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Subject: The Logistic Map

Posted by [darren](#) on Thu, 03 Mar 1994 21:00:24 GMT

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Keywords:

Greetings.

I am trying to plot out the evolution of the logistic equation, iterating  $x(i+1)=r*x(i)(1-x(i))$ , for  $r$  in  $[0,4)$ . I'd like IDL to plot a point for each value through the iteration. The problems are that I keep getting floating underflows, and I can't generate the right results. The code is just this simple bit:

Function Map, r, x

return, r\*x\*(1.0-x)

END

Pro Logistic

```
y = intarr(100) & y(*) = 0
plot, y, xrange = [0, 4], yrange = [0, 1]
for i = 0, 799 do begin
  r = i/200.0
  x = 0.5
  for j = 0, 299 do begin
    x = Map(r,x)
  endfor ; to get rid of transients
  for j = 0, 1999 do begin
    x = Map(r,x)
    k = fix(x * 600) ; plot the nearest integer
    ; to x*600
    plots, r, k
  endfor
```

END

In addition to this particular example, is there a much more optimal way of doing recursive calculations in IDL about which I'm simply not aware?

Thanks in advance.

-Darren Orbach

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