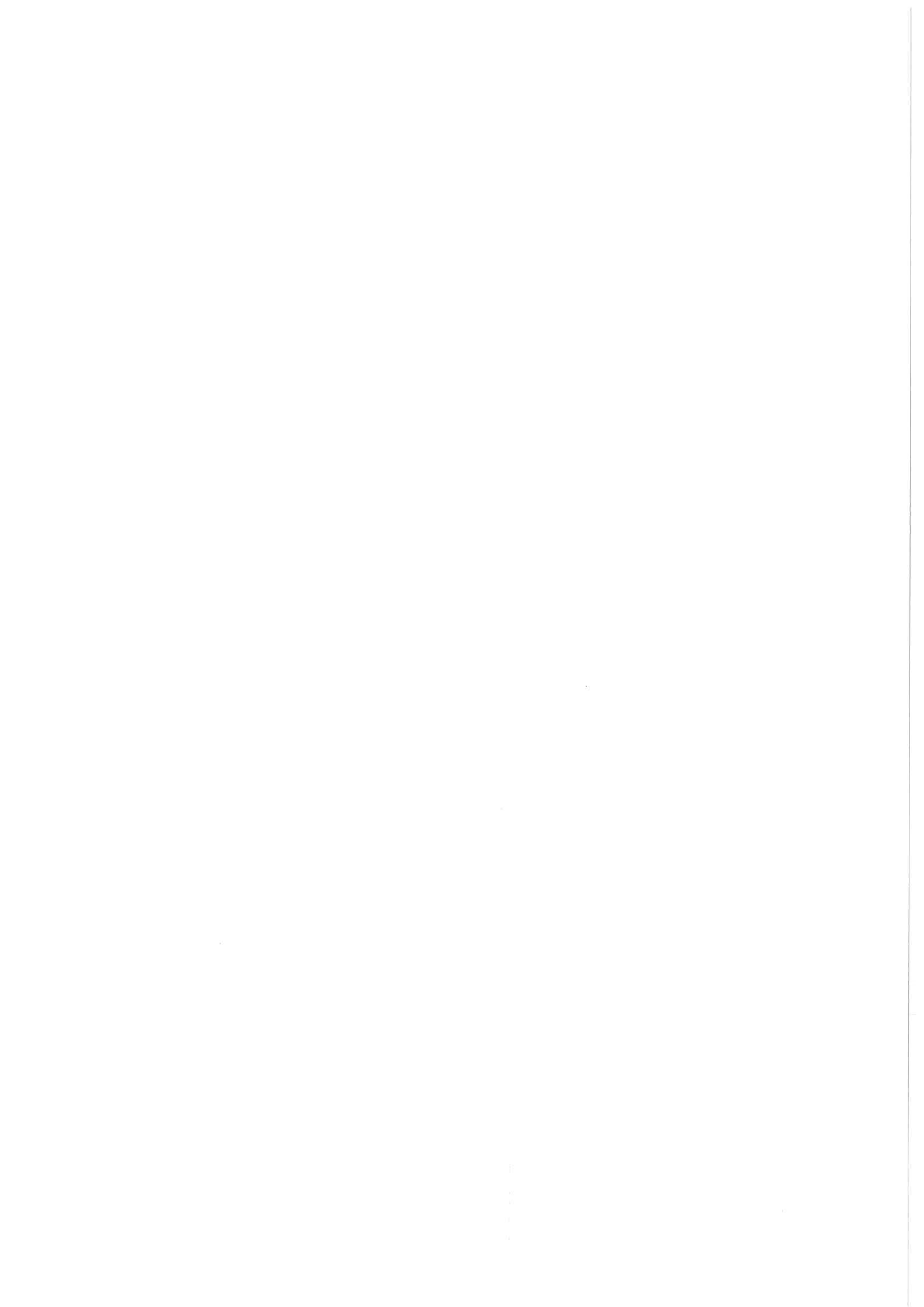
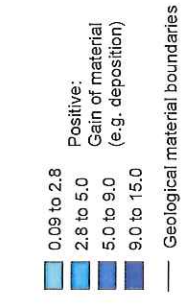
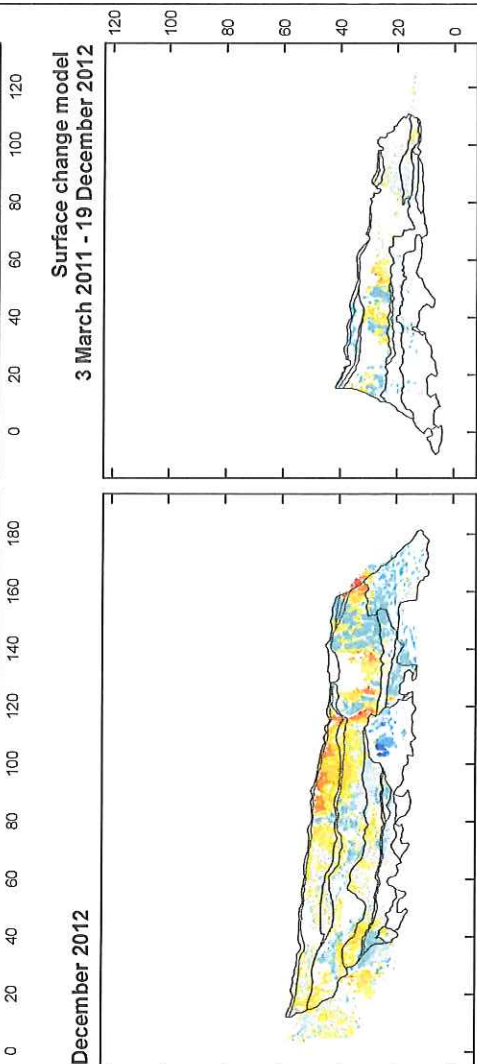
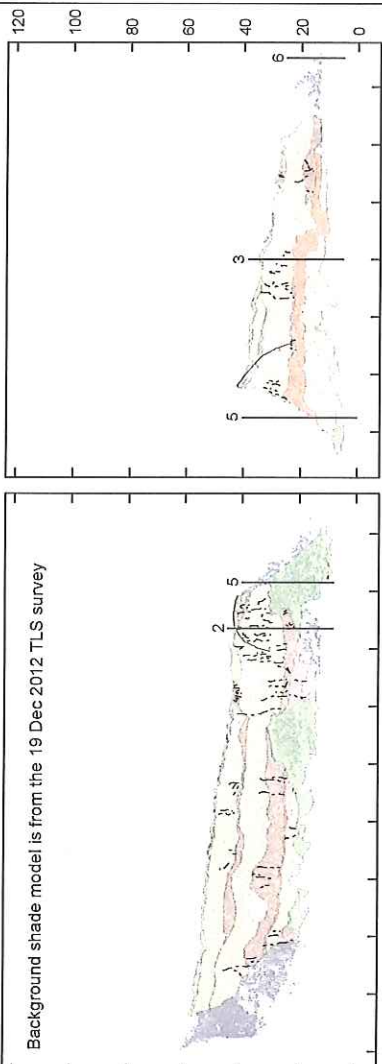
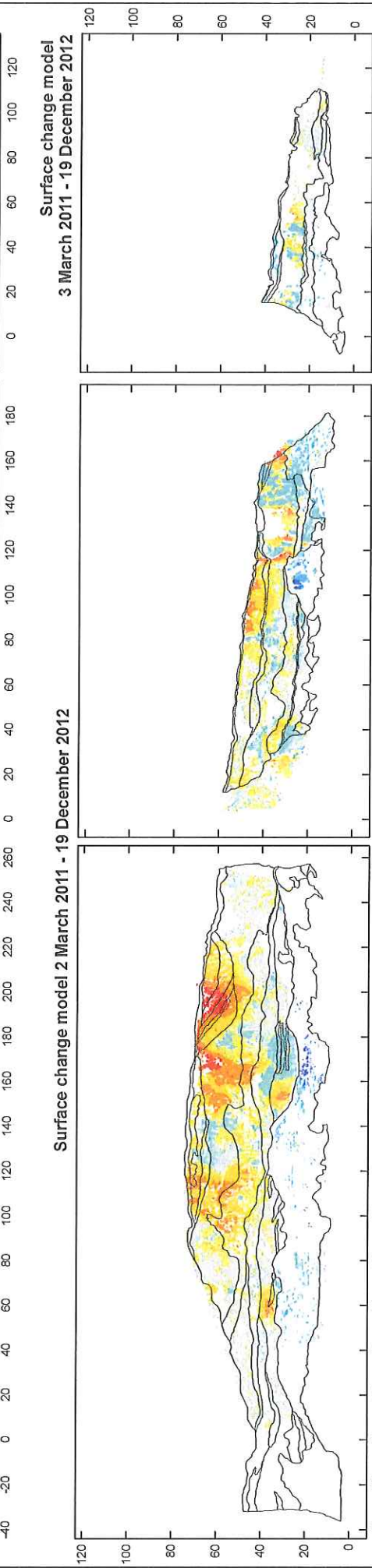
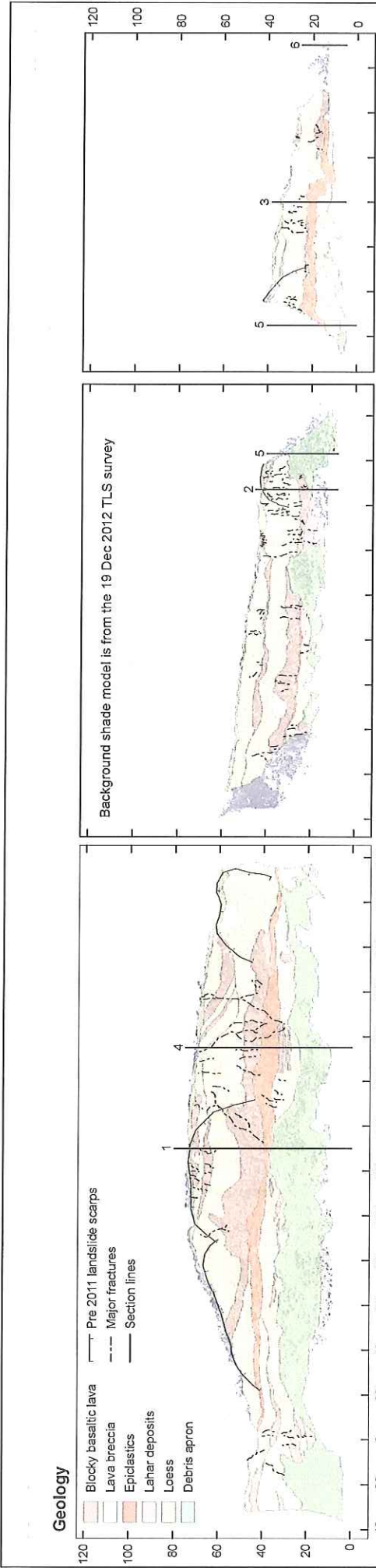


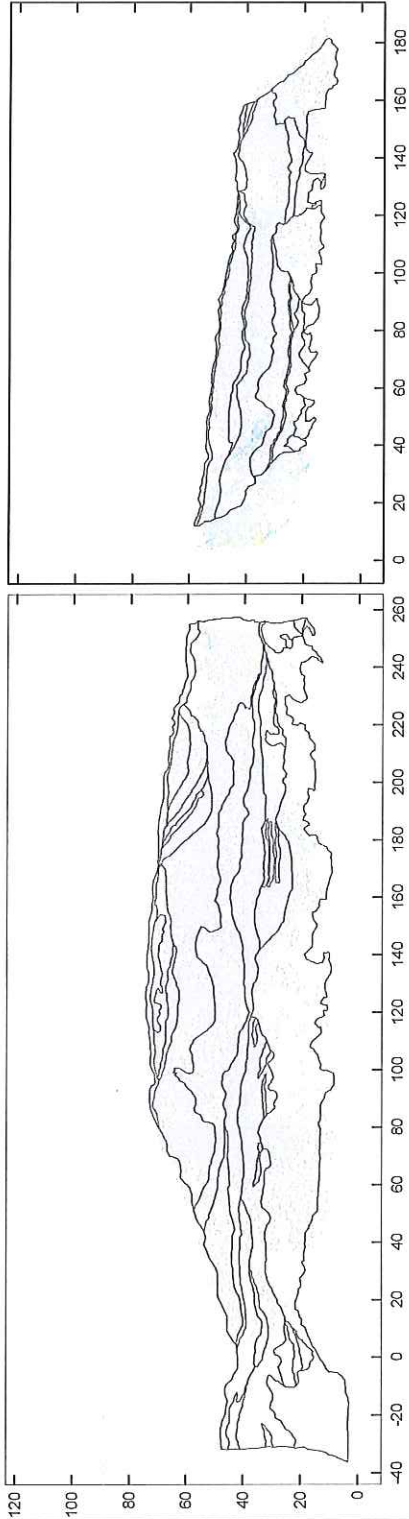
A3 APPENDIX 3: RESULTS FROM TERRESTRIAL LASER SCAN SURVEYS



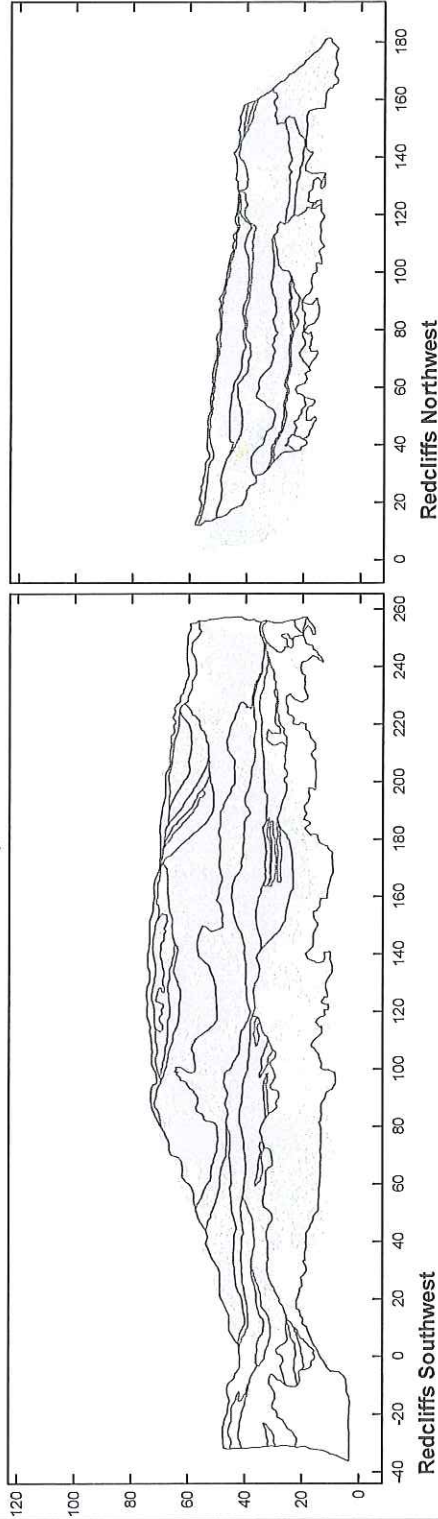


<p>EXPLANATION:</p> <p>Surface change models show horizontal changes of the cliff-face surface between given survey dates. Changes in the order of +/- 0.09 m are assumed to be error.</p> <p>The surveys were carried out using RIEGL LMS420i terrestrial laser scanner (TLS) in 2011 and 2012. The views are all frontal elevation i.e. as if standing at the bottom of the cliff looking towards it, with the data projected onto the chainage.</p>	DRW:		<p>RESULTS FROM TERRESTRIAL LASER SCAN SURVEYS</p> <p>CLIFF FRONTAL ELEVATION, GEOLOGY MAP</p> <p>AND SURFACE CHANGE MODELS</p>	<p>APPENDIX 3</p>
	BL:			
	CHK:	Redcliffs	<p>FINAL</p>	<p>REPORT: CR2014/78</p>
	CM:	Christchurch		

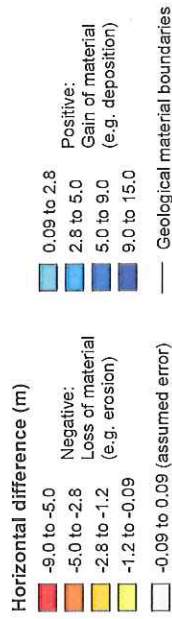
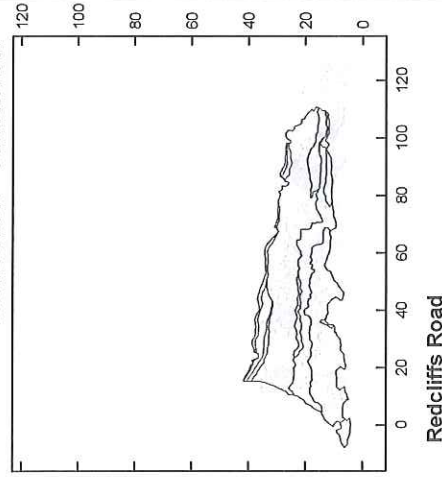
Surface change model 2 March 2011 - 3 March 2011



Surface change model 3 March 2011 - 6 March 2011



Surface change model
2 March 2011 - 8 March 2011



**RESULTS FROM TERRESTRIAL LASER SCAN SURVEYS
CLIFF FRONTAL ELEVATION, GEOLOGY MAP
AND SURFACE CHANGE MODELS**

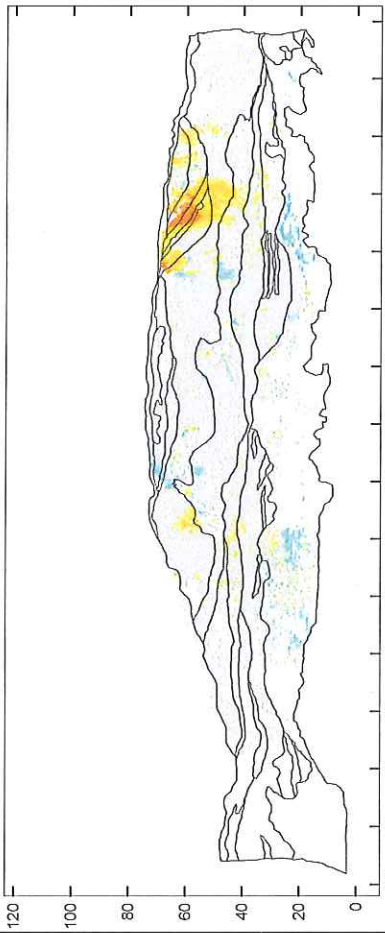
Redcliffs
Christchurch

APPENDIX 3	
Map 2	
FINAL	
REPORT: CR2014/78	DATE: August 2014

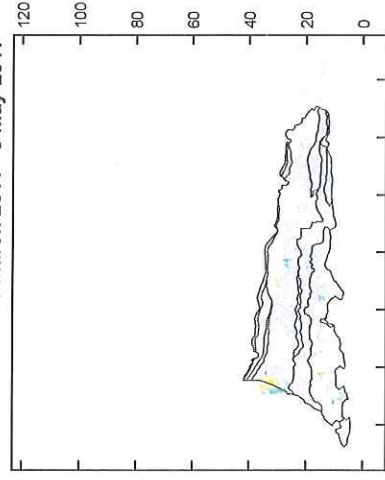
EXPLANATION:
Surface change models show horizontal changes of the cliff-face surface between given survey dates. Changes in the order of +/- 0.09 m are assumed to be error. The surveys were carried out using RIEGL LMS420 terrestrial laser scanner (TLS) in 2011 and 2012. The views are all frontal elevation i.e. as if standing at the bottom of the cliff looking towards it, with the data projected onto the chainage.

DRW:	BL
CHK:	CM

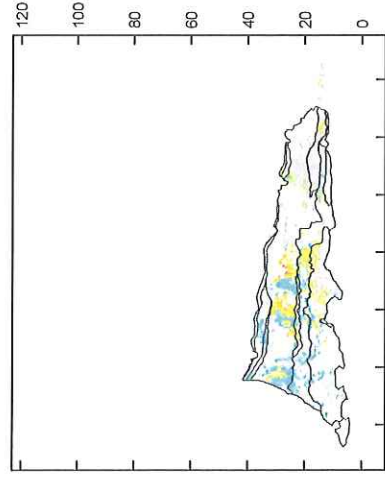
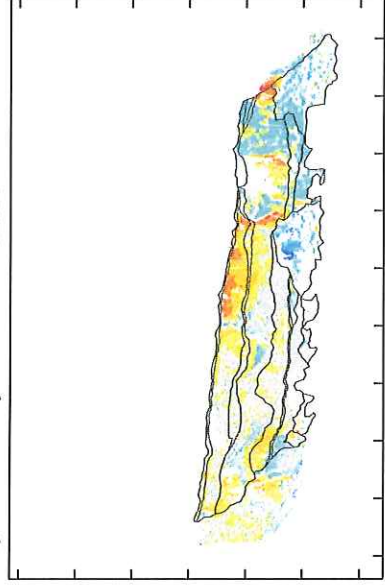
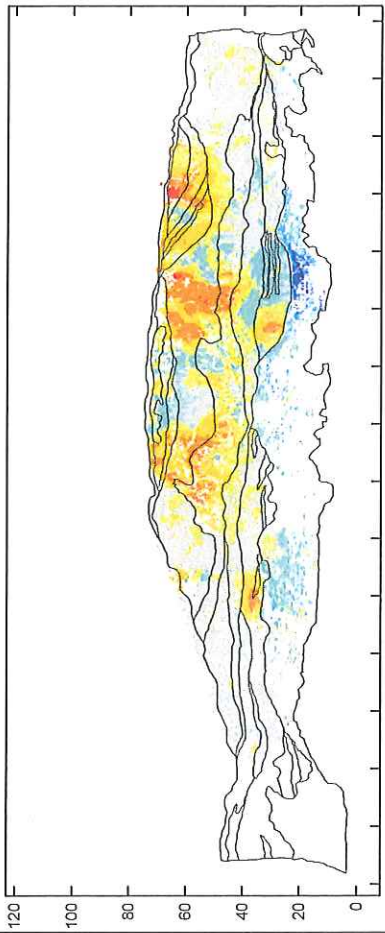
Surface change model 6 March 2011 - 3 May 2011



Surface change model 8 March 2011 - 3 May 2011

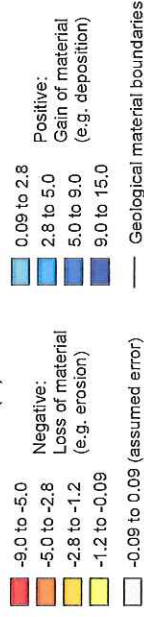


Surface change model 3 May 2011 - 15 June 2011



Redcliffs Southwest

Horizontal difference (m)



Redcliffs Northwest

Redcliffs Road

EXPLANATION:

Surface change models show horizontal changes of the cliff-face surface between given survey dates. Changes in the order of +/- 0.09 m are assumed to be error. The surveys were carried out using RIEGL LMS420i terrestrial laser scanner (TLS) in 2011 and 2012. The views are all frontal elevation i.e. as if standing at the bottom of the cliff looking towards it, with the data projected onto the chainage.

DRW:

BL

CHK:

CM



**RESULTS FROM TERRESTRIAL LASER SCAN SURVEYS
CLIFF FRONTAL ELEVATION, GEOLOGY MAP
AND SURFACE CHANGE MODELS**

**Redcliffs
Christchurch**

APPENDIX 3

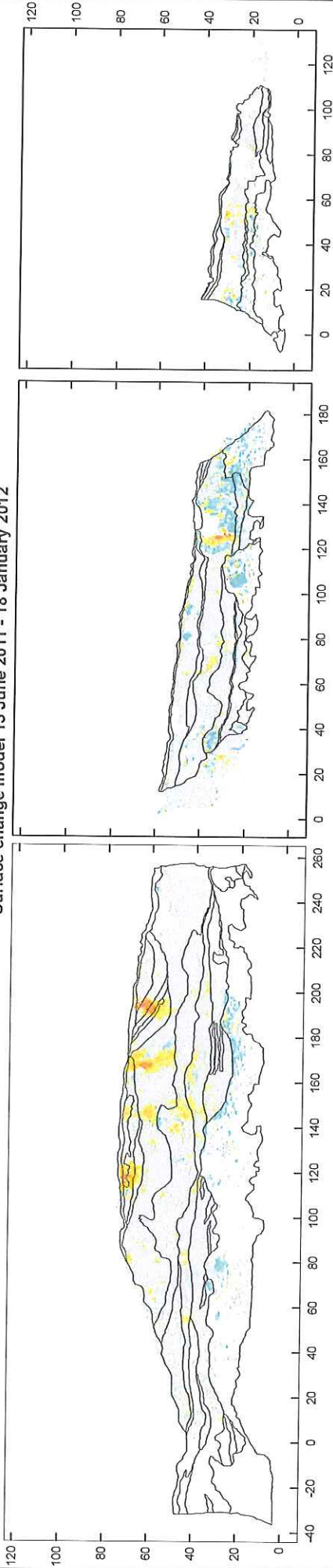
Map 3

FINAL

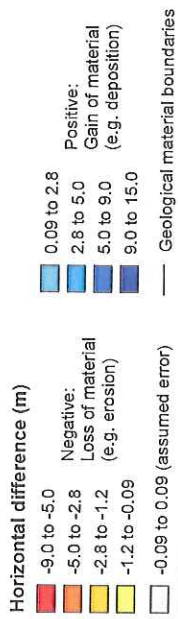
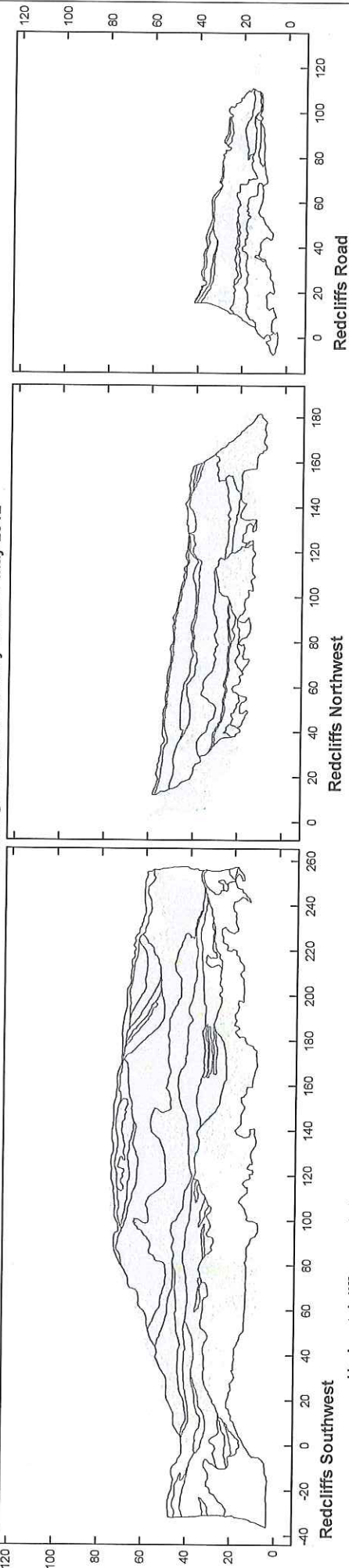
REPORT:
CR2014/78

DATE:
August 2014

Surface change model 15 June 2011 - 18 January 2012



Surface change model 18 January 2012 - 1 May 2012



DRW:
BL
CHK:
CM

EXPLANATION:
Surface change models show horizontal changes of the cliff-face surface between given survey dates. Changes in the order of +/- 0.09 m are assumed to be error.
The surveys were carried out using RIEGL LMS420i terrestrial laser scanner (TLS) in 2011 and 2012. The views are all frontal elevation i.e. as if standing at the bottom of the cliff looking towards it, with the data projected onto the chainage.

**RESULTS FROM TERRESTRIAL LASER SCAN SURVEYS
CLIFF FRONTAL ELEVATION, GEOLOGY MAP
AND SURFACE CHANGE MODELS**

APPENDIX 3

Map 4

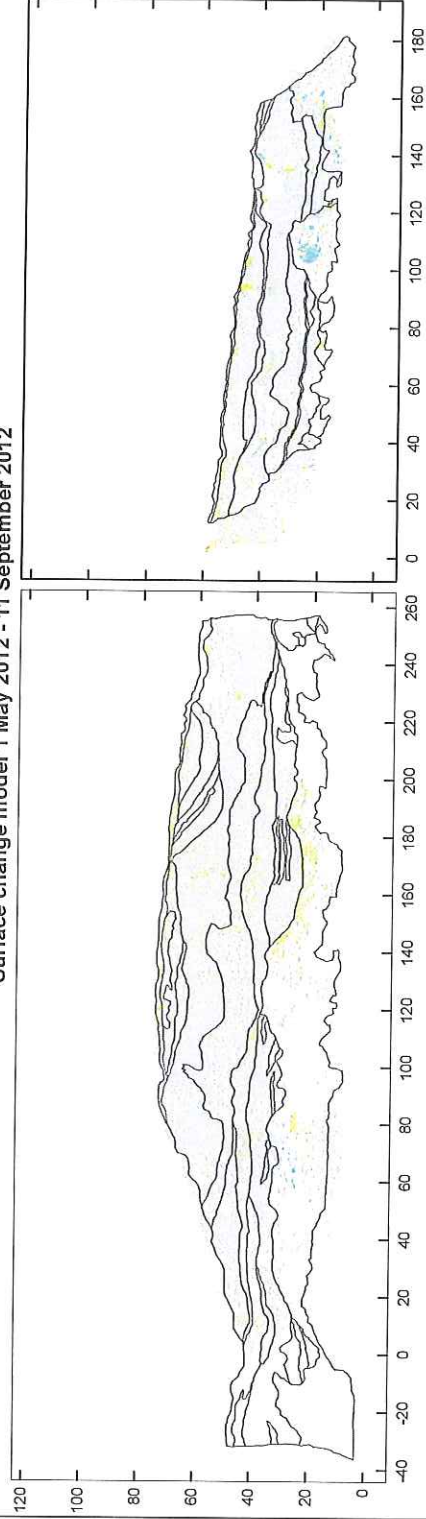
Redcliffs
Christchurch

FINAL

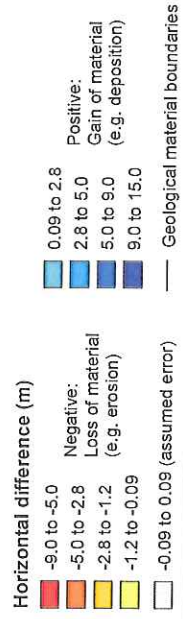
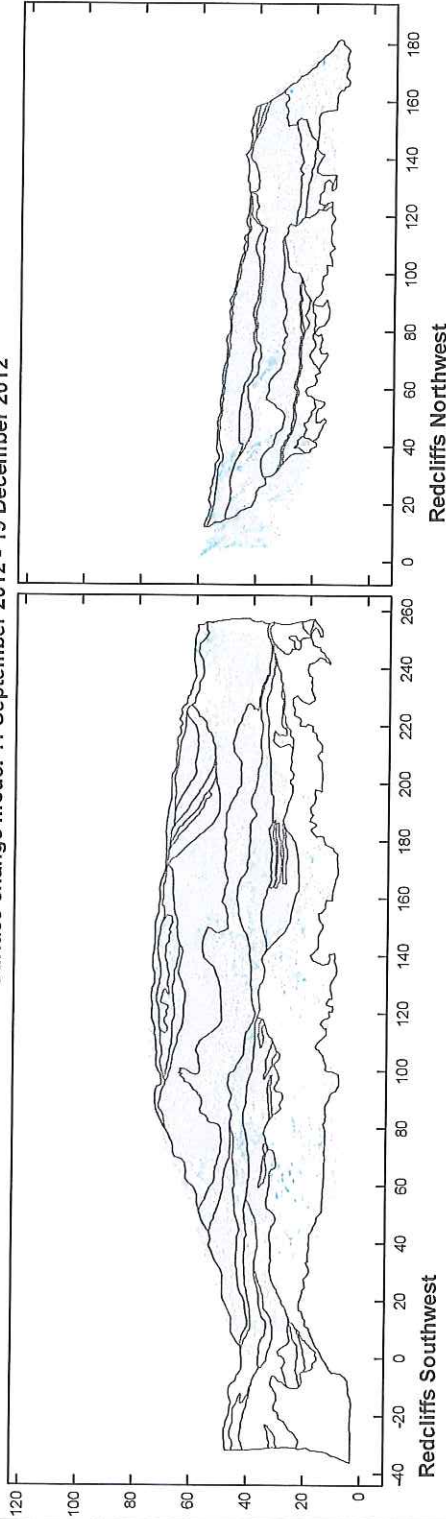
REPORT:
CR2014/78

DATE:
August 2014

Surface change model 1 May 2012 - 11 September 2012



Surface change model 11 September 2012 - 19 December 2012



DRW:
BL
CHK:
CM

EXPLANATION:
Surface change models show horizontal changes of the cliff-face surface between given survey dates. Changes in the order of +/- 0.09 m are assumed to be error. The surveys were carried out using RIEGL LMS420 terrestrial laser scanner (TLS) in 2011 and 2012. The views are all frontal elevation i.e. as if standing at the bottom of the cliff looking towards it, with the data projected onto the chainage.

**RESULTS FROM TERRESTRIAL LASER SCAN SURVEYS
CLIFF FRONTAL ELEVATION, GEOLOGY MAP
AND SURFACE CHANGE MODELS**

Redcliffs
Christchurch

APPENDIX 3

Map 5

FINAL

REPORT:
CR2014/78

DATE:
August 2014

