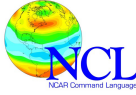



NCL Language 

Tips & Tricks


Karin Meier-Fleischer, DMRZ

NCL Language 

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NCL Language 

Debugging tips

- know your data – dimensions, order of dimensions, variables,
- start with a short script; don't use too much resources
- copy existing script and modify it
- group resources by type to get a better overview
- don't use only one resource list for different variables and plot types
- comment out resource settings to see where the problem is
- use `printVarSummary` to examine variables
 - missing coordinate arrays and units
 - no missing or `_FillValue`
- for further examine your data use the `print` function
 - `print(min(var))` and `print(max(var))` ; minimum and maximum of data
 - `print(num(issing(var)))` ; count number of missing values

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NCL Language

Debugging tips

- read errors and warnings carefully there are often line numbers given pointing to it
- use an editor for which an enhancement for highlighting is provided like
Emacs, gedit, Nedit, Notepad++, TextWrangler, vi/vim, ...
- use the graphic output format "x11" for a fast output control
- if you can't solve your problem send an email to ncl-talk@ucar.edu with a description of the problem, the script and the data your using if not too big – *don't forget to subscribe to the email list first*

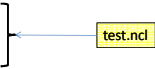
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NCL Language

Set NCL variables via command line arguments

NCL command line arguments allow you to set NCL variables and execute simple NCL code snippets from the UNIX command line or a shell script.

```
begin
  print("year: " + year)
  print("month: " + month)
  print("title: " + title)
end
```



If the variables are not initialized in the script it would fail on its own, because month, year and title are undefined.

```
>> ncl test.ncl
fatal:Variable (year) is undefined
fatal:["Execute.c":8575]:Execute: Error occurred at or near line 2 in file test.ncl
```

You can set these variables when you run NCL from the UNIX command line:

```
>> ncl year=2014 month=5 'title="This is a title"' test.ncl
```

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NCL Language

Using shell or environment variables on command line

```
csh
>> set YEAR = 2014
>> set MONTH = 5
>> set TITLE = "This is a title"
>> ncl year=${YEAR} month=${MONTH} title=${TITLE} test.ncl

sh/bash/ksh
>> YEAR=2014
>> MONTH=5
>> TITLE="This is a title"
>> ncl year=${YEAR} month=${MONTH} title=${TITLE} test.ncl
```

Call an NCL script using shell variables in a shell script:

```
ncl year=${YEAR} month=${MONTH} title=${TITLE} test.ncl
```

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NCL Language

Debugging in an NCL script (1/2)

```

begin
  ERROR = 0

  if (.not. isvar("year")) then
    print("ERROR: year undefined")
    ERROR = 900
  end if
  if (.not. isvar("month")) then
    print("ERROR: month undefined")
    ERROR = 901
  end if
  if (.not. isvar("title")) then
    print("Warning: setting title to default")
    title = "Default title string"
    print("title = " + title)
  end if

  if ((ERROR .eq. 900) .or. (ERROR .eq. 901)) then
    exit
  else
    print("year = "+year+" month = "+month+" title = "+title)
  end if
end

```

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NCL Language

Debugging in an NCL script (2/2)

```

> ncl test.ncl
Copyright (C) 1995-2015 - All Rights Reserved
University Corporation for Atmospheric Research
NCAR Command Language Version 6.3.0
The use of this software is governed by a License Agreement.
See http://www.ncl.ucar.edu/ for more details.
(0) ERROR: year undefined
(0) ERROR: month undefined
(0) Warning: setting title to default
(0) title = Default title string

> ncl year=2014 month=5 'title="My title"' test.ncl
Copyright (C) 1995-2015 - All Rights Reserved
University Corporation for Atmospheric Research
NCAR Command Language Version 6.3.0
The use of this software is governed by a License Agreement.
See http://www.ncl.ucar.edu/ for more details.
(0) year = 2014 month = 5 title = My title

```

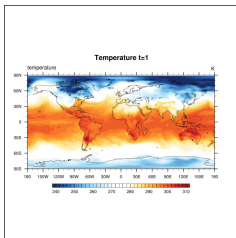
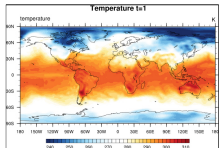
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NCL Language

Crop white space around plot

Use ImageMagicks program *convert* to crop the white space around the plot:

```
convert -alpha off -background white -trim <file> <newfile>
```

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