• Mojokerto & Sangiran
• Sunda v Sahul shelves
  – glacial sea levels
  – Wallace Trench
    • biogeographic barrier
• colonization of Sahul
  – dispersal prerequisites
  – rafting or watercraft?
    • Flores Islands 900 ka
• AMH in Sunda
  – Niah & Lene Hara Caves 40-35 ka
• AMH in Sahul
  – New Guinea 40-25 ka
  – Bobangana (Huon) 40 ka
  – Australia <50 ka
  • Mulakunaja II 60 ka (?)
  • Lake Mungo 50-40 ka
  • Devil’s Lair 32-38 ka
  – coastal then interior
    • Purritjara 22-12 ka
  • Wallandra v Mungo
    • mtDNA!
• People in the Pacific
  – dispersal or migration?

• Homo erectus in Island Southeast Asia
  – Mojokerto 1.8 mya; Sangiran 1.6 mya
• How did they get there?

Glacial Ice Volume @ LGM 52 x 10⁶ km³
exposed ~3 x 10⁶ km² of land now under water

• Sunda & Sahul shelves
• Wallace Trench
  – 7500 m deep
  – 100 km minimum distance
    Sunda to Sahul
• Wallace Line
  – biogeographic barrier for last 100 million years

• necessary to have novel adaptations to cross barrier?
Prerequisites for dispersal to Sahul
1. populations present in Sunda at right time...
2. populations have “coastal” adaptations...

Prerequisites for dispersal
1. populations present in Sunda at right time...
2. populations with “coastal” adaptations...
3. have to be able to cross open water...
4. have to be behaviorally modern?

Galapagos model...
- accidental dispersal?
- Flores Island sites, Eastern Indonesia
  - 19 km ocean crossing @ 900 ka!!!
tapir, pig, monkey, deer, porcupine…
a coastal adaptation?
where are the rafts?

• Northern Sahul
  – Bobangana (Huon) 40 ka
  – New Ireland 35 ka
  – Solomons 28 ka (single trip 175 km, or hops of 50 km)

• Earliest sites in Southern Sahul
  – Malakunanja 60 ka (?); Mungo 50-40 ka
  – Devil’s Lair Cave 32.5 ka; Willandra Lakes 30-20 ka
Lake Mungo 3, 40 ka

- Earliest interior site in Southern Sahul
  - Puritjarra Rock Shelter 22-12 ka

Southern Sahul Colonization Model

Mungo 3, 40 ka “gracile”
Willandra Lakes 50, 20-30 ka
“robust”

- mtDNA suggests they are different
- mtDNA for more “gracile” (i.e., modern-looking) Mungo fossils is distant from modern mtDNA, while more “robust” Willandra Lakes 50 has fully modern mtDNA!
- skeletal anatomy and mtDNA are not necessarily correlated!

People in the Pacific

- Micronesia and Polynesia not colonized until after 3500 BP
- Why so late?
  - islands are hard to find...
  - intentional migration necessary?

- Lapita adaptation
  - full adaptive package carried on ocean going boats (i.e., pigs, yams, ceramics)
  - clear evidence of migration, not dispersal...

outrigger canoe
Fiji 1890