
Subject: divide by zero problems

Posted by [Mark Rehbein](#) on Tue, 11 May 1999 07:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

Hi,

I'm having problems with floating point divide by zero's. The application I'm using IDL for is image composition and masking. Basically, my images have cloud pixels that I have changed to a zero value. I also have a mask of the image that has values 1 for good pixel and 0 for bad pixels (cloud). I then add all my images together to get a "sum image" and add all my masks together to get a "sum mask".

Now to composite or average the images I do the following:

$\text{composite} = \text{sum image} / \text{sum mask}.$

sometimes my images are very cloudy and as such my "sum mask" has zero's in it and likewise for my "sum image". So I get divide by zero's and NaN's in my resultant composite image. In fact I get whole image of NaN's in my composite even though my sum image and sum mask have decent values in them.

I'm using IDL 5.2 on UNIX box running solaris 2.6. Can anyone help?

please email me

mrehbein@aims.gov.au

Thanks in advance

Mark

Subject: Re: divide by zero problems

Posted by [davidf](#) on Thu, 13 May 1999 07:00:00 GMT

[View Forum Message](#) <> [Reply to Message](#)

Mark Hadfield (m.hadfield@niwa.cri.nz) writes:

> ...Sigh, I guess I'll have to switch to Matlab!

Humm. No objects, though. :-(

Cheers,

David

--

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

Subject: Re: divide by zero problems
Posted by [korpela](#) on Thu, 13 May 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

In article <7he06l\$m68\$1@news5.svr.pol.co.uk>,
<asowter@synopticsga.freemove.co.uk> wrote:
> I also had a similar problem but I used the FINITE function to test the
> result.

Yes, this is probably the best way. Apparently the IDL on some platforms
is not IEEE compliant. On those platforms (!values.f_NaN eq !values.f_NaN)
can be true. I would consider this to be a major bug and would not use
IDL on such a platform.

Eric

--

Eric Korpela | An object at rest can never be
korpela@ssl.berkeley.edu | stopped.
Click for home page.

Subject: Re: divide by zero problems
Posted by [bowman](#) on Fri, 14 May 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

```
> IDL> PRINT, !VALUES.F_NAN EQ !VALUES.F_NAN  
> 1  
> % Program caused arithmetic error: Floating illegal operand
```

I thought that by definition NaNs are not a number and hence not equal to
anything else. Thus the FINITE function.

Ken Bowman

Subject: Re: divide by zero problems
Posted by [mallors](#) on Fri, 14 May 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

In article <7hfhke\$gn7\$1@clam.niwa.cri.nz>,
"Mark Hadfield" <m.hadfield@niwa.cri.nz> writes:
>> Apparently the IDL on some platforms
>> is not IEEE compliant. On those platforms (!values.f_NaN eq
> !values.f_NaN)
>> can be true. I would consider this to be a major bug and would not use
>> IDL on such a platform.
>
> IDL 5.2 on Windows NT gives:
>
> IDL> print, !values.f_NaN eq !values.f_NaN
> 1
> % Program caused arithmetic error: Floating illegal operand
>
> ...Sigh, I guess I'll have to switch to Matlab!
>

Naw, just switch to Linux :-)

```
IDL> PRINT, !VALUES.F_NAN EQ !VALUES.F_NAN
0
```

--

~~~~~  
Robert S. Mallozzi 256-544-0887  
Mail Code ES 84  
Work: <http://gammaray.msfc.nasa.gov/> Marshall Space Flight Center  
Play: <http://cspar.uah.edu/~mallozzir/> Huntsville, AL 35812  
~~~~~

Subject: Re: divide by zero problems
Posted by [Mark Hadfield](#) on Fri, 14 May 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

> Apparently the IDL on some platforms
> is not IEEE compliant. On those platforms (!values.f_NaN eq
!values.f_NaN)
> can be true. I would consider this to be a major bug and would not use
> IDL on such a platform.

IDL 5.2 on Windows NT gives:

```
IDL> print, !values.f_NaN eq !values.f_NaN
1
```

% Program caused arithmetic error: Floating illegal operand

...Sigh, I guess I'll have to switch to Matlab!

Mark Hadfield m.hadfield@niwa.cri.nz
National Institute for Water and Atmospheric Research
PO Box 14-901, Wellington, New Zealand

Subject: Re: divide by zero problems
Posted by [korpela](#) on Sat, 15 May 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

In article <bowman-1405991756240001@tl6-218-141.tca.net>,
Kenneth P. Bowman <bowman@null.tamu.edu> wrote:
>> IDL> PRINT, !VALUES.F_NAN EQ !VALUES.F_NAN
>> 1
>> % Program caused arithmetic error: Floating illegal operand
>
> I thought that by definition NaNs are not a number and hence not equal to
> *anything* else. Thus the FINITE function.

That's the point. In IEEE math there is no need for a FINITE function.
X eq X is enough to test for NaN. X EQ !Values.F_NAN should always return
0. Even if X is NaN. Period. Excamation point!

If RSI thinks it's not important that IDL be IEEE compliant, they're wrong.
I may consider that bit of non-portability/non-compliance a good reason not
to code for IDL under ANY platform.

Eric

--

Eric Korpela | An object at rest can never be
korpela@ssl.berkeley.edu | stopped.
Click for home page.

Subject: Re: divide by zero problems
Posted by [Frank Monaldo](#) on Tue, 18 May 1999 07:00:00 GMT
[View Forum Message](#) <> [Reply to Message](#)

Mark Rehbein wrote:
>
Mark,

Try

w= where(total(mask) gt 0)

composite= sum_image(w) / sum_mask(w)

Regards,
Frank Monaldo

Frank Monaldo Work: Frank_Monaldo@jhuapl.edu
The Johns Hopkins University Personal: fmm@us.net
Applied Physics Laboratory Voice: 240-228-8648
Johns Hopkins Rd FAX: 240-228-5548
Laurel, MD 20723-6099
