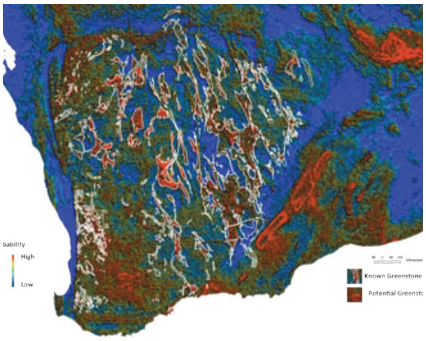

Fig. 4 Probability Ni anomalism in regional regolith samples, Yilgarn Block, Western Australia (Note: greenstone belts shown by white linework).

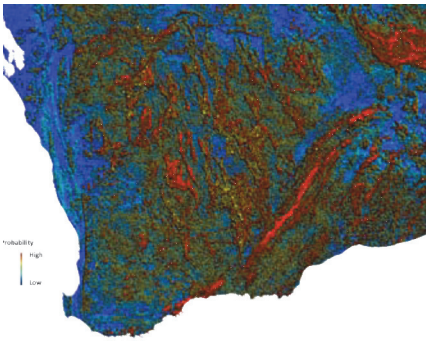

Fig. 5 Probability host to gold mineralisation, Yilgarn Block, Western Australia (Note: gold deposits and occurrences shown by yellow dots).

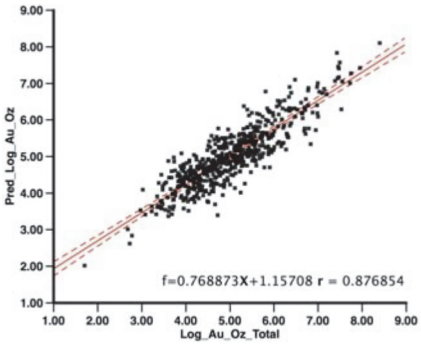

Fig. 6 Yilgarn Block, Gold Endowment Prediction - actual versus modelled (log cumulative oz Au.)

Predictive Geochemistry

The Sasak Predictive Geochemistry approach takes geochemical properties of rocks and quantifies their multivariate relationships using precise geophysical measurements, including a large number of geophysical derivatives. The intent is to compute a *Geochemical Prediction* based upon the geophysical data (where we have complete coverage) and thus is exceptionally useful where no geochemical data exist (i.e. under cover).

An example is presented in Fig.4 which shows the Probability of Ni occurring in anomalous concentrations in regional regolith geochemical data collected by various government agencies over the Yilgarn Block of Western Australia. Areas of high probability (i.e. hot colours) coincide with known greenstone terrain (white linework) and other areas probably containing rocks with high intrinsic Ni contents (e.g. mafic & ultramafic rocks).

Predictive grids for many elements (i.e. >60) have been computed for Western Australia, each displaying new spatial information.

Algorithmic Abstraction of Knowledge

Sasak uses this term to describe the process of using known exploration information (i.e. location of drillholes) geological, metallogenic (i.e. mineral deposit & mineral occurrence inventories) and modelling them based on regional geophysical measurements.

The process is akin to that used in *Predictive Geochemistry* except the input layer to be predicted is either binary (e.g. lithology absent/present), iso-density (attribute intensity), point location (i.e. distance to) or perhaps a categorical attribute.

Again, the intention is to predict into areas under cover such as the map presented in Fig. 5 showing host rocks to gold mineralisation probabilities. There is obviously a strong relationship between the actual gold mineralised terrains (yellow dots) and predicted (i.e. hot colours) with a large number of highly prospective areas identified away from known mineralised terrains, many of which are under recent cover rocks.

It is important to note that Sasak has computed similar models for most commodities of current exploration interest based upon known mineralised trends and areas of intense exploration drilling.

Gold Endowment Modeling

The availability of a very large number of floating point predictive grids over the state, with each grid contributing subtle but unique spatial information invariably led to questions regarding their statistical relationships with metal endowment, particularly gold.

Through a process of cumulating the total gold endowment (historical & published resources) of exploration graticules (each approximately 3 sq. km in size) for the state, a predictive equation (Fig. 6) was computed that explains *known gold endowment* (i.e. Cumulative oz Au/graticule) to a high degree (i.e. r^2=0.87).

Geochemical Classification Systems

Geochemists have been compiling large, multivariate geochemical databases and using computers to make decisions based on *Training Groups* that the data define for over 40 years. Unfortunately, the construction of such systems, based on public domain data sets, can frustrate the classification-based procedures employed because of inconsistent or missing element suites and poor distributional character of the geochemical variables used for analysis.

Sasak has essentially solved these problems using robust *Data Imputation* functions that eliminate these issues, thus producing data sets that meet all the assumptions that the statistical techniques employed require.

Systems, such as the *Archean Gold Lode Alteration Detection System* (AGLADS®), developed by Sasak E&MT, are being successfully utilised to identify the subtle alteration halos that extend well beyond the mineralised zones that can be missed in the normal course of exploration (Fig. 7). The use of AGLADS® removes the uncertainty commonly associated with recognition of these very important zones.

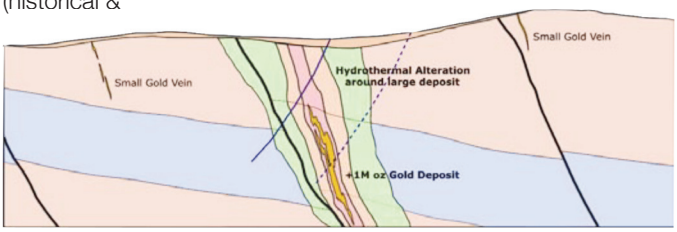

Fig. 7 Conceptual geochemical model of hydrothermal alteration system enveloping a large Archean gold deposit.

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