Subject: Re: max, mean, min of array
Posted by David Fanning on Sun, 06 Jan 2002 15:42:52 GMT
View Forum Message <> Reply to Message

Dinh Huong (dinhnq@yahoo.com) writes:

> output is 400x400 image. How to solve this by IDL?
> Any help will be appreciate,

I would hustle over to Craig Markwardt's web page
and get ahold of his CMAPPLY program ASAP:

http://cow.physics.wisc.edu/~craigm/idl/arrays.html

Cheers,

David
--
David W. Fanning, Ph.D.
Fanning Software Consulting
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: max, mean, min of array
Posted by Wayne Landsman on Sun, 06 Jan 2002 19:50:14 GMT
View Forum Message <> Reply to Message

Dinh Huong wrote:

> Dear Lists,
>
> I have an array of 400,400,10 contains 10 month Tï¿½ of 400x400 pixel
> area. I am trying to calculate min, max, mean Tï¿½for each pixel and
> output is 400x400 image. How to solve this by IDL?
> Any help will be appreciate,

In IDL V5.5, if you have a 400 by 400 by 10 array, you can find the
maximum over the 3rd dimension using the DIMENSION keyword.

IDL> pixmax = max(array, dimen=3) ;Return a 400 x 400
array

In earlier versions of IDL you have to loop over each pixel, and (as
David mentioned) Craig Markwardt's CMAPPLY will make sure that this

looping is done as efficiently as possible.

--Wayne

P.S. While I am grateful to RSI for adding dimension-specific capabilities in V5.5 to MIN, MAX, FFT, and SMOOTH, I would still very much like to see the same capability added to MEDIAN. (The customer is never satisfied....)

Subject: Re: max, mean, min of array
Posted by Craig Markwardt on Sun, 06 Jan 2002 20:25:28 GMT
View Forum Message <> Reply to Message

David Fanning <david@dfanning.com> writes:

> Dinh Huong (dinhnq@yahoo.com) writes:
>

>> output is 400x400 image. How to solve this by IDL?
>> Any help will be appreciate,
>
> I would hustle over to Craig Markwardt's web page
> and get ahold of his CMAPPLY program ASAP:
>
> http://cow.physics.wisc.edu/~craigm/idl/arrays.html

Which, unfortunately, still does 400x400 max/min calls, as Wayne points out.

Craig

--
---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------

Subject: Re: max, mean, min of array
Posted by dinhnq on Mon, 07 Jan 2002 10:52:37 GMT
View Forum Message <> Reply to Message

Thank you all for your suggestions. Now it works.

Dinh Huong

Wayne Landsman <landsman@mpb.gsfc.nasa.gov> wrote in message news:<3C38AA76.69754BEC@mpb.gsfc.nasa.gov>...
> Dinh Huong wrote:
>
>> Dear Lists,
>>
>> I have an array of 400,400,10 contains 10 month Tï¿½ of 400x400 pixel
>> area. I am trying to calculate min, max, mean Tï¿½for each pixel and
>> output is 400x400 image. How to solve this by IDL?
>> Any help will be appreciate,
>
> In IDL V5.5, if you have a 400 by 400 by 10 array, you can find the
> maximum over the 3rd dimension using the DIMENSION keyword.
>
> IDL> pixmax = max(array, dimen=3) ;Return a 400 x 400
> array
>
> In earlier versions of IDL you have to loop over each pixel, and (as
> David mentioned) Craig Markwardt's CMAPPLY will make sure that this
> looping is done as efficiently as possible.
>
> --Wayne
>
> P.S. While I am grateful to RSI for adding dimension-specific
> capabilities in V5.5 to MIN, MAX, FFT, and SMOOTH, I would still very
> much like to see the same capability added to MEDIAN. (The customer
> is never satisfied....)

Subject: Re: max, mean, min of array
Posted by Alex Schuster on Wed, 23 Jan 2002 15:04:47 GMT
View Forum Message <> Reply to Message

Wayne Landsman wrote, a while ago:

> Dinh Huong wrote:

>> I have an array of 400,400,10 contains 10 month Tï¿½ of 400x400 pixel
>> area. I am trying to calculate min, max, mean Tï¿½for each pixel and
>> output is 400x400 image. How to solve this by IDL?
>> Any help will be appreciate,
>
> In IDL V5.5, if you have a 400 by 400 by 10 array, you can find the
> maximum over the 3rd dimension using the DIMENSION keyword.

>
> IDL> pixmax = max(array, dimen=3) ;Return a 400 x 400 array
>
> In earlier versions of IDL you have to loop over each pixel, and (as
> David mentioned) Craig Markwardt's CMAPPLY will make sure that this
> looping is done as efficiently as possible.

It's possible without, um, with fewer loops:

```
zdim = (size( array, /dimension ))[2]
pixmin = ( pixmax = array[*,*,0] )
for i = 1, zdim-1 do begin
 pixmax = pixmax > array[*,*,i]
 pixmin = pixmin < array[*,*,i]
endfor
pixmean = total( array, 3 ) / zdim
```

Hey Craig, I think with this method you can get rid of your ho, hum
comment in cmapply.pro.

Alex
--
Alex Schuster Wonko@planet-interkom.de
alex@pet.mpin-koeln.mpg.de

Subject: Re: max, mean, min of array
Posted by Craig Markwardt on Thu, 24 Jan 2002 15:29:28 GMT
View Forum Message <> Reply to Message

Alex Schuster <Wonko@planet-interkom.de> writes:
> It's possible without, um, with fewer loops:
>
> zdim = (size(array, /dimension))[2]
> pixmin = (pixmax = array[*,*,0])
> for i = 1, zdim-1 do begin
> pixmax = pixmax > array[*,*,i]
> pixmin = pixmin < array[*,*,i]
> endfor
> pixmean = total(array, 3) / zdim
>
> Hey Craig, I think with this method you can get rid of your ho, hum
> comment in cmapply.pro.

Very cool! I think I've been "outvectored" on this one.

Alex, I think *both* solutions should be possible. Consider the
following scenario: instead of a 400x400x12 array, how about a

2x2x1000000 array? Using your technique we would end up doing 1000000 iterations, but with mine it would only be 4.

Thus, the code should contain both solutions, and pick whichever one takes fewer iterations.

Craig

--

---------- ----------
Craig B. Markwardt, Ph.D. EMAIL: craigmnet@cow.physics.wisc.edu
Astrophysics, IDL, Finance, Derivatives | Remove "net" for better response
---------- ----------