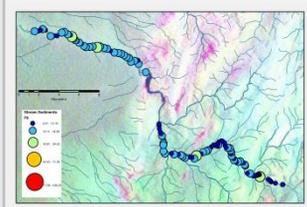




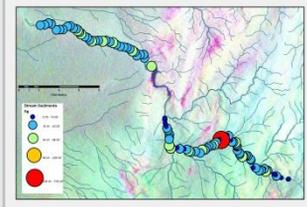
As exploration is moving into areas of thick transported cover, the ability to reliably ascertain as to its point of origin, whether vertically or laterally derived, becomes even more important. The Broken Hill Pb-Zn-Ag deposit is a much smaller remnant of what was once originally deposited. Besides mining, vast amounts of material has been eroded away and deposited in many of the surrounding sedimentary basins. This is still happening today as is seen in the radiometric map which shows the extensive distribution of U, Th and K along the ephemeral creek systems that drain the Broken Hill block. Stream sediments sampled along three ephemeral creek systems, draining three different terrains from the Broken Hill block show the significant differences in the behaviour of different elements between and along creek systems, the “water cannoning” effect of ephemeral systems on the distribution of material and the implications for mineral exploration.

Radiometric imagery of the Broken Hill Block shows a terrain high in U, Th and K and with its extensive lateral dispersion trains along the ephemeral creek systems out into the surrounding basins, in some cases extending over 40km from the source. The <75µm fraction of the stream sediments was sampled along 3 different creek systems to test the extent of lateral dispersion from the Broken Hill Block.

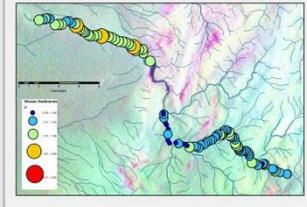
Umberumberka Creek



- 389km² catchment area draining the Broken Hill Pb-Zn-Ag deposit plus many smaller mineral occurrences.



- Proximity of the Broken Hill deposit is *not* picked up in the distribution of Pb and Ag.

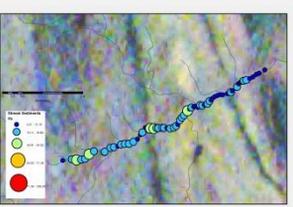


- Sediments are elevated along the plains in comparison to the headwaters with material shifted approx. 12km from a potential source.

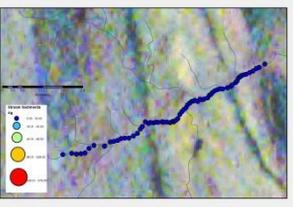


Fowlers Creek

- 434km² catchment area 95% covers a non-mineralised terrain with small input from the Broken Hill Block.



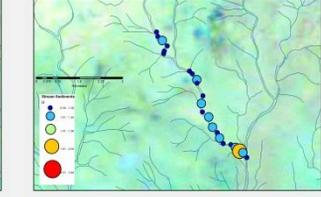
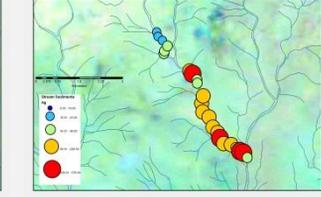
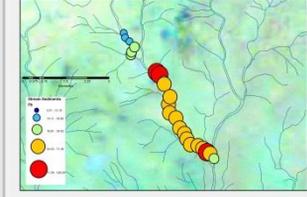
- Lead values return to background level over 2.5km from single point anomalies.



- Uranium remained elevated along the creek despite being >25km from a potential source.



Pine Creek



- Small 37km² catchment area with creek system crossing a constrained NE-SW Pb-Zn-Ag mineral occurrence.
- Elevated values recorded along length of creek with anomaly “smeared” approx. 4km downstream.
- All elements increased at confluence with larger creek system either representing a redistribution of sediments along the creek system or a reflection of element content of the larger creek that drains from The Broken Hill deposit.

Exploration Implications - The distribution of U Pb and Ag in the different creek systems demonstrates the vast differences that occur in their distribution both across and within creek systems. The shifting power of the larger creeks can shift material over great distances from the source, while smearing and obscuring anomalies over the length of the creek. The ephemeral flow nature of the creeks makes constraining the extent of lateral dispersion difficult, but demonstrates the importance of stepping back from an anomaly to see where it fits in the larger landscape system.

