Subject: Re: How color my wind vectors?
Posted by R.G. Stockwell on Tue, 28 Sep 2004 18:07:40 GMT
View Forum Message <> Reply to Message

"Ce" <cecilik@yahoo.com> wrote in message news:5af4d059.0409280354.3a0fd75a@posting.google.com...

- > Hi all,
- > I have a wind dataset: U, V, Lon and Lat. I draw my wind vectors with
- > velovect procedure and I overplot my vectors on a map, but I don't
- > know how color my vectors. I managed to color but with the same color,
- > I didn't manage to scaled the colour with the velocity of wind. I'm
- > seeking in this groups but don't find.
- > Thanks for your help.
- > Cheers
- > Cecilia

looks like you will have to modify the code, and put the appropriate color keyword into the plot command:

F'rinstance

where you have created the appropriate colorvalue vector.

Cheers, bob

Subject: Re: How color my wind vectors?

Posted by R.G. Stockwell on Tue, 28 Sep 2004 18:46:44 GMT

View Forum Message <> Reply to Message

#### OR

pass the vector of colour directly to velovect like so (assuming all points are good and that stuff).

The problem is:

You can pass an array of color to plotS, but not to plot.

[extra keywords go to both routines]

therefore you have to edit the velovect code to accept a color keyword, and directly call it in the plots command (like above) and not the plot command.

actually it's probably faster to do the change then describe it:

: Create some random data: U = RANDOMN(S, 20, 20)V = RANDOMN(S, 20, 20) $mag = sqrt(u^2+v^2)$ mag = mag/max(mag)\*255: Plot the vector field: VELOVECT\_color, U, V, arrowcolor = mag end here is the routine with the tiny change to it: \$Id: velovect.pro,v 1.23 2004/01/21 15:55:04 scottm Exp \$ Copyright (c) 1983-2004, Research Systems, Inc. All rights reserved. Unauthorized reproduction prohibited. : NAME: **VELOVECT PURPOSE:** Produce a two-dimensional velocity field plot. A directed arrow is drawn at each point showing the direction and magnitude of the field. CATEGORY: Plotting, two-dimensional. CALLING SEQUENCE: VELOVECT, U, V [, X, Y] **INPUTS:** U: The X component of the two-dimensional field. U must be a two-dimensional array. V: The Y component of the two dimensional field. Y must have the same dimensions as X. The vector at point [i,j] has a magnitude of:  $(U[i,j]^2 + V[i,j]^2)^0.5$ 

and a direction of:

here is an example:

# ATAN2(V[i,j],U[i,j]).

# **OPTIONAL INPUT PARAMETERS:**

- X: Optional abcissae values. X must be a vector with a length equal to the first dimension of U and V.
- Y: Optional ordinate values. Y must be a vector with a length equal to the first dimension of U and V.

### **KEYWORD INPUT PARAMETERS:**

COLOR: The color index used for the plot.

DOTS: Set this keyword to 1 to place a dot at each missing point. Set this keyword to 0 or omit it to draw nothing for missing points. Has effect only if MISSING is specified.

LENGTH: Length factor. The default of 1.0 makes the longest (U,V) vector the length of a cell.

MISSING: Missing data value. Vectors with a LENGTH greater than MISSING are ignored.

OVERPLOT: Set this keyword to make VELOVECT "overplot". That is, the current graphics screen is not erased, no axes are drawn, and the previously established scaling remains in effect.

Note: All other keywords are passed directly to the PLOT procedure and may be used to set option such as TITLE, POSITION, NOERASE, etc.

## OUTPUTS:

None.

#### COMMON BLOCKS:

None.

### SIDE EFFECTS:

Plotting on the selected device is performed. System variables concerning plotting are changed.

## **RESTRICTIONS:**

None.

# PROCEDURE:

Straightforward. Unrecognized keywords are passed to the PLOT procedure.

```
; MODIFICATION HISTORY:
  DMS, RSI, Oct., 1983.
  For Sun, DMS, RSI, April, 1989.
  Added TITLE, Oct, 1990.
  Added POSITION, NOERASE, COLOR, Feb 91, RES.
  August, 1993. Vince Patrick, Adv. Visualization Lab, U. of Maryland,
    fixed errors in math.
  August, 1993. DMS, Added _EXTRA keyword inheritance.
  January, 1994, KDB. Fixed integer math which produced 0 and caused
            divide by zero errors.
  December, 1994, MWR. Added _EXTRA inheritance for PLOTS and OPLOT.
  June, 1995, MWR. Removed EXTRA inheritance for PLOTS and changed
       OPLOT to PLOTS.
    September, 1996, GGS. Changed denominator of x_step and y_step vars.
    February, 1998, DLD. Add support for CLIP and NO_CLIP keywords.
    June, 1998, DLD. Add support for OVERPLOT keyword.
  June, 2002, CT, RSI: Added the EXTRA back into PLOTS, since it will
    now (as of Nov 1995!) quietly ignore unknown keywords.
PRO velovect_color,U,V,X,Y, Missing = Missing, Length = length, Dots = dots, $
    CLIP=clip, NOCLIP=noclip, OVERPLOT=overplot, REF EXTRA=extra,$
    arrowcolor=arrowcolor
COMPILE_OPT strictarr
                           ;Return to caller if an error occurs
    on_error,2
    s = size(u)
    t = size(v)
    if s[0] ne 2 then begin
baduv: message, 'U and V parameters must be 2D and same size.'
         endif
    if total(abs(s[0:2]-t[0:2])) ne 0 then goto,baduv
    if n_{params}(0) It 3 then x = findgen(s[1]) else $
         if n elements(x) ne s[1] then begin
                message, 'X and Y arrays have incorrect size.'
badxy:
              endif
    if n_params(1) It 4 then y = findgen(s[2]) else $
         if n_elements(y) ne s[2] then goto,badxy
    if n_elements(missing) le 0 then missing = 1.0e30
    if n elements(length) le 0 then length = 1.0
    mag = sqrt(u^2.+v^2.)
                                 ;magnitude.
         ;Subscripts of good elements
    nbad = 0
                           ;# of missing points
    if n elements(missing) gt 0 then begin
```

```
good = where(mag It missing)
       if keyword set(dots) then bad = where(mag ge missing, nbad)
  endif else begin
       good = lindgen(n_elements(mag))
  endelse
  ugood = u[good]
  vgood = v[good]
  x0 = min(x)
                          ;get scaling
  x1 = max(x)
  y0 = min(y)
  y1 = max(y)
x_step=(x1-x0)/(s[1]-1.0); Convert to float. Integer math
y_step=(y_1-y_0)/(s_2-1.0); could result in divide by 0
maxmag=max([max(abs(ugood/x_step)),max(abs(vgood/y_step))])
sina = length * (ugood/maxmag)
cosa = length * (vgood/maxmag)
  if n elements(title) le 0 then title = "
  ;----- plot to get axes -----
  if n elements(noclip) eq 0 then noclip = 1
  x_b0=x0-x_step
x b1=x1+x step
y_b0=y0-y_step
y_b1=y1+y_step
  if (not keyword_set(overplot)) then begin
   if n elements(position) eq 0 then begin
     plot,[x_b0,x_b1],[y_b1,y_b0],/nodata,/xst,/yst, $
      EXTRA = extra
   endif else begin
     plot,[x_b0,x_b1],[y_b1,y_b0],/nodata,/xst,/yst, $
       EXTRA = extra
   endelse
  endif
  if n_elements(clip) eq 0 then $
     clip = [!x.crange[0], !y.crange[0], !x.crange[1], !y.crange[1]]
  r = .3
                       ;len of arrow head
  angle = 22.5 * !dtor
                             ;Angle of arrowhead
  st = r * sin(angle)
                           ;sin 22.5 degs * length of head
  ct = r * cos(angle)
  for i=0L,n_elements(good)-1 do begin
                                           ;Each point
       x0 = x[good[i] mod s[1]] ;get coords of start & end
       dx = sina[i]
       x1 = x0 + dx
       y0 = y[good[i] / s[1]]
```

Subject: Re: How color my wind vectors?

Posted by cecilik on Wed, 29 Sep 2004 08:51:23 GMT

View Forum Message <> Reply to Message

Thanks, I'm trying velovect\_color.pro and finally my vectors are coloured.

I've another question about my coloured vectors:

I run velovect\_color with colortable 39 (rainbow+white) so wind low--> blue tonality wid high --> red.

My vectors are colored with red tonality, but the velocity is very

low. Where am I wrong? How do I obtain this colortable?

Sorry but I'm beginner about IDL.

Thanks a lot for you help.

Subject: Re: How color my wind vectors?
Posted by R.G. Stockwell on Wed, 29 Sep 2004 18:57:03 GMT
View Forum Message <> Reply to Message

"Ce" <cecilik@yahoo.com> wrote in message news:5af4d059.0409290051.593c57e1@posting.google.com...

- > Thanks, I'm trying velovect\_color.pro and finally my vectors are
- > coloured.

end

- > I've another question about my coloured vectors:
- > I run velovect color with colortable 39 (rainbow+white) so wind low-->
- > blue tonality wid high --> red.
- > My vectors are colored with red tonality, but the velocity is very
- > low. Where am I wrong? How do I obtain this colortable?
- > Sorry but I'm beginner about IDL.
- > Thanks a lot for you help.

Not sure what the problem is exactly, but I guess that the problem is that the example code I sent scales the velocity from 0 to 255 (which are your color table indexes) so that color=255 (red) is the maximum value of your velocities, regardless of what that velocity's numerical value is.

If you want to have a certain scale (i.e. 0 m/s = blue and 100 m/s = red) then just scale the velocities in that way. (i.e. speed = speed/ $100^*255$  or something like that, instead of speed = speed/max(speed)\*255)

Cheers, bob