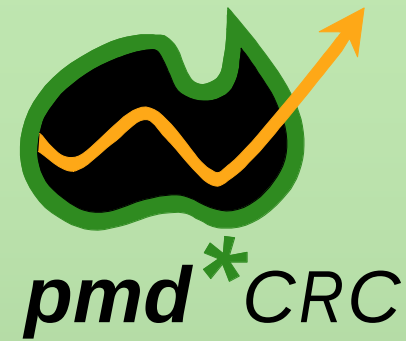
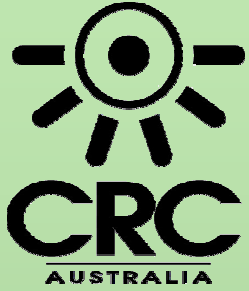
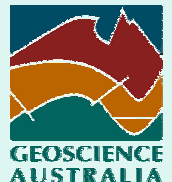




Fluids Program

Program Coordinator Nick Oliver

Projects F1, F3, F4



The Fluids concept

Industry: improve ore deposit models!

Fluid chemical paths relative to ore genesis not well understood

Training issue: few Australian industry geologists or graduates appreciate geochemistry of hydrothermal systems

Very few exploration/mining or SME companies using geochemistry (other than straight empiricism) to raise interest/cash/enthusiasm

The Fluids Program

F1/2: Fluid Chemical Paths in Ore Forming Processes

Nick Oliver (JCU, project leader): **New fused F1/F2 project as of July 03**

Geochemical modelling: JCU, GA, CSIRO, Monash, collaborators

F3: Micrometallogeny of hydrothermal fluids

Tim Baker (JCU, project leader)

Fluid inclusions: JCU, CSIRO, GA, UWA, Uni Melb, Monash

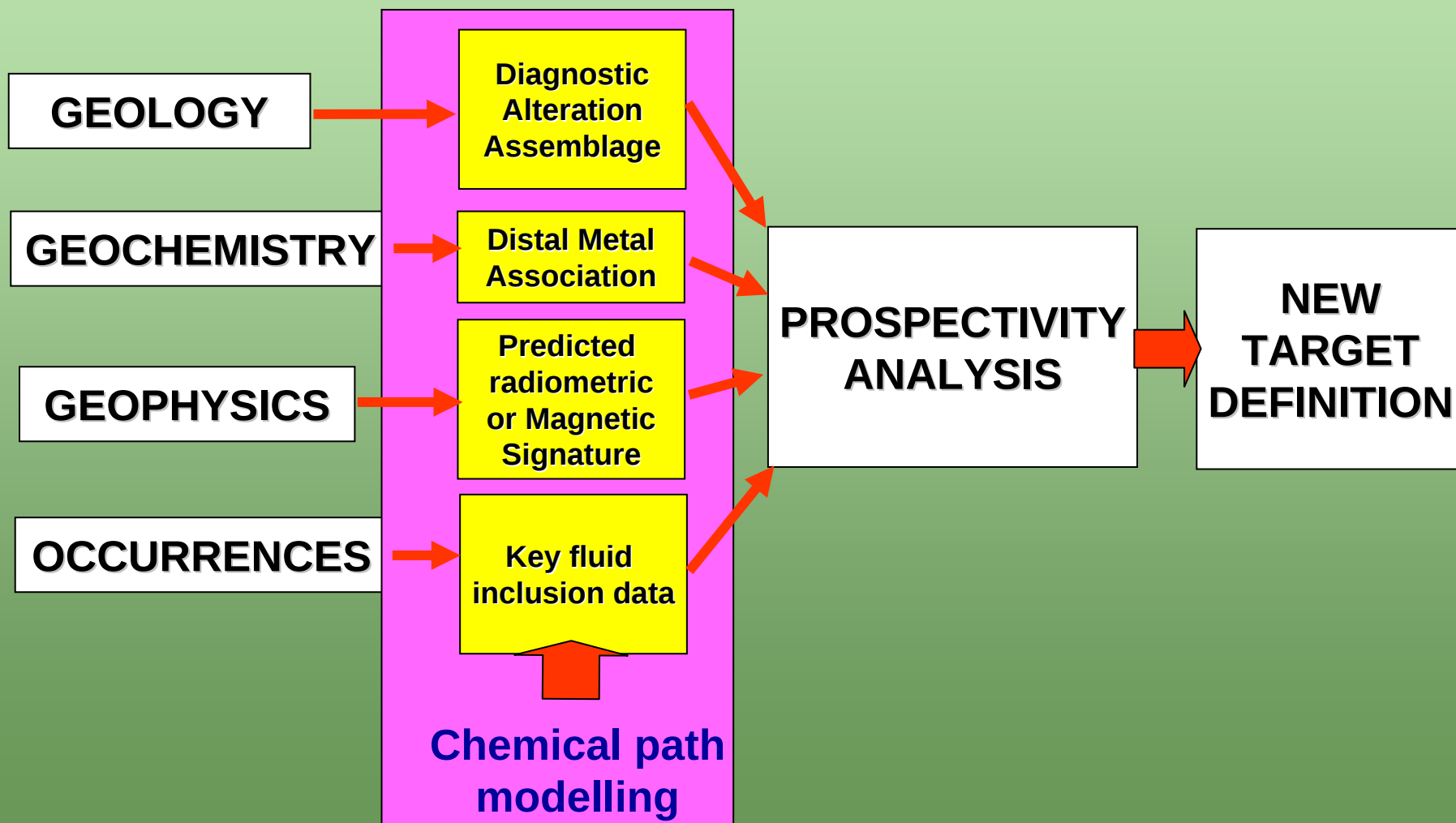
F4: Hydrothermal ore deposits, classification and controlling factors: Finished June '03, fused with A1

Terry Lees (Uni Melb, project leader)

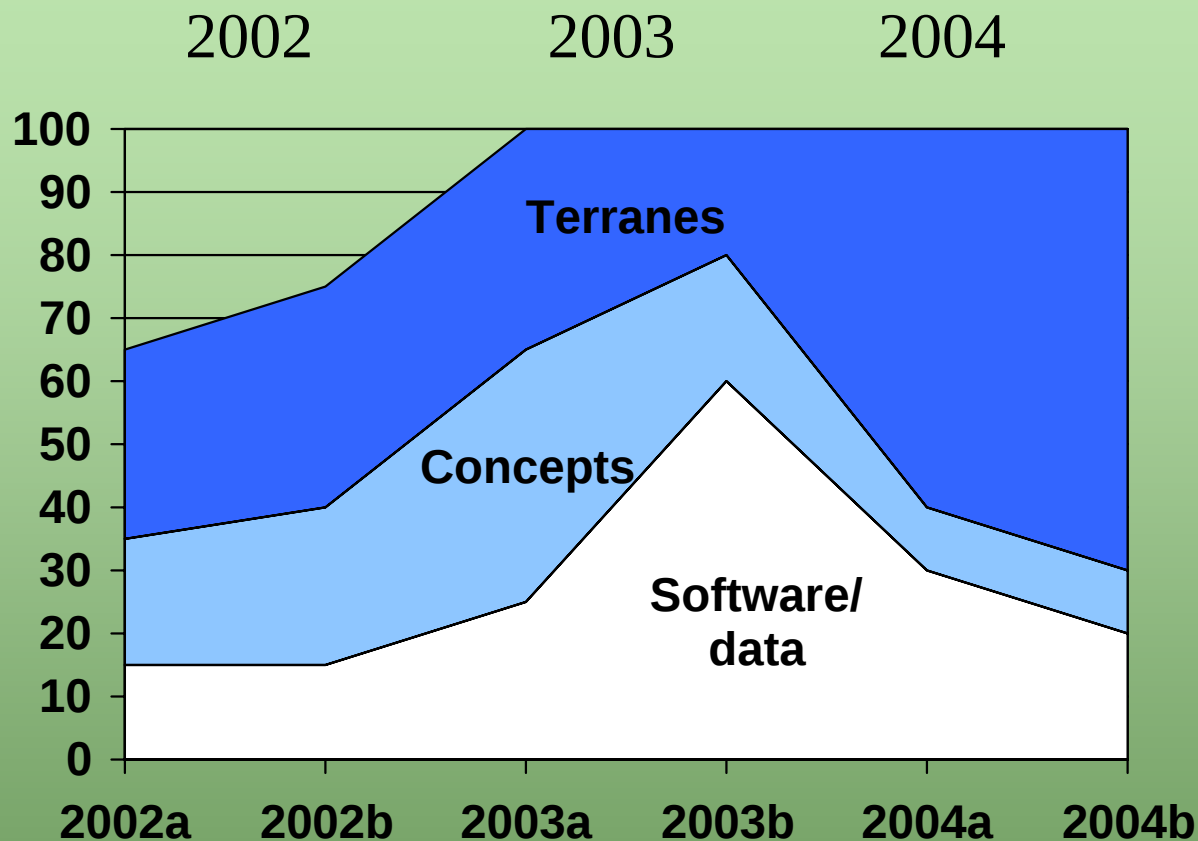
Novel statistics: Uni Melb, CSIRO, Monash, MERIWA (data)

Predictive Mineral Discovery

enhanced by fluid chemical path modelling



F1/2

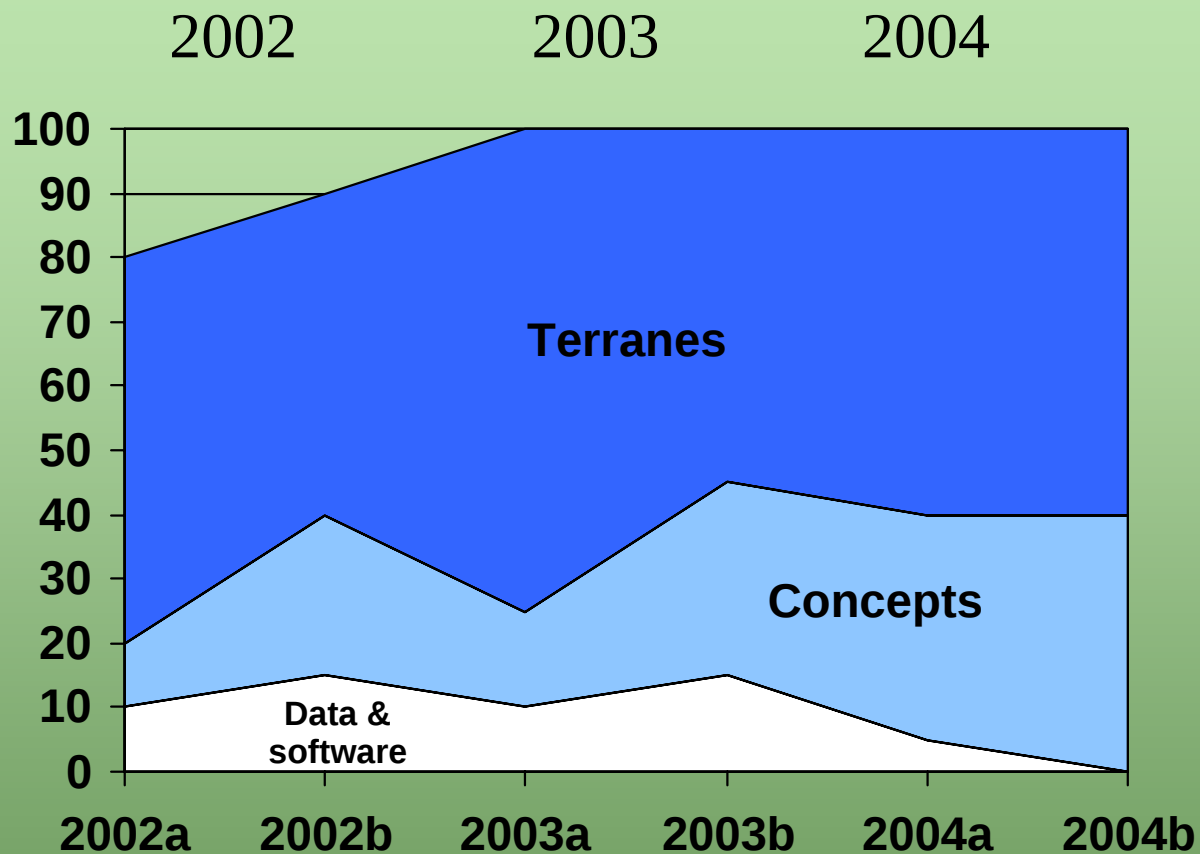


F3

Terrane
research

Concept
development

Software & data
optimisation

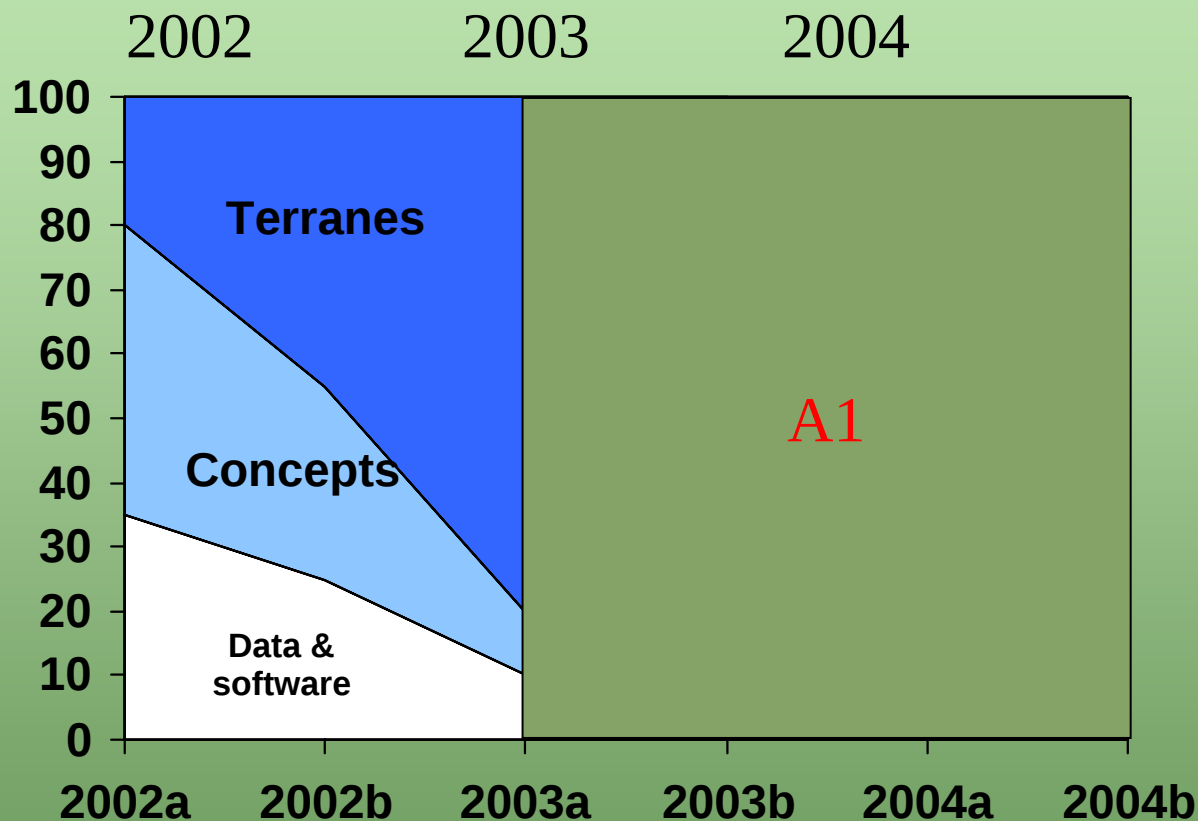


F4

Terrane
research

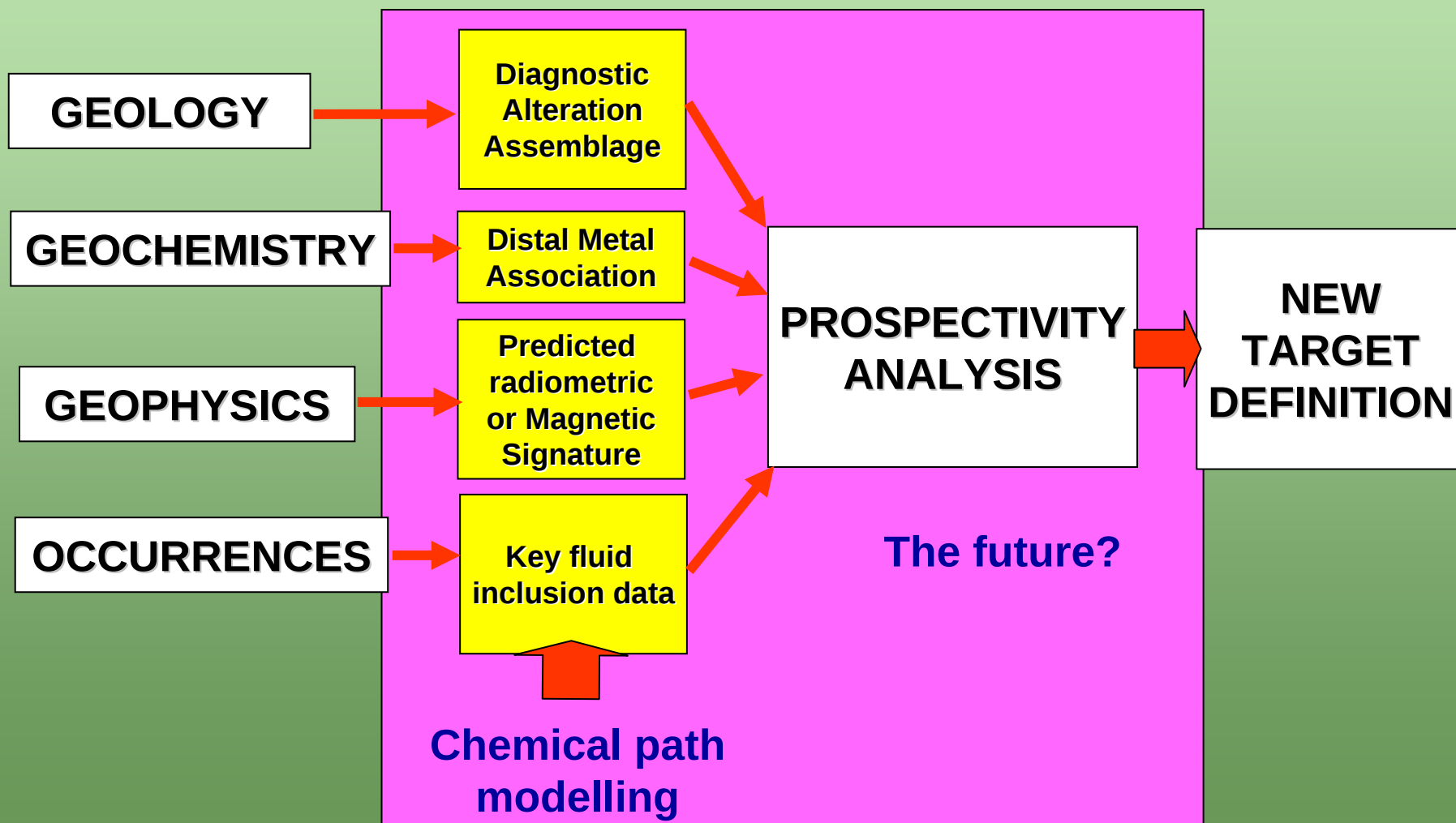
Concept
development

Software & data
optimisation



Predictive Mineral Discovery

enhanced by fluid chemical path modelling

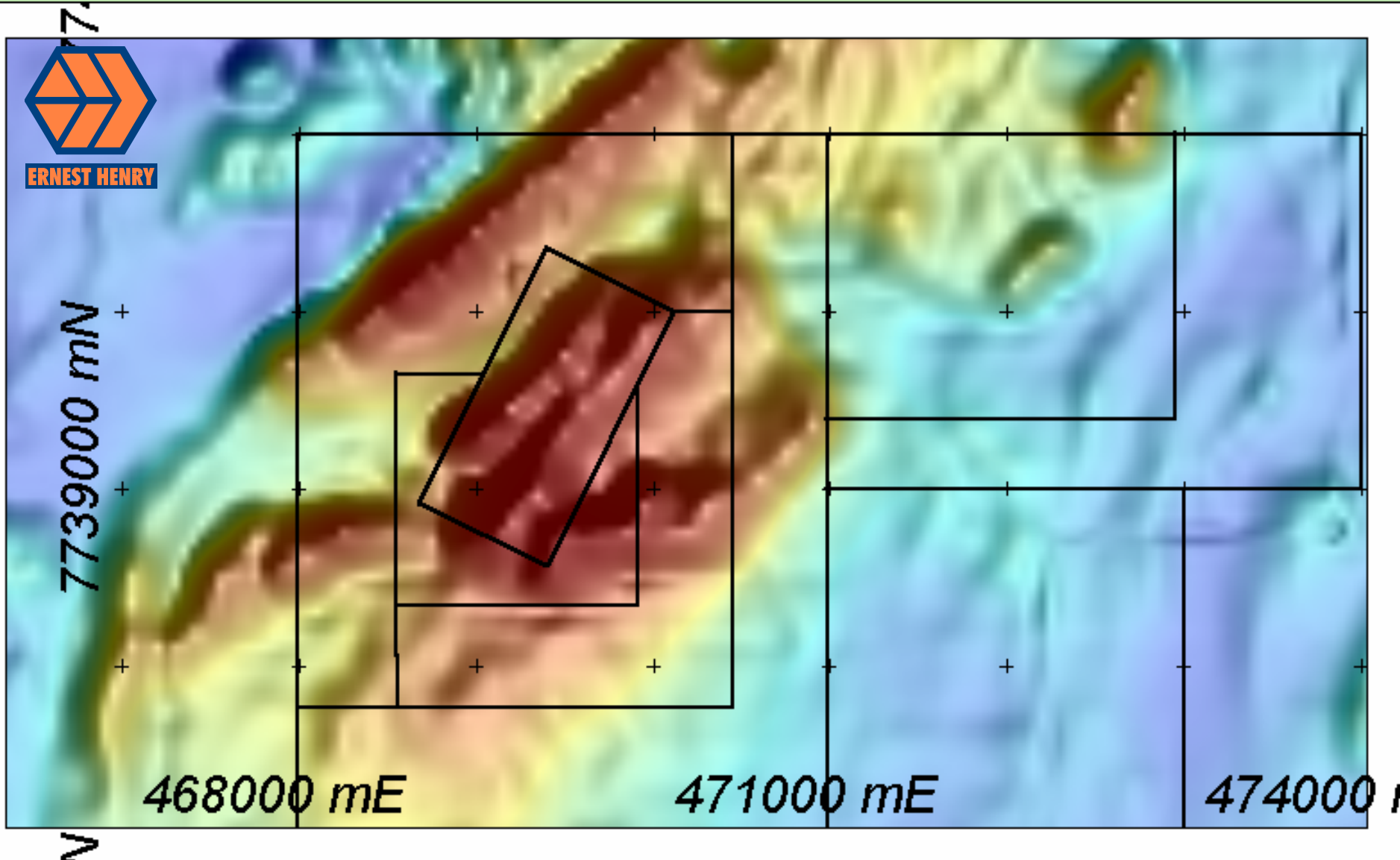


Possible paths for “Fluids” beyond 2004

1. Researcher- & industry-friendly interfaces and graphics
1. Coupled mechanical/chemical modelling
1. Reactive transport and coupled modelling via software framework
1. Seriously re-vamped ore deposit models
1. Big role for short courses and workshops
1. Fluids R&D into senior undergraduate & postgrad training
1. 1-on-1 projects
1. Embed more F into “new” terrane projects?

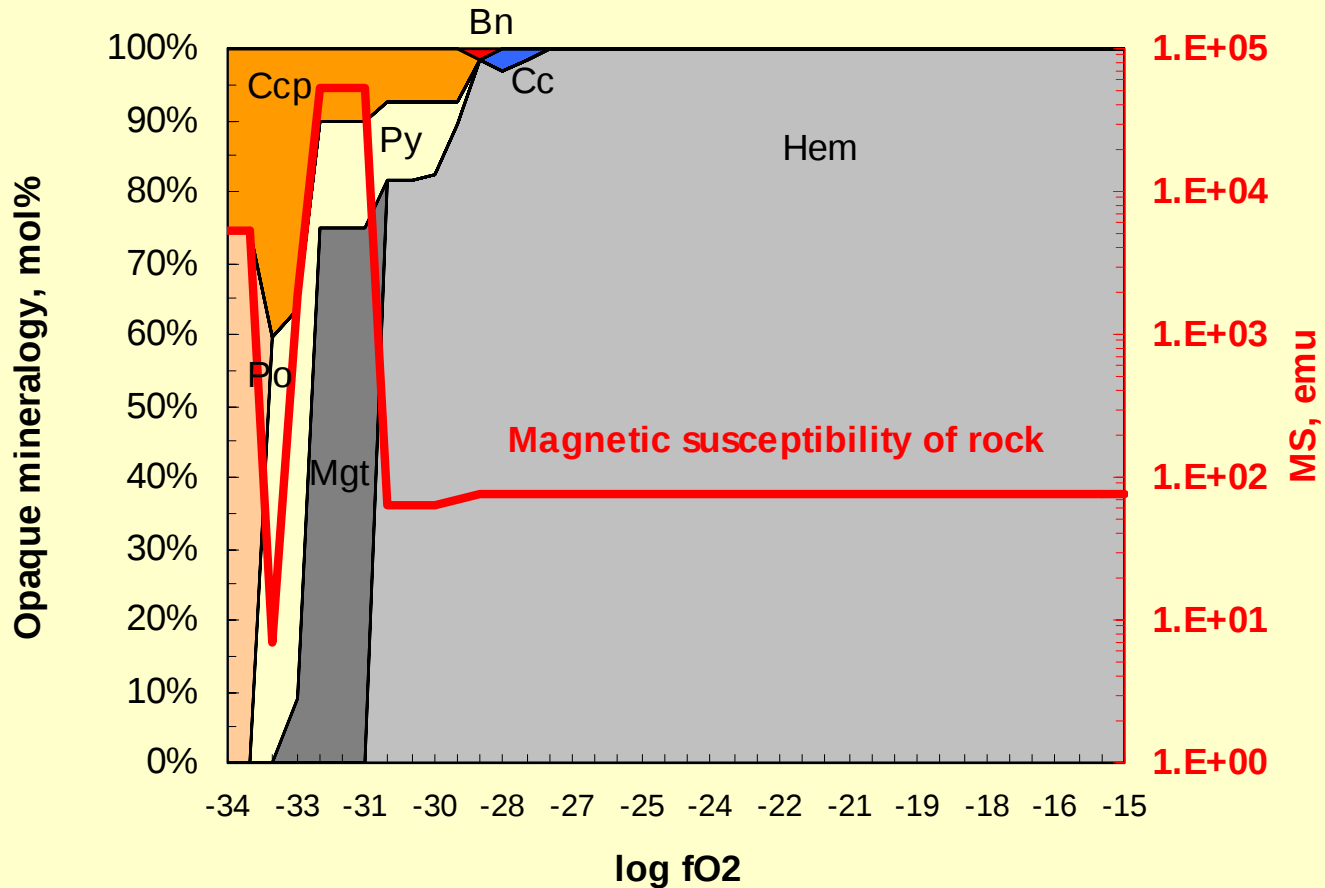
Linking geochemical models with geophysics

Image courtesy of Ernest Henry Mining

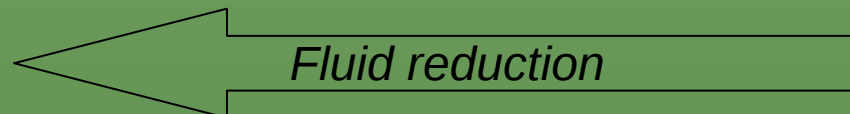


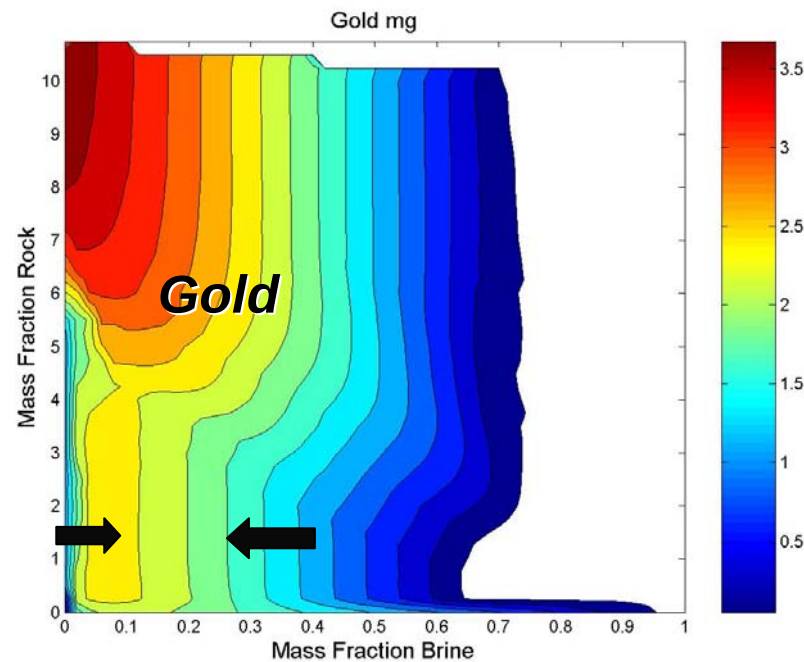
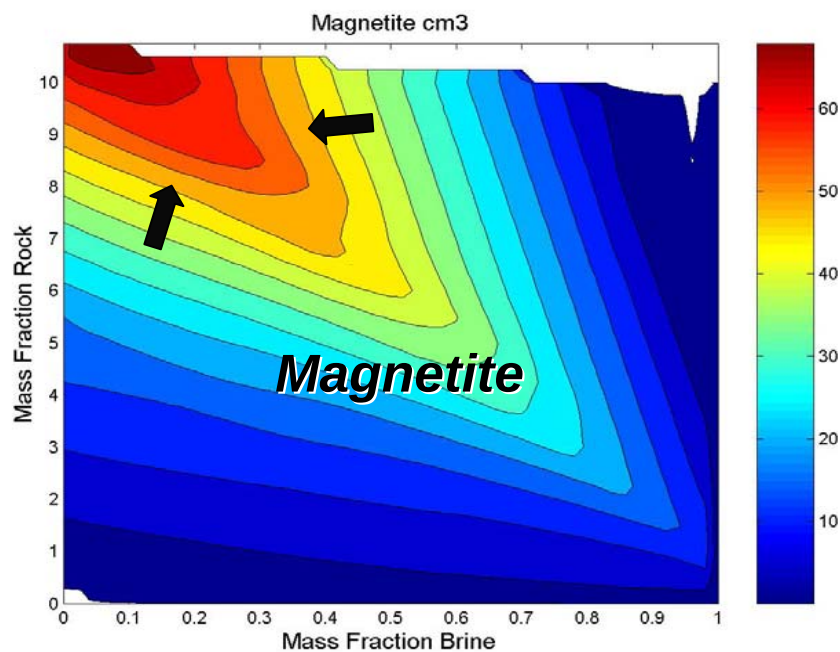
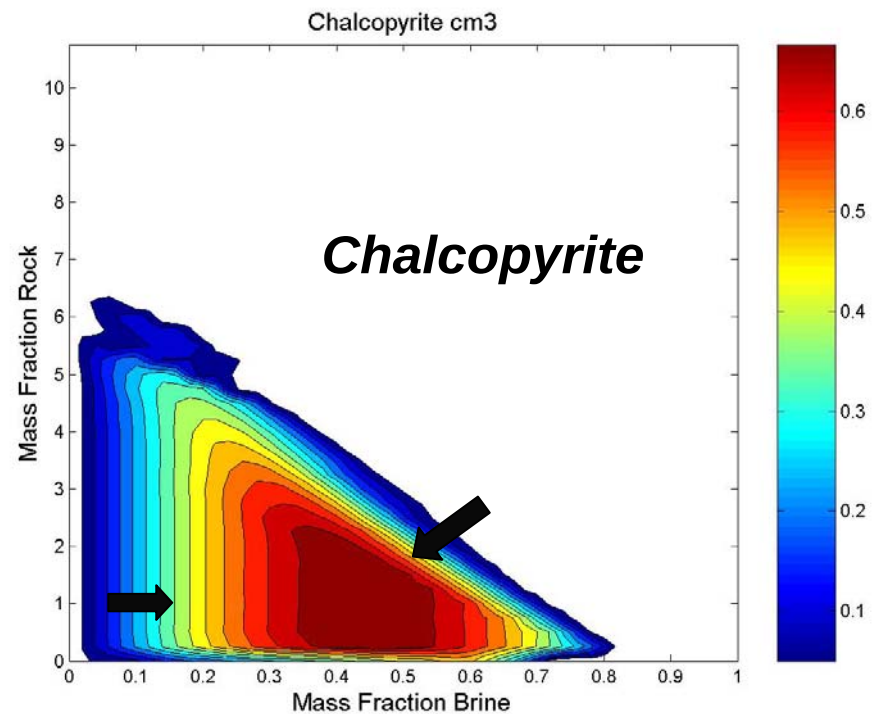
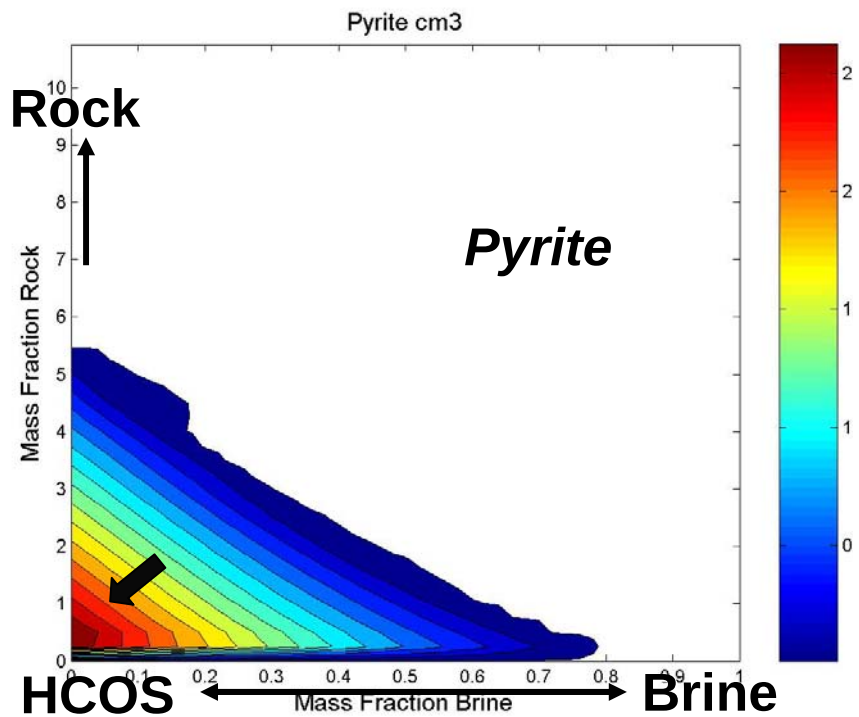
Potential for real application to ore search: Fusion with modelled geophysical data

Model courtesy of GA Gawler project



Olympic Dam
area: back-
envelope
calculations
pertinent to Cu
mineralisation

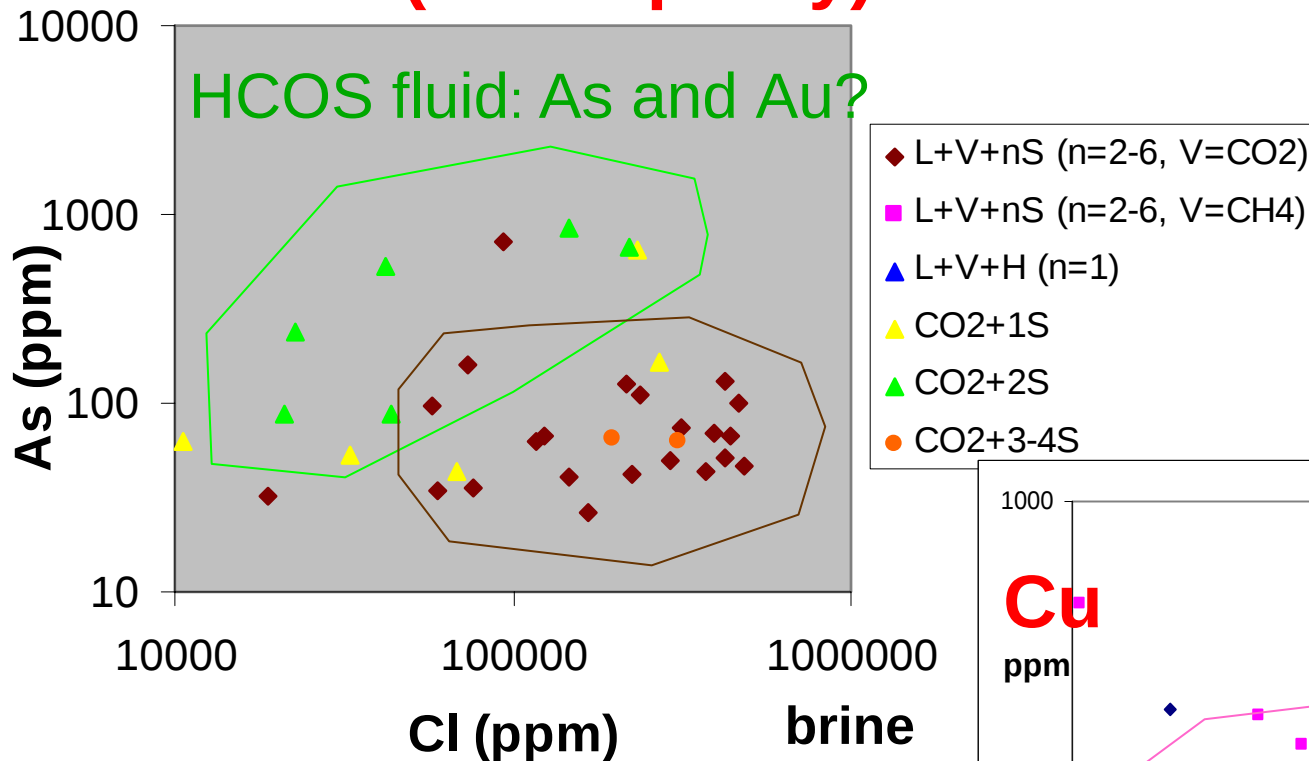




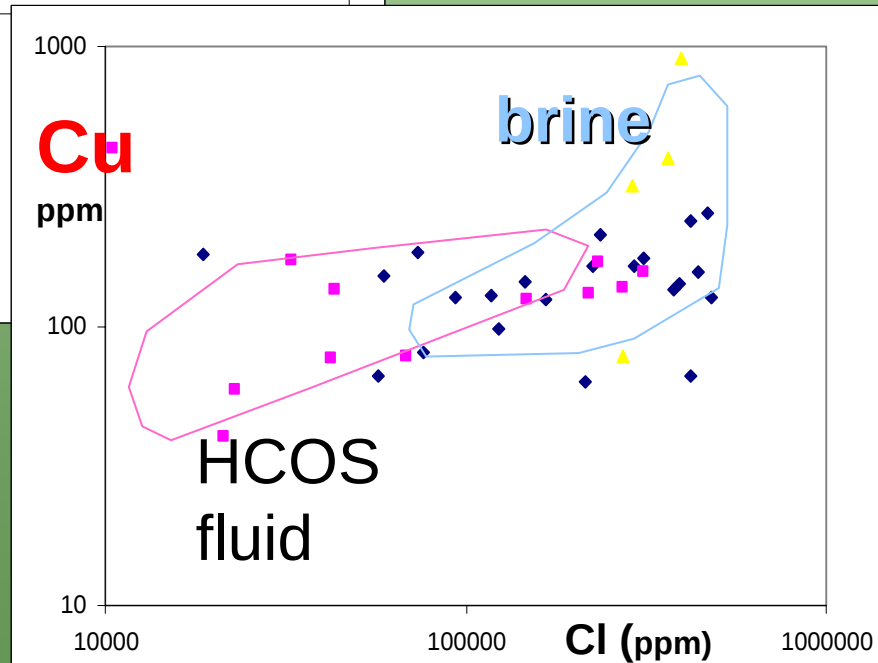
Osborne Deposit

Gold (As as proxy)

HCOS fluid: As and Au?



Subsequent FLINC analysis suggests As (and Au?) prefers HCOS fluid/vapour, therefore Au and Cu probably carried separately



And terrane research?

- Crucial to maximise chances that industry take-up will impact on discovery
- Crucial to establish future for young researchers
- Crucial to pave a training path with real outcomes for industry, including on-site interactions (this won't be the Twiki!)





*pmd**CRC