Subject: Re: reading dem
Posted by Craig Markwardt on Wed, 30 Aug 2000 07:00:00 GMT
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Sylvain,

Part of the problem is that very few people have any direct experience with what you are trying. Some, including me, offered some general advice, hoping that would help, but reading byte-level DEM's is not exactly common knowledge. Also realize that a topic so focussed and specific as yours is not likely to pique anybody's interst. In the future you would do better to describe what you need to do at a higher level, and help us by providing documentation, like I do now.

The documentation is here:
http://rockyweb.cr.usgs.gov/nmpstds/demstds.html

The DEM's are digital elevation maps, and are stored in 1024 byte blocks. The first block contains a type "A" record. The next blocks contain a type "B" record which have the actual elevation data. The actual data start at offset 144 of the record (where offset 0 is the beginning); there are 1201x1201 elements stored, 146 in the first 1024-block, and then 170 in the successive 1024-blocks. Elevation values are stored as ASCII format=(I6).

The key thing to realize that all the data is in ASCII, separated by blanks. Therefore, while we could read each 1024-block in turn, it's better to just do a formatted READF. There is no need to work at the byte level, except at the beginning to get to the right file offset. Unfortunately IDL can only read 32k elements at a time, so I read a row at a time as a compromise.

```
pro readdem250, file, im
  m = 1201L & n = 1201L ;; Really get this from Type A, element 16
  im = lonarr(m, n)     ;; Formally defined as INTEGER*4

  openr, lun, file, /get_lun
  ;; Skip past type A record and 144 bytes of Type B record
  point_lun, lun, 1024L + 144L

  ;; Read data, one row at a time
  row = im(*,0)
  for i = 0, 1200 do begin
    readf, lun, row, format='(1201(I6))'
    im(*,i) = row
  endfor
  free_lun, lun
end
```

Of course I haven't tested this, but you can use this as a starting point.

Craig

P.S. If you are still interested in the block structure, then you would read the blocks like this:

```
bb = bytarr(1024)*nblocks
readu, lun, bb
```

This avoids some extraneous STRING calls.

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