Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by rmoss4 on Fri, 11 Apr 2003 02:19:16 GMT
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It sounds like you might be having a problem because of byte arithmetic.
What is the data type of you imagery?

Robert Moss, PhD

xinhai68 wrote:
> I have a strange problem. I often used band math to generate mask,
> such as "b1 gt 0" will give me 1 to all points which satisfies the
> condition. But now I want to find all points that b1>b2, I meet
> unexpected result. If I use "b1 gt b2", I get the correct answer. If I
> use "(b1 - b2) gt 0", ENVI will also return a result, but I can not
> guess what ENVI is doing because the result is weird. Can anyone tell
> me what happened? Thanks

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by cshen on Fri, 11 Apr 2003 05:48:37 GMT
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0-255

Thanks

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by rmoss4 on Fri, 11 Apr 2003 14:10:10 GMT
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I'd say that's the problem. Try converting the data to integer and see
how it looks.

Robert Moss, PhD

xinhai68 wrote:
> 0-255
>
> Thanks

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by cshen on Sat, 12 Apr 2003 00:59:34 GMT
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I do not think so. You could try using ENVI's self-contained example
bhtmref.img to do "b1 gt b2" and "(b1-b2)gt 0" to see the different
result.

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by rmoss4 on Sat, 12 Apr 2003 02:59:04 GMT
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That's what it is. Trust me on this. Here's an example:

Take a single pixel in each band, i.e.

b1 = 17B
b2 = 18B

Remember, these are both bytes.

Then you get

(b1 gt b2) = 0B
(b1 - b2) gt 0 = 255B (b1 - b2) = -1 = 255B > 0

Robert Moss, PhD

xinhai68 wrote:
> I do not think so. You could try using ENVI's self-contained example
> bhtmref.img to do "b1 gt b2" and "(b1-b2)gt 0" to see the different
> result.

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by rmoss4 on Sat, 12 Apr 2003 03:02:08 GMT
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Um, that should have been

(b1 - b2) gt 0 = 1B i.e. (b1 - b2) = -1 = 255B > 0 = 1

Nevertheless, the point is the same: it is the byte arithmetic that is
causing your confusion.

R

Robert Moss wrote:

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>
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>
> b1 = 17B
> b2 = 18B
>
> Remember, these are both bytes.
>
> Then you get
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> (b1 - b2) gt 0 = 255B (b1 - b2) = -1 = 255B > 0
>
> Robert Moss, PhD
>
>
>
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>
>

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by David Fanning on Sat, 12 Apr 2003 03:29:02 GMT
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Robert Moss (rmoss4@houston.rr.com) writes:

> That's what it is. Trust me on this. Here's an example:

I'm coming late to this. Have we already placed
bets. I've got $5 on Robert!

Cheers,

David
--
David W. Fanning, Ph.D.
Fanning Software Consulting, Inc.
Phone: 970-221-0438, E-mail: david@dfanning.com
Coyote's Guide to IDL Programming: http://www.dfanning.com/
Toll-Free IDL Book Orders: 1-888-461-0155

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by cshen on Sat, 12 Apr 2003 09:21:30 GMT
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Thanks all. Now I understand what happened. But, could you enlighten me how to solve the problem? I want to use the format of "(b1 - b2) gt 0" because my real expression would be much complicated and I want to put variables on same side.

Subject: Re: ENVI band math: "b1 gt b2 " , "(b1-b2) gt 0" same or not?
Posted by rmoss4 on Sat, 12 Apr 2003 15:25:13 GMT
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Convert your image to integer type (or floating point, depending on exactly what you are doing to it). Yes, it will cost you storage space.
Using band math, you could use the expression

((fix(b1) - fix(b2)) gt 0)

This will produce the expected results.

Robert Moss, PhD

xinhai68 wrote:
> Thanks all. Now I understand what happened. But, could you enlighten
> me how to solve the problem? I want to use the format of "(b1 - b2) gt
> 0" because my real expression would be much complicated and I want to
> put variables on same side.