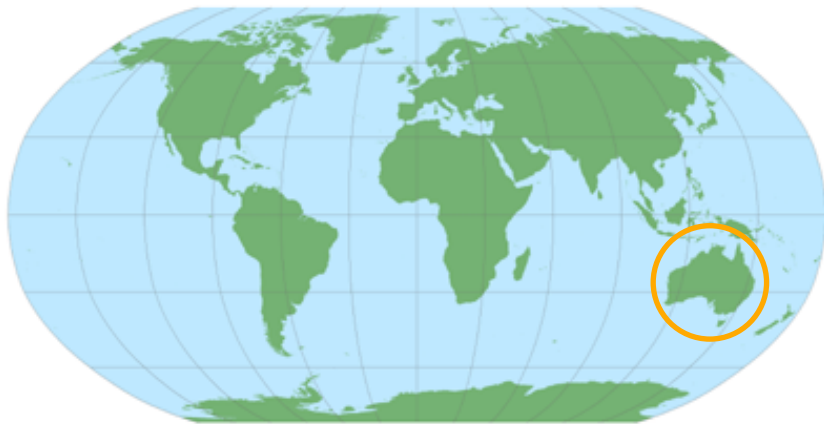


# Research infrastructure in palaeoanthropology and cultural heritage: an Australian perspective

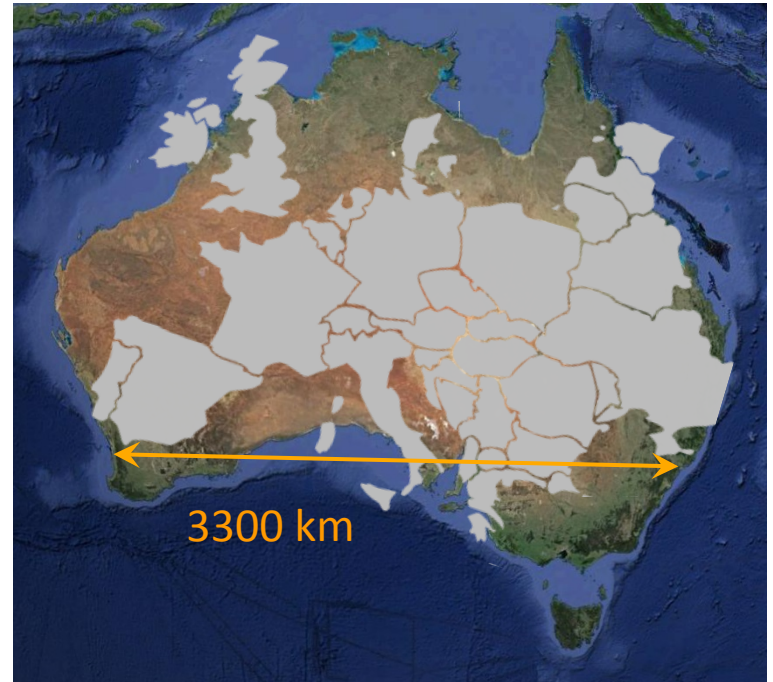
**Richard (Bert) Roberts**, Centre for Archaeological Science, University of Wollongong

## ❖ Tyranny of distance from Europe and N America



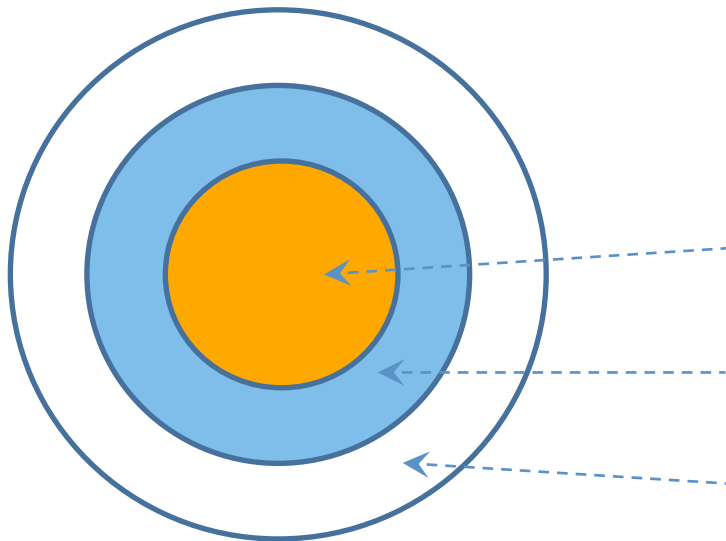
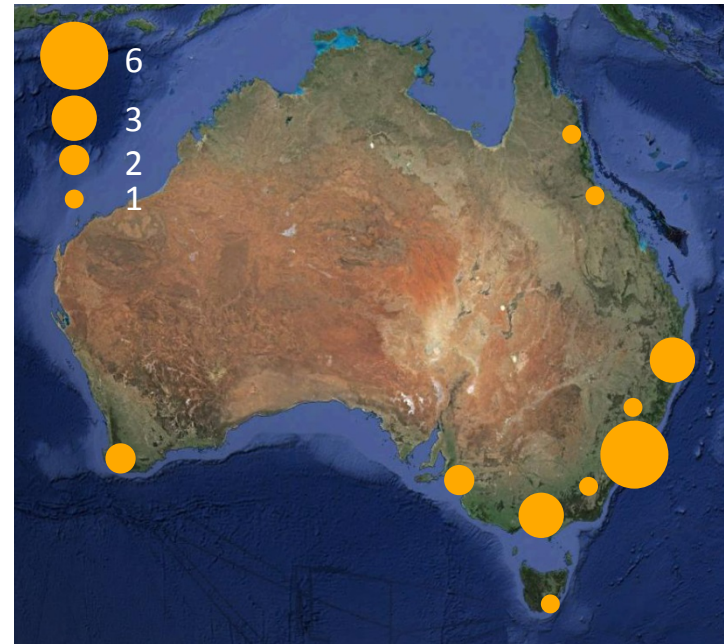
## ❖ Small & scattered population within Australia

- logistical advantage → single nation



## ❖ Australian Research Cluster in Archaeological Science (ARCAS)

- new national initiative, backed by ARC
- 20+ institutions around Australia
- university, government & industry (archaeological consultants)
- blend of sciences (physical, chemical, biological, geological, information & social) & humanities



core archaeological science groups ( $n \approx 6$ ): fund research facilities & long-term technical support  
other science-savvy researchers: collaborative projects & data generated by such facilities  
extended network: educational workshops, training courses, exchange programs & outreach

## ❖ Palaeoanthropology & CH: 'Small Science' with diverse demands

- **Field:**

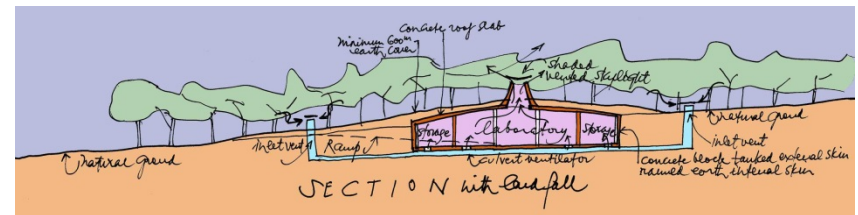
- new discoveries require field work & associated research infrastructure
- ethics of indigenous consultation, consent, involvement & repatriation of remains
- veto on transport of human fossils & some artefacts from country of origin

- **Lab:** multi-, inter- and trans-disciplinary investigations, using equipment as simple as a set of calipers to as sophisticated as a synchrotron

1. geological aspects of site formation, modification & preservation
2. materials analysis of artefact technology & microscopic traces of use
3. biological studies of animal & plant remains
4. chemical analyses of isotopes, biomarkers & other molecules
5. dating of artefacts, fossils & other cultural heritage items
6. informatics: statistics, computer modelling, spatial analysis & data visualisation

- **Legacy:**

- digital reference collections & data archives, open-access with meta-data
- standardised reporting protocols
- conservation of perishable objects
- 'keeping places' for ancient indigenous remains, e.g. Mungo:



# ❖ Three key messages

- **Archaeological science in Australia:**

- need to overcome 'tyranny of distance' at continental & global scales, and its negative effect on integrated, pan-disciplinary research

- **Creation of ARCAS:**

- target resources strategically to build & sustain capacity in facilities continent-wide
- establish formal links with leading international partners, e.g.
  - a. Denmark: Centre for GeoGenetics, University of Copenhagen
  - b. Germany: Max Planck Institute for Evolutionary Anthropology (MPI-EVA), Leipzig
  - c. Spain: National Research Centre on Human Evolution (CENIEH), Burgos
  - d. UK: Research Lab for Archaeology & the History of Art (RLAHA), Oxford University
  - e. S Africa: Evolutionary Studies Institute (ESI), University of the Witwatersrand
  - f. USA: Institute of Human Origins (IHO), Arizona State University

- **Frontier technologies & applications:**

- advances in microanalysis & molecular techniques in the Australian context
- extend reach to SE Asian & Pacific island nations
- portable facilities to analyse & digitally record collections in developing countries