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Subject: Re: Expand

Posted by [Kevin Ivory](#) on Tue, 06 Jan 1998 08:00:00 GMT

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Kelly Dean wrote:

>  
> I am reading some AVHRR LAC data in the Level 1B format. The image  
> provides 51 latitude/longitude pairs for each 2048 pixel scan line. They  
> are sampled every 40 points starting at point 25 (25, 65, 105,..., 1945,  
> 1985, 2025).  
>  
> I created a simple IDL routine to expand the 51 values to 2048 values  
> using FOR loops. I am looking for suggestions to make this more  
> efficient.

Look into the 'interpolate' documentation and use 'findgen' instead of the  
extrapolation for loops.

I did your job for you: (untested code)

```
FUNCTION INTER2048, array51
;+
; PURPOSE:
;   Interpolate AVHRR LAC data in the Level 1B format to 2048 values.
;   The image provides 51 latitude/longitude pairs for each 2048 pixel
;   scan line. They are sampled every 40 points starting at point 25
;   (25, 65, 105,..., 1945, 1985, 2025).
;-
  start   = 24
  interval = 40
  n_pix   = 2048
  n_in    = n_elements(array51) ; should be 51
  last    = start + (n_in-1) * interval ; this is going to be 2024
  array2048 = FLTarr(n_pix)
;
  dvalue = (array51(1) - array51(0)) / interval
; extrapolation to the left
  array2048(0:start-1) = array51(0) - dvalue * findgen(start)
; interpolation
  array2048(start:last-1) = interpolate(array51, findgen(last-start)/interval)
; extrapolation to the right
  dvalue = (array51(n_in-1) - array51(n_in-2)) / interval
  array2048(last:n_pix-1) = array51(n_in-1) + dvalue * findgen(n_pix-last)

  RETURN, array2048
END
```

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