Active faulting, ground rupture and liquefaction in Tasmania
**Magnitude**

- M>6
- M<3
- 3<M<4
- 4<M<5
- 5<M<6

**Study Area**

**Tasmanian Earthquakes**

1958-2014

**SRC database**

1,969 events
shaded LIDAR imagery of MIS 5e beach ridges

fault trace

OSL age 118 ka ± 12 ka
Compressional structure in MIS 5e beach ridge
- Montagu
- Basalt
- Holocene marine sand
- MIS 5e paleo beach ridges
- SHmax
topographic cross-section
next three slides
MIS 5e Paleo beach ridges
N
1 km
hillshade LIDAR imagery of MIS 5e coastal plain
Fault traces

Hillshade LIDAR imagery of fault zone showing sand boils
Topographic across the fault zone
view looking northeast

~2m
Location of backhoe trench

Drainage reversal

Next Slide

view in next slide

hillshade LIDAR imagery of fault zone showing sand boils

100 m
Topography showing fault scarp and sand boil

bull for scale
Tea Tree forest adjacent to sand boil
Flow direction of sand

SW trench wall

50 cm

7180 ± 30 yrs BP

14830 ± 40 yrs BP

OSL

37 ± 4 ka
NE trench wall

Flow direction of sand in boil
Conclusions

Faults are latest Pleistocene to mid-Holocene.

Faults are compressional and favorably oriented (NE-SW) in the modern stress field.

Surface rupture and liquefaction occurred during ground shaking, which buried tea tree forest.

Local drainage reversal.

Moment magnitude was >6, possibly >6.5.