



Collaboration, Innovation and Resilience: Championing a Digital Generation

Unveiling land uplift in Ipswich Queensland using InSAR

Armin Agha Karimi and Kyran Cook



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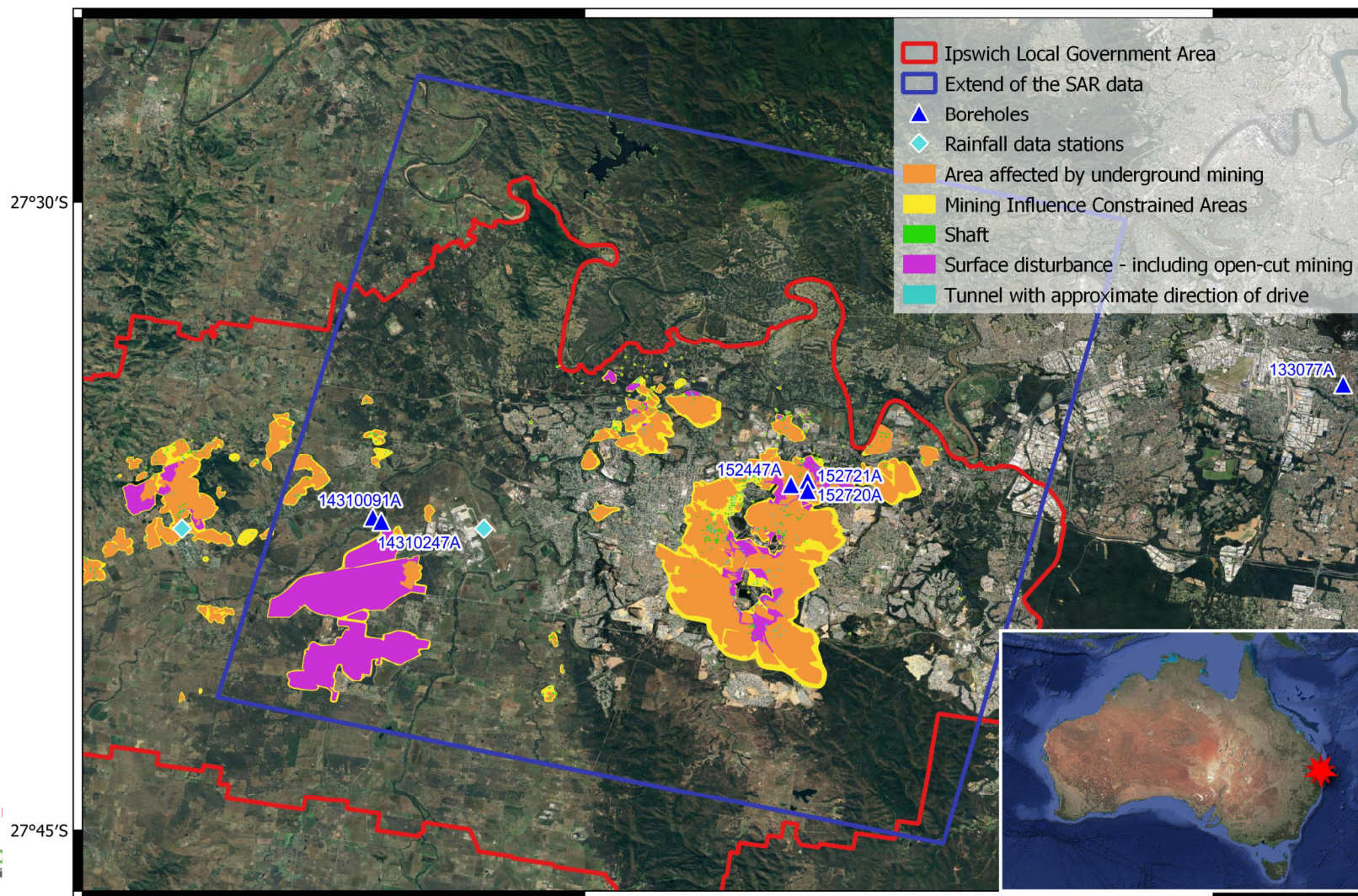


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Brisbane, Australia 6–10 April



Background

The Courier Mail

In December 1988, 18
Government, four of w

State Govt ready to demolish mine-

Meg Purtell

Housing Policy

Tue 9 Jun 2009



Homes at Collingwood Park, near Ipswich, were damaged by subsidence in April last year.

Sinkhole swallows part of Ipswich backyard; abandoned mine may be to blame

By Ellie Sibson

Disasters, Accidents and Emergency Incidents

Wed 3 Aug 2016

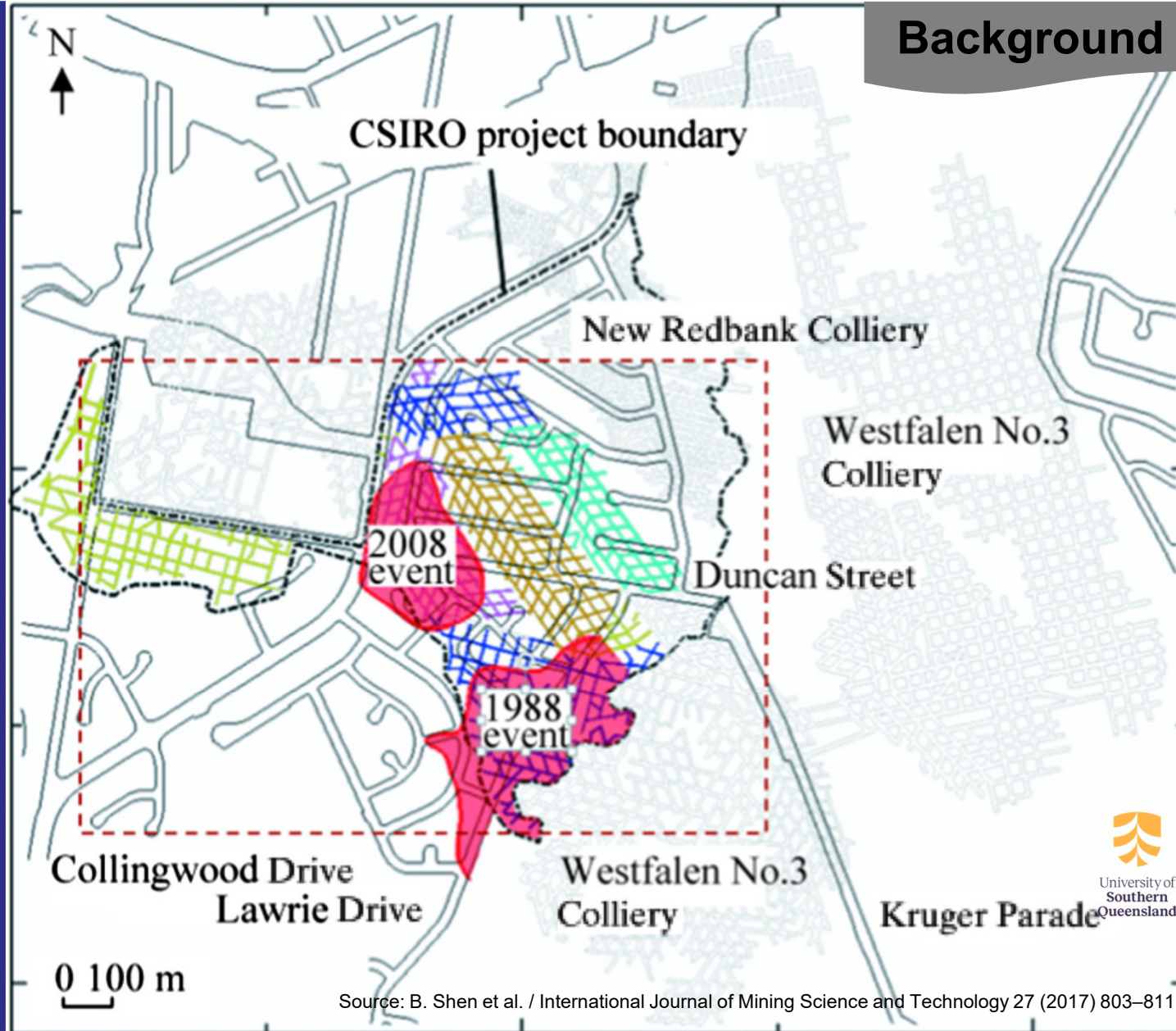


Water was sloshing around inside the huge backyard sinkhole. (ABC News: Ellie Sibson)

Australian Government

Subsidence cases

- Bord and Pilar mining at depths from approximately 60m to 140m.
- Both subsidence events occurred as a result of pillar failure
- CSIRO project:
 - ☐ Numerical modelling
 - ☐ Monitoring system combining a micro-seismic network
 - ☐ A range of remediation options was investigated.



Background

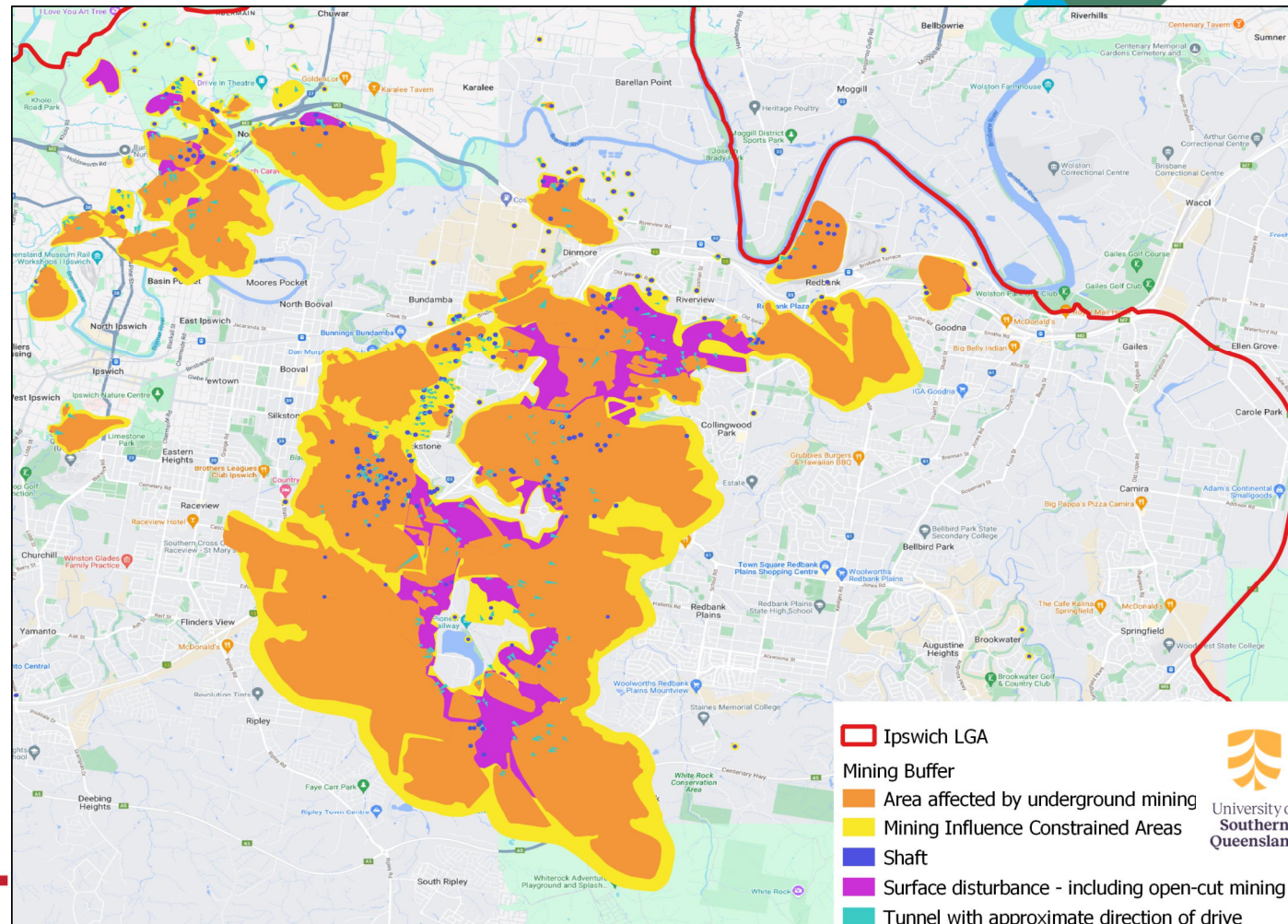
Mining in Ipswich

Development of Coal Mines:
The first coal mine in the region
was established in 1843.

Mining Types:

- Underground Mining
- Open-Cut Mining

Abandoned mining areas:
Now are urbanised and densely
populated.



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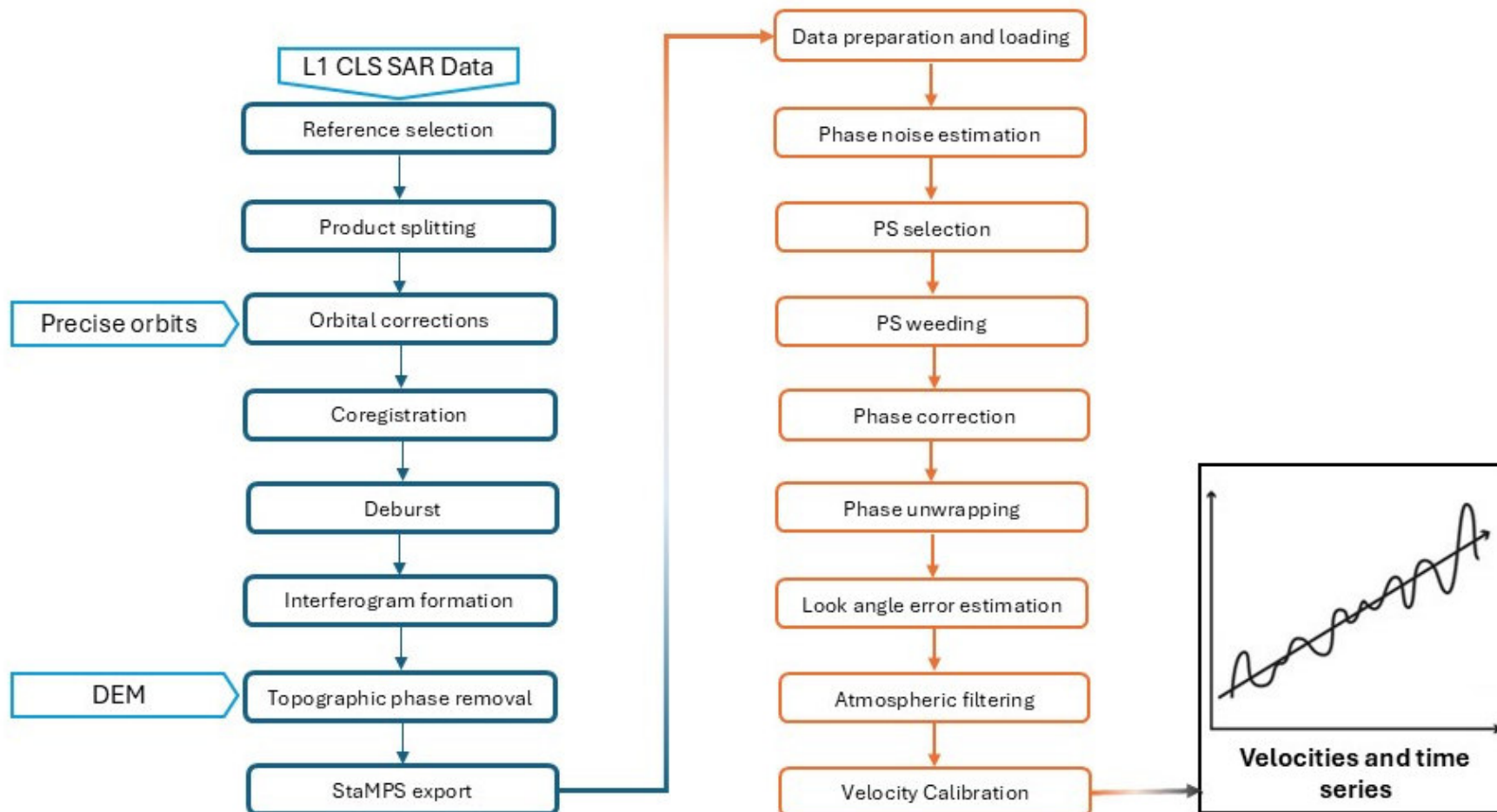
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Results



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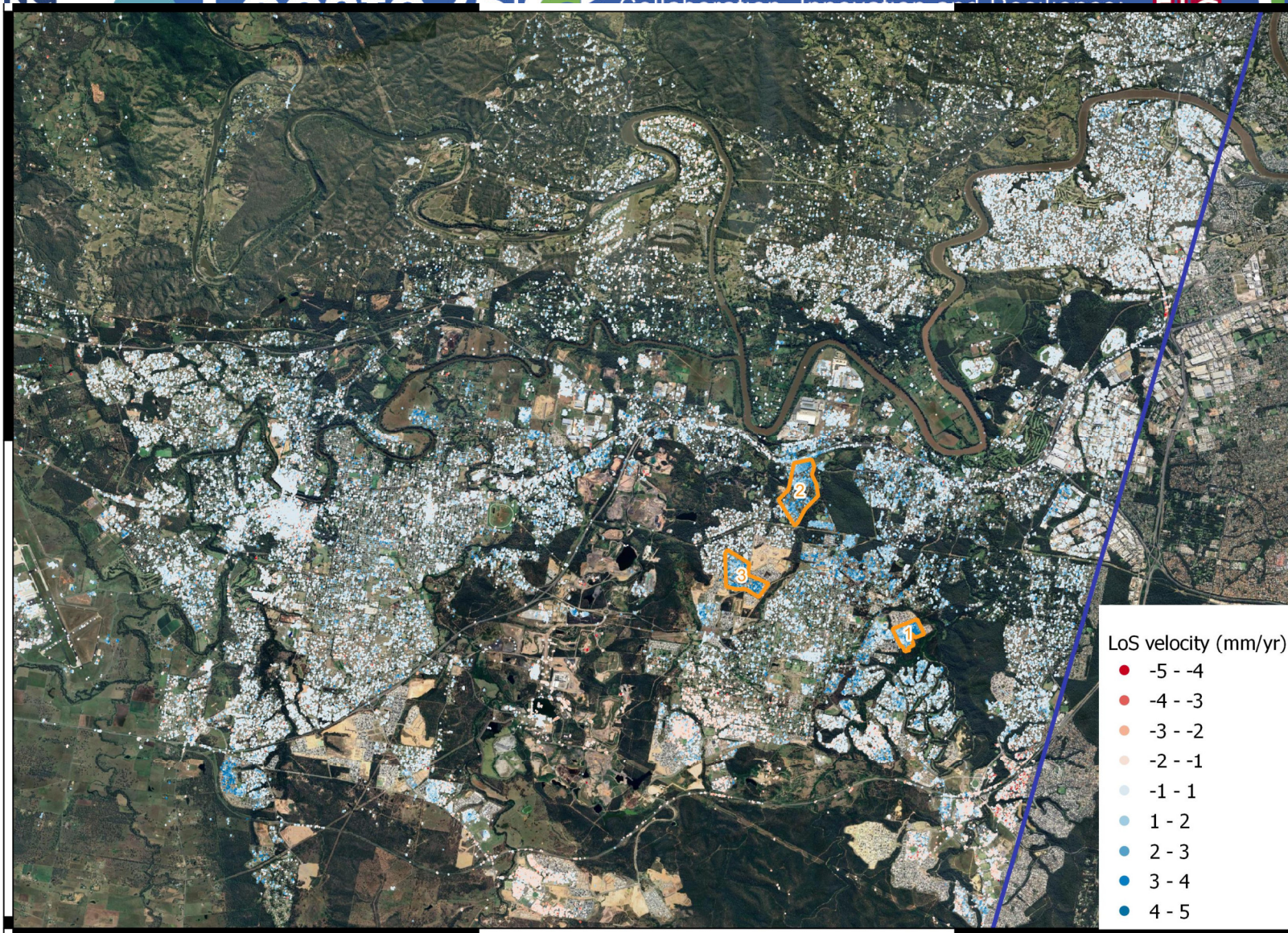
**HD
Meter**



Surveyors
Australia

-27°36'

-27°42'



152°48'

152°54'



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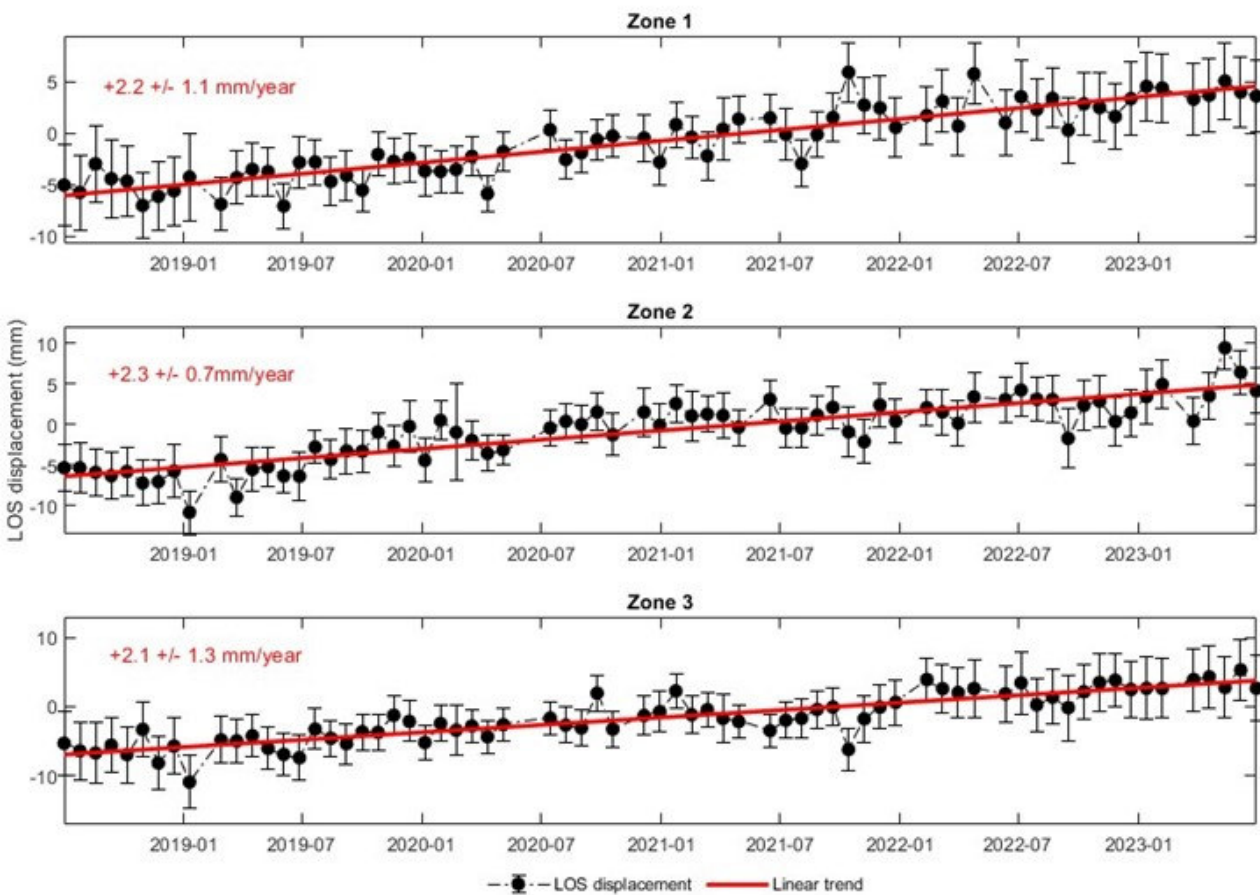
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LoS velocity (mm/yr)

- -5 - -4
- -4 - -3
- -3 - -2
- -2 - -1
- -1 - 1
- 1 - 2
- 2 - 3
- 3 - 4
- 4 - 5



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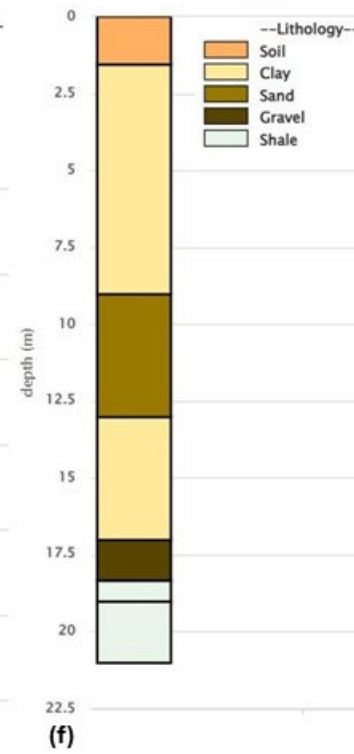
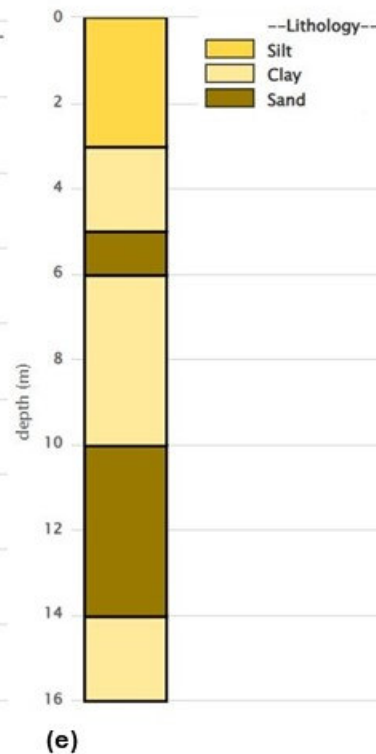
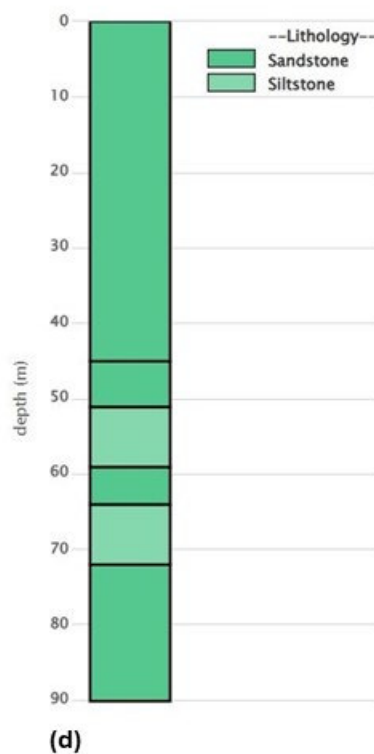
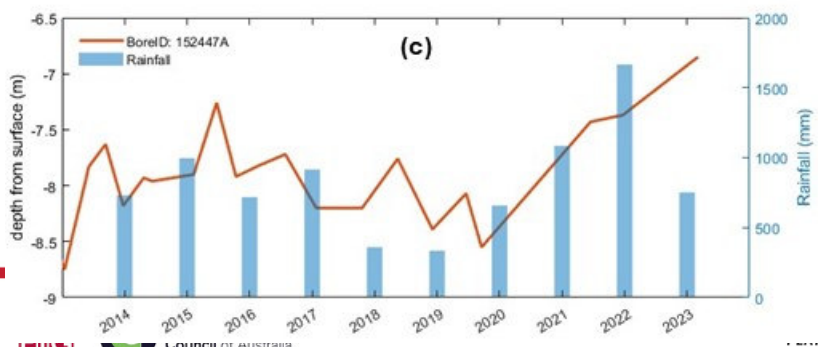
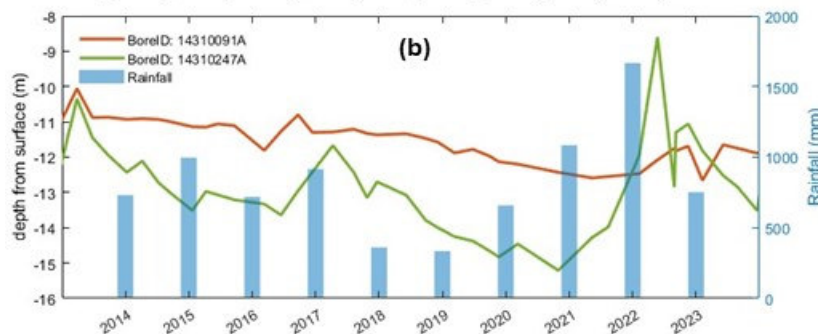
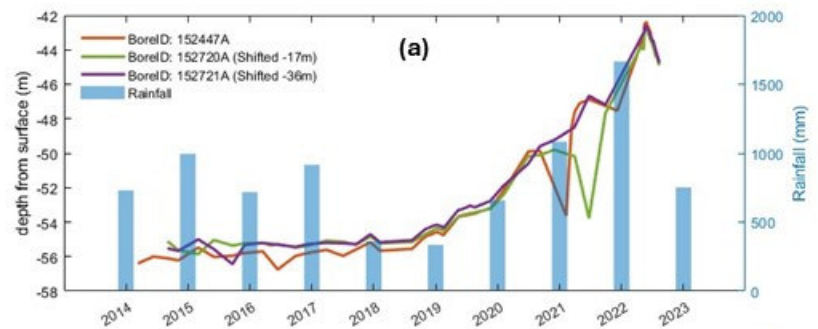


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Conclusion

- From subsidence to uplift
- The role of groundwater
- Necessity for modelling the aquifer water exchange
- Monitoring in the drought era



Image courtesy: <https://teara.govt.nz/en/diagram/7445/bord-and-pillar-mining>



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