

	Magnetics	EM*	Gravity	IP*	SAM*
Geology	Very little mag contrast in basement lithologies. Broadly delineates Archaean. Affected by strongly magnetic dolerites with strong remnance effects	Defines U/C depths relatively well. Effectiveness in basement limited by highly resistive sandstone and more subtle conductivity contrasts in basement	Reasonable contrast between Archaean Granite Gneiss and lower prot schists. Affected strongly by depth of sandstone which can interfere with basement contrasts. Combination of EM modelling of U/C + detailed DTM + gravity will improve effectiveness	Not used widely. Not a mapping tool	Trials at Myra and Beatrice shows better definition of basement lithologies than mag. Physical Property testwork indicates resistivity provides most contrast for key units and alteration.
Structure	Effective in delineating major structures and offsets. Ineffective in defining flat structures.	Effective in defining structure at Angularli. Should show flatter structures and graphitic shears. Dependent on penetration through sandstone	Effective in defining major structures and vertical offsets, particularly vertical offsets in the unconformity	Gradient array should identify structure in resistivity. Dipole surveys should identify some flat structures in resistivity and possibly IP	Should show vertical offsets. Should give a response for flat structures with associated alteration and graphite in MMR response. Modelling in 3d more problematic than EM or IP.
Depth Penetration	Good	Recent analysis of data indicates questionable responses in basement under >50-100m sandstone	good	Unknown through sandstone. Geophysical consultants consider will be limited based on EM results	Better response expected than EM and IP since measuring magnetic field of resistivity and IP effects. As for all electrical methods, enhanced by amount of current that can be directed to basement
Alteration	Not in known deposits	Subtle, not if >50m Kombolgie	No	Yes	Yes
Graphite	No	Yes	No	Yes	Yes
Logistics	Airborne survey	Airborne survey Applying charge array to basement limited	Difficult. Terrane in some sandstone country not accessible in 2012 survey. Limiting for detailed surveys	More problematic than gravity. Also very difficult to establish electrode on bare sandstone outcrops. Dipole surveys not practical in much of sandstone country. Electrode configuration of HPX system may facilitate direct charging of basement, but receiver access still hampered by terrain.	Heli surveys possible. Both GAP and HPX Electrode configurations may facilitate direct charging of basement.
Cost	\$20/lkm – also get rads	\$200/lkm	Depends on spacing	Dependent on setup. Limited by terrain approx. \$600-\$1000/lkm	\$250-400/lkm (heli-survey). Ground surveys work out to approx. 600-(\$1000/lkm)
3D interp	Yes	Yes	Yes	Yes	pseudo
Jabiluka	No signature	Would identify host horizon	No	Would identify host horizon	Would identify and map host horizon and possibly additional structural offsets
Ranger	No	Would identify host horizon. Possibly weaker response in middle of deposit (chlorite>graphite)	Detailed survey may show carbonate dissolution as a low.	Would identify host horizon. Possibly weaker response in middle of deposit (chlorite>graphite).	Would identify and map host horizon and possibly additional structural offsets
Koongarra	No	Would identify host horizon. Possibly weaker response in middle of deposit (chlorite>graphite)	No	Would identify host horizon. Possibly weaker response in middle of deposit (chlorite>graphite)	Would identify and map host horizon and possibly additional structural offsets
Nabarlek	Evidence for structure and demag in dolerite	Subtle response in chlorite shear	No	Resistivity low in chlorite shear	Should map chlorite shear
Angularli	Structure evident	Structure evident	No	IP response associated with silica pyrite zone	Should map shear