
Subject: Re: Avoiding a for cicle
Posted by [John-David T. Smith](#) on Tue, 11 Apr 2000 07:00:00 GMT
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Craig Markwardt wrote:

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>
> Benno Puetz <puetz@mpipsykl.mpg.de> writes:
>> "J.D. Smith" wrote:
>>> Ricardo Fonseca wrote:
>>>>
>>>> Hi
>>>>
>>>> I'm looking for a more efficient way of implementing the following (i.e.
>>>> avoiding the for cycle) which is a routine for finding local maximums
>>>>
> ...
>>>> for i = 1, nx-1 do $
>>>>   if ((Data[i] gt Data[i-1]) and (Data[i] gt Data[i+1])) then $
>>>>     max_pos = [[max_pos],i]
>>>>
>>>> ; and then throw away the first element...
>>>
>>> max_pos = where(data gt median(data,3))
>>>
>>
>> While this is rather efficient concerning code length,
>>
>>
>> maxpos = WHERE(TEMPORARY(data[0:nx-3]) LT TEMPORARY(data[1:nx-2]) AND $
>>
>>     TEMPORARY(data[1:nx-2]) GT TEMPORARY(data[2:nx-1])) + 1
>>
>> should execute faster, especially for longer arrays
>
> And the code-shortened version of this is:
>
> maxpos = where((data LT data(1:*)) AND (data(1:*) GT data(2:*)) + 1
>
> There are two key things to note here. First, TEMPORARY is not needed
> when you are indexing an array, since subscripted array expressions
> are already considered temporary. Second, IDL automatically truncates
> 1-D arrays in binary operations. So, the finite difference expression
> normally written like this:
>
> diff = data(1:nx-1) - data(0:nx-2)
>
> can be written like this:
>
```

```
> diff = data(1:*) - data
>
> The two data arrays are of different length, so IDL takes the shortest
> of each. Saves some keystrokes, and the calculation of NX.
>
```

Alright code slingers... new challenge... find location of all peaks in a region of n points (n odd), monotonically decreasing away from the peak. I.e. find peaks of width n.

e.g. an n=5 peak:

```
-
--
-- -
```

I'll reserve my entry until I see the contenders. Points are awarded for unusual use of obscure IDL functions, brevity, style, lip synch, and congeniality.

JD

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