SIZE)

Prepared by Tonkin & Taylor Ltd
Ref. 52020.0200

CHRISTCHURCH MEDIAN WATER TABLE ELEVATION REPORT

Change in median water table level with reduction in available data In ECan Monitoring wells

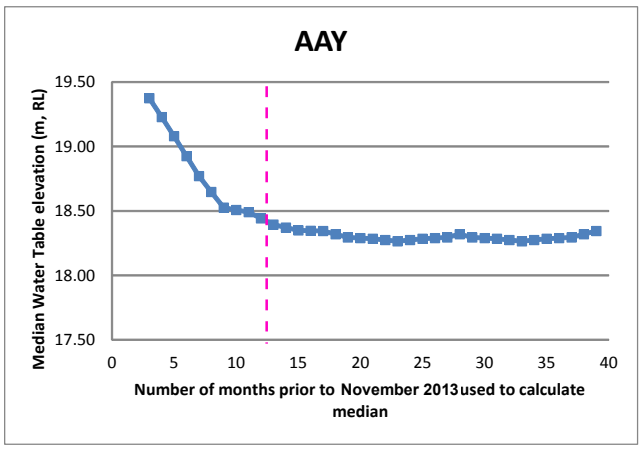
FIGURE No. Figure D.1

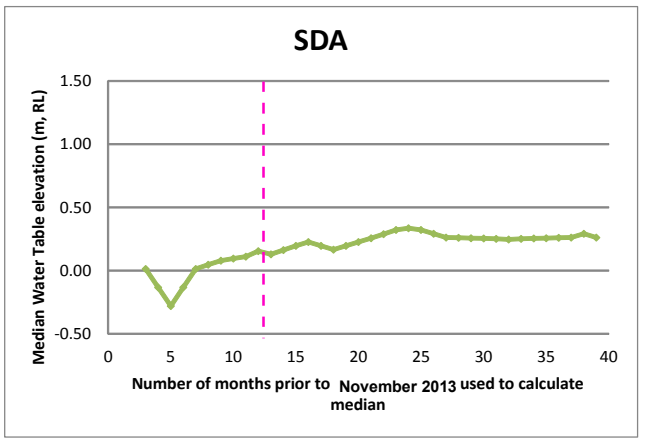
Rev. 0

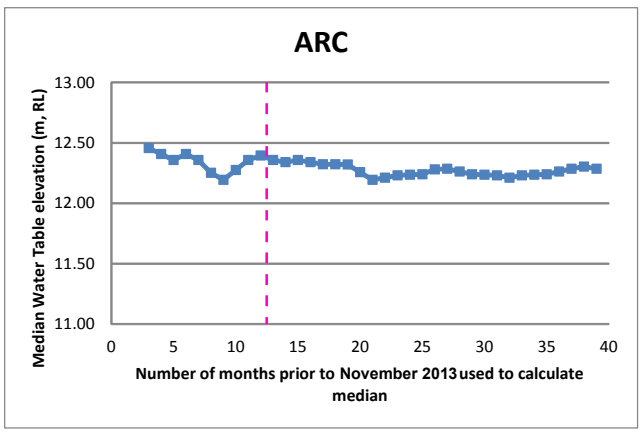
Date: 6/05/2014 Time: 10:04:12 a.m.

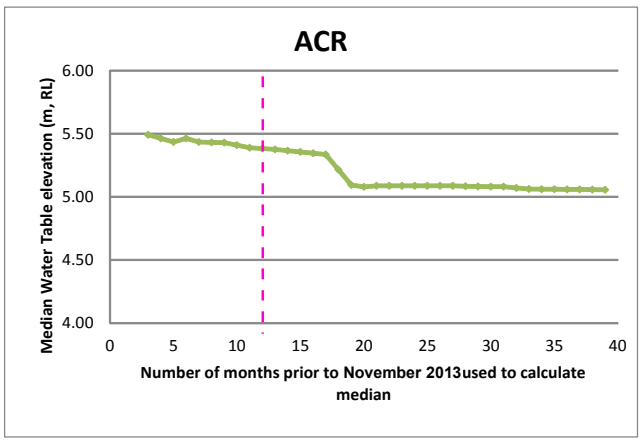
Inland Zone

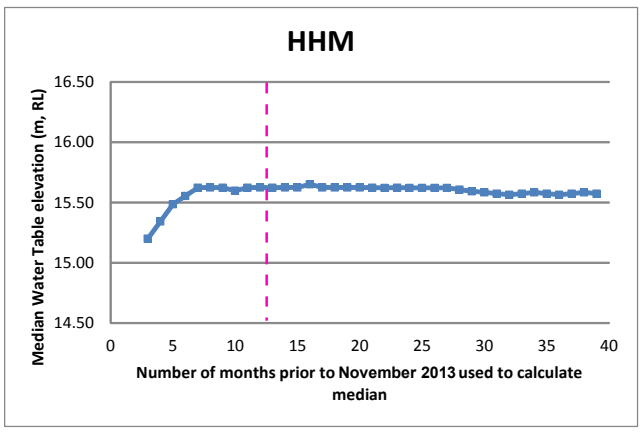
Eastern Coastal Zone

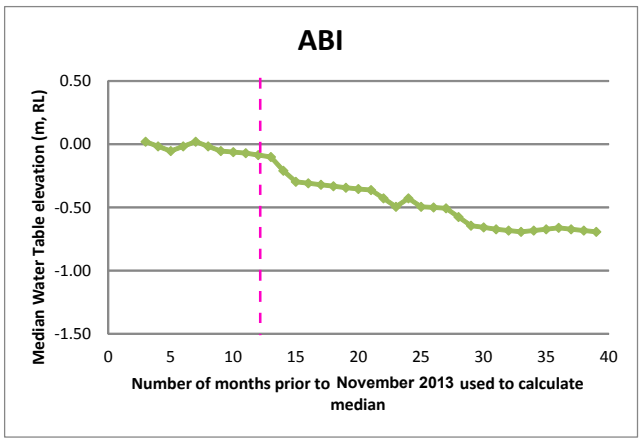


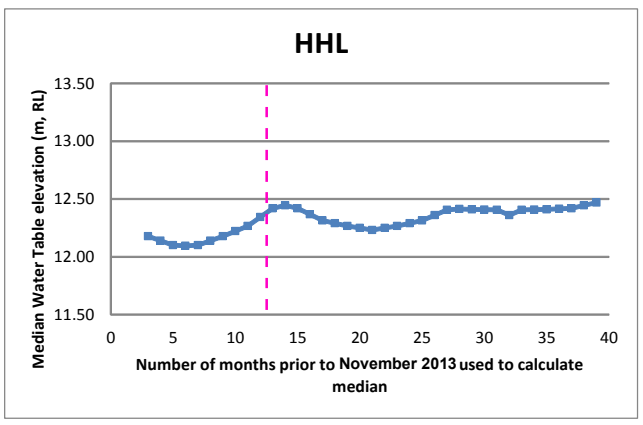


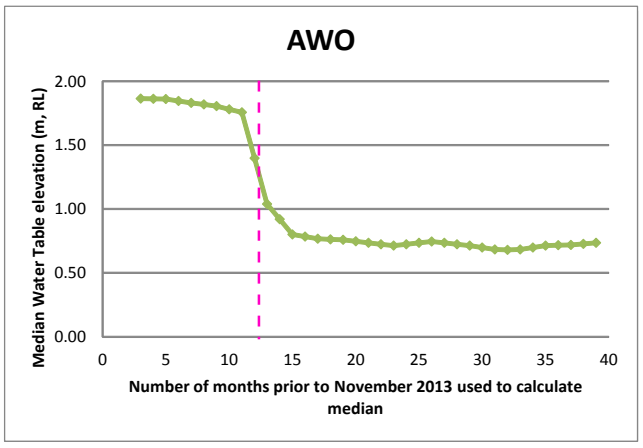


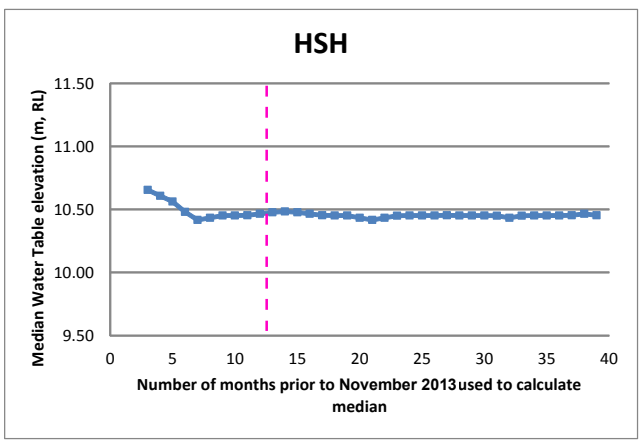


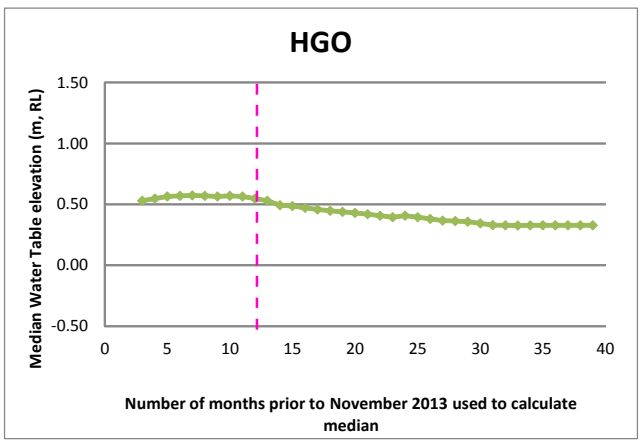












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Notes:

DRAWN	CXP	May.14
CHECKED		
APPROVED		

ARCFILE 52020-0200-CPT057

SCALE (AT A3 SIZE)

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Ref. 52020.0200

CHRISTCHURCH MEDIAN WATER TABLE ELEVATION REPORT

Change in median water table level with reduction in available data In CCC Monitoring wells

FIGURE No. Figure D.2

Rev. 0

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