



Department of  
Primary Industries and  
Regional Development

Protect  
Grow  
Innovate



## Presenters

### Richard George

Department of Primary Industries and Regional Development

Richard has an international reputation in catchment hydrology and holds adjunct professorships at both the University of Western Australia and Murdoch University. He leads the DPIRD Water Science tea... [Read more](#)



### Brett Harris

Curtin University

Brett is a Professor and Exploration Geophysics Lead at Curtin University with expertise in areas including electromagnetics and hydrogeophysics. Brett has a comprehensive industry and research backgr... [Read more](#)



# WaterSmart Farms

Water security and resilience in a drying climate in the agricultural regions of Western Australia.

✓ Bedrock Groundwater



Curtin University

✓ Desalination



Murdoch  
University

✓ WaterSmart Dams



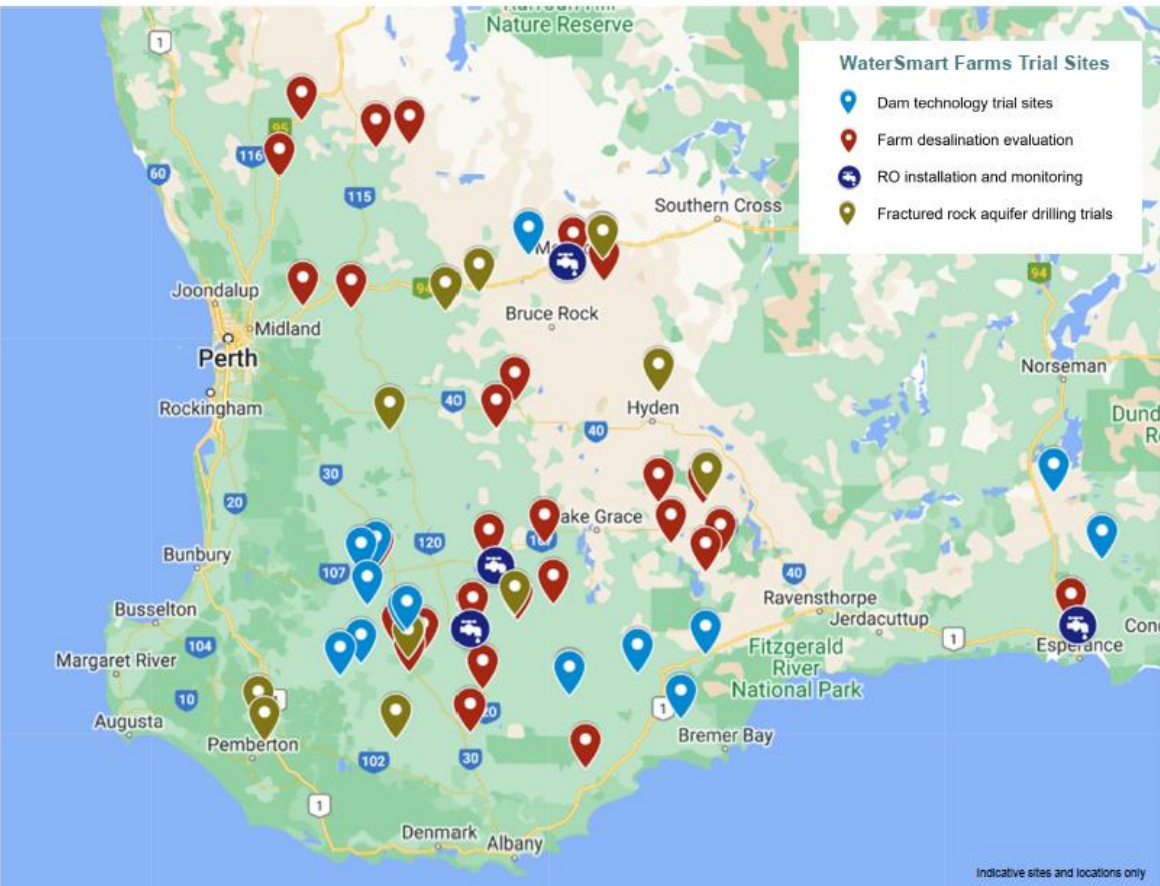
THE UNIVERSITY OF  
WESTERN  
AUSTRALIA

## Part 1 of 3 Part Series – Bedrock Groundwater

- The Explorers – geophysical applications
- *The Resources (28<sup>th</sup> October) – Phase 1 results*
- *The Users (18<sup>th</sup> November) – case studies*

# WaterSmart Farms

## Water security and resilience in a drying climate



|    |                                                                                                                    |
|----|--------------------------------------------------------------------------------------------------------------------|
| 31 | on-farm desalination units being assessed to capture learnings and experiences of farmers                          |
| 12 | dam technology demonstration sites                                                                                 |
| 3  | town based reverse osmosis desalination systems installed at Dumbleyung, Katanning and Merredin                    |
| 1  | off grid reverse osmosis desalination pilot and reject water reuse trial at Wongutha CAPS (Gibson)                 |
| 18 | fractured rock aquifer trial bores drilled to test targeting methodology using geophysical assessment technologies |



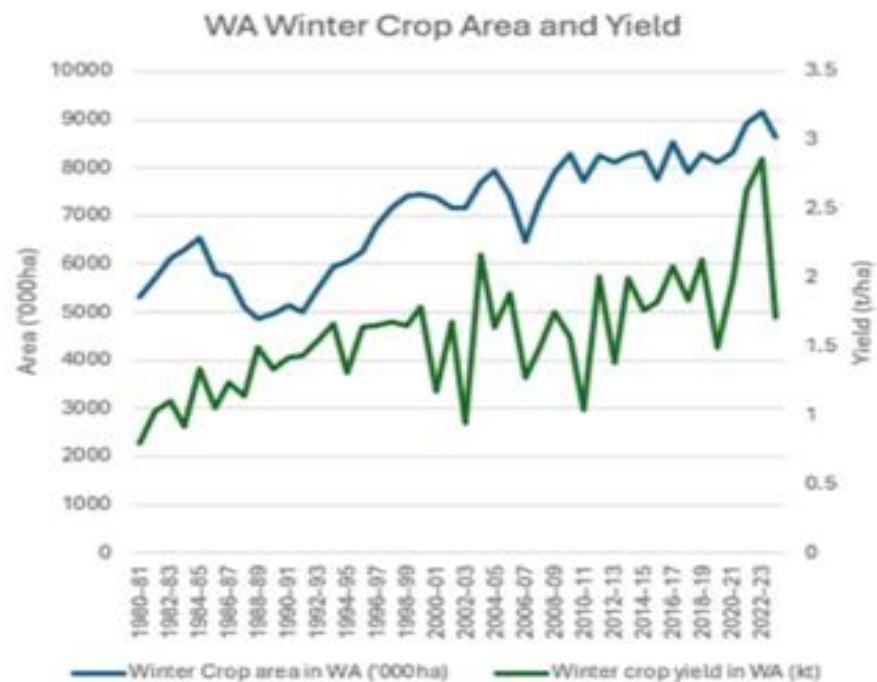
Rangelands –  
native shrublands

300mm

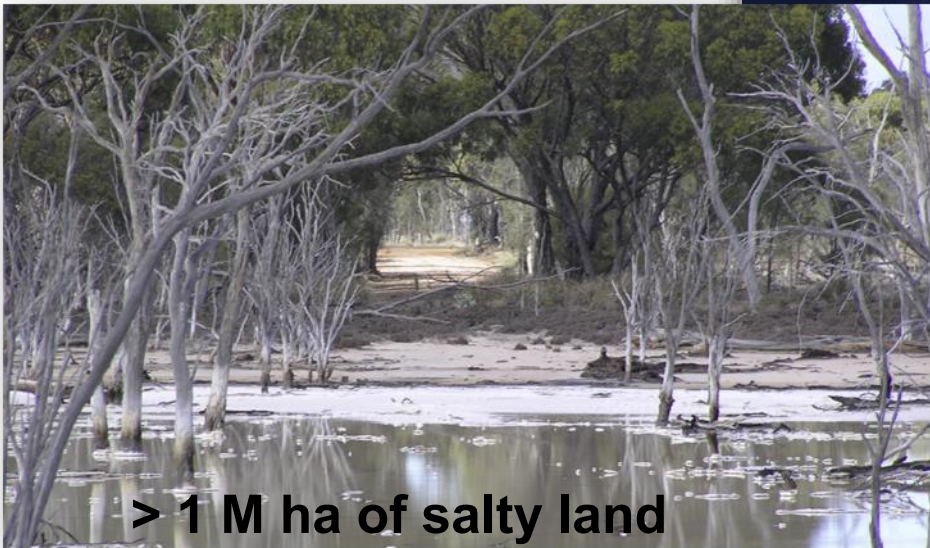
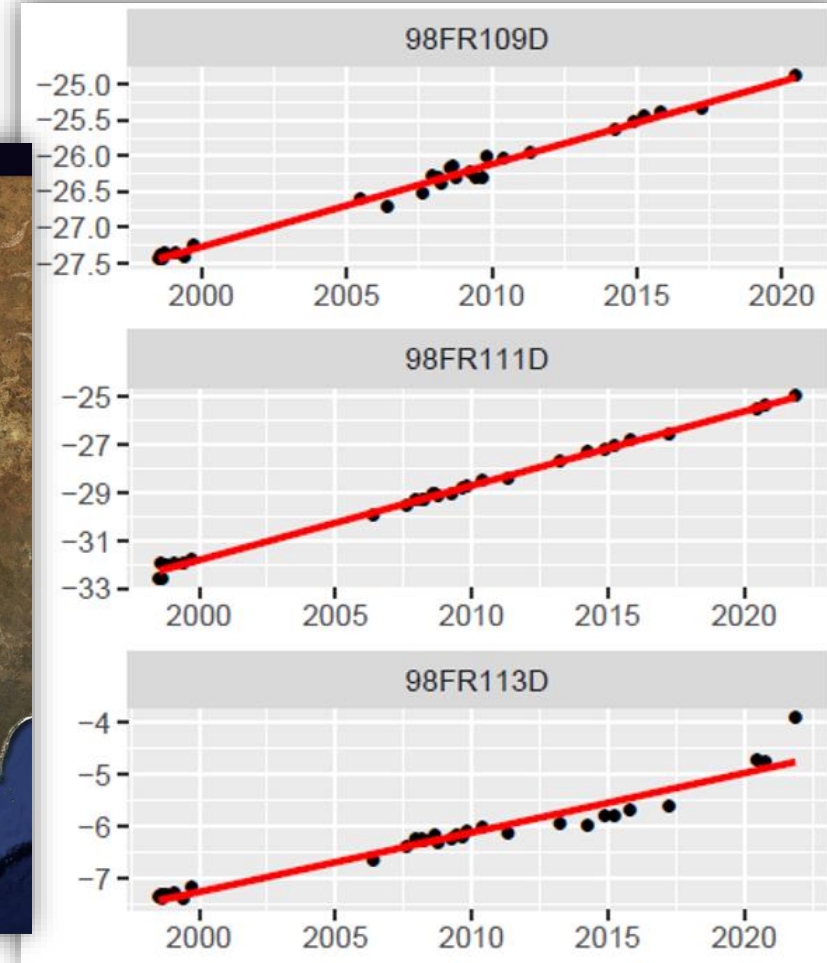
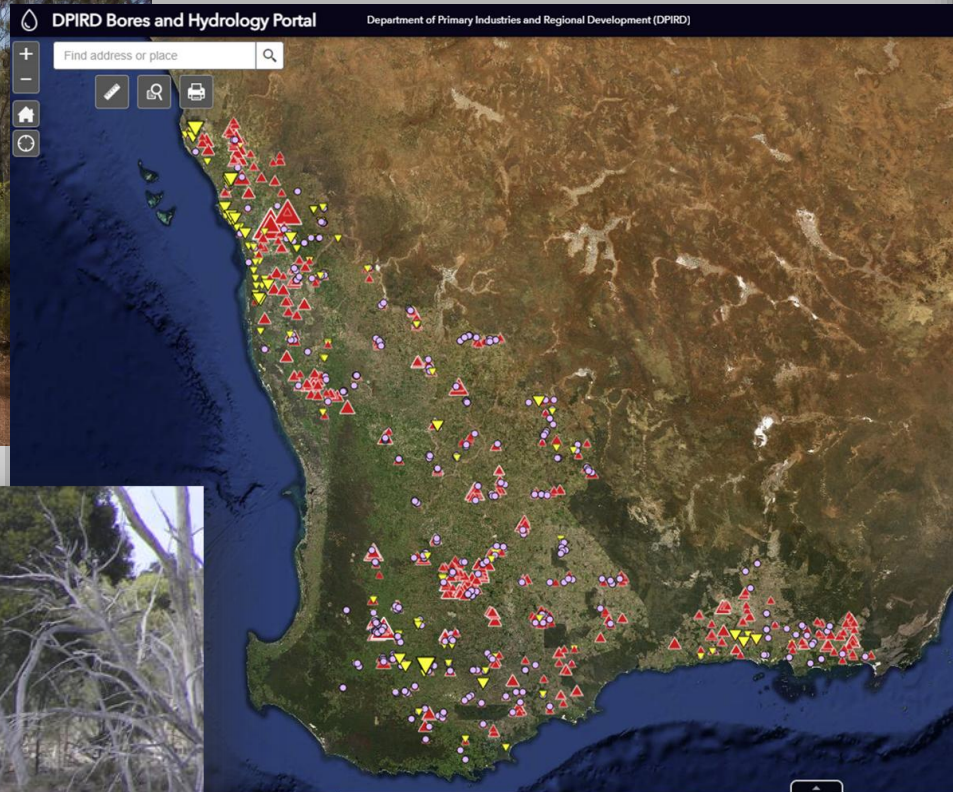
600mm

1100 km

Agriculture 17M ha cleared - rainfed grains and livestock



# 17 M ha cleared (1890 – 1980s) saline watertables rose



New fresh-saline groundwater resource created

# Drastically changing rainfall patterns are reshaping WA's vast wheatbelt

By Jon Daly   WA Country Hour   Weather

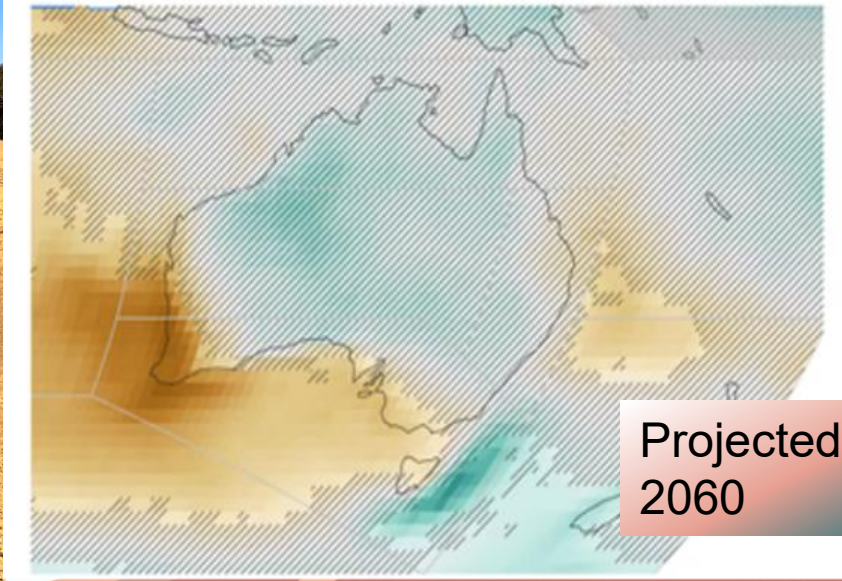
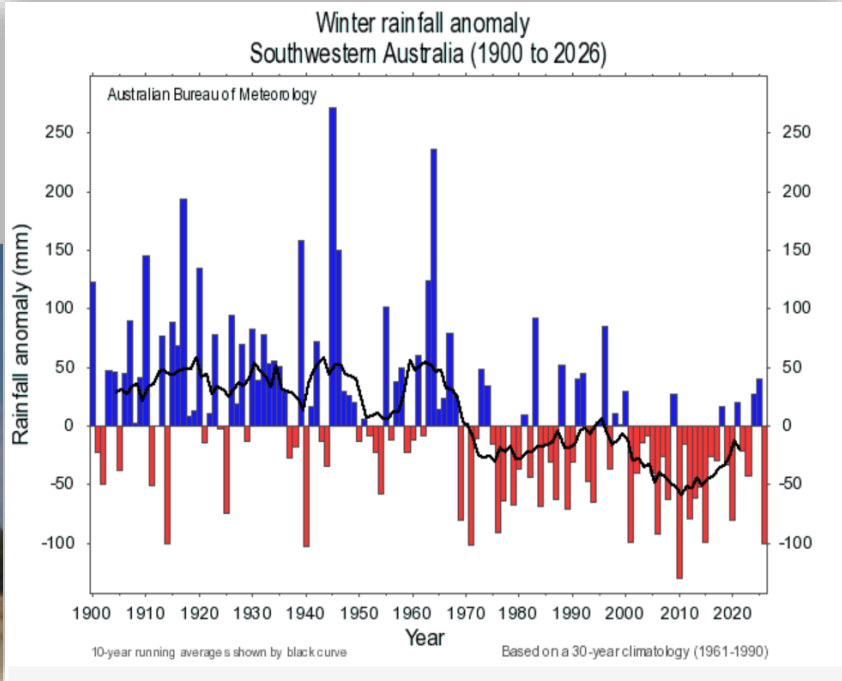
Posted 30 Dec 2019 at 5:33am

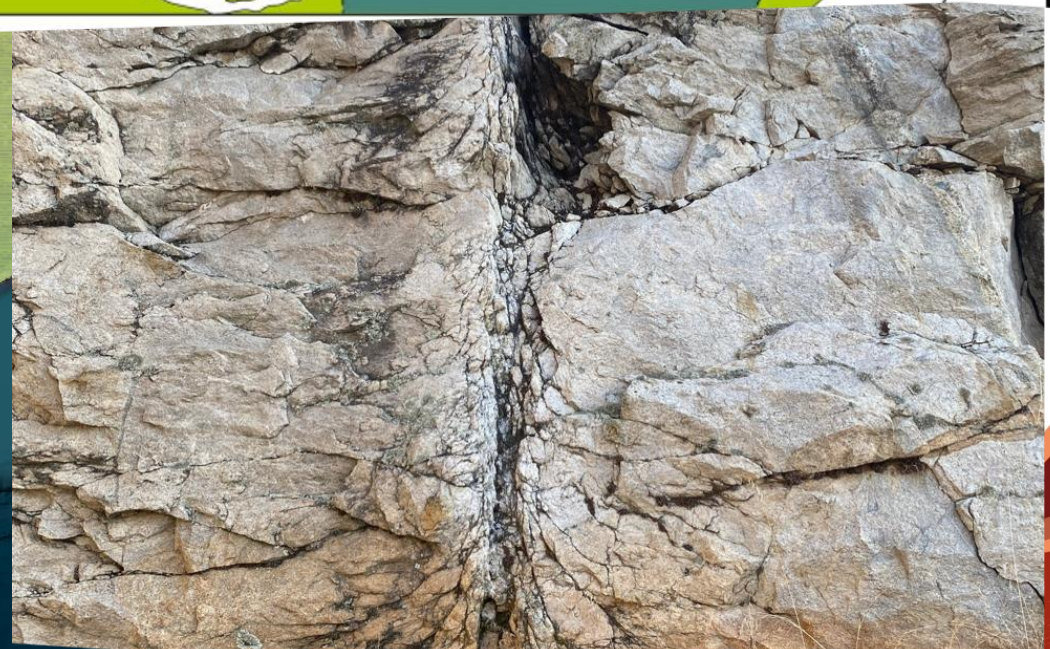
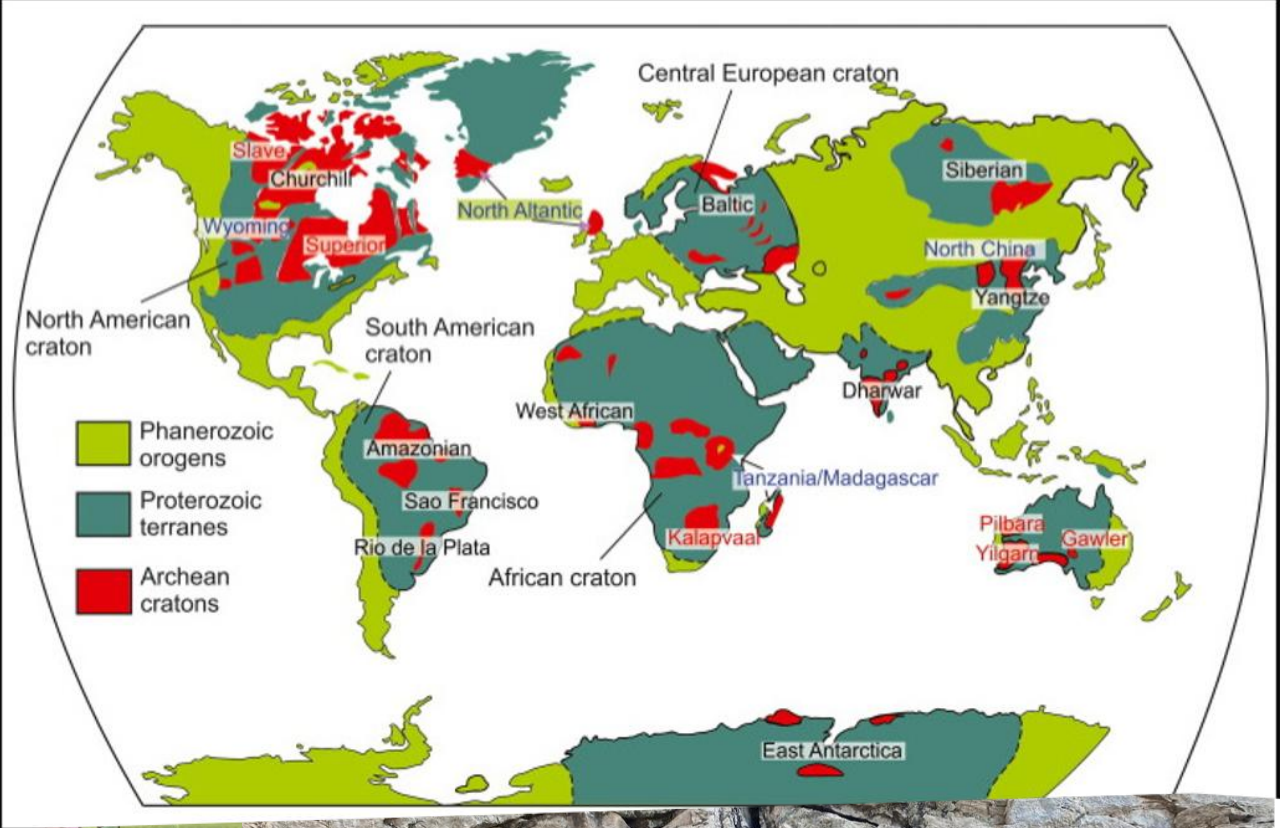


## WA farmers use desalination to secure water supplies, salt-damaged land

By Lucinda Jose   By Belinda Varischetti   ABC Rural   Water Resources

Posted 6 Jun 2024 at 6:42am

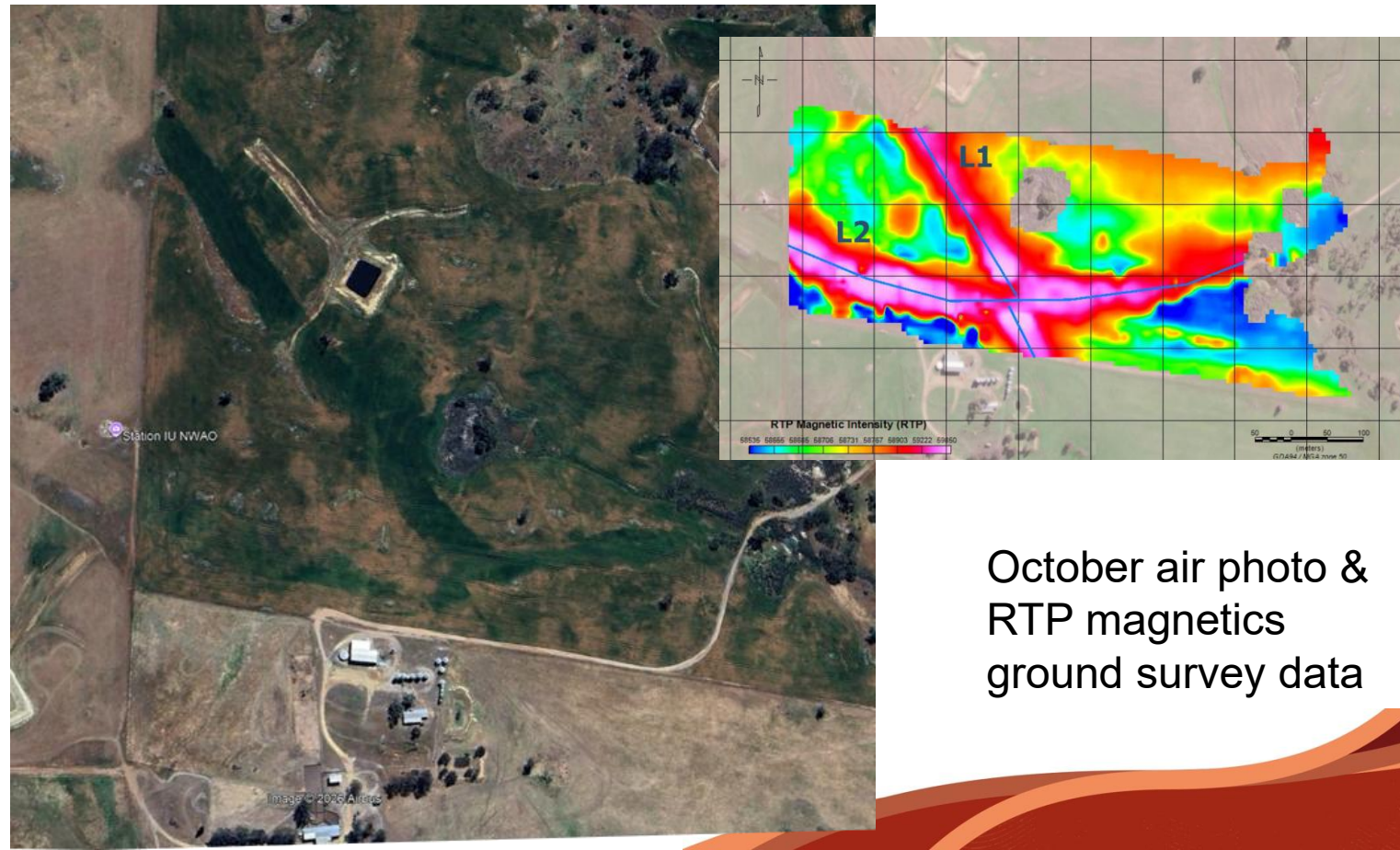
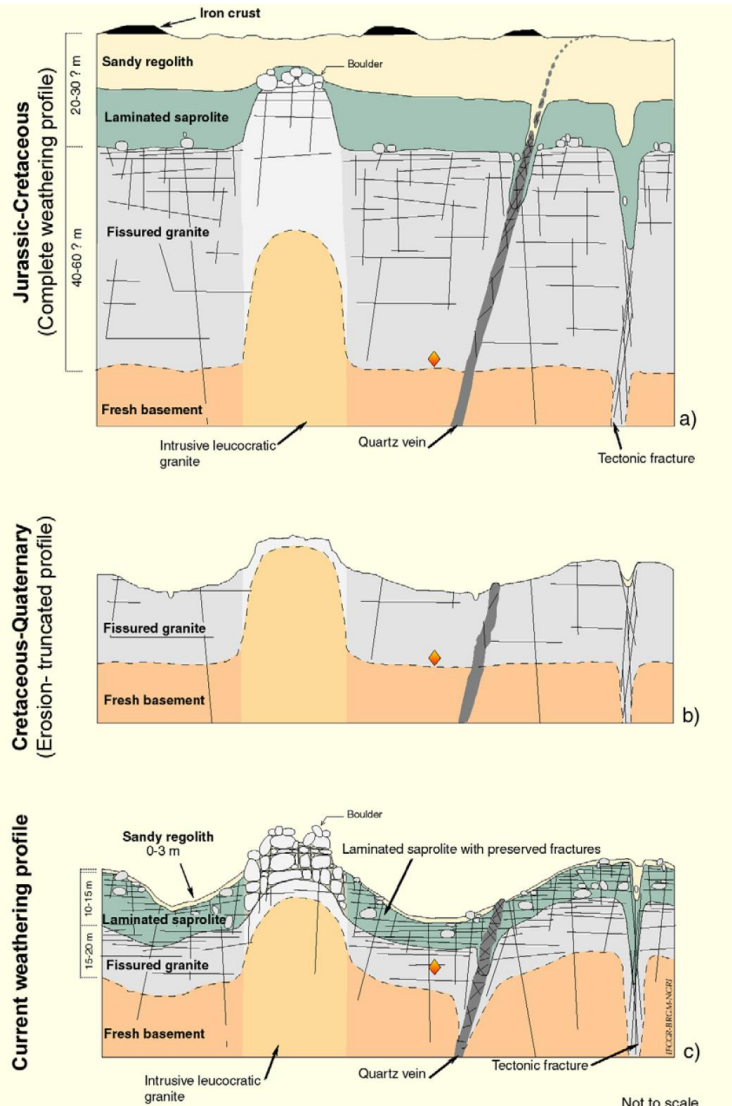




# Bedrock, weathering & groundwater in Wheatbelt

Conventional aquifers - Regolith – sediments & saprolite, laterites

Unconventional aquifers - Bedrock fractures – Phase 1 - 60 to 120m depth



October air photo &  
RTP magnetics  
ground survey data