

Re: X 200 field test

Posted by Jim Straight on 12/28/2001, 2:33 pm , in reply to "Re: X 200 field test"

Howdy Guys;

The X machines; with the possible exception of some 200's--- which may not have TR Disc--- have GEB all metal and GEB discrimination. Some of the reported "depth" could be attributed to a possible "halo." ???

Off the subject: Still chewing up what little I have learned regarding Meteorites. I have recently acquired additional material such as Norton's book on "Rocks from Space," and Monica Grady's "Catalogue of Meteorites."

I hope Ed from SD jumps in with more information as he has access to being able to test a variety of different types; iron; stony-iron, and stones.

As far as detectors, I have heard good reports about the GM-II and GM-3; but somehow, my feeling is still slanted toward a lower-frequency manual ground balance all-metal mode VLF detector with a circular concentric search coil. Some of us have such machines in our closet and maybe they are now again on the cutting edge. This would include the Compass X-Challengers; as well as most every other now-considered "obsolete" ground-balance machine made about 15-25 years ago by the manufacturers; possibly even including the latest version of the early BFO Garrett Master Hunter.

Probably any detector can find a meteorite; but I like to maximize my chances with a good choice of detector, with the low iron stony chondrites in mind--- I need all the help I can get---. Anyone with thoughts, pro and con, please add; this is how we all learn!

Jim

Re: X 200 field test

Posted by Wayne/TX on 12/30/2001, 2:00 am , in reply to "Re: X 200 field test"

Hi Jim. I never used a Compass, but did cut my teeth with Garrett's BFO's. They of course have problems in rich iron ground, but by setting the metal/mineral control to either one in testing various suspect rocks, one can identify a meteorite quite easily, especially with the test target

lifted away from the soil matrix. With some practice the BFO could be very effective for meteorites, even on high mineral grounds, imho. One must of course have good "pitch" hearing for BFO's. Let's hear it for the venerable BFO!

Wayne/TX

Re: X 200 field test

Posted by Jim Straight on 12/31/2001, 12:05 pm , in reply to "Re: X 200 field test"

Thank you for the info on the Garrett BFO. A friend of mine, Hye M., still has an operational one that we once "co-owned." I sold my half interest to him; but I can get it to use anytime. My first BFO detector was a Bounty Hunter-I and then a BH-II, both with gold-colored boxes, and single hardwired approx. 6-inch search-coils.

Another old friend, Leonard P., used one to advantage in Mexico seeking for buried treasure on percentage deals and was successful several times. This was still in the early 1980's and he preferred the Garrett Master Hunter BFO to the then VLF's. Leonard had an "ear" and could use the about 18x23-inch search-coil to advantage. In my opinion Leonard is/was one of the best BFO "instrument-men" in the field.

Changing the subject to Compass, I can pick up a Compass X-80 from another friend, Al V., who is no longer "bendable." When Al first got the X-80 he was finding old silver dimes and quarters on one of his lots at considerable depth. After digging old wheaties, with an occasional indian head at depths over 6-inches and sometimes--- according to Al, as much as a foot-deep; Al switched to a Garrett groundhog. One fellow found a double eagle gold coin on the lot which he sold for several-thousand(?) dollars; the word got out and Al's property soon looked like a war-zone with "moonlighters" sneaking onto it.

Just last fall Al had to pay extra to have the lot leveled (again) as a few "local-area coin hunting club" members, which Al had given one member permission, but the member evidently got carried away and brought in others who dug and raked the weeds into windrows which the city thought was a fire-hazard. Al just quietly paid to have it re-done; but probably will not give anybody permission again.

The property was a busy pre-1900 site of several saloons with several old buildings still on it. Evidently trash was buried on the site as bottle-collectors have in the past dug up old bottles, many of which they may have been broken, according to Al, in their illicit digging and left broken glass and dig-holes for Al to clean up. It cost his insurance company \$1200 one time to

have the parking area re-asphalted due to the digging. Al has several buildings plus an empty lot in an older section of San Bernardino. He gets some income from rental--- a church and an auto-repair business--- and a sign company has a billboard on part of it.

Jim

Meteorites etc

Posted by Seeker (ak) on 12/28/2001, 5:45 pm , in reply to "Re: X 200 field test"

Dont forget the low frequency trackers these would have to have the GB in the fix mode so you would not tune this material out. I would hesitate to use a BFO I think for a variety of reasons the best one is depth in mineralized soil. The Garrett Deepseekers, the Minelab GT- FT 16000s should be reasonably priced. I don't think I would buy a new GM for this purpose when there are so many options that would work...Geo

Minelab American Goldstriker.

Posted by Jbird on 12/28/2001, 6:34 pm , in reply to "Meteorites etc"

Im thinking this machine would be good on meteorites. Especially since I have one for sale.hehe Frequency at 32 Kz may be a little high for such work but the Normal, Boost, and Fine Switch is a nice feature. When in the Fine position, will read a very weak signal with a VCO effect.

Re: Minelab American Goldstriker.

Posted by jim straight on 12/28/2001, 8:14 pm , in reply to "Minelab American Goldstriker."

I think either the Goldstriker or 17000 in 32 kHz in fixed could be okay. Some hunters seem happy using a Goldmaster II and 3; since they operate at 50kHz maybe the frequency not critical.

However, as we know the lower frequencies, such as the approximately 1.75 kHz White's 5-Supreme (actually 1.78 Khz frequency) which I believe was originally designed by George Payne and a breakthrough in civilian ground balancing detectors. At 1.75, it really grabbed the iron; but not particularly sensitive to gold.

Still learning. Keep the posts coming! I'm sure George is right about a BFO not being able to handle the mineralization effectively.

PS: For nuggethunting, George put me onto the 6-inch circular DD coil which works well on my 17000 in 32kHz. It seems to be effective in brush for gold.

Re: Meteorite madness (long post)

Posted by James in Nevada on 12/19/2001, 6:55 pm , in reply to "Meteorite madness (long post)"

Any thoughts on how the higher freq. gold machines would work for meteorites?

JRW

High Freq. on meteorites - I'm not sure

Posted by Ed in SD on 12/19/2001, 11:13 pm , in reply to "Re: Meteorite madness (long post)"

On iron or iron-nickle, I'd say no problem. On the stonys, I am just guessing you might lose a little depth. I have a gold bug 1 which I will be doing some meteorite testing with in the near future, but it is a somewhat lower frequency model. Maybe Jim Straight or others might have some thoughts on this.

HH-Ed

Re: High Freq. on meteorites - I'm not sure

Posted by jim straight on 12/20/2001, 10:25 pm , in reply to "High Freq. on meteorites - I'm not sure"

I'm at a loss to say what frequency could be best for meteorites. As I remember George Payne was the project engineer for the White's Coinmaster Five Supreme. Rocky LeGaye tested it for W&E Treasures and found he could dig down six-to twelve inches for a particle of iron--- which at that time was unheard of depth. It operated at less than 2 kHz.

Somehow I feel any lower frequency VLF detectors; such as but not limited to a Garrett Deepseeker at 5 kHz, or a Fisher Motherlode at 4.5 kHz, or one of the Compass "X-" at 6.4, or White's 6000 Series 2/3; or even the Minelab 16-17-18 in lower frequency Fixed- autotrax mode. There are also many other choices. As far as a gold machine; you are now looking for meteorites, not gold. Somehow I also feel a BFO such as the Garrett Master Hunter which was still being

manufactured until about 1980 could be a good choice.

It is my understanding, which I base this observation that all of the meteorites; stony, stony-iron, and iron all have iron; which tend to weather on terrestrial surface. Looking back about 12 years ago, I think I was one of the novices that was tossing "hot-rocks" into the brush at Lost/Gold Basin with my 660. They are low-iron stony chondrites.

Please everyone, jump in with your thoughts; this is how we (especially me!) learn.

we tested mostly stonys

Posted by Ed in Sd on 12/21/2001, 11:11 pm , in reply to "Re: High Freq. on meteorites - I'm not sure"

The metallics or those with high iron detected quite easily. I'd think any machine with a good iron response would find them. There's a question of how small or how deep, that would be more up to the capabilities of the individual detector and operator, and the trash levels on-site.

Once the iron levels in the sample dropped though, we had a difficult time detecting them. The stonys had a negative response, they caused the audio to drop and basically acted like a terrestrial hot rock. So now perhaps machines that formerly had a "problem" in that they reacted strongly to mineralized soil have found a useful purpose.

I own such a machine, a low-end tr/vlf and also a Gold Bug 1. I'm curious about what will happen when we try some of the same samples using these detectors.

Once the holidays are over, I'll have the time to run down to the museum for more tests and I'll be sure to post the results here.

Just a guess on frequency, is there is frequency that is known to reject mineralization? To detect the stonys then, use a machine that operates in the opposite spectrum. How about that idea?

I mean it seems to me we're suddenly looking for a detector that does what everyone wanted it - not- to do, that is be sensitive to mineralization!

Happy Holidays!

-Ed

Re: High Freq. on meteorites - I'm not sure

Posted by James Williams (Nevada) on 12/20/2001, 11:19 pm , in reply to "Re: High Freq. on meteorites - I'm not sure"

Possibly the best "iron" machine that I've ever used was an old 1970s vintage Garrett VLF Deep Seeker with a coaxial coil. Not sure what the freq was. The reason for the original question was that seems as though all the gold machines are supposed to do a good job of identifying iron, if that is true then it seems like they should do a good job on most meteorites. Since I have never used a true "gold detector" thought I would present the question. I would be interested in the results of any tests along this line.

Thanks for all the thoughts and ideas.

JRW

I think they would do just fine

Posted by Seeker (ak) on 12/20/2001, 11:18 am , in reply to "High Freq. on meteorites - I'm not sure"

what it would amount to is eye recognition and if you were looking for meteorites I guess the thing to do would be to investigate most of your signals. We have a meteorite belt up here and they have been found just haven't found time to give it a look. There was a huge stone that fell to the earth around 1886 or so in the 40mi area, the old stampeder said it lit up the sky...Geo

Thanx Ed that was a great post!!

Posted by Seeker (ak) on 12/18/2001, 12:05 am , in reply to "Meteorite madness (long post)"

Thats what I used to use a BFO for years ago, looking for the spots that nulled along stream beds then dig and pan....Geo

BFO is still good for something!

Posted by Ed in SD on 12/18/2001, 12:15 am , in reply to "Thanx Ed that was a great post!!"

I built Steve Hegeman's circuit mostly as a pinpointer, but also because it's easy to make different-

sized coils for it. But it looks like it would make a good stony meteorite hunter or at the least a passable tester. I hope to try it in "mineral mode" in some of the safer mine shafts around here.

I'm also really curious now how the older tr/vlf units would read the same meteorites.

HH-Ed

I will tell you this

Posted by Seeker (ak) on 12/18/2001, 12:49 am , in reply to "Re: BFO is still good for soemthing!"

The BFO taught me about Listening.... Geo

Maybe....

Posted by John - Al. on 12/19/2001, 1:45 pm , in reply to " I will tell you this"

I'll get my old Outlaw TR/BFO out of the closet.... naaaaw... I still hear that old "motor boat" at night sometimes!

Meteorite Madness revisited (very long post)

Posted by Reg Sniff on 12/26/2001, 9:46 pm

Hi Ed,

Just thought I would add a little information for your evaluation of meteorites with your Time Ranger or any other detector.

If your Time Ranger has automatic ground balance then it will most likely try to adjust to ground balance out the stony meteorites. This same thing happens with the Tesoro LST. The final result will probably be the negative response at the most intense signal.

I myself, have found three meteorites with metal detectors. Two were Nickel and the last one was stony meteorite. Now the first one was found with a Compass Yukon 76b detector, the second was found with a Compass Judge 2 body mount, and the third one was found with a Big Bud SE Pro Plus detector. All three meteorites were very loud positive signals.

None of my detectors had automatic ground balance so all were loud positive signals. All three were magnetic and were attracted to a magnet! And I still own all three... Melbeta

If you can turn off your ground balance, then I would recommend you ground balance over the typical ground and turn the GB to lock if you can. With that setup you should get a weak but positive indications on most if not all stony meteorites when in the all metal mode.

It will be impossible to get any consistent reading in the disc mode. Readings will probably vary with distance from the coil as well as orientation of the object. Just turning the meteorite will most likely cause different readings. Anybody who has tried to detect Canadian coins knows they will change readings just by changing the orientation of the coin. This is due to the coins composition and its ability to be attracted to a magnet.

Most meteorites will be attracted to a strong magnet also. The strength of the attraction is dependent upon the type of meteorite. For example, the typical L4 from Gold Basin will stick to a nice strong neodymium type magnet.

As for the BFO, I would suspect the readings would vary depending upon the operating frequency of the BFO. I am not sure at what frequency there would be a change, but my guess it is probably somewhere above 300Khz.

As for gold machines and their ability to detect meteorites, they work great, due to their sensitivity increase over a typical coin machine. I have used several gold machines to detect meteorites. When using the XT 18000 at any of the three operating frequencies, I turn the ground balance to fix and then turn the machine on. That way I get the strongest positive signal from the meteorite, but typical hotocks will also give a positive indication. If I let the XT ground balance to the ground and then turn the GB off, a typical hotrock will give a negative response and the meteorite will give a postive response, but will be a weaker signal than when the machine is turned on with the GB in the fix mode. If I leave the ground balance on auto, it will tune out the meteorite and I will get little or no signal.

The Gold Bug 2 should be ground balanced for the local terrain first. Meteorites will give a reasonably strong positive signal on the typical L4 Chondrite found in gold basin. The Tesoro LST has to be used in the normal ground balance mode and even then will try to eliminate the signal from a L4. If you try to use this machine while selected to the Alkali mode, the detector will give little or no response to a L4 or other stony simply because the ground balance will adjust to it as if it were the ground signal.

The Baron with either the coin trax or gold trax module should be allowed to ground balance and then turn the ground tracking off. An alternative is to turn off the ground track right off the bat.

You will get a stronger signal from a stony with that setting. Again, use the all metal mode when hunting them.

The Tesoro Lobo or the Bandido will give a positive response on a L4 and most other meteorites if the ground balance is set to minimize audio variations over the normal ground.

The Whites Golmaster series will all give a nice strong positive response from a stony meteorite if the machine is initially ground balanced to the normal terrain or set slightly positive, which is quite common. Again, the meteorite signal is dependent upon the ground balance setting. John Blennet, one of the first to recognize the meteorites in Gold Basin uses nothing but Goldmasters and is one of the most successful meteorite hunters I know. He has found hundreds if not thousands by now.

A Garrett GTA series such as the little GTA 400 will give almost no response to a typical L4 Gold Basin meteorite. You have to have a large one and almost rub it across the coil to get any signal.

If a metal detector is ground balanced to normal ground and then operated in the all metal mode, most meteorites should give a positive response. The stony ones will probably be a weak response depending upon the all metal sensitivity of the detector. Some will be more responsive than others.

Again, the disc mode will probably never give you any type of consistent reading that will make sense. That is why I strongly recommend the use of the all metal mode when hunting for them.

If you try to check the meteorites with several of the preset ground balanced detectors, you could get several different responses depending upon the actual setting of the internal ground balance adjustment. I have found several of these machines to be adjusted differently from what I would consider the norm. The norm is to set the internal ground balance for a minimal to very slight positive response from a piece of ferrite. At this setting you will get no falsing from a "hotrock" in the disc mode.

The bottom line is the ground balance setting is critical on all machines. If the ground balance is correct, most meteorites if not all will give a positive response. If the ground balance is off to the plus side where you get a slight positive audio increase as you lower the coil to the ground, the all metal signal should be positive from most if not all detectable meteorites. If the ground balance is set so the audio decreases as the coil is lowered to the ground, then you may get any one of three conditions, a negative signal, no signal or a very slight signal depending upon how far the ground balance is adjusted off from a typical ground balance where there is minimal audio change when the coil is bobbed above the ground.

If you have access to other detectors, you might experiment with them with different ground balance settings. I know I can make a typical L4 Chondrite from Gold Basin give a decent positive signal, a very weak signal, no signal or even a slight negative signal simply by altering the GB control.

One more little note, a simple test of a meteorite is to perform a streak test. This is done by rubbing the suspected meteorite across the back of a ceramic tile. If it streaks red it is probably hematite, if it streaks black, it is probably magnetite. If there is no streak, then you can get excited, because meteorites do not streak when rubbing on the tile. This little bit of information was provided to me courtesy of O. Richard Norton, author of "Rocks from Space."

Ed, I hope you get a chance to try several more detectors on the meteorites and post the results.

Reg

Thanks Reg, great info for the real world

Posted by Ed in SD on 12/28/2001, 2:46 am , in reply to "Meteorite Madness revisited (very long post)"

I only conducted some simple [air tests](#), you have some real experience with multiple detectors. Thanks for sharing your experience!

It's a hot forum topic right now, Ron (TX) is doing other tests over at treasurenet's white's page.

<http://www.treasurenet.com/whites/forum/> (**ED's note:Ron's article is reprinted [here](#)**)

The streak test is a good one, thanks for sharing it! Richard sometimes finds his way out to these parts to visit the museum, so I had him sign my copy of his book. I first met him in '84 and I'm proud to say I know him. One of the true experts on the subject.

My Time Ranger did not seem to cancel out the signals with auto ground balancing. I think it is a slower reacting compensation. In disc. mode, the balancing is done differently than in all-metal. There is a ground monitor display that shows whether the signal is positive or negative and its relative strength.

I do intend to do some [more tests](#) with several older and low-cost detectors, I'll be sure to report whatever I learn. Thanks again for your informative post!

-Ed

Re: John Blennert's website

Posted by Reg Sniff on 12/27/2001, 1:50 am , in reply to "Meteorite Madness revisited (very long post)"

Hi Again,

I spelled John's last name wrong. It is John Blennert. Below is his website.

I also forgot to mention that he purchased some land in Gold Basin just for meteorite hunting. I don't remember how much but I think it was about 1/4 of a section. Now that is taking meteorite hunting seriously.

Reg

Link: <http://www.gci-net.com/users/g/goldmaster/>

(ED's note: the following posts were left at the forum linked to below)

<http://members5.boardhost.com/MetalDetecting/>

Re: Shootin' Star Shootout

Posted by jim straight on 1/2/2002, 2:37 pm , in reply to "Shootin' Star Shootout (long post)"

Wow! I'm impressed. It seems the old Fisher Gold Bug may be a good all-around machine for meteorite shooting? However, the White's GM II and GM-3 are reported to be a good choice for finding the L4 common stony chondrites at Gold Basin in Arizona. Can you test the GB-1 by first ground-balancing it to neutral with a piece of ferrite in the all-metal autotune mode; then checking it against any H, LL, or L, "ordinary" stony chondrites available to you?

I am not Brand-loyal: What works best has always been my choice; however, I suspect the lower frequency 5 to maybe as much as 20kHz to have an edge. Other possible-good choices- with the

GB-1 would be detectors such as, but not limited to the Tesoro Diablo microMAX and/or a Compass Gold Scanner Pro. This list could go on--- The point being that it is not necessary to buy a detector for meteorite shooting; one that is in a closet could be a choice too.

Hope Reg is reading these posts and jumps in; also anyone else with any pro/con thoughts. I understand this is the intent of this website. I need all of the help I can get to learn how to find a meteorite. I have been going out to the "drylakes" which are not so dry as I write this "looking."

Re: Shootin' Star Shootout

Posted by Reg Sniff on 1/2/2002, 7:57 pm , in reply to "Re: Shootin' Star Shootout (long post)"

Hi Jim,

I wouldn't be too concerned about frequency of a detector and how it affects the detection of meteorites simply because each machine has a different design as to the level of sensitivity of the different modes. If all things were equal then it is possible that a lower frequency detector probably would have a slight advantage when detecting iron and stony iron meteorites. However, since detectors vary considerably in many factors including the sensitivity level, the frequency factor is lost.

Most manufacturers develop the all metal and disc sensitivity to suit the primary purpose of the detector. For example, a detector designed for coin hunting will normally give a nice strong response to a coin but won't be so intense that it overloads the audio. This gives the operator some feel for the size of the object.

Nugget hunting machines, by nature have greater sensitivity so they provide a louder signal to small gold objects. As such, they will provide a stronger signal to stony meteorites also.

PI's work well for meteorite hunting. One of the more popular brands are the Minelab SD's. They do not produce quite as strong response as a good Gold Machine to a stony meteorite, but because they do not respond to the ground or to most hotrocks, they can actually be superior. Other PI's such as Eric Foster designs also work quite well, providing the delay is set to minimum. At 15 usec, they will give a decent signal to a stony meteorite and since they also ignore the hotrocks, many of the questionable "hotrocks" are ignored. However, one should realize that increasing the delay will cause the meteorites to be ignored.

To better understand why meteorites give conflicting signals on different detectors one has to understand certain basic theory. For example, if we were to draw a linear graph of all targets a

metal detector can detect and try to relate them to something, maybe it would make more sense. If we use a general graph where something like ferrite is at one end and pure silver or better yet something pure resistive at the other extreme and label one end 0 degrees and the other 180 degrees we can sort of relate targets for ground balancing or even discriminating purposes.

Now, if we let ferrite be the 0 degree setpoint, then silver would be somewhere in the 170 degree range. Something like saltwater would be 90 degrees, a nickel would be something like 140 degrees and other coins would fall between the nickel and a quarter.

Ground signals are down in the ferrite range, maybe 0 to 10 degrees or so. Stony meteorites fall either in that range or very close. My guess is that Gold Basin meteorites fall somewhere in the range of 6 to 12 degrees. Iron objects will have a range of something like 20 to 90 degrees depending upon composition and size. Most stony iron and iron meteorites should fall in a range between the ground range and the saltwater range, again depending upon size and composition.

If you adjust a detector to give minimum response to a piece of ferrite then all objects including meteorites should respond with a positive audio response in the all metal mode. If you adjust the detector to typical ground conditions, then ferrite will give you the "negative boing", but most meteorites still should give a weaker positive response. Exceptions would be areas where the ground is strange.

If you have the ground balance set so when you lower the coil, the audio decreases, then some of the stony meteorites will respond with a "negative" signal. Again, this depends upon the actual adjustment of the ground balance control. Actually, one could get a negative response, no response, or even a very slight positive response from a meteorite, depending upon the local ground mineralization. However, I have found very few places where the ground is so strange that proper ground balancing would yield a negative response to a stony meteorite such as those found in Gold Basin.

I am sure there are some stony meteorites that would have less nickel and the iron would be in more of an oxide phase that they could give a negative response on a detector properly ground balanced to the ground, but they probably aren't Chondrites. Chondrite meteorites by nature have iron/nickel nodules which aid in their detection. In many cases they also contain similar composition as the native basalt, which can be classified as one of the leaverites. As any serious nugget hunter knows, basalt is easily detectable.

A couple of quick notes before ending this long winded post. Other leaverites such as magnetite will respond very similar to ferrite. Hematite will be more positive, and other iron oxides generally fall somewhere in between. The stony meteorites are quite similar in response as hematite.

Ground signals vary in both composition and intensity. There are different compositions that cause an audio "ground" response. One scenario might be two areas, one having little "black sand" and another might have a lot of black sand. So, the setting on the GB control that minimizes any audio response from these black sand conditions may be the same, but the actual intensity as seen by the detector may vary considerably. This is one of the reasons, the setting of the GB control as a reference will have little meaning as to the ground strength or even how a detector might respond depth wise. However, the setup I mentioned quite some time earlier for Mark 1 users displays ground intensities and does a much better job.

One final note, I have either hunted seriously with or at least tried some 15 to 20 different detectors on Gold Basin meteorites. All have had fundamentally the same response providing the ground balance is set correctly.

I no longer have my Compass AU 2000 but I am sure from what I remember about this detector, that this machine would work quite well for both nugget and meteorite hunting.

Reg

Thanx Reg Great Post!!

Posted by Seeker (ak) on 1/2/2002, 8:36 pm , in reply to "Re: Shootin' Star Shootout (long post)"

I think you're quite right, a lot of pieces will be identified by knowing what these meteorites should look like VS. other types of mineralized rocks, but you will be digging a lot of buried material too . to locate any rocks from outerspace so the task will be shuttled back to setting up your machine with the best adjustment for the type of space rocks that are typically found in that area... Geo

Re: Thanx Reg Great Post!!

Posted by jim straight on 1/3/2002, 1:47 am , in reply to "Thanx Reg Great Post!!"

Knowing the physical appearance of terrestrial rocks is a key to identifying those from space.

GB 1 tests

Posted by Ed in SD on 1/2/2002, 7:19 pm , in reply to "Re: Shootin' Star Shootout (long post)"

Glad you enjoyed the post Jim! I realized I hadn't tried to ground balance out a stony with the Gold Bug, so this morning I found that I could make the Gold Bug unresponsive to one by dialing it out much like you'd normally ground balance. But this was still just an air test, I've returned the samples and I have no ferrite to do more tests, so I am shot down till I get a hot rock sample to test with.

Anybody want to send me a hot rock to compare readings? I'd have to go search for one, so if somebody can lay their hands on one more directly, I could sure put it to use.

One of the big problems with my tests is that they are only air tests. If one was conducting tests on a sample in hand that would work, but I have no idea at this point how much these readings would change if done in the field.

We'll have [another session](#) at some point to try to test for that.

HH-Ed

Re: GB 1 tests

Posted by jim straight on 1/2/2002, 8:06 pm , in reply to "GB 1 tests"

Hello Ed

Just get a sample of the local soil as found in your area. Ground balance to neutral; more than likely this will be the "zero" reference point you will find adequate for your needs. The so-called positive and negative hot rocks have a different magnetic loss angle; as will a iron, stony-iron, or an H, L, or LL, stony common chondrite. It is my understanding that all the above three kinds of meteorites, including the stonys (all having some "iron") will strongly to weakly react to a detector; also, all will react to a magnet; but some only weakly. I suspect, depending upon the chemistry of the local soil a meteorite is found in, as well as the chemistry of the individual fall, the meteorite could react similar to a terrestrial plus or minus hot rock.

I'm confused regarding terrestrial pyrrhotite, a iron-sulphide, which can react to a metal detector and be magnetic; depending upon its varying iron-composition. However, in a meteorite, pyrrhotite may not(???) react at all to a magnet or detector. Maybe one of the staff where you are getting the samples can answer this for us?

I hope someone will jump in and add/correct this post. Best to All, Jim

Hematite, magnetite

Posted by Ed in SD on 1/3/2002, 1:41 am , in reply to "Re: GB 1 tests"

One of my "mystery rocks" that I tested with is Hematite, according to Bob Farrar. I showed it to him this afternoon and that's what he said. However, I don't see any crystal structure to it, it leaves a black streak instead of a red one and I noted it is magnetized as well as magnetic, so I was thinking maybe Magnetite. But, I'm no geologist, while Bob has a degree in it, so who am I to argue?

It reads so similarly to a meteorite, I feel it could substitute for one in my tests. Tonite, I ground down one end of it and polished it up a bit. It is not "metal" per se, but more like a high-metallic carbon motor brush or something. It was very homogenous on the face that I ground, this fact alone would take it out of the meteorite class of rocks as I understand it.

At any rate, it should suffice as a test sample to either compare with a meteorite on mineralized ground or use to ground balance against. Warm weather is a-coming once again for a few days, maybe I will get a chance to do wrap up my testing with some outdoor experiments.

As Reg has pointed out, field tests in the actual soil are the key to understanding how detectors will respond and ground balancing would definitely play a larger role than it did in my air tests. In those tests a lowly First Texas VLF beat out the Gold Bug for depth on the stony meteorites, I am very curious if this will hold true in the down and dirty "real" world.

HH-Ed

Re: Hematite, magnetite

Posted by jim straight on 1/3/2002, 1:58 am , in reply to "Hematite, magnetite"

the streak of hematite is cherry-red to reddish brown; this is one of the tests that distinguishes hematite from magnetite which has a black streak.

Jim that material bothers

Posted by Seeker (ak) on 1/2/2002, 9:00 pm , in reply to "Re: GB 1 tests"

me too. and I am wondering how the intense heat of re-entry would affect the structure. OK I

think I have got it. Pyrrhotite basically is a magmatic mineral, from high temperature ore veins, .. meteorites contain FeS (troilite) which is non-magnetic and a ferrous sulphide... ...Geo

Re: Jim that material bothers

Posted by jim straight on 1/3/2002, 1:44 am , in reply to "Jim that material bothers "

Howdy George--- I'm sure you are right, you have done your homework! According to my ol' college text book; "A Textbook of Mineralogy" (1932) by Dana/Ford on page 428 in fine print "Pyrrhotite differs from troilite in containing more or less dissolved sulphur, while troilite, occurring in meteorites where there is always an excess of iron, may form the pure monosulphide"---. On page 429; it "occurs commonly in iron meteorites, disseminated more or less sparingly through the mass---" Pyrrhotite is also called "magnetic pyrites" and can be nickeliferous such as at Sudbury Ontario. Terrestrial troilite occurs north-east of Crescent City, CA, "in massive form in serpentine with magnetite." Also it is found elsewhere.

Although I graduated back in the dark ages--- I saved all of my books and continuously added reference texts; thus, I also have a textbook by Shand (1949), "Eruptive Rocks," with a chapter on "meteorites." This originally opened my eyes to the study of space rocks as Professor Shand (geology, Columbia) was one of the early leaders in vocalizing the need to study the three major kinds of meteorites as representing the various horizons of earth rocks from the surface to the core. At this time "plate tectonics" was unknown as were meteorites--- craters--- having a role in historical geology; since then this knowledge has made many missing pieces--- important in understanding ore deposits in the cordillera--- fit into place.

I feel very insignificant with my limited knowledge so keep it rolling. What can you--- anyone--- add to pyrrhotite/ troilite and their role in meteorites?

Meteoritists must understand chemistry, both terrestrial mineralogy and petrology, as well as the earth's historical geology to be able to relate to space rocks. This will become the new-frontier as exploration geology was a century ago.

Re: GB 1 tests

Posted by Reg Sniff on 1/2/2002, 8:06 pm , in reply to "GB 1 tests"

Hi Ed,

You should be able to "dial" out the Gold Basin meteorite so it gives little or no signal with a

Gold Bug or most other detectors having a ground balance control. The air test will be the same response you will get from the meteorite should you bury it in the ground.

Most likely, you will be able to adjust the ground balance so the same meteorite gives a negative response also just by adjusting the GB control some more.

Reg