Original cost-efficient technique to identify areas with a high probability of containing a mineral deposit

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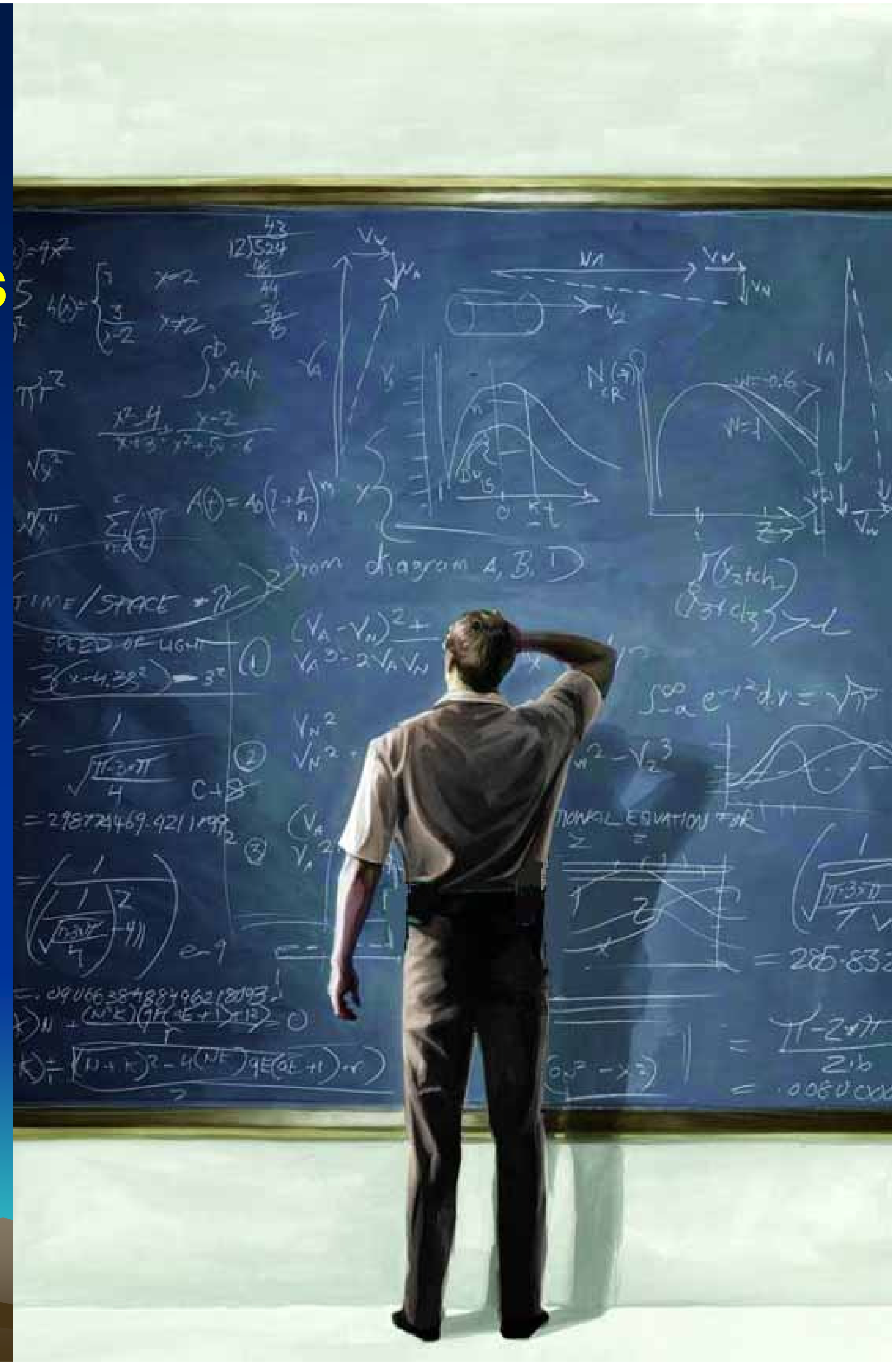
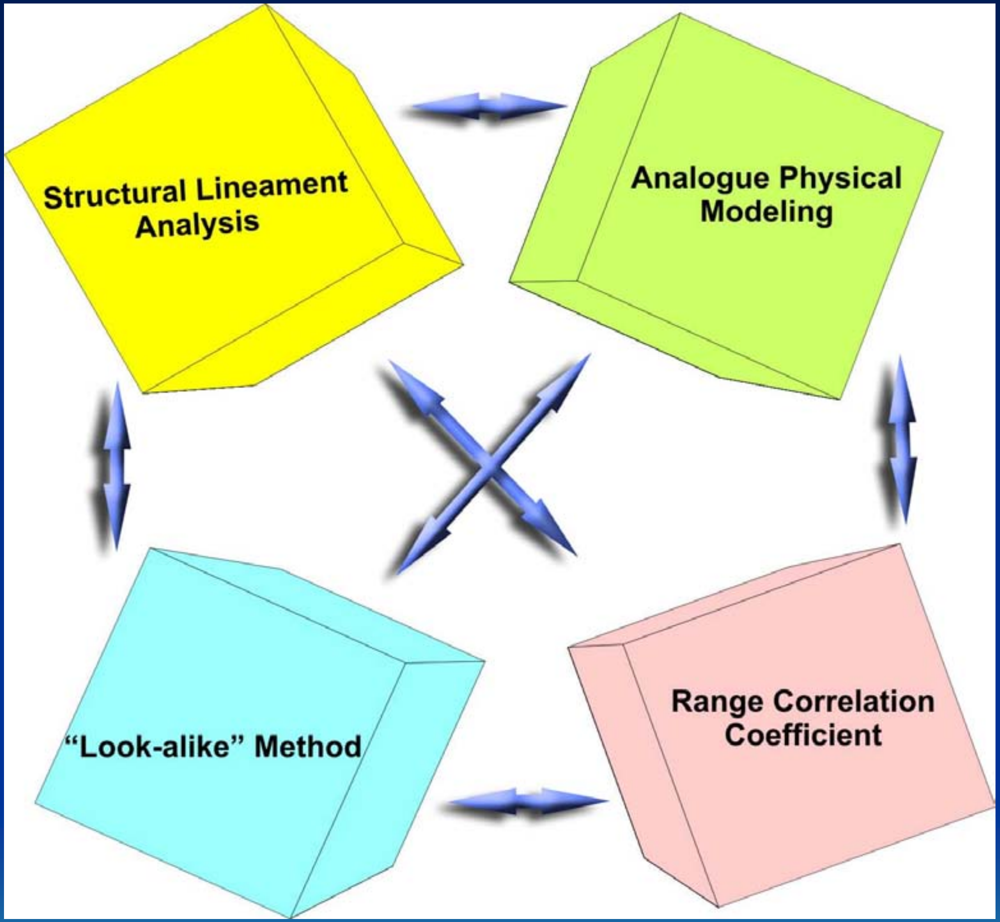


The technique includes 4 independent methods (modules)

Each individual method can be used for targeting, yet a combination of more than one is more reliable.

Best result – fewer targets with highest probability – is secured by implementation and synthesis of all 4 methods together



Scenario A (most juniors):

We are at the prospecting stage, with no discovery so far, limited amount of data available, there is no deposit in the vicinities

What can and should we do?

Common sense and geological experience tell that most mineral (ore) deposits are

STRUCTURALLY CONTROLLED !!!

Hence, the first thing to do must be finding areas with the highest densities of faulting and fracturing, e.g. zones with highest permeability for fluid flow

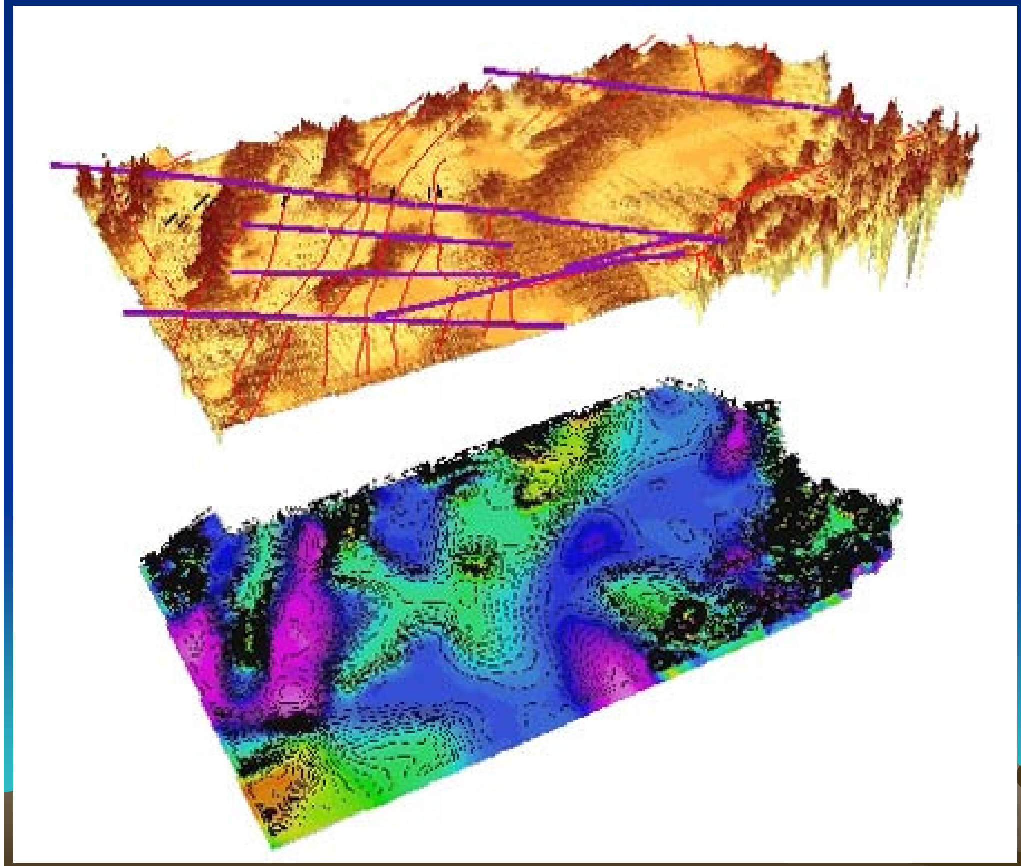
Would Structural Lineament Analysis help?

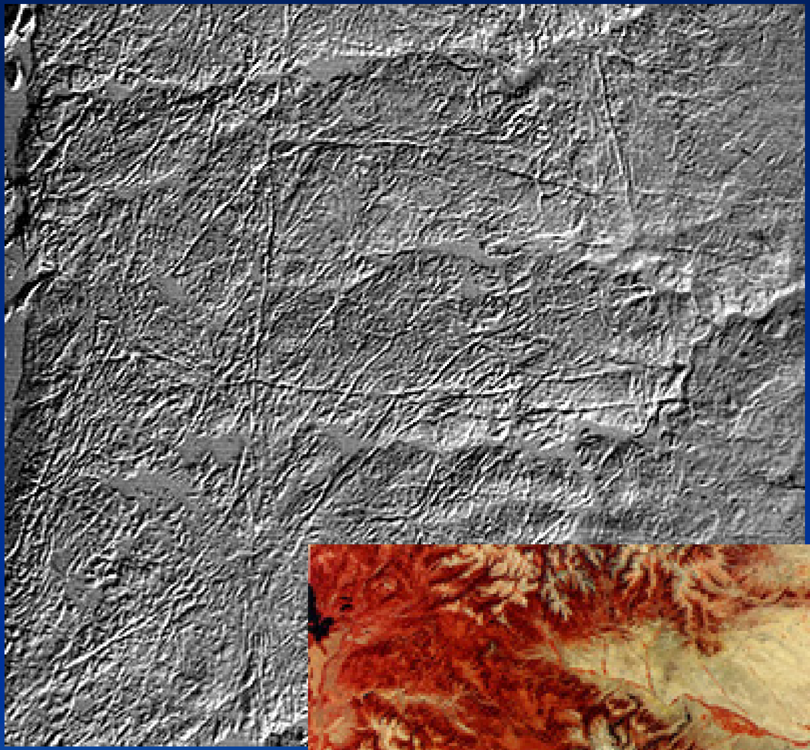
Absolutely!

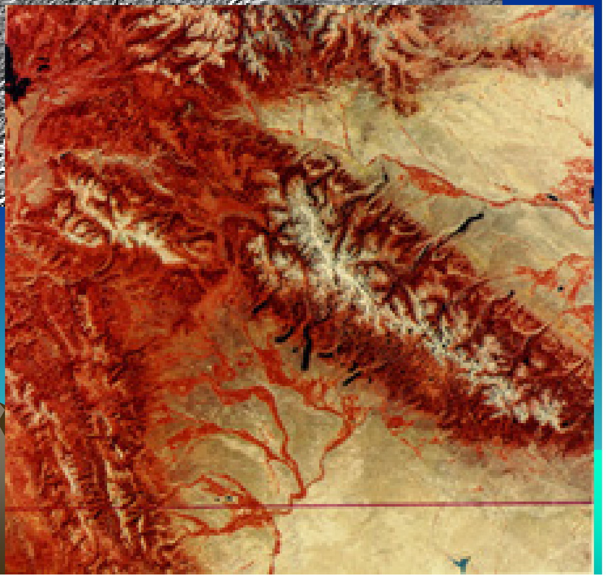
What is Lineament?

- Natural lineament can be generally defined as visible linear feature on the earth surface resulted from heterogeneity (anomaly) of physical/chemical/biological properties underneath

Lineaments can be seen and analyzed in Infrared, Radarsat, Landsat, air photo, geophysical fields, DEM, topo-maps etc







Lineaments are divided into different scale groups and weighed, for instance:

- **Main (long and deep) – *Heavy! (Nx10)***
  - Secondary - medium weight (Nx3)
    - **Tertiary** ***– small and weak… (Nx1)***

Structural Lineament Analysis

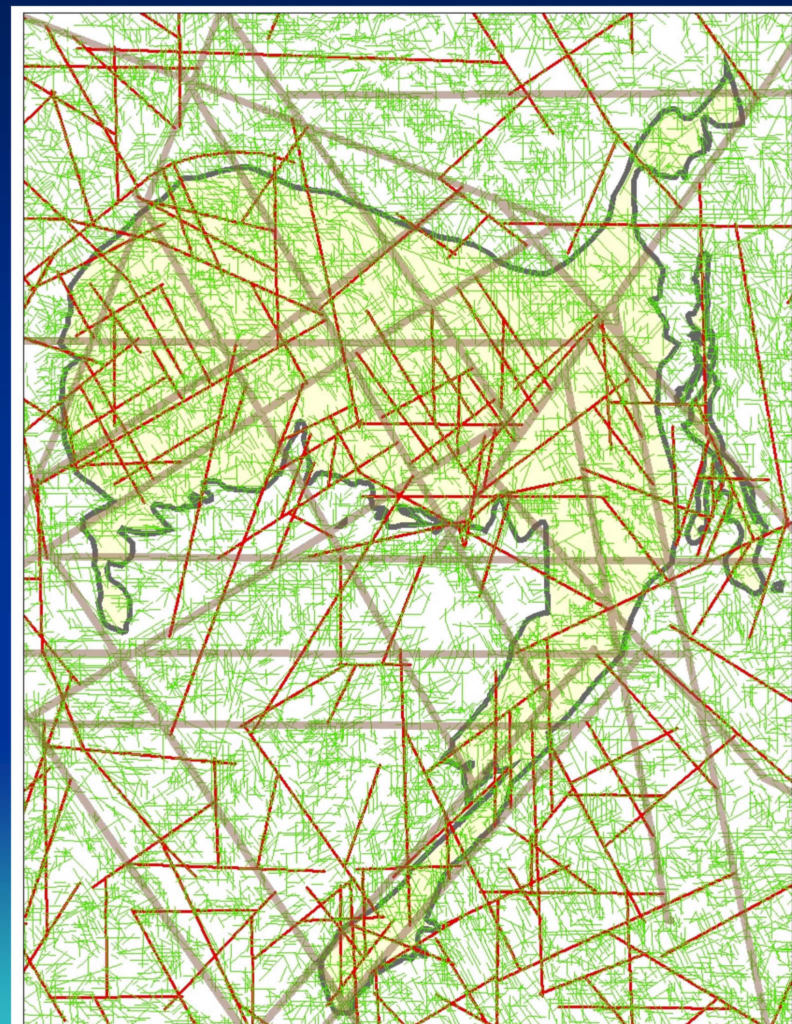
LansatTM, band 8, resolution 14.5 m

Usually

Tertiary lineaments– in several thousands

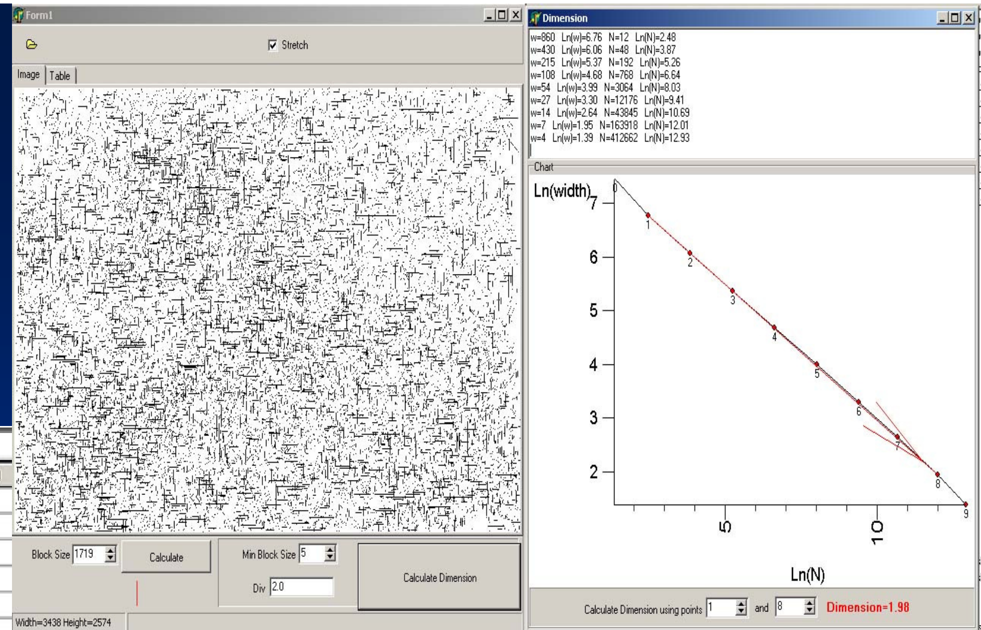
Secondary – in many dozens

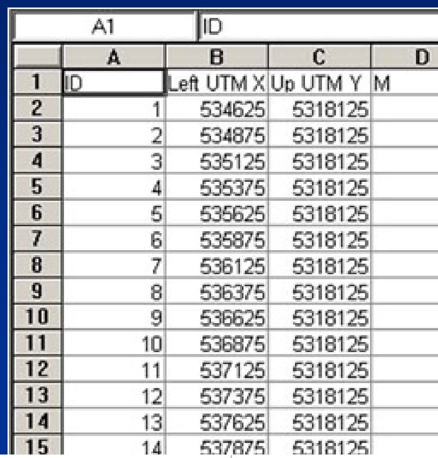
Main – few to 15-20

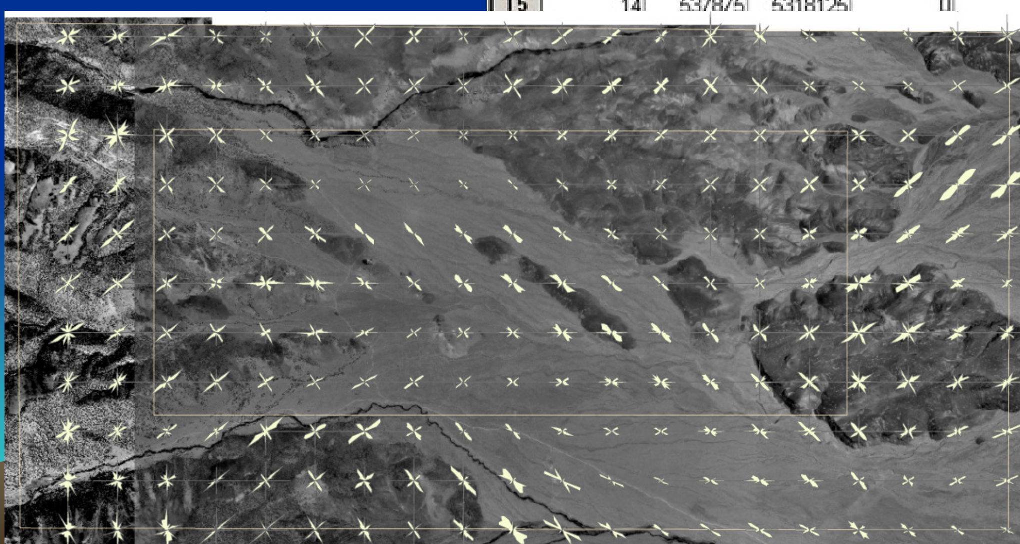


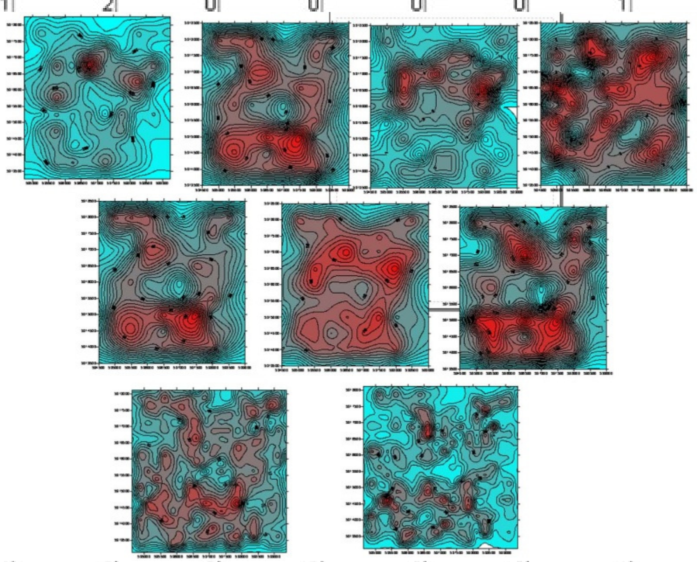
Lineaments are processed

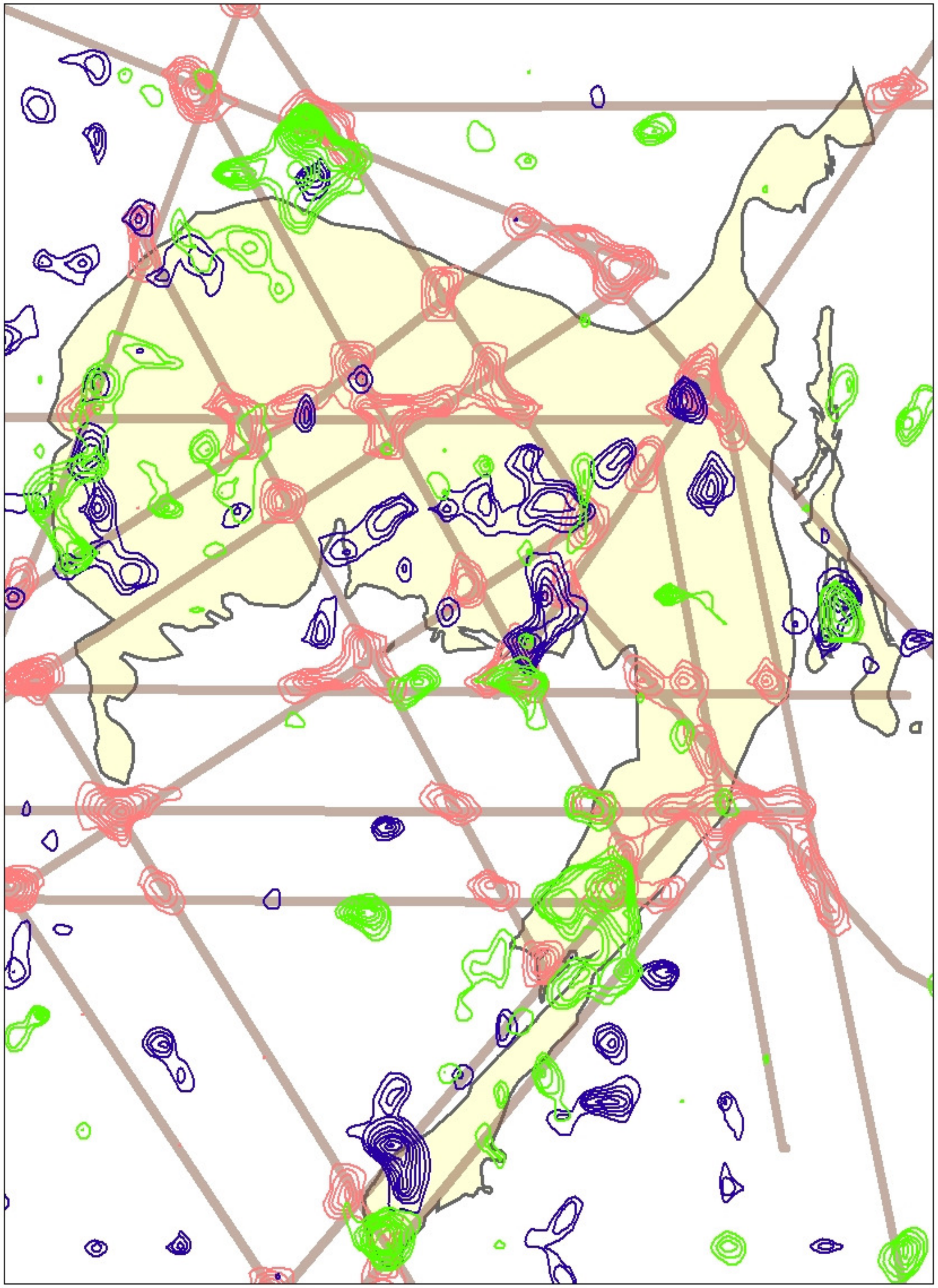
(rose diagrams, fractal dimensions, partial densities etc)











Lineament Density Maximums is calculated with specially designed software:

Main – red

Secondary – blue

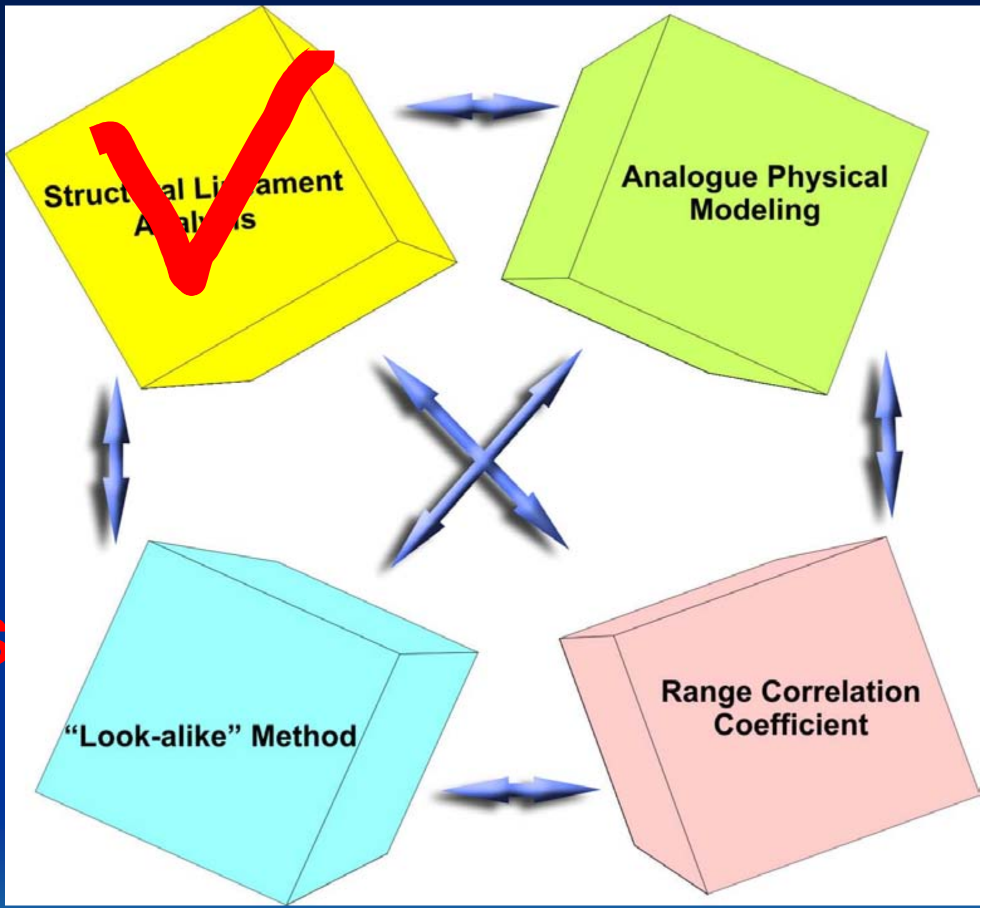
Tertiary – green

Actual significance of these scale lineament groups for deposit localization is a function of ore type and local geology and structure

(geological screening)

Structural Lineament Analysis

with additional derivatives (rose-diagrams, various weighing procedures etc) allows to find the most permeable zones in the area

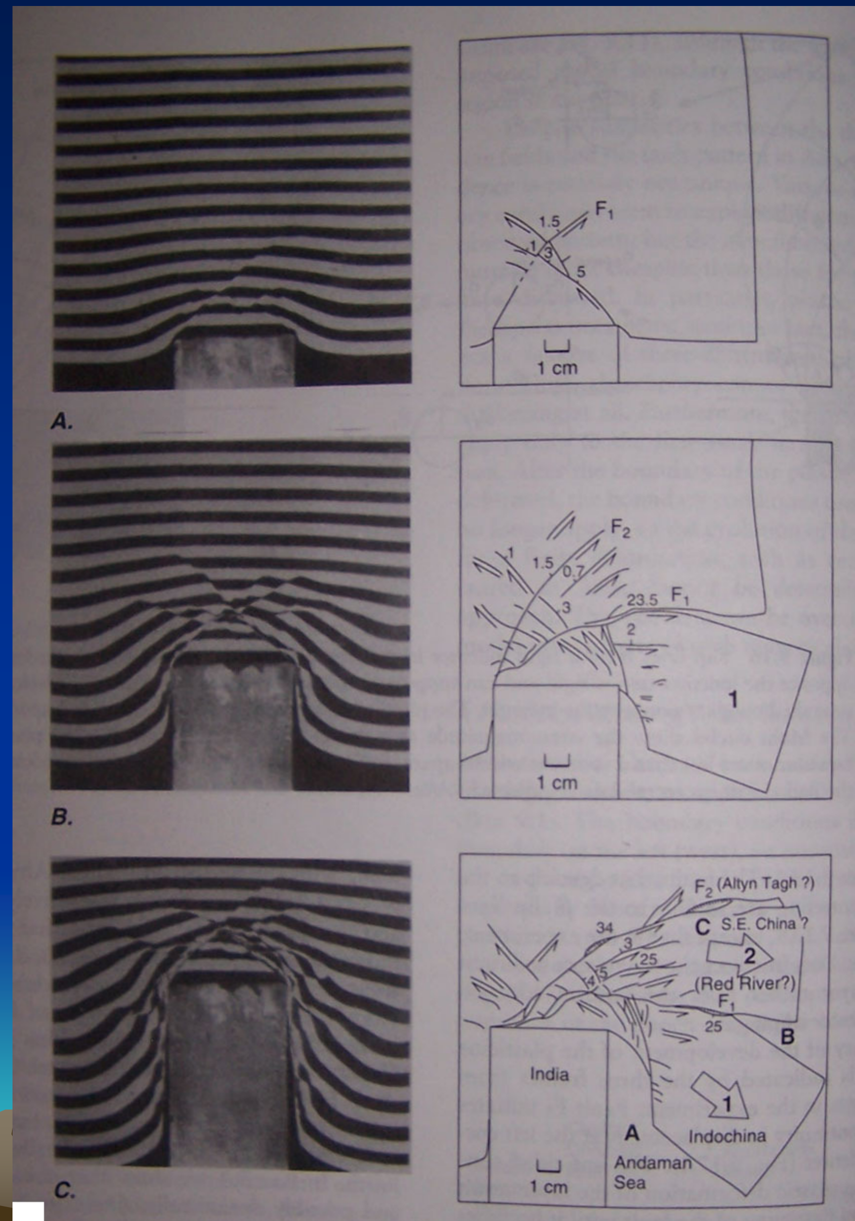


It is these zones that must be taken as targets for detailed prospecting, ground geophysics and/or drilling

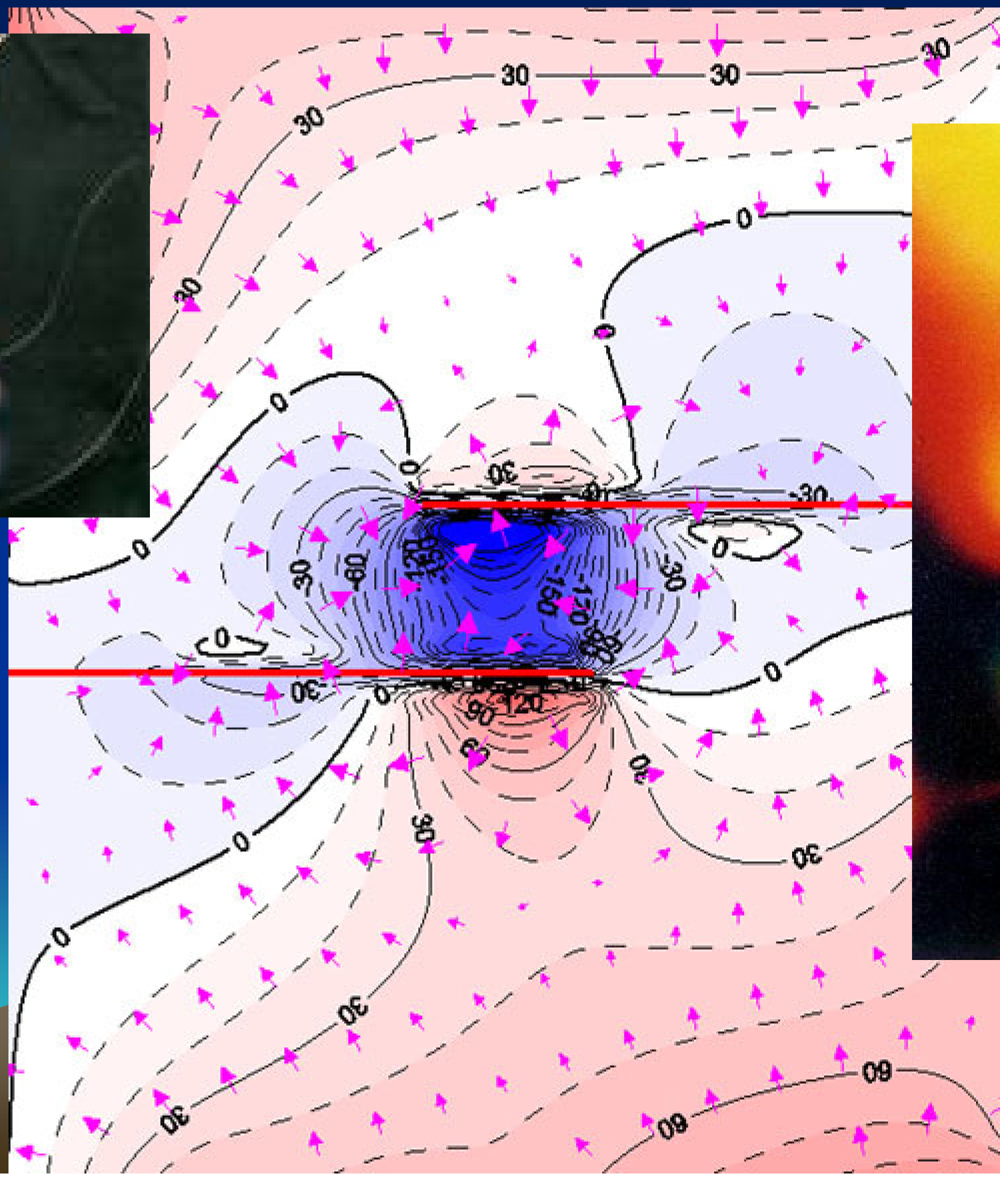
What Is Physical (Analogous) Modeling?

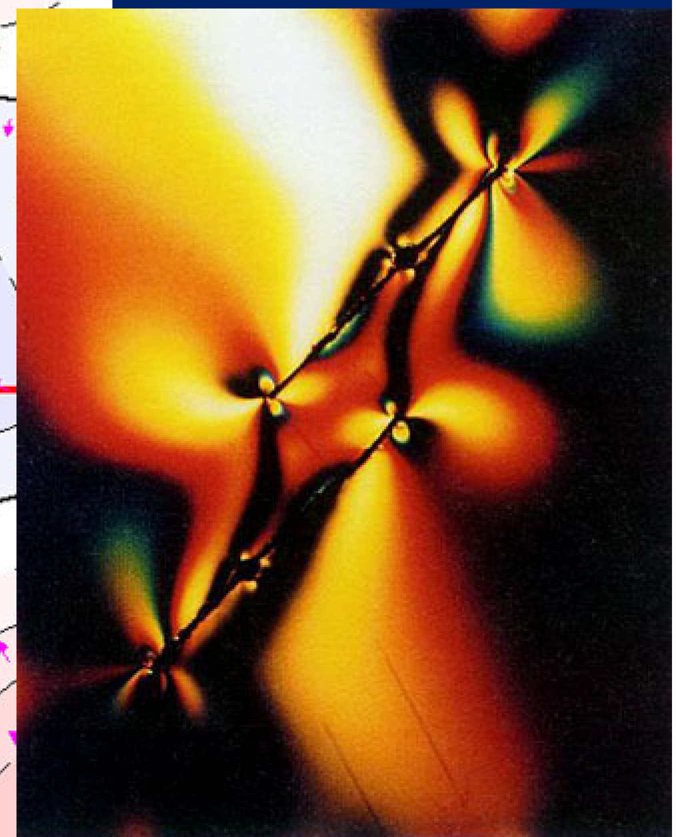
In a nutshell :

Using a small-scale physical structure to simulate and predict the performance of a full-scale structural design

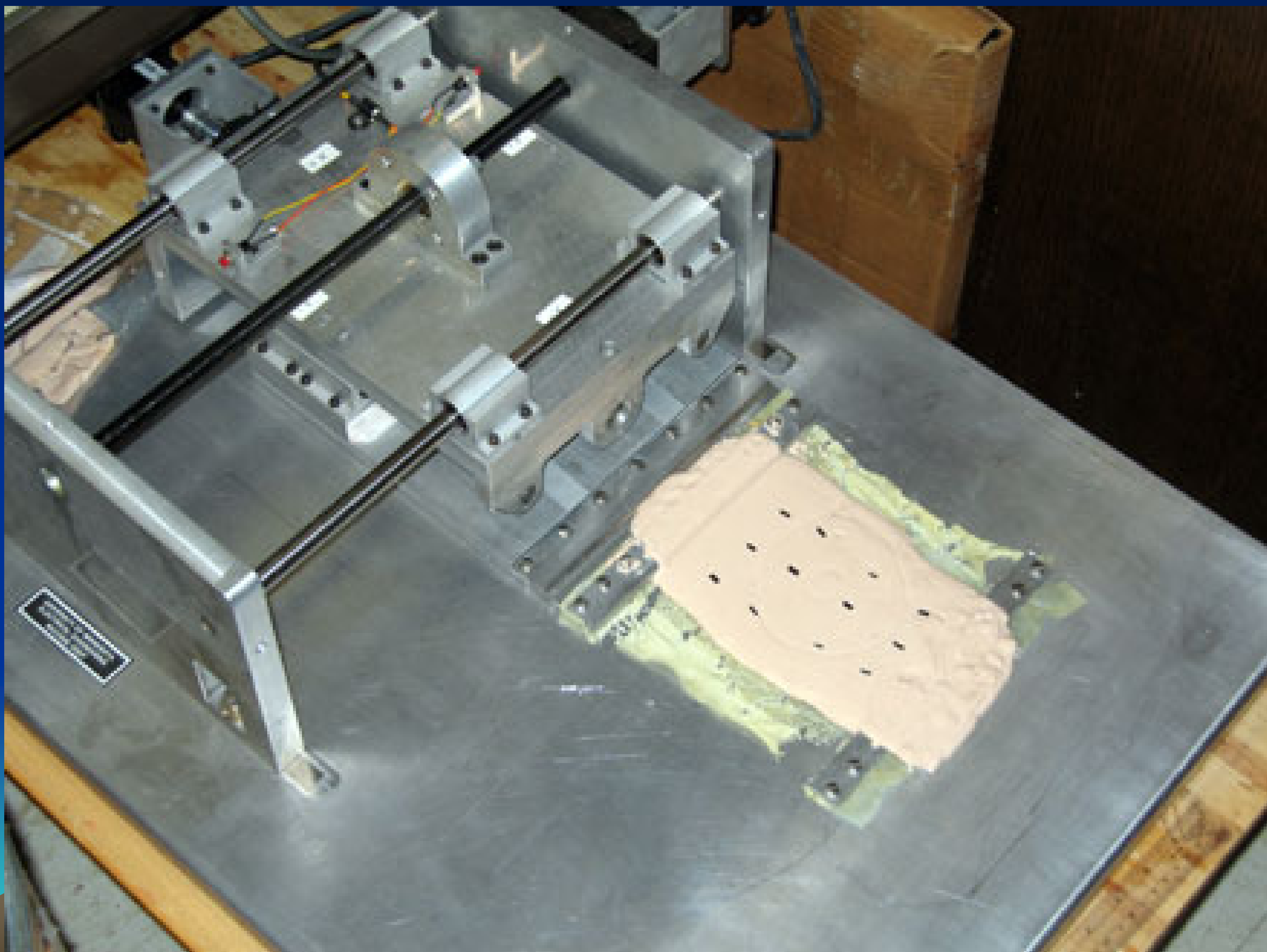


Elastic deformations modeling

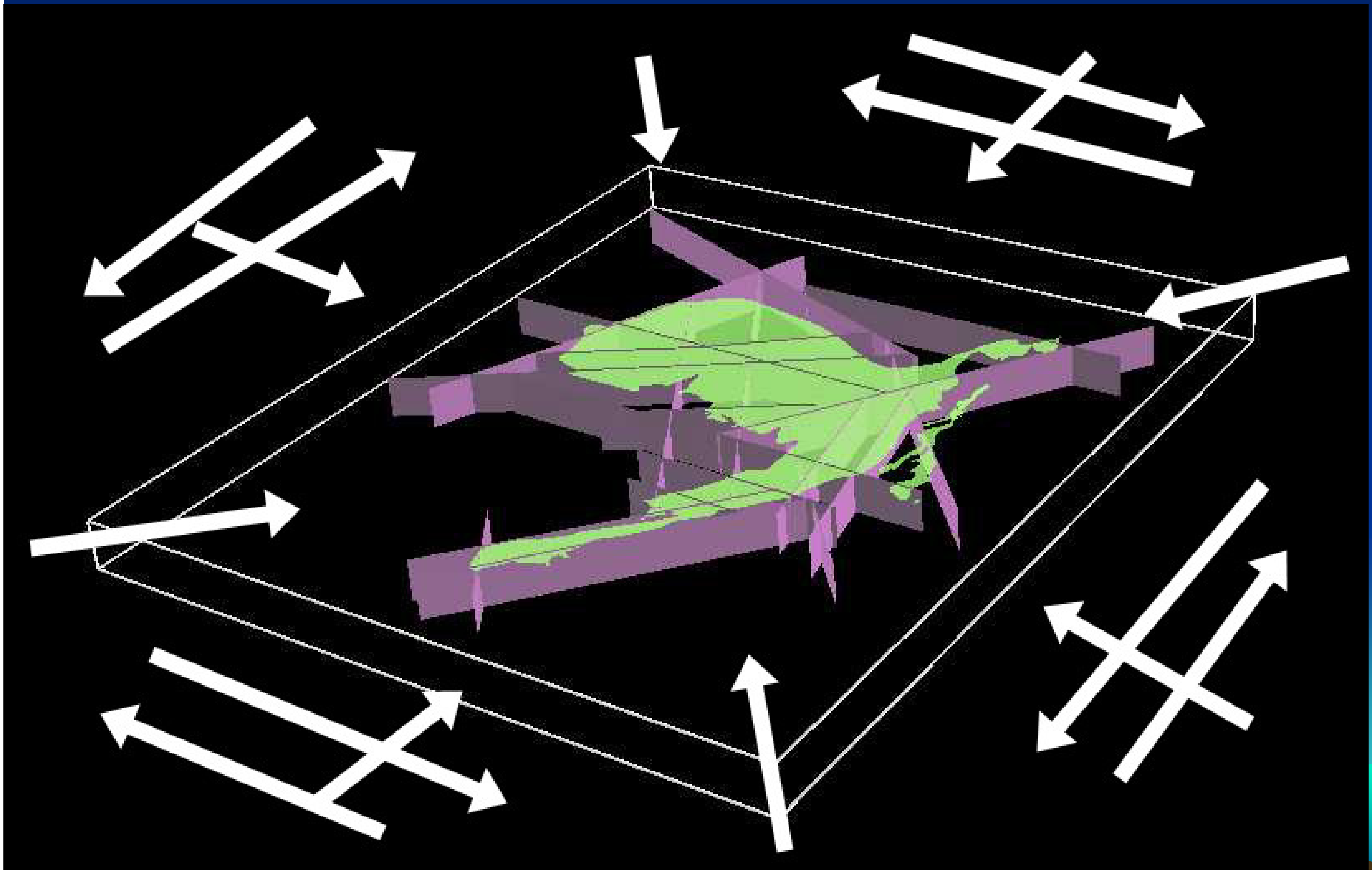




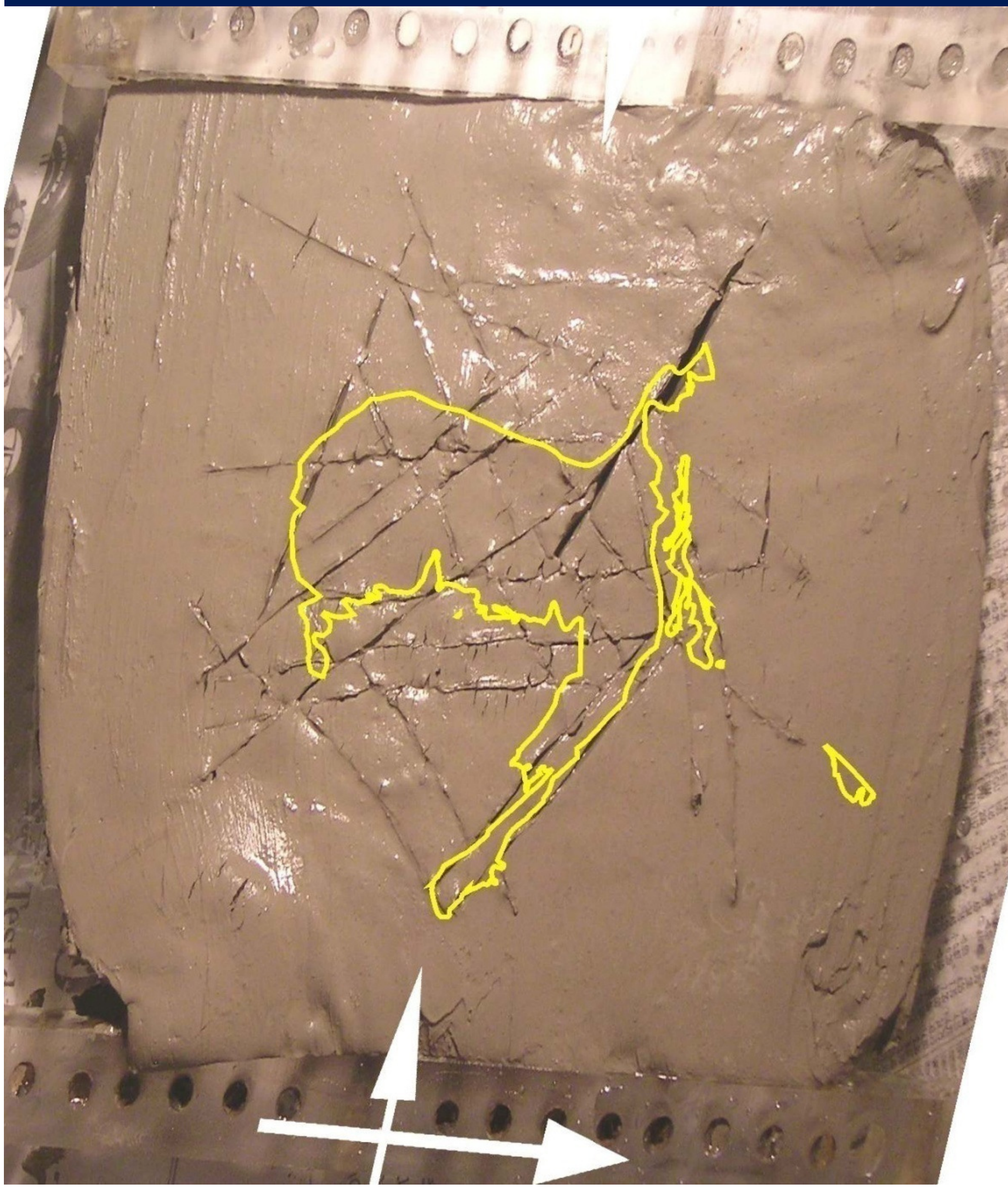
Plastic deformations modeling

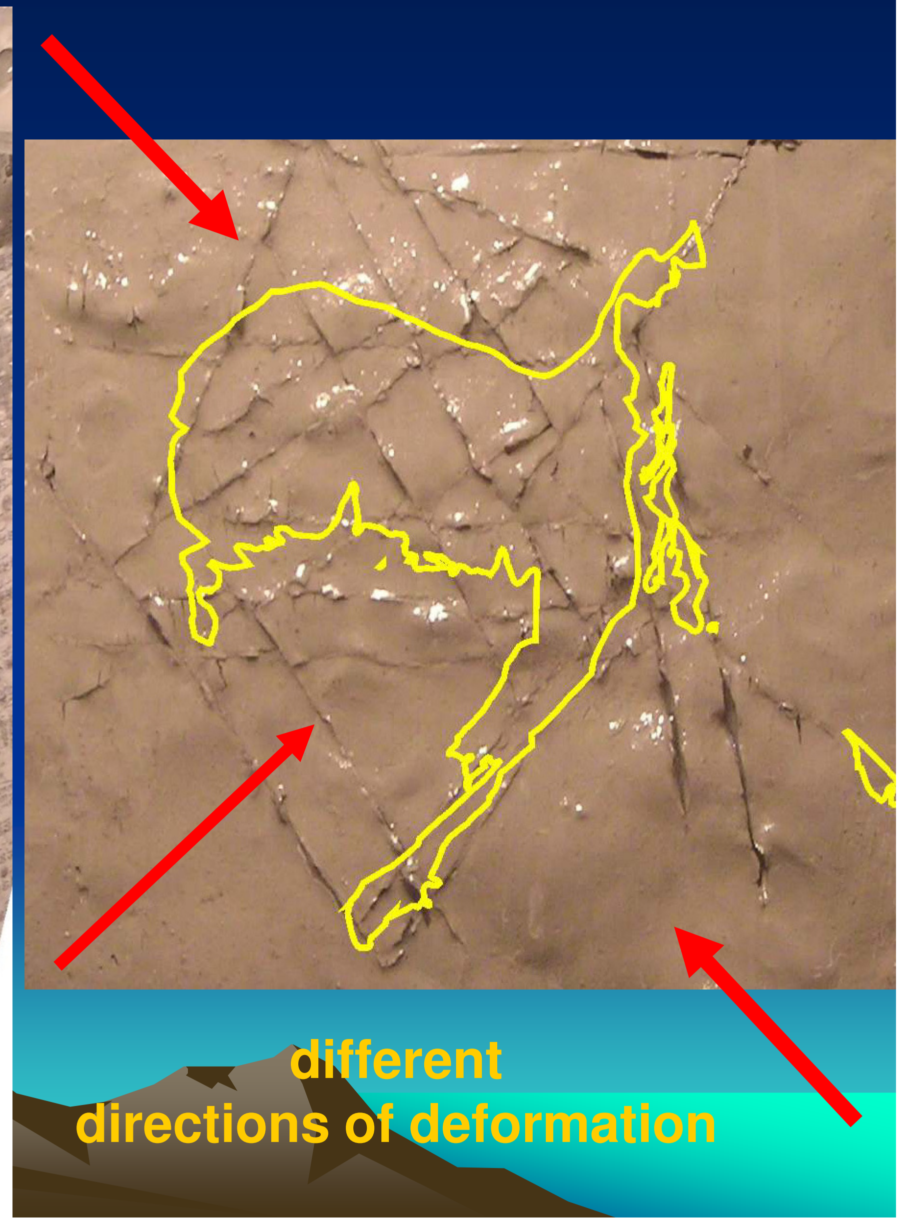


Analogous physical modeling gives an opportunity to find the most "deformable" zones within the geological block

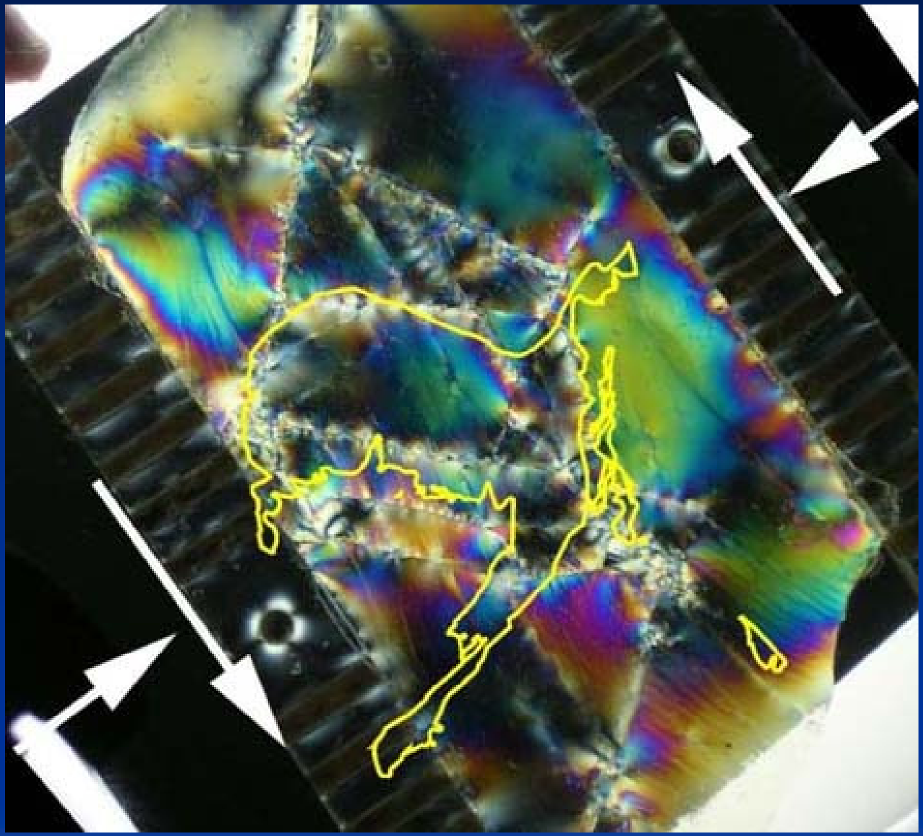


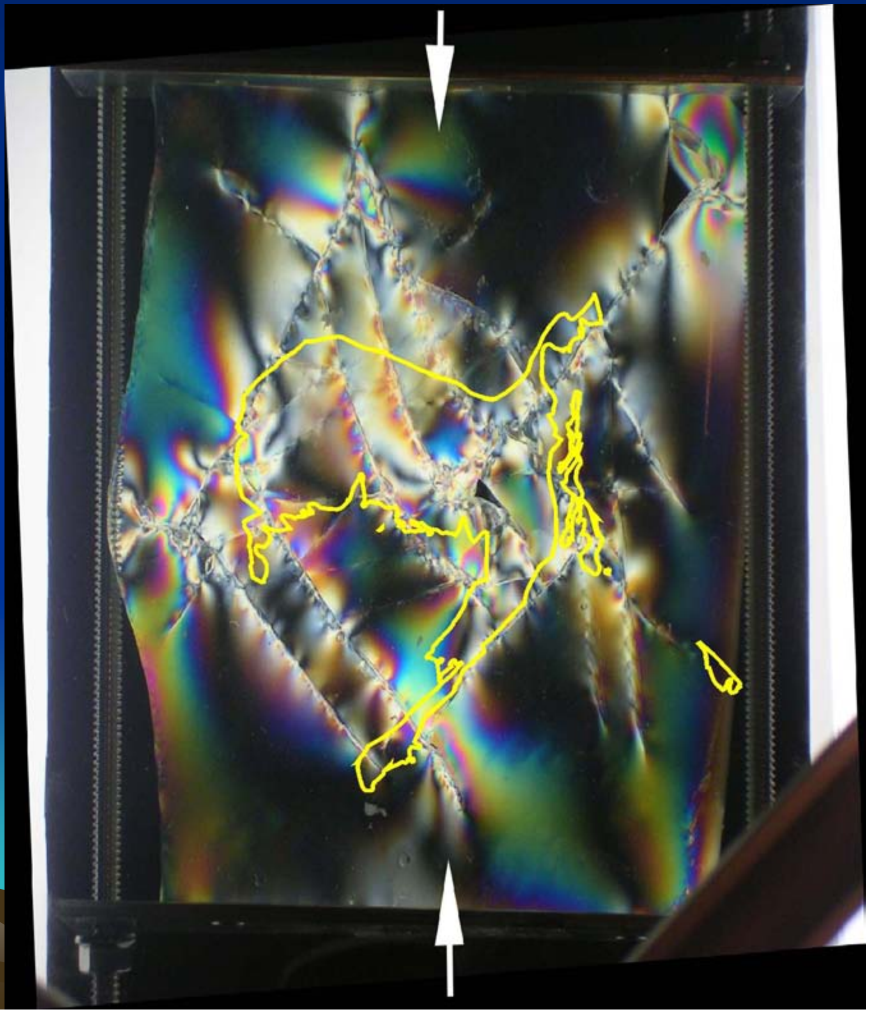
Plastic Field - clays





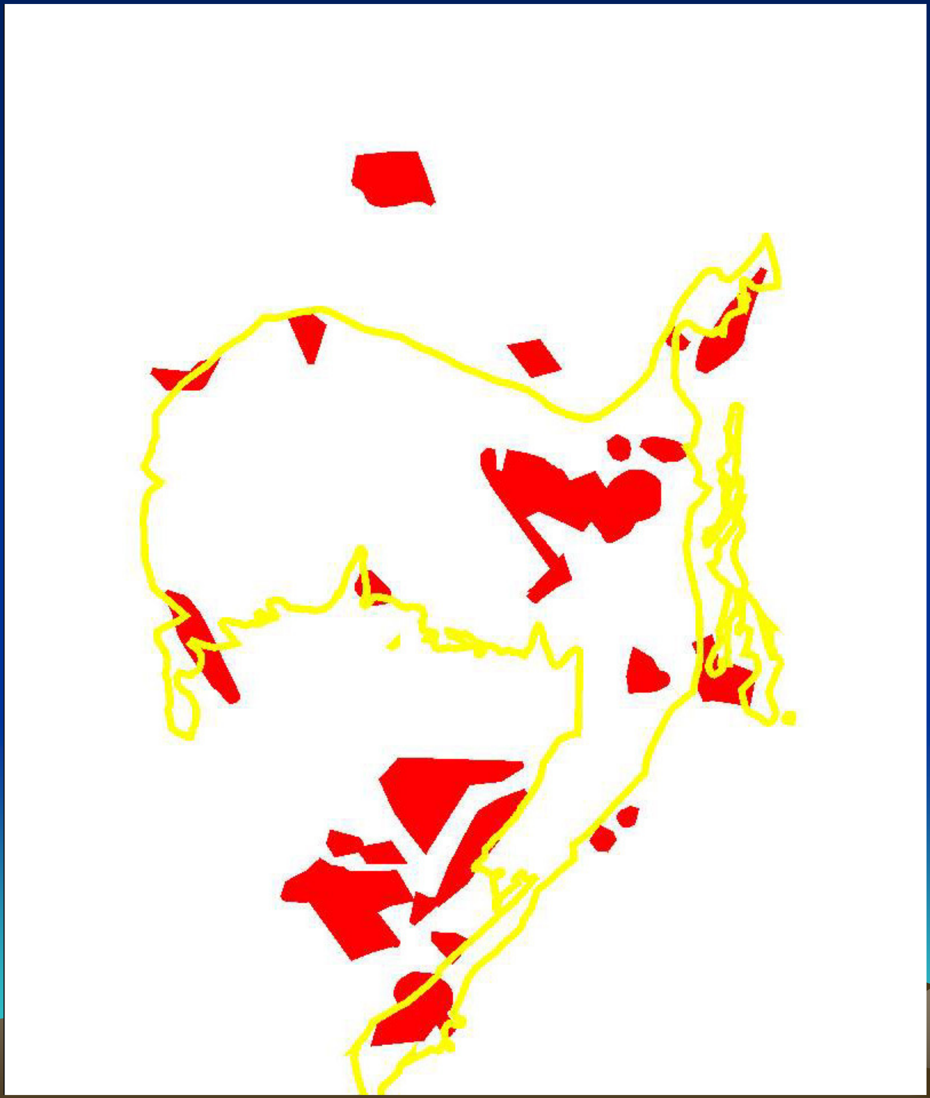
Elastic Field – optically active gelatin

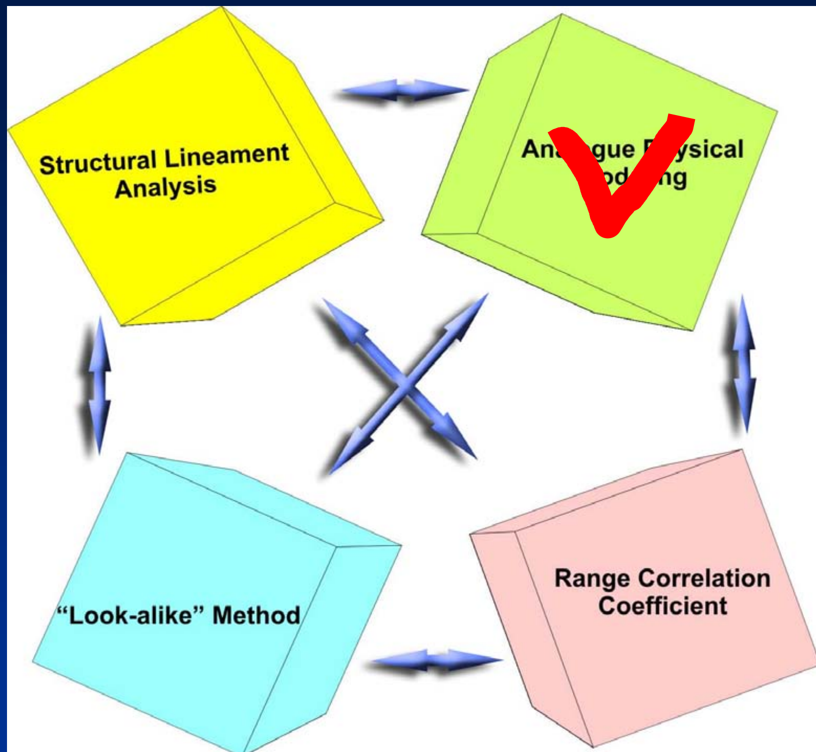


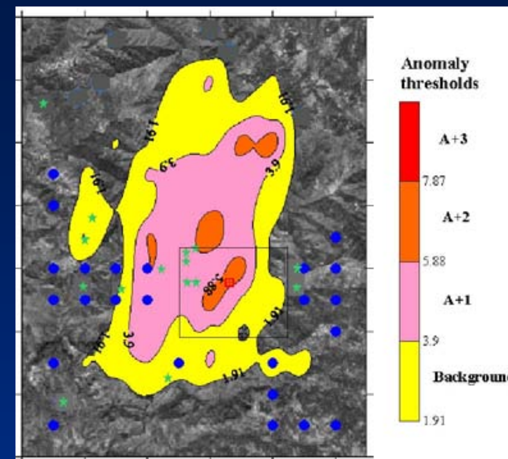


Plastic Deformation and Rupture Maximums

Elastic Deformation Maximums







Analogue Modeling

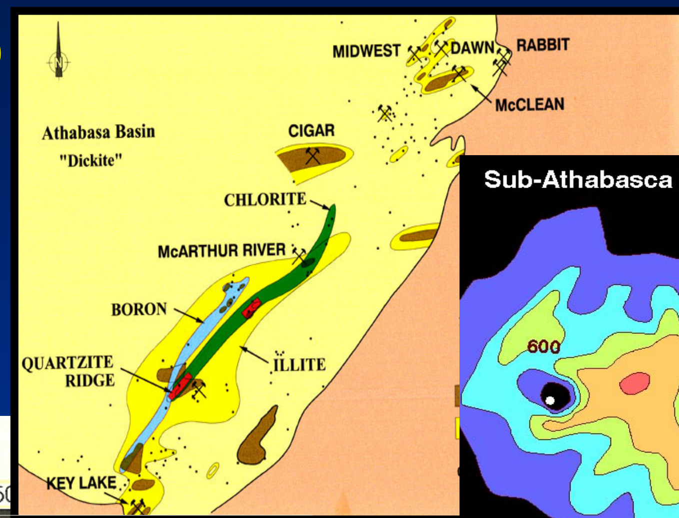
Outlines zones of maximal deformability (and, therefore, permeability) in the area. ***It is these zones that must be taken as targets for detailed prospecting, ground geophysics and/or drilling***

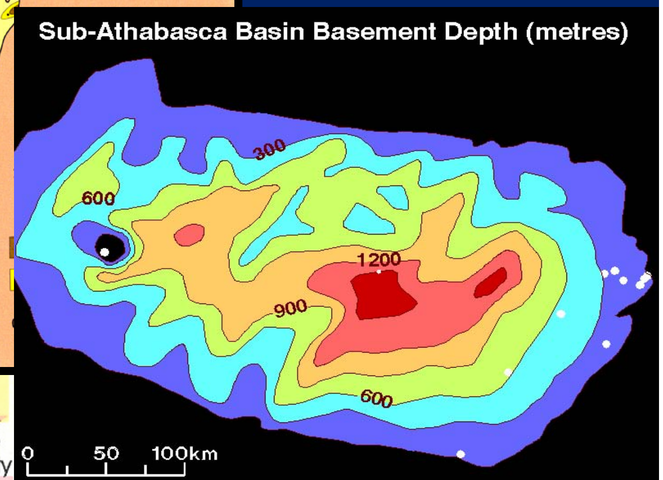
Scenario B:

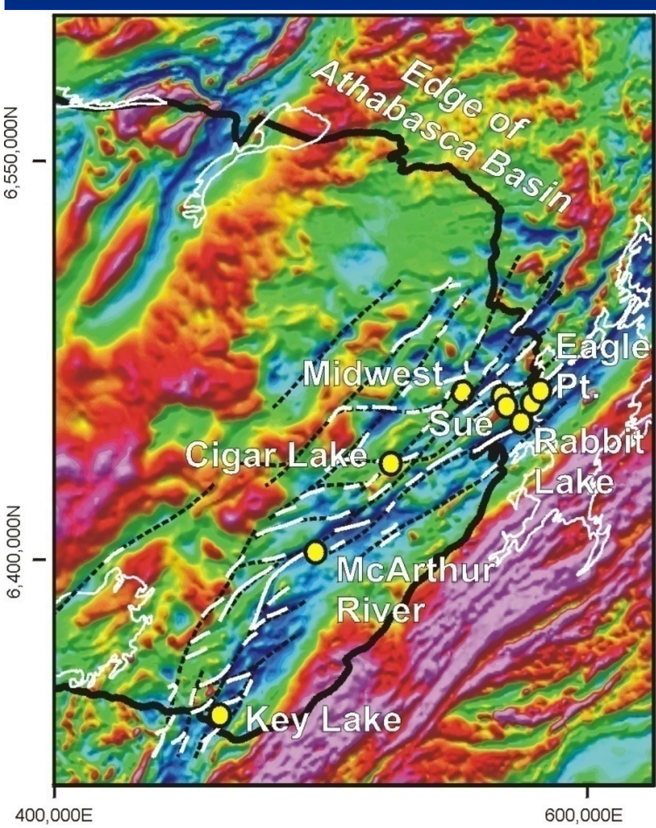
There is a deposit on the property

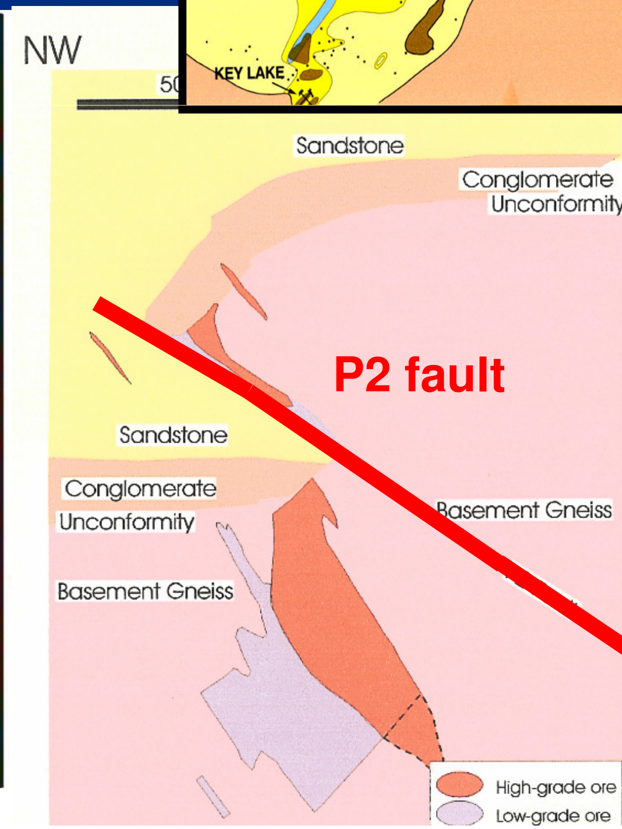
Describe its distinctive features (empirical parameters) (*geological, geophysical, geochemical*) **, and chase them persistently – locate similar areas on the property**

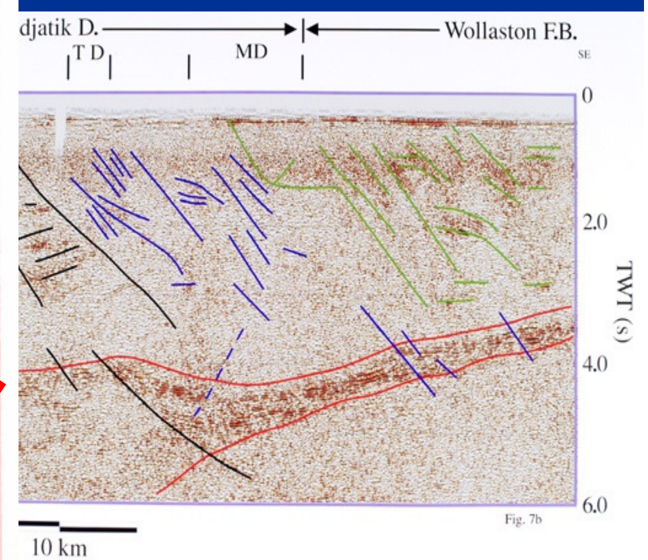
Empirical parameters





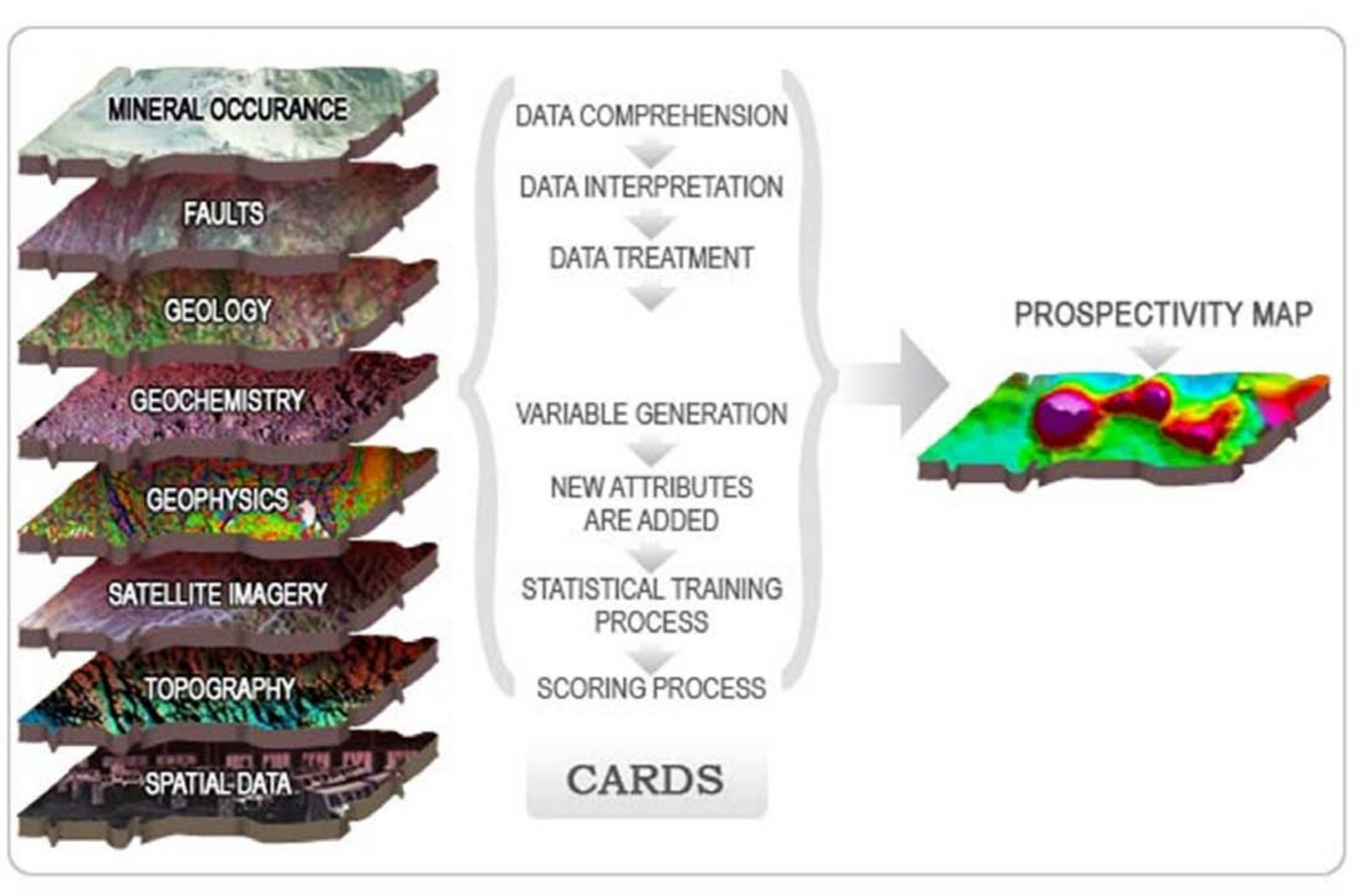






Targeting using the "similarity" approach – "Look-alike Method"

The idea in the nutshell can be put as it follows:
If the existing mineral deposit (high-grade drill hole/showing) possesses certain set of geophysical, structural and topographic characteristics then any other location in the area of interest, with the same set of such features may be regarded as the prospective exploration target.



Picture taken from http://www.diagnos.ca/

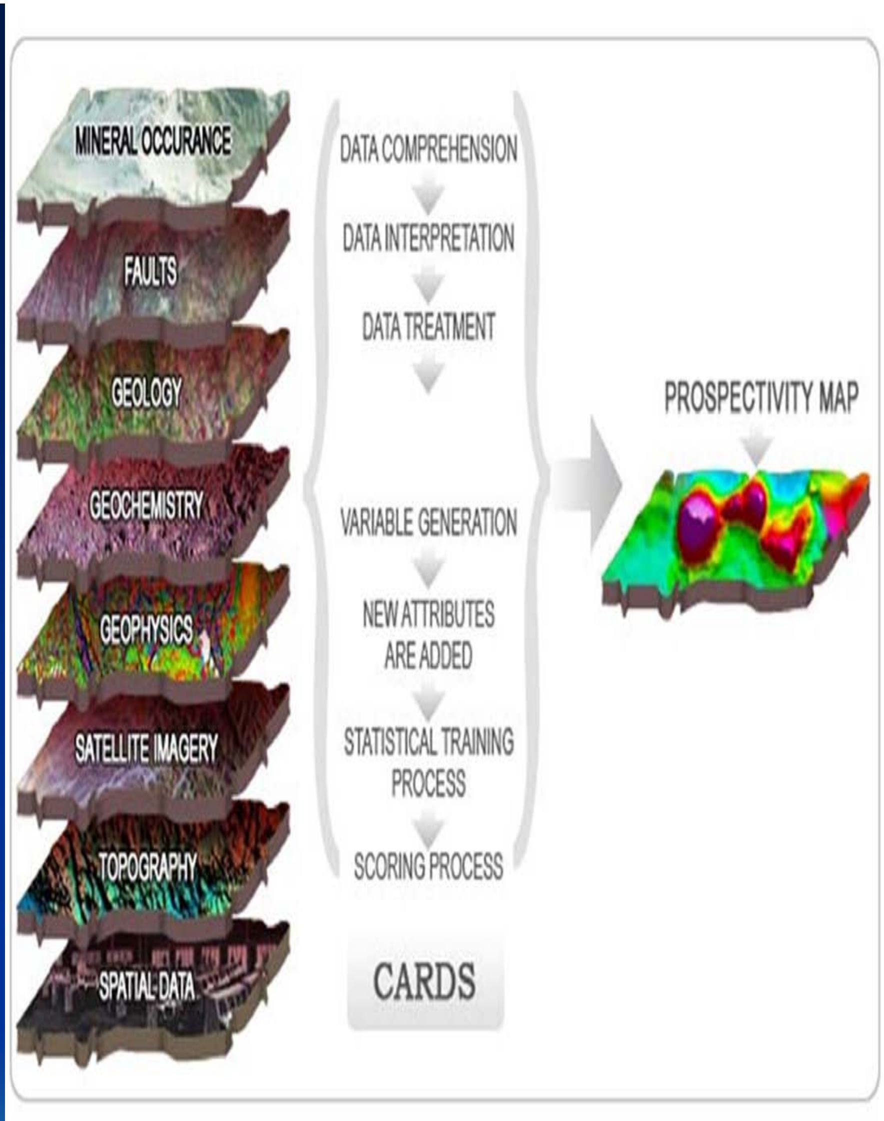
Government Datasets.
Existing deposit as a target.

The following Government data for the area of interest we used in this study:

Topography **- AGG_1km – DTM**
Gravity **- 2km_Bouguer**
2km_VG Grav
2km_HG Grav
AGG_2km - Isos Res Grav
Mag **- AGG_200m - Resid_magnetic Field**
AGG_200m - VG Resid_magnetic Field
Radiometric **- 250_eU_GRD_s**
250_K
250_ratio eTh-K
250_ratio eU-K_eU_K
250_eU
250_NatDoseRate
250_ratio eU-eTh
eTh

Altogether 15 layers were used for the analysis.

Using original Computer Processing procedures we find all the locations in the area of interest that possess the same geophysical and other characteristics as does the existing deposit

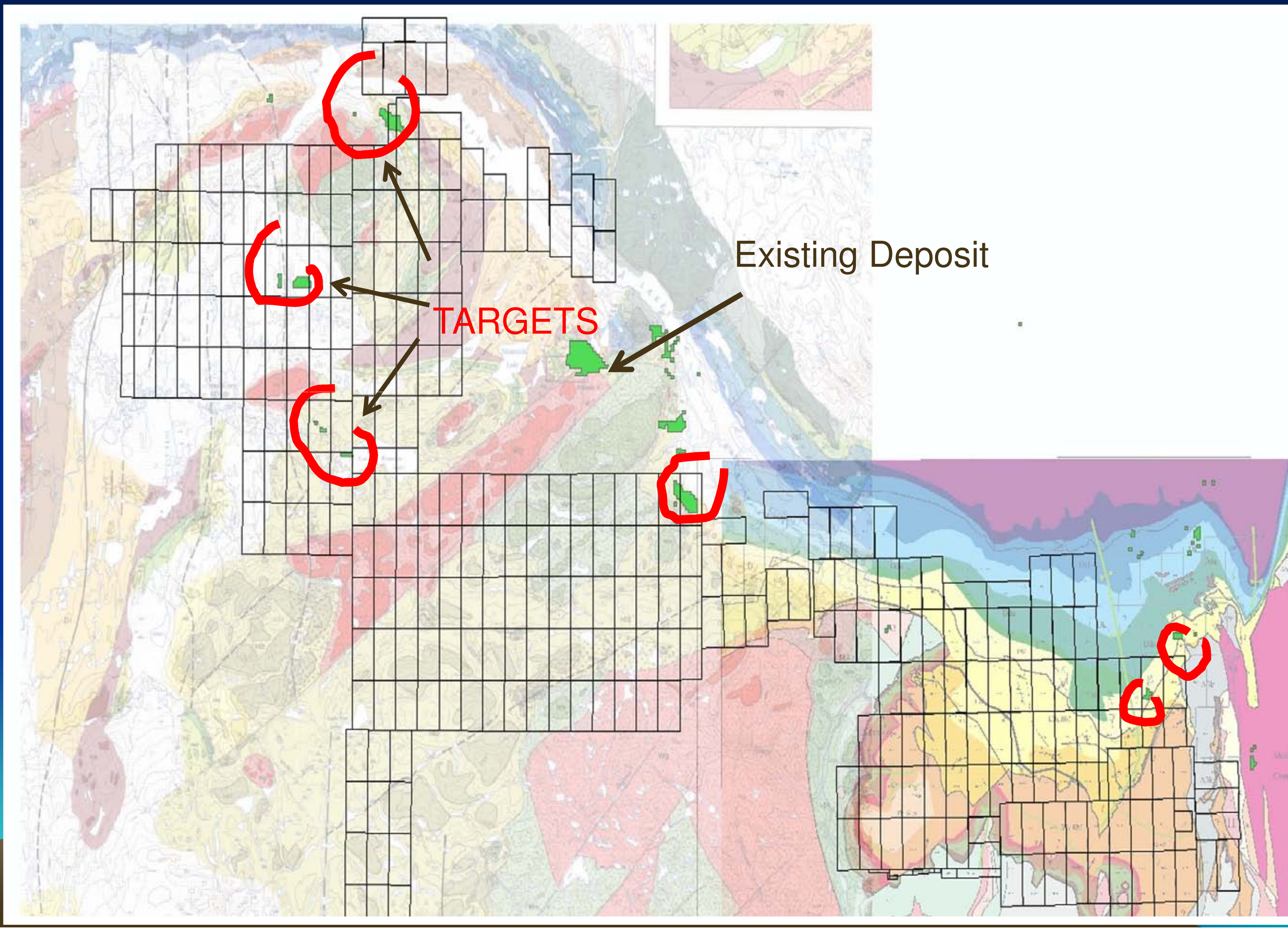


Picture taken from http://www.diagnos.ca/

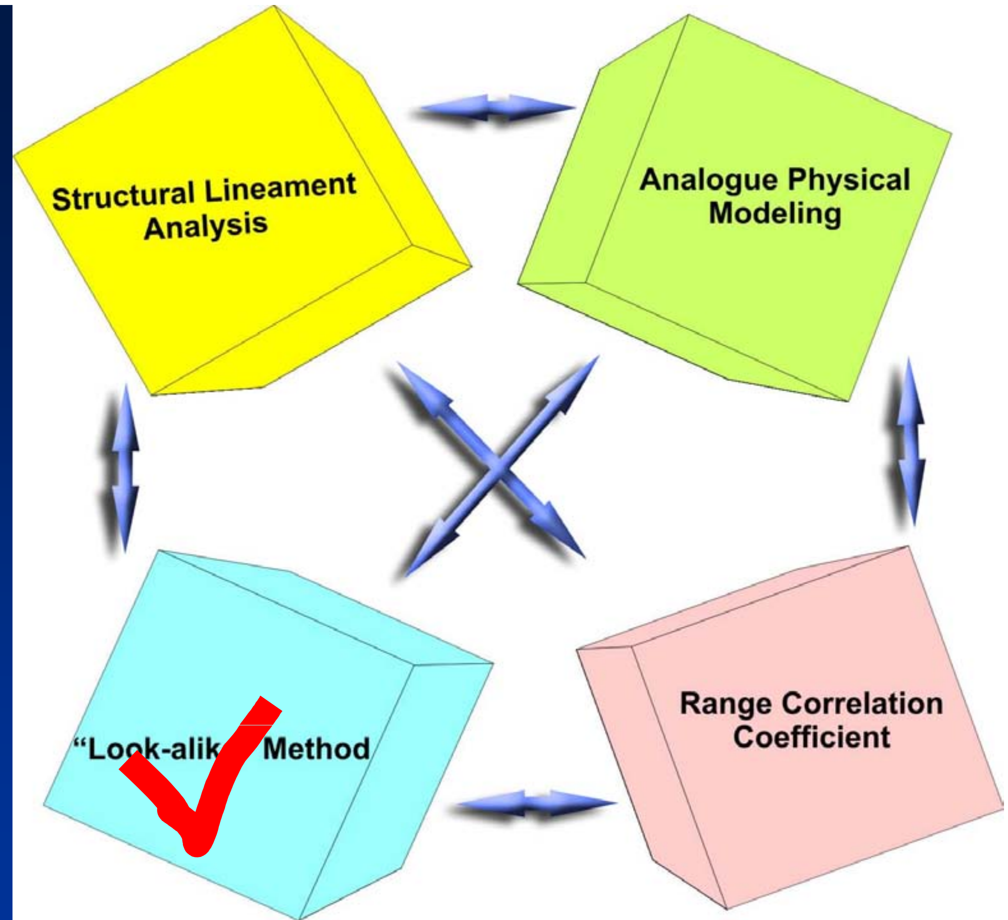
We use the Geology-layer and the Structure-layer as the main base layers and exclude them from consideration during the first automatic stage of processing. In the end we put all the results on top of the geology-structure map and make a final “expert” decision

(*whether the results may be considered reliable from the geological point of view*)

An example of the results for the property in the Canadian North-West



The “Look-alike” Method



Outlines zones with the same geophysical and other characteristics as the existing deposit

It is these zones that must be taken as targets for detailed prospecting, ground geophysics and/or drilling

Range Correlation Coefficient Method (R.C.C.)

(designed and implemented by Ricardo Valls)

Can be used as independent method, yet gives the best results when incorporates all the data and intermediate results from the methods described above

After identifying the main tectonic structures and lineaments on the basis of sat-photos, aero-photos, or topographic maps, the number of these structures and their intersections are digitized using an appropriated grid and combined with the available geological, geochemical, or geophysical information. The data is then processed to determine the Range Correlation Coefficient (R.C.C.) that best characterizes the mineralized zone.

Introducing **The TechnoTectonics**

"...Economic trends are making conditions tougher for the exploration industry overall by raising target hurdles and thereby increasing discovery risk. Coupled with increasing exploration maturity in many mineral provinces, mineral explorers must find new ways to succeed in a world of increased discovery risk."

Chris Blain, Fifty-year Trends in Mineral Discovery Commodity and Ore-type Targets.

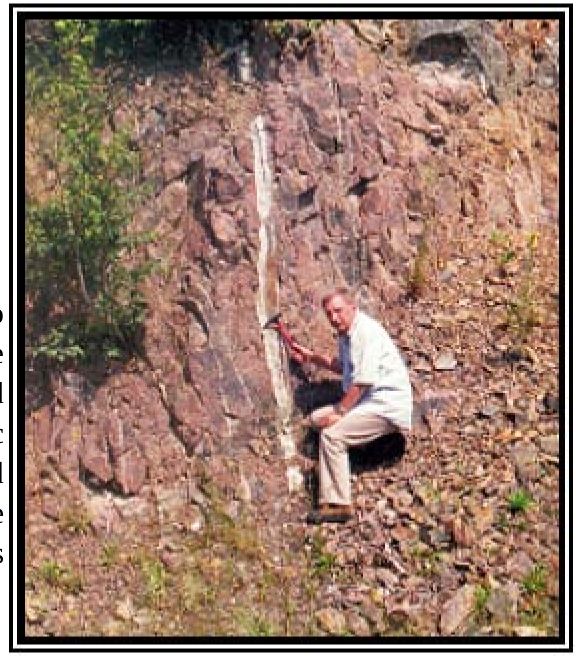
Gold, PGM, Diamonds, Oil and Gas... Yes, We Find Them!

Valls Geoconsultant is now offering you an effective and affordable methodology that identifies prospective targets which are related to, or controlled by, tectonic structures. Even over new areas with limited or nonexistent geological information we are able to help you concentrate your exploration efforts to keep your budget in the black.

Behind our method lies the well documented fact that most ore deposits are directly related to or controlled by tectonic structures within different geological environments. After identifying the main tectonic structures and lineaments on the basis of sat-photos, aero-photos, or topographic maps, the number of these structures and their intersections are digitized using an appropriated grid and combined with the available geological, geochemical, or geophysical information. The data is then processed to determine the Range Correlation Coefficient (R.C.C.™) that best characterizes the mineralized zone.

On the basis of the determined R.C.C.'s a new "integrated" map is created showing the location of all the prospective zones. At the end of the study, you receive a full report, maps describing the location of these potential targets, and suggestions on the best ways of verifying their mineral potential.

A Little Bit of History

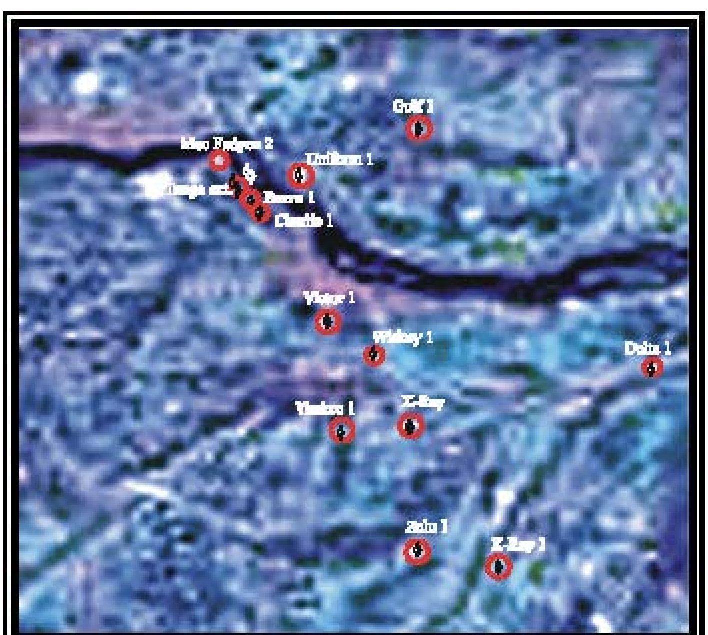


Uldis Abolins takes samples from a mineralized quartz vein from a target area predicted by our method in Southern Ontario.

In November 1999 we successfully applied the R.C.C.™ method to a blind test area in Rouyn-Noranda. Using only lineaments, we were able to determine the presence of 12 known mines, and to differentiate them into gold and copper-gold ones.

During the year 2000, we applied the method to several areas within the Treasure Hunt Project in the Province of Ontario. Our targets completely coincided with the results of the flight-through aero-magnetic program, at a fraction of the cost and time. Field checking of some of our targets confirmed the presence of alteration, mineralization, abrupt changes in tectonics, etc.

By the end of the year 2000, we introduced the binary analysis of the distribution of known mineralized zones which enabled us to do a more targeted search within the studied areas.



At the Attawapiskat River our technique identified all the known kimberlitic intrusions, including the diamond-producing Victor Pipe.

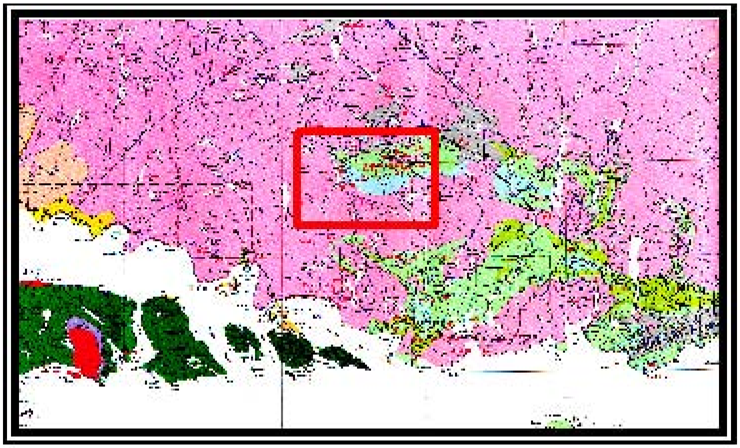
The year 2001 marked the beginning of the international application of this method and of our current interest in kimberlite prospecting with the study of an area in Mexico for Intrepid Minerals Corp. and our firsts kimberlitic studies within the James Bay Lowlands Area for Dumont Nickel Inc. and for 1081798 Ontario Inc. On test-works conducted in the area we were able to locate 100% of all the known Jurassic kimberlitic intrusions, as well as 85% of all the known pre Cambrian ones, which are covered by hundred of metres of Paleozoic sediments. As of the last field season, we have three new kimberlitic targets confirmed on surface within the James Bay Lowlands area.

"... within 25 metres of our selected target we found alteration and oxidation zones related to fractures and quartz veins. If you take into consideration that we started just with a topographic map and a geological map at scale 1:250 000, I'll say this is quite an exact result" R. Valls.

More recently we have successfully applied our technique to the exploration of oil and gas deposits in the United States. We have been able to identify reefs structures located hundreds of metres deep and in a recent test-study in Tennessee, we were able to locate all the known oil and gas fields in an area of 120 square miles near Oak Ridge. Today we continue enriching our method with new techniques to locate target zones more effectively and efficiently. Our more recent additions include 3D strain modelling of main structures, binary distribution studies of ore deposits, colour-imaging analysis of sat-photos, and rose diagrams analysis of surficial lineaments as well as subsurface modelling.

How Does it Work?

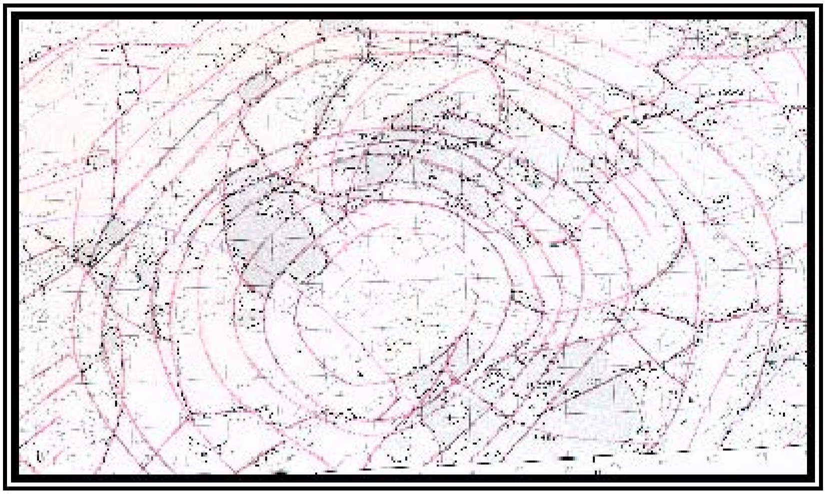
The process starts with the selection by the Client of the area to be studied at the scale that they want the study to be performed.



Step 1.- The Client selects the area to be studied and the scale at which they want the study to be performed.

Geographical or UTM coordinates of the area are used to retrieve DEM (Digital Elevation Model) data from the Internet. Also, a preliminary search is done to collect all available topographic, geologic, geochemical, geophysical, and other types of data on the area, including claim maps, filed assessment work, and sat-photo images..

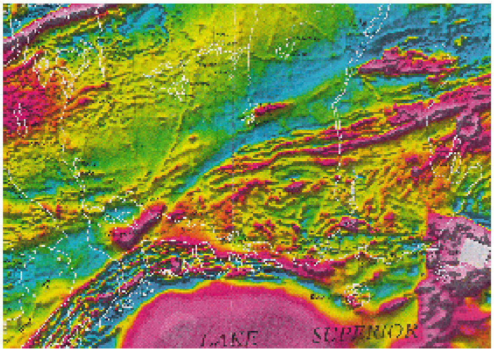
It must be highlighted that we can obtain reliable targets with just a topographic and a regional geological map of your area. But all the other available information will increase the quality and accuracy of the final prognosis.



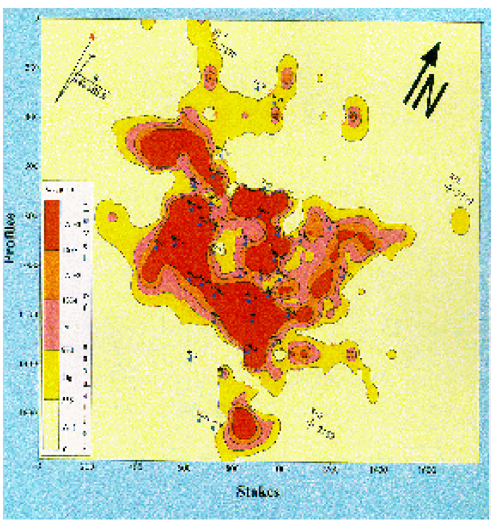
Step 2.- A lineament study is completed on the basis of topographic, airphotos, or satellite images.

The next step consists of the determination of the lineaments in the area under study. For that we use a combination of topographic maps, aero and sat-photos, and the DEM. The interpretation is done by in-house personnel and contracted specialists like Dr. Vadim Galkin who has more than 15 years of experience in interpreting lineament structures. Dr. Galkin is also in charge of the 3D modelling of strain simulations and activity of the main lineaments.

After all the lineaments have been identified and classified into main, secondary, tertiary, circular, intersections and all possible combinations of these parameters, the information is digitized using an appropriate grid and the integration process starts.



The next step is the integration of the lineament data with the available geophysical and geochemical information. We also take into consideration the location of known mineral deposits, open and abandoned mines, drill holes, etc. All this information is then differentiated (by petrological type, by mineralized or barren zone, etc.) and integrated into one layer of information using a correlation model

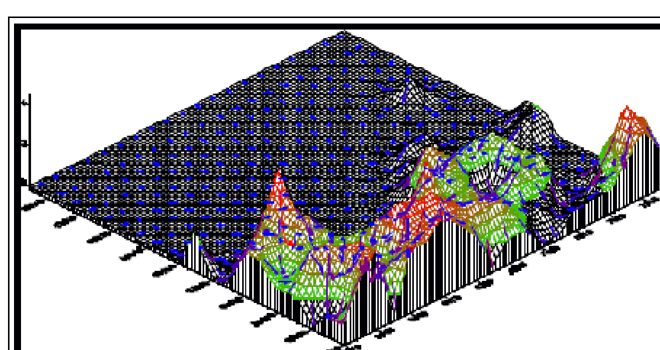


The R.C.C. model allows us to determine the correlation coefficient that identifies the prospective zone in the area, by ***integrating*** all the useful information in a one-layer map that we call "***prospective map***"

Using a combination of software, such as SURFER, ENVI, MapInfo, etc., we proceed with the graphical modelling of the integrated data.

In the picture bellow, for example, we see a collapsed caldera near the Shebandowan Lake in the Haines Township in Southern Ontario, where there is an old PGM mine from Inco Ltd.

Step 3.- We now integrate the lineament data with the geological, geophysical and geochemical information available in the area.



SURFER is used here for the 3D representation of circular structures in

Step 4 consists of comparing the preliminary target areas with the claim maps and once more with the available geological and assessment work data to make a final proposal of the targets.

The prospective map shows all the potential targets in the area and it takes about 6 to 8 days to compile. But this is not the end of the process yet!

Next, we compare the preliminary target areas with the claim maps (if they exist) and once more with the available geological and assessment work data to make a final proposal of the potential areas.

Finally, a series of potential targets is presented over a topographic or aero-photograph, showing where you should concentrate your exploration efforts.

Besides a final report which includes all the processed information, databases, and graphical data, we can also provide a preliminary inspection of the targets and recommend the most efficient way to explore these new potential mineralized zones.

What Our Customers Are Saying...

"Too good to be true…, but in this case it was. Just by using lineaments, they identified all major known gold and copper deposits and could even differentiate two separated metallogenic zones… and they didn't even know at that time where was the area under study!"

John Harvey, EnergoSources, 1999 (705-527-0357)

"Excellent work! It was delivered on time and with an outstanding presentation"

Don Farrell, Tyrell Geological Services, 2000 (604-685-3900)

"Intriguing! … [your interpretation] pointed out to a complete new area that we did not consider at the beginning"

Dr. Laurence Curtis, Intrepid Minerals Corp., 2000 (416-368-4525)

"I must congratulate you with the quality and timing of your presentation and for introducing a different point of view on the interpretation of the current data"

Stephen McIntyre, Dumont Nickel Inc., 2001 (416-364-5569)

"Incredible results, but they make sense. We are staking these targets now"

Gordon Leliever, 1081798 Ontario Inc., 2001 (519-940-8117)

"I am impressed!, nothing could put you closer to an oil field than this technique"

Michel Gamblin, Cambridge Resources Inc., 2001 (865-483-1726)

"If presentation and readability are half the battle... you have won already!

Derek Barttlet, Blue Emerald Inc., 2001 (905-814-7630)

Price List

The following table can help you estimate the costs of the lineament study of your zone. Usually, the degree of detail will determine the scale of your work. For example, if your area is small, e.g. 800 km^2, you will probably choose a scale of 1:50 000, and you will be charged \$20 per km^2. But if you have a larger area, but still want to do a detailed study, you will be charged at a smaller rate. For example, if you have an area of 3000 km^2 and want to conduct your study at scale 1:50 000, you will be charged \$10 per km^2. These prices are from 2004. Please contact us for current prices

Scale	Cost $/ km^2	Recommended area, km^2
1:1 000 000	1	14,000
1: 250 000	4	3,500
1: 100 000	10	1,500
1: 50 000	20	700
1: 25 000	40	350
1: 10 000	100	300
1: 5 000	200	70
1: 1 000	2000	15

To keep the costs at this extremely low level - and because we are so confident in the effectiveness of this technique - we will ask for a 1.5 % NSR of any finds in the studied area, derived from our interpretation. This way we put most of the risk in our part and you keep your front end cost to a bare minimum.

Also note that these prices are only for the lineament study. Any other layer of information (geophysical, geochemical, etc.) will take an additional time to process (the normal process time is about 10 –15 days).

The extra time to process additional layers of information will vary from one day for data presented in electronic format (x, y, z) to 3-4 days for data presented as maps. See the table bellow for an estimation on these additional costs.

Layers	Time (electronic) days	Time (hardcopy) days	Cost (electronic) $	Cost (hardcopy) $
1	1	4	100	800
2	1.5	6	150	1200
3	2	8	200	1600
4	2.5	10	250	2000
5	3	12	300	2400

For example, if you have 1 hardcopy of a magnetic map and 1 digital file with geochemical information, it will add 5 days and $900 to the cost. Geological information will be included at no charge.
Your final cost will include a 15% managerial fees and normal expenses, usually in the range of $400 $500 unless you would like to purchase sat-photos or any other expensive digitized data. A quote will be presented before we start the study of your area.

To help you get a quote of the area you are interested in, we created an Excel macro (Quote calculation.xls) that will allow you to explore different “what-if” scenarios and let you obtain a more real quote then just by using these tables. The software includes a Glossary page with explanations on each term and service we offer.

Five great reasons to use the technique

1. **Low cost**

All the methods use data available for free/cheap on-line, that dramatically downsizes the cost of the exercise

2. **Fast**

In most cases the process takes under one month time from the beginning to the final report which includes all the processed information, databases, graphical data and interpretation

3. **Synthetic**

Incorporates all the available geophysical, satellite, topo-, geochemical, geological and any additional data

4. **State-of-the-art computer processing in GIS environment**

The client is given exact coordinates of the targets, as well as GIS-formatted layers of information that he can use later

5. **Solid scientific background and proved success**

The ideas/assumptions in use are well grounded. Many recent successful projects

Some case-studies can be seen in Appendix (below) and found on-line
http://www.centraldesktop.com/vallsgeoconsultant/vallsgeoconsultant/av&catid=128853

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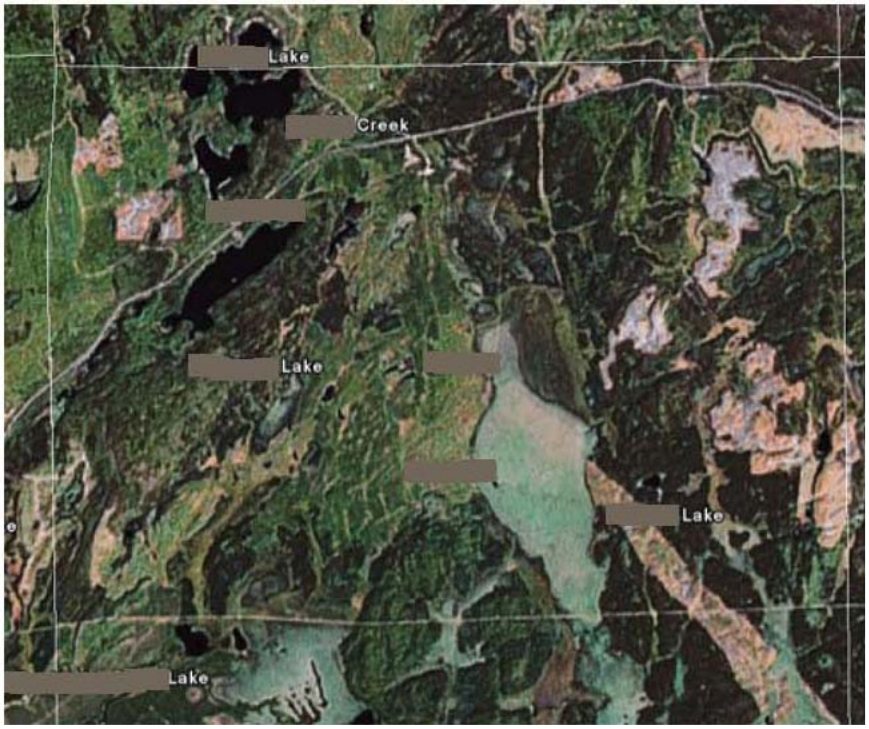
Appendix: Lineament Analysis of “X” Property in “Y”Township – preliminary results.



Lineaments can be defined as linear surface features, visible on a map. Accordingly, one may speak of topographic, photo-, satellite, geological, geophysical lineaments etc. In our study we deal with topographic, photo- and satellite lineaments. These linear features, as a matter of fact, are the surface reflection (projection) of either a geological body (such as a dyke or a layer, bed) or of a plane of anomalous physical property (-ies) such as fault rupture, zone of mechanical weakness (or hardness), of high (low) permeability etc. Hence, by studying lineaments we indirectly study the surface pattern physical property, mainly – the distribution of fractures and faults projection on the earth’s surface.

Lineament analysis as a method of obtaining new geological information has been in existence for at least 50 years. “Pros” and “contras” of the method have been discussed in numerous papers. The method is considered to be a “mainstream” in hydrogeology, where the direct links between water accumulation and fractures density pattern has been proved. Direct link with mineralization is not that straightforward, since the mineralization is usually geologically old, and the lineaments observed are believed to be of somewhat recent age. On the other hand, more and more data are being published that prove the fact that the visible modern lineaments inherit to rather larger extent the pattern of pre-existing fractures. Anyhow, it seems to have become a conventional view that if taken in combination with other geological methods and applied with precaution, the technique might provide a researcher with new kind of valuable information which would have remained hidden otherwise. This study takes into consideration only lineaments and their distribution, without geological/geophysical/geochemical data analysis, and also without tectonic (physical) modeling, which in my view must be a very important part of the analysis.

The lineament analysis was completed using a combination of topomaps, DEM, and aero photos for the area under study. All lineaments were divided (ranged) into four groups - main, secondary, tertiary, and circular. The drawing itself has been done in ArcGIS environment.

According to our classification:

Main lineaments can be clearly traced through at least 1/3 of a map or, if shorter, are of considerable width (may be represented as series of closely placed parallel lineaments). Length – 4.5-6 km.

Secondary lineaments can be seen as straight lines due to changes in surface pattern or gray color nuances extended through at least two 500 m UTM squares on the photo-topo-map. Length – 1.5-2 km.

Tertiary lineaments are similar in expression to secondary, with shorter length of, usually 200-500m.

Circular lineaments are curved (circular) segments or whole circles that can't or hardly can be represented by combination of straight lines at the scale of study.

The results of the analysis are shown in Fig.1.

We observed 1963 tertiary, 62 secondary, 12 main and 4 circular lineaments for the area. One has to keep in mind that the absence of lineaments in the lake areas is purely due to invisibility (covered by water). This fact must be taken into account during the interpretation of the results.

The total number of intersections, and the intersections between each type of the main three groups of lineaments were calculated and exported as an Excel sheet (Table 1).

Table 1

A1 ID

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	ID	Left UTM X	Up UTM Y	M	S	T	All	M M	M S	M T	S S	S T	T T	C	C C	M C	S C	T C	All Intersec	
2	1	534625	5318125	0	0	7	7	0	0	0	0	0	3	0	0	0	0	0	3	
3	2	534875	5318125	0	0	6	6	0	0	0	0	0	3	0	0	0	0	0	3	
4	3	535125	5318125	1	1	7	9	0	0	4	0	1	5	0	0	0	0	0	10	
5	4	535375	5318125	1	0	9	10	0	0	3	0	0	5	0	0	0	0	0	8	
6	5	535625	5318125	0	1	14	15	0	0	0	0	0	16	0	0	0	0	0	16	
7	6	535875	5318125	0	1	10	11	0	0	0	0	1	4	0	0	0	0	0	5	
8	7	536125	5318125	1	1	8	10	0	0	2	0	0	3	0	0	0	0	0	5	
9	8	536375	5318125	0	2	5	7	0	0	0	1	4	3	0	0	0	0	0	8	
10	9	536625	5318125	0	2	1	3	0	0	0	1	1	0	0	0	0	0	0	2	
11	10	536875	5318125	1	2	9	12	0	1	0	0	6	3	0	0	0	0	0	10	
12	11	537125	5318125	0	2	4	6	0	0	0	0	3	2	0	0	0	0	0	5	
13	12	537375	5318125	0	1	3	4	0	0	0	0	3	2	0	0	0	0	0	5	
14	13	537625	5318125	0	1	1	2	0	0	0	0	1	0	0	0	0	0	0	1	
15	14	537875	5318125	0	2	8	10	0	0	0	1	5	5	0	0	0	0	0	11	
16	15	538125	5318125	0	1	6	7	0	0	0	0	1	2	0	0	0	0	0	3	
17	16	538375	5318125	0	1	6	7	0	0	0	0	1	3	0	0	0	0	0	4	
18	17	538625	5318125	1	1	5	7	0	0	0	0	0	0	0	0	0	0	0	0	
19	18	538875	5318125	1	0	5	6	0	0	4	0	0	1	0	0	0	0	0	5	
20	19	539125	5318125	2	2	7	11	0	0	0	0	1	1	0	0	0	0	0	2	
21	20	539375	5318125	1	1	5	7	0	1	4	0	3	9	0	0	0	0	0	17	
22	21	534625	5317875	0	0	10	10	0	0	0	0	0	4	0	0	0	0	0	4	
23	22	534875	5317875	0	0	14	14	0	0	0	0	0	8	0	0	0	0	0	8	
24	23	535125	5317875	1	1	15	17	0	1	4	0	8	21	0	0	0	0	0	34	
25	24	535375	5317875	2	0	12	14	0	0	3	0	0	8	0	0	0	0	0	11	
26	25	535625	5317875	1	0	20	21	0	0	0	0	0	31	0	0	0	0	0	31	
27	26	535875	5317875	0	1	13	14	0	0	0	0	4	11	0	0	0	0	0	15	
28	27	536125	5317875	1	0	15	16	0	0	8	0	0	10	0	0	0	0	0	18	
29	28	536375	5317875	0	2	16	18	0	0	0	0	9	20	0	0	0	0	0	29	
30	29	536625	5317875	0	1	12	13	0	0	0	0	6	12	0	0	0	0	0	18	
31	30	536875	5317875	1	1	14	16	0	0	1	0	4	8	0	0	0	0	0	13	
32	31	537125	5317875	1	1	4	6	0	1	0	0	3	2	0	0	0	0	0	6	
33	32	537375	5317875	0	0	4	4	0	0	0	0	0	2	0	0	0	0	0	2	
34	33	537625	5317875	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	
35	34	537875	5317875	0	1	11	12	0	0	0	0	1	8	0	0	0	0	0	9	
36	35	538125	5317875	1	2	11	14	0	0	0	0	3	7	0	0	0	0	0	10	

The data then were processed using various weighing coefficients, and countered with Surfer software.

Weighing procedure is somehow arbitrary and reflects the author's understanding of the lineaments nature and origin. From mechanical standpoint fractures and faults (which we observe as lineaments) form in some hierarchic order, usually from the smallest first to the largest. The fracture's shape must be similar to a square or disc. So, the lineament, say, 200 m long would cut into the rock down to approximately 200m, and the main lineament of 6 km – to 6 km down. Apparently, an amount of fluid flowing through the main lineament is larger with comparison to the tertiary one, and the mineralization is more likely to occur in the vicinity of the main lineament. Therefore, it makes sense to weigh the main lineament higher than secondary, and much higher than tertiary.

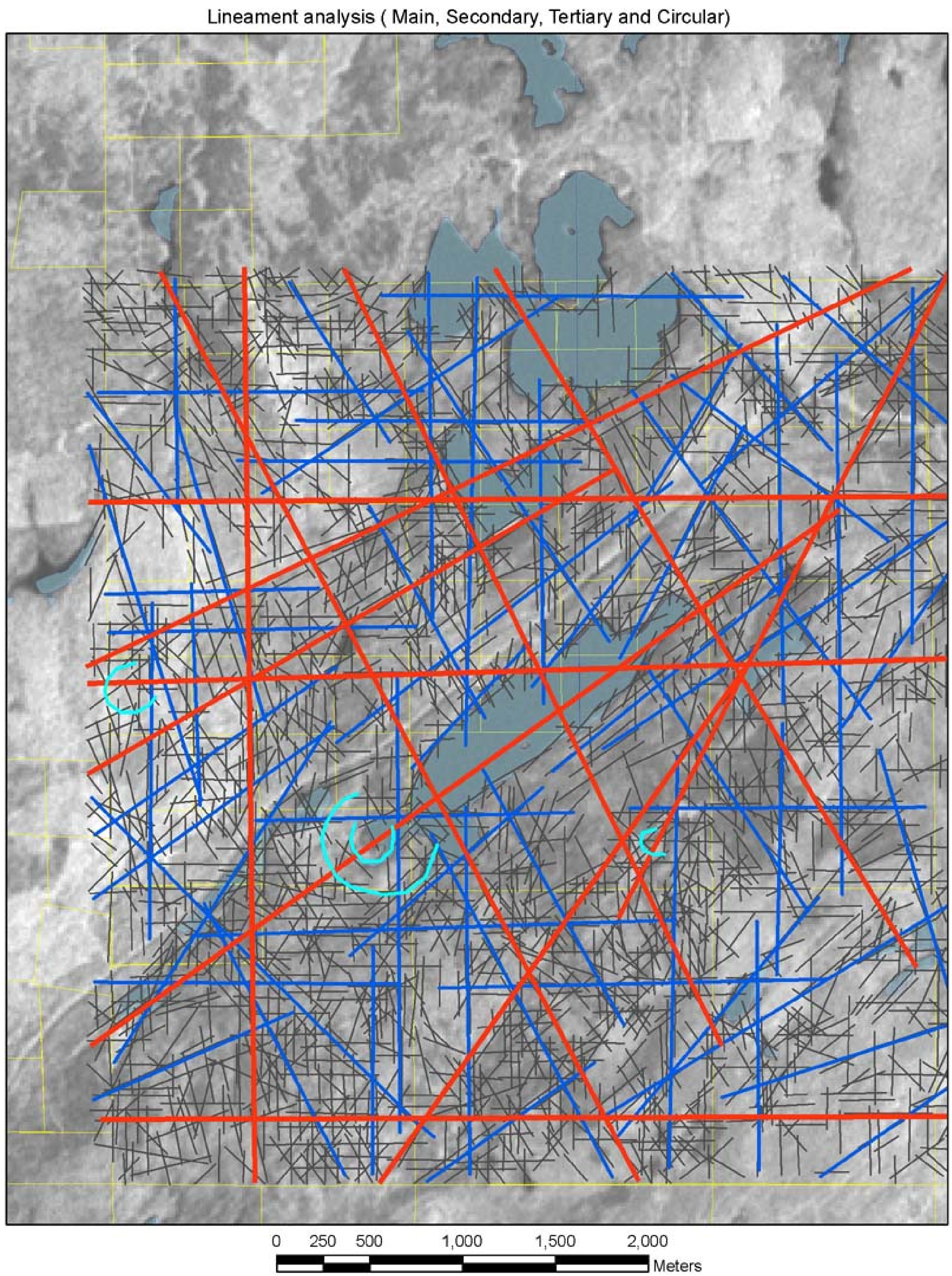


Fig.1

On the other hand, if the geological data suggest that the mineralization occurs at shallow depth and related to, say, rather small intrusive bodies, then the role (weight) of tertiary/secondary lineaments and their intersections would be more important (heavier weight). Since this study does not involve geology/geophysics/geochemistry consideration, we will show contour maps built with different weighing procedures and for different features (main lineaments only, tertiary only, main/secondary intersection, all intersections etc.). From general considerations the locations with maximal densities of lineaments/intersections will be considered as most favorable for mineralization to occur, since those areas must have the highest permeability for circulating fluid.

Fig. 2 demonstrates several contour maps for:

Top row
- all lineaments intersections (500m window averaging)
- all lineaments (500m window averaging)
- main lineaments (500m window averaging)
- secondary lineaments (500m window averaging)

Middle row
- tertiary lineaments (500m window averaging)
- all lineaments weighed (500m window averaging)
- all intersections weighed (500m window averaging)

Bottom row
- all lineaments (250m window averaging)
- all lineaments intersections (250m window averaging)

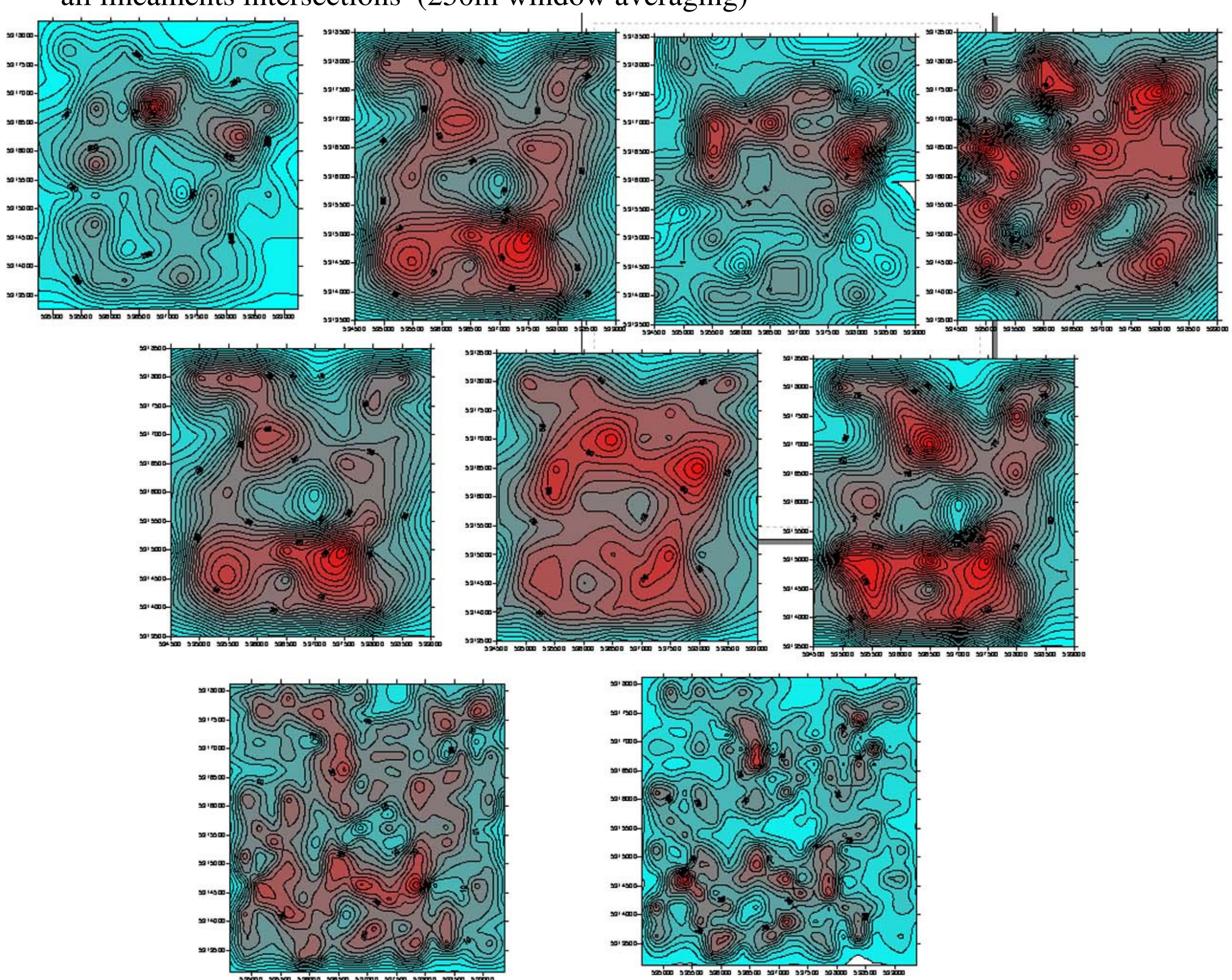


Fig. 3-6 show contour map overlays onto the main topographic features and claims.

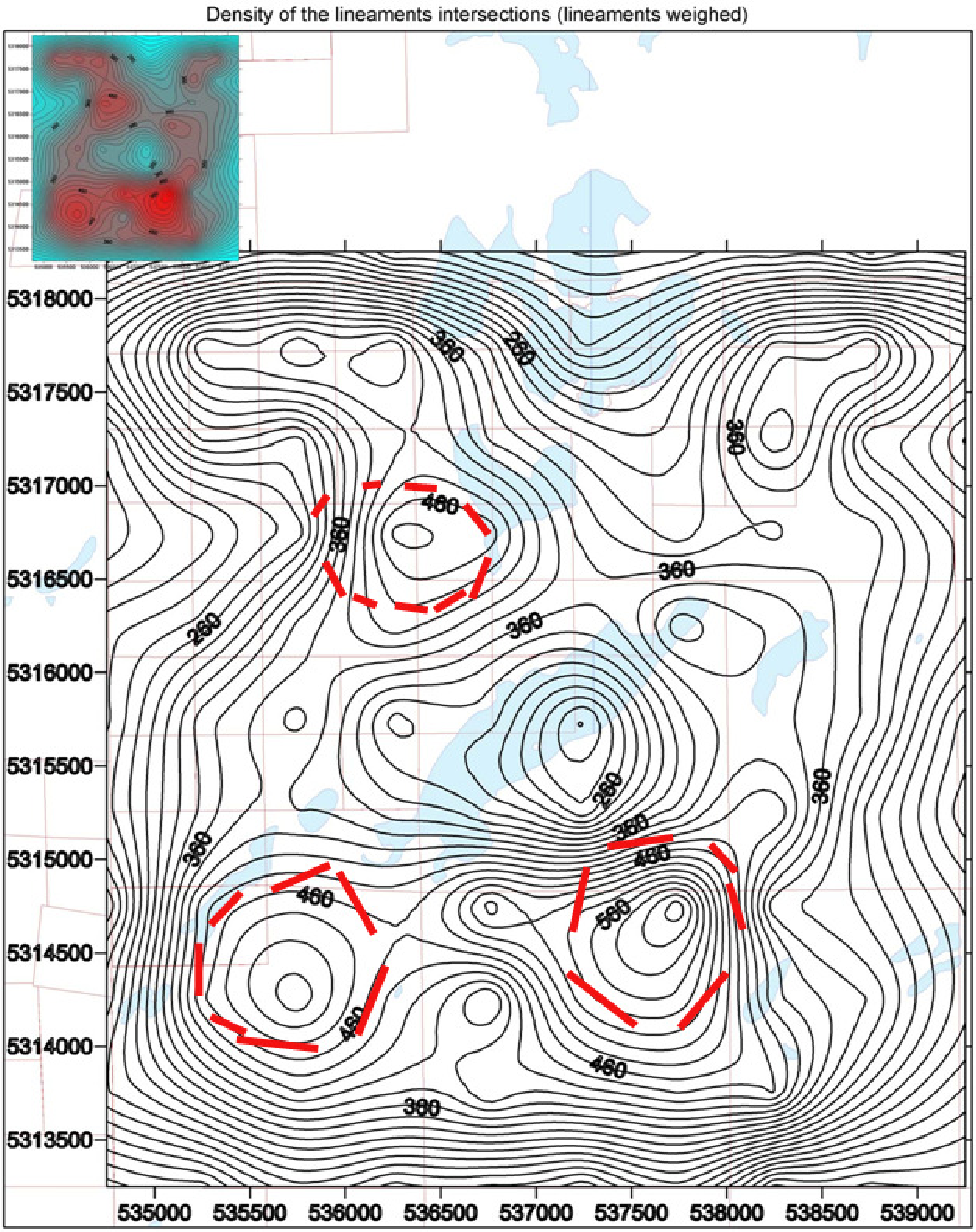


Fig.3

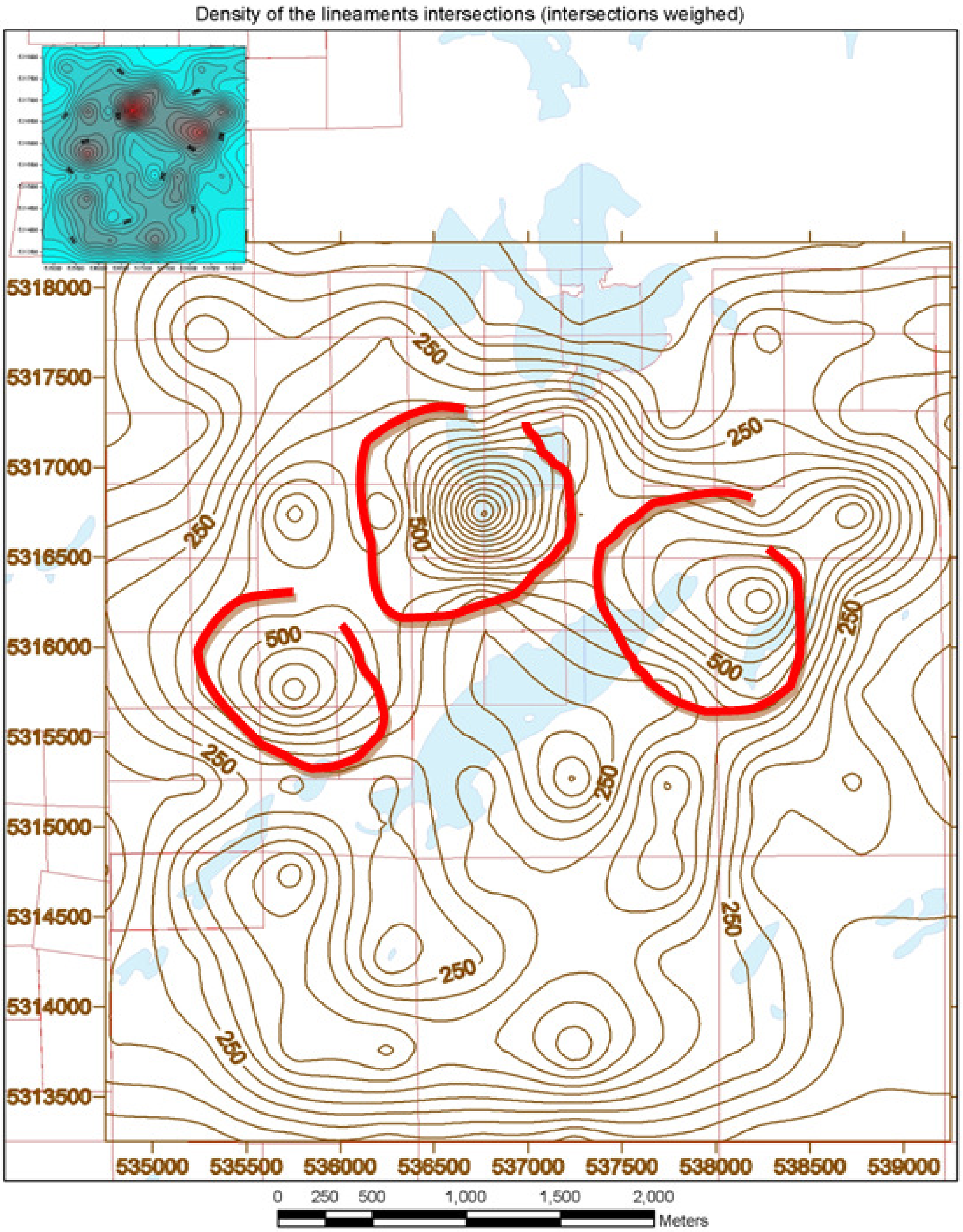

Density of the lineaments intersections (intersections weighed)
5318000
5317500
5317000
5316500
5316000
5315500
5315000
5314500
5314000
5313500
535000
535500
536000
536500
537000
537500
538000
538500
539000
250
500
0
250
500
1,000
1,500
2,000
Meters

Fig.4

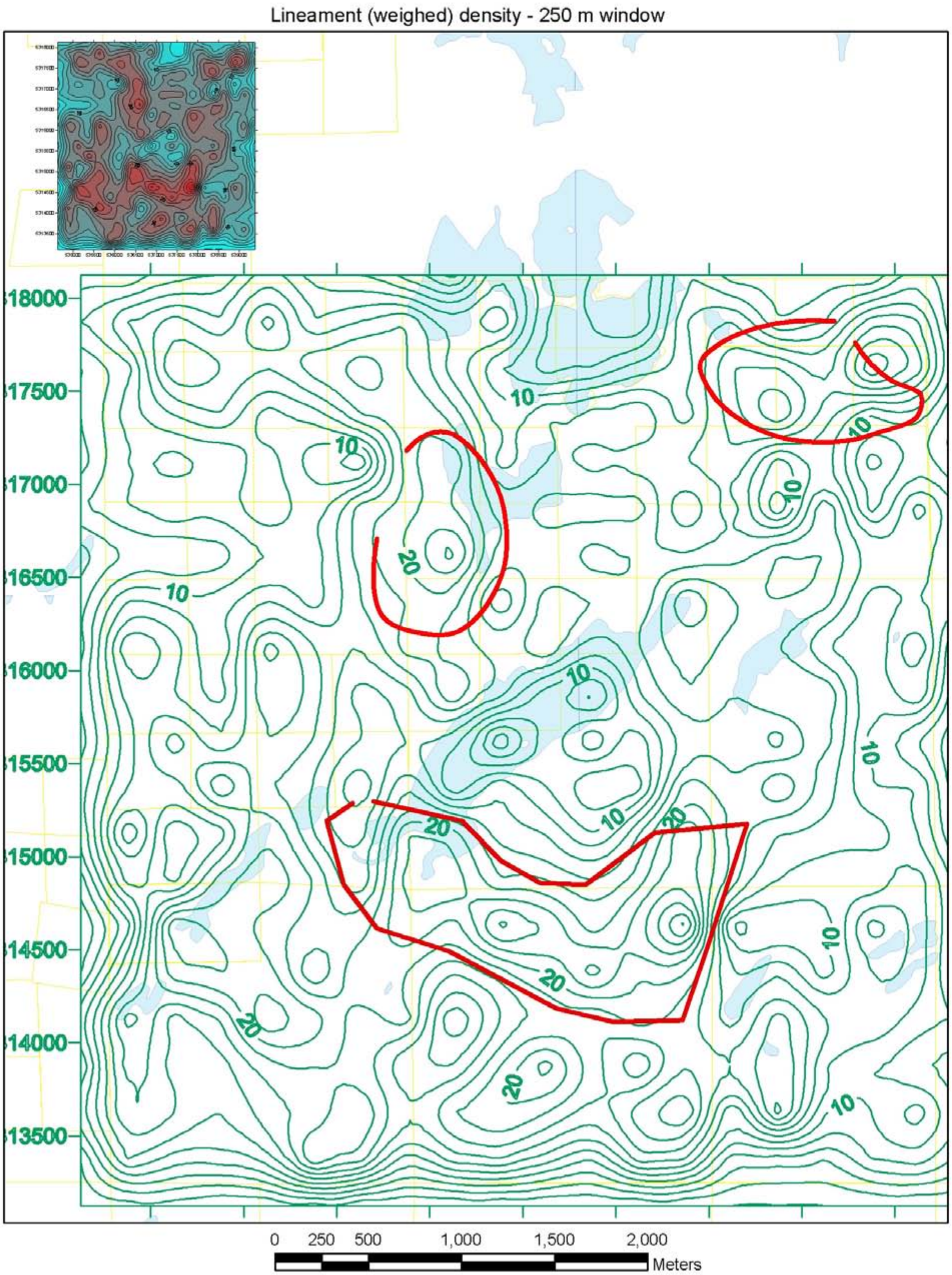
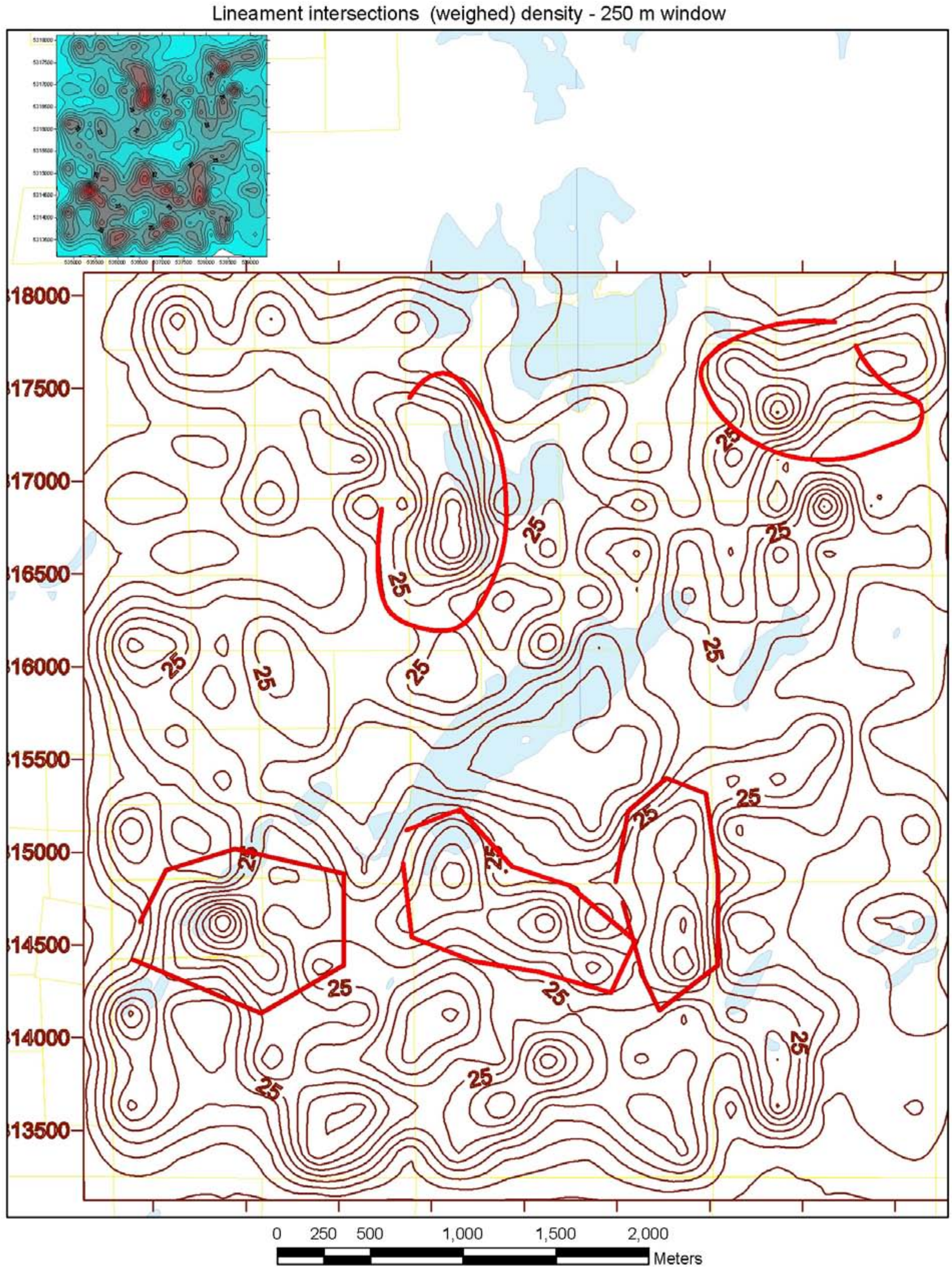

Lineament (weighed) density - 250 m window
18000
17500
17000
16500
16000
15500
15000
14500
14000
13500
10
20
0 250 500 1,000 1,500 2,000
Meters

Fig.5

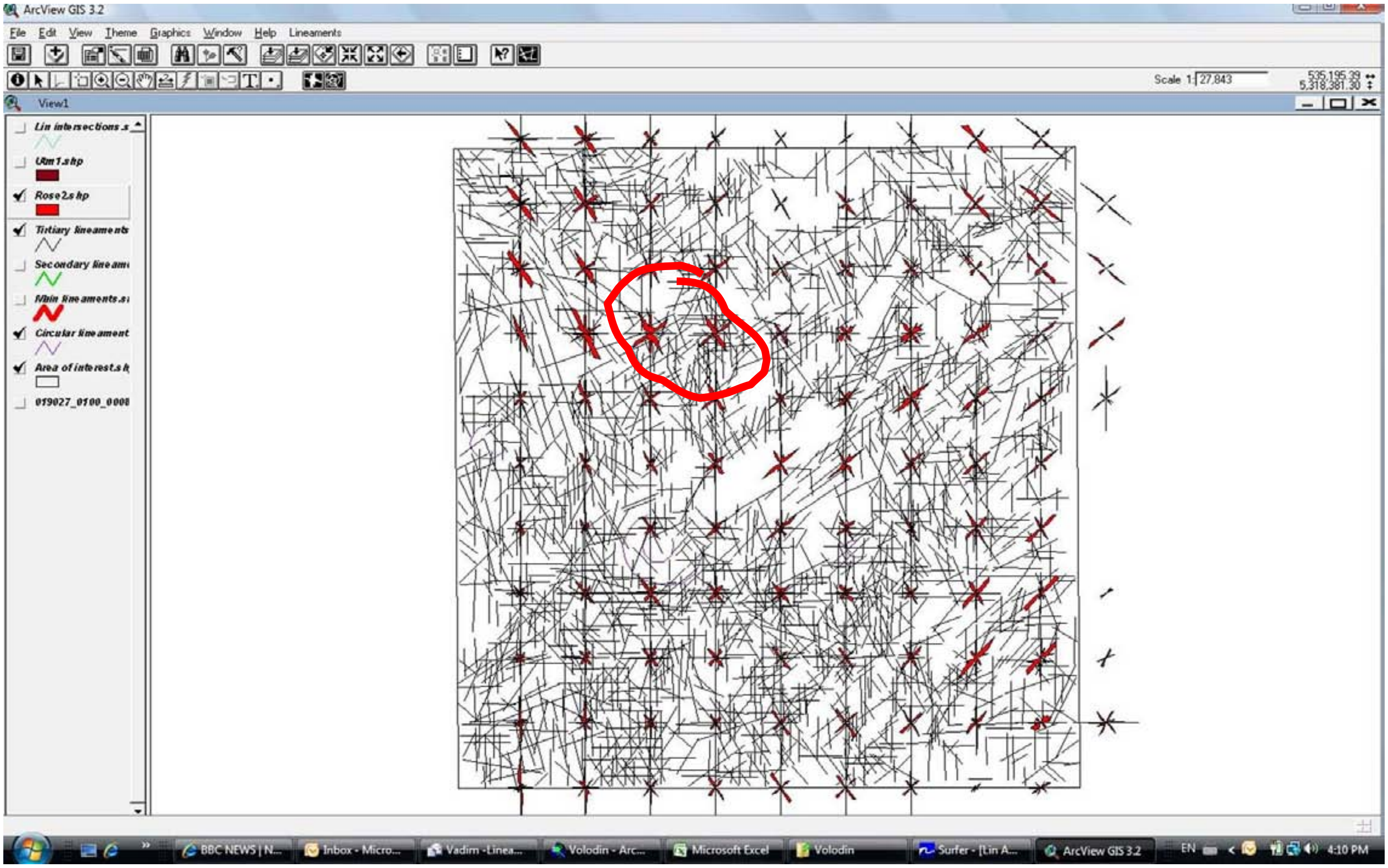


Lineament intersections (weighed) density - 250 m window
18000
17500
17000
16500
16000
15500
15000
14500
14000
13500
25
0 250 500 1,000 1,500 2,000
Meters

Fig. 6

In red I outlined the areas with maximal densities of different features. It is obvious that there is one zone – west and south-west of Wyley Lake – which manifests the highest density on all maps. **This zone is considered to represent the most favorable location for possible mineralization from the lineaments analysis point of view.**

On the rose-diagram map (Fig.7) this zone also stands out very clearly – it seems that there is no preferable orientation of lineaments in this zone, which makes it different from the surrounding areas.



High-density zones to the south and to the north-east of Middleton Lake may be considered as **second-rate lineament anomalies** (Fig. 2-6).

Let us emphasize again that this study must be taken as only one independent part of the targeting process. Incorporation of the all data available for the area of interest, as well as physical modeling and "multilayer" processing and interpretation (and may be field study) should be considered before drilling.