Subject: Re: Avoiding a for cicle Posted by John-David T. Smith on Tue, 11 Apr 2000 07:00:00 GMT View Forum Message <> Reply to Message

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Craig Markwardt wrote:
> 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 maximuns
>>>>
> ...
>>>  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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