**Release Notes:  CPCI v1.5.0 - released to NCO on December 16, 2022**

**WHAT ARE THE CHANGES FOR?**

This model release involves the inclusion of two separate python based applications (jobs) from the GEFS and GFS model outputs. These are in addition to the 3 applications (jobs) in the earlier version cpci v1.4.2 currently in production.

The first application generates plots of GEFS EPS grams at the grid points close to the selected African synoptic station locations.

The second application generates GFS SKEWT plots at the grid points close to the selected African synoptic station locations.

All these applications are in support of the NWS International commitments, that include the NMHS of the African countries and other international regions including the WMO RCC. The two new applications GFS skewt and GEFS EPS grams were earlier using Grads software which was not supported by the NCO on wcoss2. To make these applications as part of the NCO CPCI production suite, these applications were migrated to the python platform that is supported by the NCO.

**INPUT CHANGES:**

These two new python based applications use model outputs in GRIB2 format as opposed to the earlier version 3 applications that use the GEMPAK model output data. The required model variables are extracted using wgrib2 utility.

**OUTPUT CHANGES:**

These two new python based applications produce images in the PNG format as opposed to the gif images from the GEMPAK applications. The outputs are saved in the respective $COMOUT/$TAROUT locations.

**pre-implementation testing requirements?**

#Python based jobs (**CPCI.GEFS.BOXW.JSUB and CPCI.GFS.SKEWT.JSUB)**

module load intel/19.1.3.304

module load cray-pals/1.2.2

module load python/3.10.4

module load wgrib2/2.0.8

module load imagemagick/7.0.8-7

module load ve/cpci/1.0

More details in the file spa\_release\_notes\_cpci\_v1.5.0 text file

**DISSEMINATION INFO:**

As in the earlier version cpci v1.4.2, the two new additional output tar files will be transmitted to the respective compute farm directory under /common/data/model/com/cpci/prod/ directory. A separate cron job at the CPC will transfer the images to the web server.

**CPCI BUGZILLA TICKETS?:** N.A. with this upgrade release.

**OTHER INFORMATION:**

Where is the release tag on subversion/git/vlab? N.A. (Tar file on cactus)

List of external software used (anything outside of your vertical structure), including compilers and version numbers for everything: GEMPAK 7.14.0

Software used must be a minimal list of modules/versions specified per job

#Gempak based jobs (CPCI.GDAS.JSUB, CPCI.GDAS.JSUB, CPCI. GDAS.JSUB)

module load intel/19.1.3.304

module load cray-pals/1.2.2

module load prod\_util/2.0.8

module load gempak/7.14.1

module load imagemagick/7.0.8-7

#Python based jobs (**CPCI.GEFS.BOXW.JSUB and CPCI.GFS.SKEWT.JSUB)**

module load intel/19.1.3.304

module load cray-pals/1.2.2

module load python/3.10.4

module load wgrib2/2.0.8

module load imagemagick/7.0.8-7

module load ve/cpci/1.0

**CODE/SCRIPTS ADDED OR MODIFIED WITH THIS RELEASE:**

CPCI.GDAS.JSUB, CPCI.GDAS.JSUB, CPCI. GDAS.JSUB, **CPCI.GEFS.BOXW.JSUB and CPCI.GFS.SKEWT.JSUB**

**JCPCI**

excpci.gfs.sh, excpci.gefs.sh, excpci.gdas.sh, **excpci.gefs.boxw.sh and excpci.gfs.skewt.sh**

Changes performed for jobs, ush, exec scripts directories – added components for python related GEFS boxw and GFS skewt plots.

ush\_python subdrectory has been added to accommodate pyhon based GEFS boxw plots and GFS skewt plots.

No changes performed for fix directory

Are there any changes to incoming data needs or outgoing products? None

If output filenames are changing, list the current and new filename None.

Compute resource information, for every job:

1. GDAS:Total tasks = 53 Tasks per node:53 MPMD MEM=20GB shared

#PBS -l select=1:ncpus=53:mem=20GB

1. GFS:Total tasks = 268 Tasks per node:256 MPMD MEM=30GB shared

#PBS -l place=vscatter,select=2:ncpus=134:mem=30GB

1. GEFS:Total tasks = 180 Tasks per node:180 MPMD MEM=50GB shared

#PBS -l select=1:ncpus=180:mem=50GB

1. GEFS EPSgrams:

#PBS -l select=1:ncpus=4:mem=8GB

Working Disk Space Estimate: 25GB

1. GFS Skewt Plots:

#PBS -l select=1:ncpus=29:mem=20GB

Working Disk Space Estimate: 15 GB

**Additional Resource Estimates for this v1.5.0 upgrade implementation:**

33 parallel tasks; 40GB disk space: 30 minutes of computing time

**What are your up and downstream dependencies?**

Upstream: GEFS, GFS, GDAS production data in gempak format

Downstream: Staging tar files on to the compute farm destination directory