Expanding and Strengthening the Transition from NCL to Python Visualizations

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Expanding and strengthening the transition from NCL to Python visualizations
Utility Functions

Expanding and strengthening the transition from NCL to Python visualizations.
The Transition from NCL to Python

Original NCL Script

```
;***************************************************************
;  lb_1.ncl
;***************************************************************
;
; Concepts illustrated:
;  - Generating the default labelbar on a contour plot
;  - Setting color maps using the new standard
;
;***************************************************************
;
; These files are loaded by default in NCL V6.2.0 and newer
; load "$NCARG_ROOT/lib/ncarg/nclscripts/csm/gsn_code.ncl"
; load "$NCARG_ROOT/lib/ncarg/nclscripts/csm/gsn_csm.ncl"
; load "$NCARG_ROOT/lib/ncarg/nclscripts/csm/contributed.ncl"
;
;***************************************************************

begin
;***************************************************************
; open netCDF file and read in data
;***************************************************************
in = addfile("atmos.nc","r")
v = in->V
;
;***************************************************************

create plot
;***************************************************************
wks = gsn_open_wks("png","lb") ; send graphics to PNG file
res = True
res@cnFillOn = True ; turn on color
res@cnFillPalette = "wgm15" ; set color map
contour = gsn_csm_contour_map(wks,v(0,3,:,:),res) ; create the plot
end
```

GeoCAT-Examples Script
The Transition from NCL to Python

Parent Class

NCL Plot

Child Class
Child Class
Child Class
Child Class
Child Class
NCL Plot

*Parent Class*

**Functionalities**

- Format plot
  - Create figure
  - Create and format axes
- Add colorbar
- Add geographical features
- Add titles and labels
- Show plot
Added Features

- Subplot capabilities
- Overlaying plots

Updated Features

- Add colorbar arguments
- Infer colorbar placement
- Title and label inference
Features

- Plot contours
  - Contour lines
  - Filled contours
- Add contour line labels
### Geographic Coordinates

<table>
<thead>
<tr>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>30°N</td>
<td>17.5°E</td>
</tr>
<tr>
<td>15°N</td>
<td>35°E</td>
</tr>
<tr>
<td>0°</td>
<td>52.5°E</td>
</tr>
<tr>
<td>15°S</td>
<td>0°</td>
</tr>
<tr>
<td>30°S</td>
<td>17.5°E</td>
</tr>
</tbody>
</table>

### Color Scale

-12  -6  0  4  8  12  16  20  24  28  32  36  40

### Complete Script

<table>
<thead>
<tr>
<th>GeoCAT-Examples Gallery</th>
<th>Complete Script: 108</th>
</tr>
</thead>
</table>

| Original NCL            | Complete Script: 35  |

### Number of Contour Call Inputs

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
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<tbody>
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<td>Complete Script</td>
<td>28</td>
</tr>
<tr>
<td># of Contour Call Inputs</td>
<td>7</td>
</tr>
</tbody>
</table>

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Original NCL Figure

GeoCAT-Examples Gallery Figure

Contour Class Figure
Other Considerations

- Expanding and strengthening the transition from NCL to Python visualizations
- Naming Inputs
- Documentation
- Accessibility
Questions?
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GeoCAT-Examples
Gallery

GeoCAT-Examples
GitHub

GeoCAT-Viz GitHub