

Canterbury earthquake  
(magnitude 7.1),  
Darfield-Christchurch  
Sept 4, 2010

A photographic account from a visit on  
Sept 8, 2010

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**EPICENTRE**

**RANGIORA**

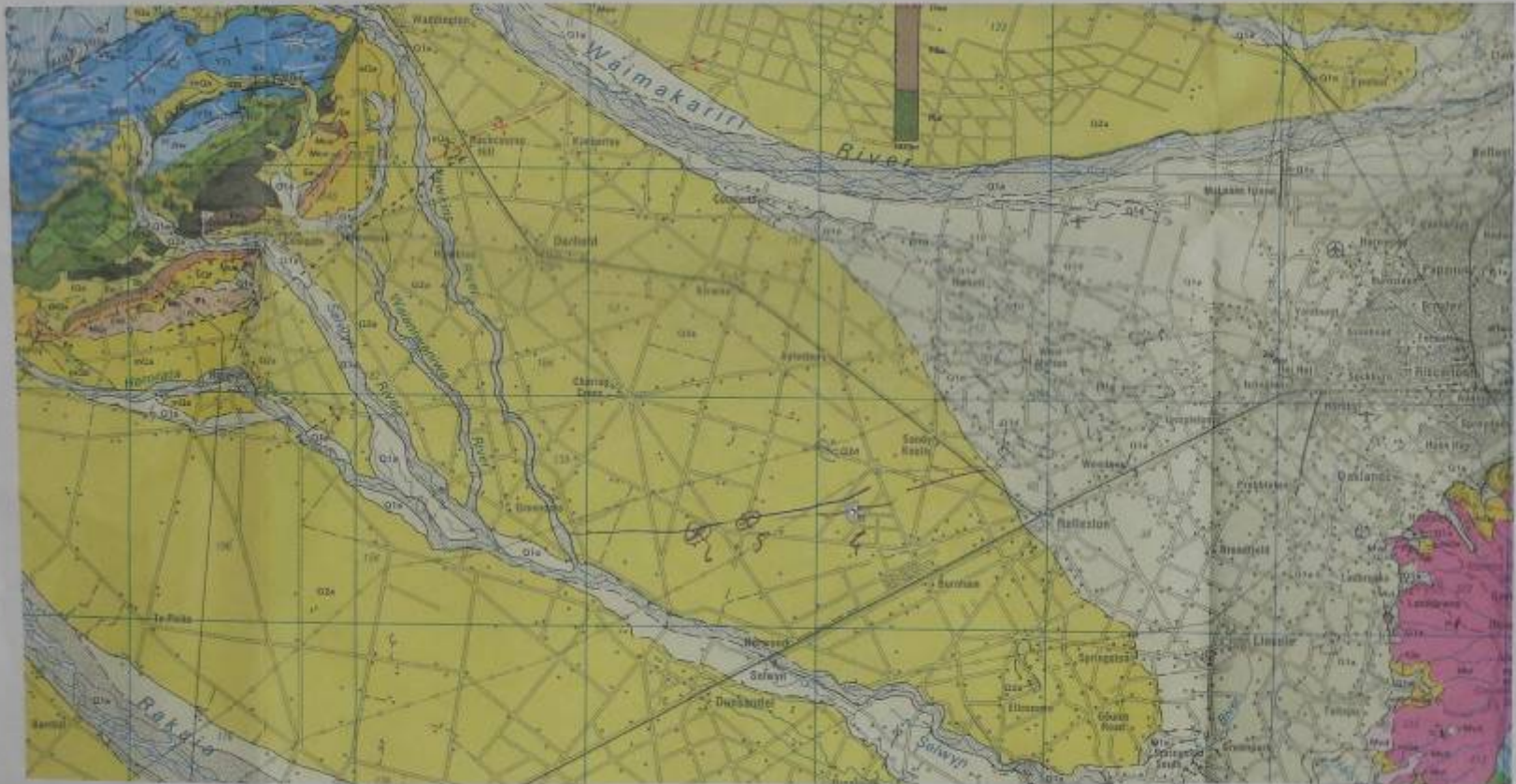
**KAIAPOI**

**DARFIELD**

**CHRISTCHURCH**

**UNKNOWN  
FAULT LINE  
REVEALED**

# The area



# The fault

Strike slip right lateral about 3 m horizontal offset. En  
echelon. Observed length 13km

Vertical displacement of about few 10s of cm,

Small inverse component.

Width of zone of deformations 10-30m

(on sites inspected)

Surface rupture on Glaciation surface 18000 old





# En echelon features of the fault

















The width of deformations associated with the en echelon development of the fault rupture







# Signs of the local inverse component



# Signs of the local inverse component



# Signs of the local inverse component



One of the bigger vertical displacement in the fault zone



One of the bigger vertical displacement in the fault zone



# Trees unrooted in the course of the fault



# The liquefaction















# Failure of embankment of Waimakariri river due to liquefaction of its surroundings. Lateral spreading assisted

The river is just at the left side of photo.



Failure of embankment of Waimakariri river due to liquefaction of its surroundings. Lateral spreading assisted  
The river is just at the left side of photo.



# Subsidence of the frontal part of the house, Kaiapoi





# Subsidence due to liquefaction, Kaiapoi



# Liquefaction affected pavements and streets



# Kaiapoi







Lateral spreading  
Mainly due to liquefaction

Failure of embankment of Waimakariri river due to lateral spreading. Liquefaction affected its environment.  
The river is just at the left side of photo.



Failure of embankment of Waimakariri river due to lateral spreading. Liquefaction affected its environment.  
The river is just at the left side of photo.





Failure of embankment of Waimakariri river due to lateral spreading. Liquefaction affected its environment.  
The river is just at the right side of photo.



# Fissures from lateral spreading



Fissure from lateral spreading. The river bank is at the right, in a distance of about 150m



Lateral spreading. A canal can be seen on the right



Lateral spreading. Due to the provoked subsidence the banks got new position, covering the trunks of trees



Lateral spreading towards the canal which is in front of the undermined house, in a distance of about 50m



Lateral spreading that reached and undermined the house  
(with this simple, laying on ground, foundation)



With thanks to Ed Ladley for his contribution to have this visit effective





An other disaster to improve our knowledge.....  
.....for the hope of the future









