

NCL and Python Tools 2018-2020 Roadmap and Software Diagram

The NCL and Python tools roadmap and diagram was copied from the “NCL and the Pivot to Python: Discussion and Roadmap” report and put into its own document for easier access. The full report is available as a PDF at:

[http://www.ncl.ucar.edu/Document/Pivot to Python/](http://www.ncl.ucar.edu/Document/Pivot%20to%20Python/)

For a short description of the software tools mentioned in the roadmap, refer to the software diagram at the end of this document.

Roadmap Legend	
CM	Completed Milestone
SM	Scheduled Milestone
IP	In Progress
PW	Planned Work

NCL and Python Tools Software Release Roadmap									
NCL	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 6.5.0</u> <ul style="list-style-type: none"> Subprocess module Several new computational routines Graphical enhancements 	CM								
<u>Version 6.6.0 *</u> <ul style="list-style-type: none"> New WRF-NCL functions WRF-NCL performance enhancements WRF-NCL bug fixes Contributor’s Guide Apache 2.0 License 	IP	IP	SM IP						
* This will be the last feature release of NCL. After this point it will go into maintenance mode and software development will be focused on the Python tools, “NCOMP”, and open development efforts.									
“NCOMP”	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 1.0.0</u> <ul style="list-style-type: none"> NCL computational library factored into its own package 		IP	SM IP						

<ul style="list-style-type: none"> Add language agnostic C wrappers to subset of computational routines Contributor's Guide 		IP	IP						
			PW						
<u>Version 1.1.0</u> <ul style="list-style-type: none"> Add more language agnostic C wrappers Performance enhancements (OpenMP, OpenACC) 			PW	PW	PW	SM			
			PW	PW	PW				
“NVIZ”	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 1.0.0</u> <ul style="list-style-type: none"> NCL graphical library and components factored into their own package Contributor's Guide 				SM					
		IP	IP	PW					
			PW	PW					
<u>Version 1.1.0</u> <ul style="list-style-type: none"> GPU performance enhancements applied to contouring 						SM			
		IP	IP	PW	PW	PW			
“PyNComp”	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 0.1 – internal release</u> <ul style="list-style-type: none"> Subset of NCL computational routines ported to Python based on CVDP pilot project (running average, dtrend, some climatologies) Contributor's Guide 									
		IP	IP						
			PW						
<u>Version 0.2 – internal release</u> <ul style="list-style-type: none"> More NCL computational routines ported (EOFs, interpolation) 					SM				
			PW	PW					
<u>Version 1.0 – public release</u> <ul style="list-style-type: none"> Performances enhancements (xarray/dask) 						SM			
				PW	PW				
WRF-Python	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 1.3.0</u>									
		CM							

<ul style="list-style-type: none"> • Cross-section enhancements • Bug fixes 									
<u>Version 1.3.1</u> <ul style="list-style-type: none"> • Contributor's Guide 		IP	SM IP						
<u>Version 2.0.0</u> <ul style="list-style-type: none"> • Xarray input support • Performance enhancements (dask) 			PW PW	PW PW	SM PW PW				
PyNIO	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 1.5.2</u> <ul style="list-style-type: none"> • Improved support for Python 3.x 	CM								
<u>Version 1.5.3</u> <ul style="list-style-type: none"> • Critical bug-fix release (if needed) 		CM							
<u>Version 1.6.0</u> <ul style="list-style-type: none"> • Improved support for Python 3.x • Apache 2.0 License 		CM							
<u>Versions 1.6.x</u> * <ul style="list-style-type: none"> • Bug fix releases (as needed) 			SM						
* PyNIO is in maintenance mode while being evaluated against other Python packages like xarray and cfgrid. Critical bug fix releases will be deployed as possible.									
PyNGL	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
<u>Version 1.6.0</u> <ul style="list-style-type: none"> • Support for Python 3.x 	CM								
<u>Version 1.6.1</u> <ul style="list-style-type: none"> • Minor Python 3.x bug fixes • Apache 2.0 License 		CM							
<u>Version 2.0.0</u> <ul style="list-style-type: none"> • Xarray input support • Extended suite of examples to include xarray • Contributor's Guide 				PW PW PW	PW PW PW	SM PW PW			
<u>Version 3.0.0</u> <ul style="list-style-type: none"> • Performance enhancements (GPU) applied to contouring 		IP	IP	PW	PW	PW	SM PW		

Pivot to Python and Training Roadmap									
Pivot to Python	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
Host NCL Advisory Panel Meeting	CM				SM				
Officially announce NCL-to-Python pivot			SM						
CVDP Pilot Project (Convert NCL CVDP scripts to Python)	IP	IP	IP	PW					
Convert NCL application examples to Python and create new Python examples		IP	IP	PW	PW	PW	PW	PW	PW
Write first draft of “NCL-to-Python” transition guide	IP	IP	CM						
Evaluate PyNGL with other Python graphics packages (Iris, matplotlib, cartopy, xESMF, MetPy, others)	IP	IP	IP	PW	PW				
Evaluate PyNIO with other Python file I/O packages (xarray, cfrib, netcdf4python, others)		IP	IP	PW	PW				
Evaluate Python computational packages (ESMPy, xESMF, Iris, others)			PW	PW	PW				
Establish online forum for Python tools user support					SM				
Host informational webinars on pivot to Python plans			PW	PW	PW				
Training	Jul-Sep 2018	Oct-Dec 2018	Jan-Mar 2019	Apr-Jun 2019	Jul-Sep 2019	Oct-Dec 2019	Jan-Mar 2020	Apr-Jun 2020	Jul-Sep 2020
Official end of NCL Workshops	CM								
WRF-Python / VAPOR Tutorial at Boise State	CM								
Develop Data Carpentry training modules						PW	PW	PW	PW
Develop and host NCL-to-Python transition tutorials				PW	PW	PW	PW	PW	PW
Conduct training on how to contribute software				PW	PW	PW	PW	PW	PW
Host Python training similar to NCL Workshops						PW	PW	PW	PW

Diagram of current suite of NCL and Python

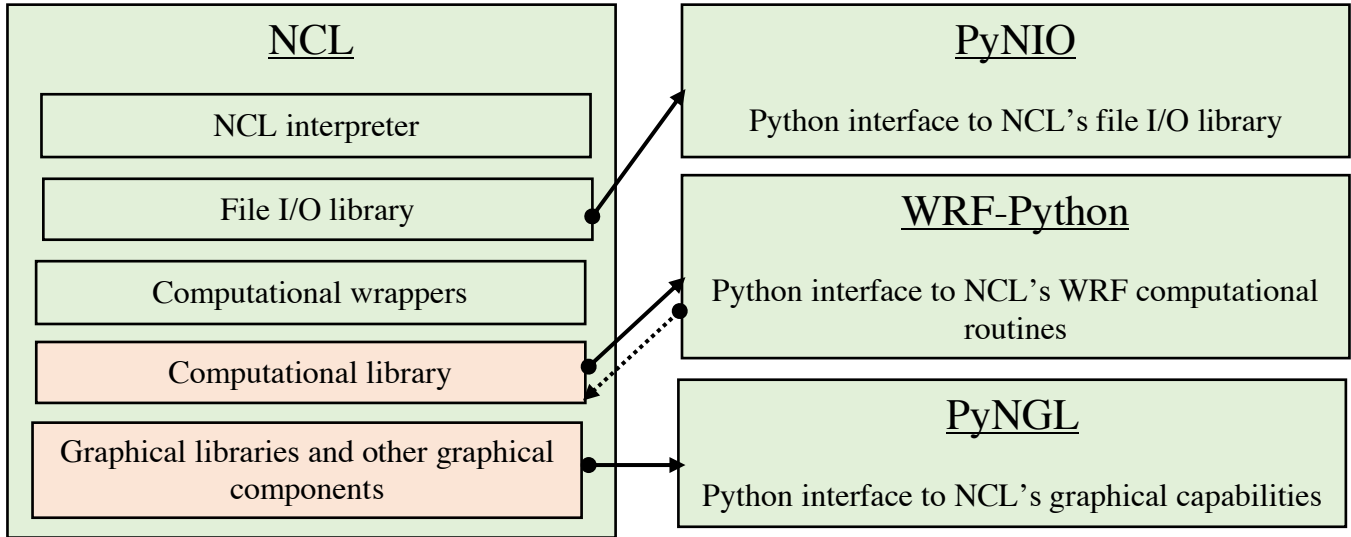


Diagram of restructured NCL and Python software

