

CompressMD GribEncoder 04/30/15

The compressMD software can demonstrate the compression of 3D numerical data to provide a given MAE and rate of compression. The 2D compression is provided using the JJ2000 and the 3rd dimension the KLT or DWT can be used. In addition the software can be used to investigate different studies on Rate distortion Curves, and Quantizer. The inputs to the software can be either GRIB or NETCDF.

The current software consists of 77 directories, 582 files of Java compiled using Netbeans 6.9.1 running on Fedora 20 system. The JDK java-1.7.0-openjdk-1.7.0.60-2.4.7.0

Main Class: edu.utep.compressmd.processing.GribEncoder

Arguments: MEL_nrlm-168408-o.tar or MEL_nav0-3950-o.tar

Working Directory: /home/vidal/NetBeansProjects/compressMD

VM Options -Xmx1000M -Xms128M

/home/vidal/NetBeansProjects/compressMD/settings.txt

#GribEncoder settings

#Wed Jun 08 15:33:22 MDT 2005

debug=true

wLev=3

param=18

level.lowest=10

mae=.5

period2=0

doKLT=true

period1=0

rate=0.15

nBits=16

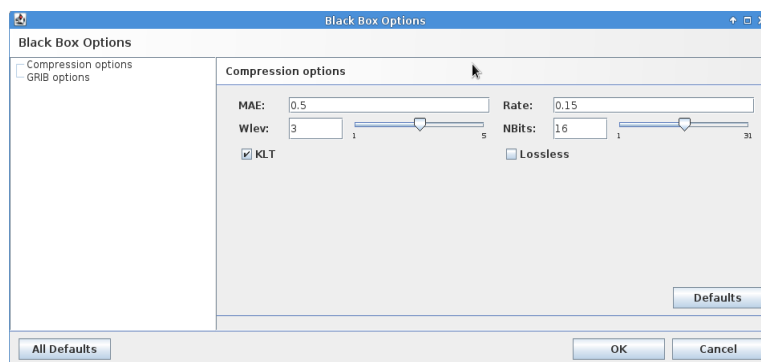
showImages=true

level.highest=1013

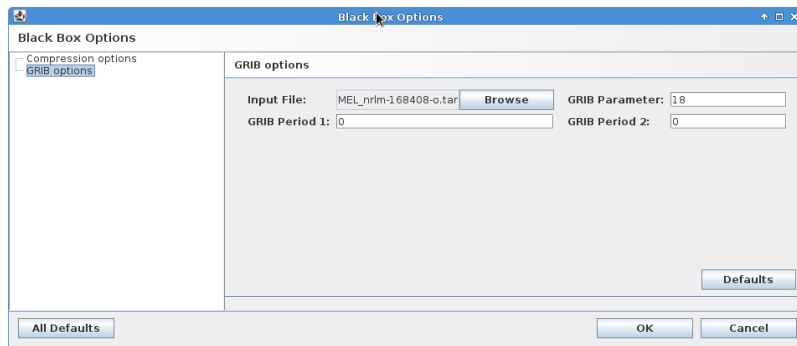
lossless=false

RnetCDF=false

Compression options window



GRIB options window



Modifying the param=18 in settings.txt file sets the initial value.
GRIB Parameter can have the following values: 7, 11, 18 dew point, 33 u component , and 34 v component

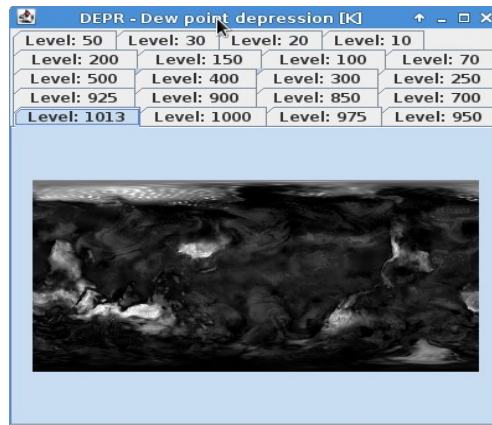
Depressing OK brings up either 1 or 2 new windows depending on showImages=true or showImages=false in settings.txt file.

Table Manager window

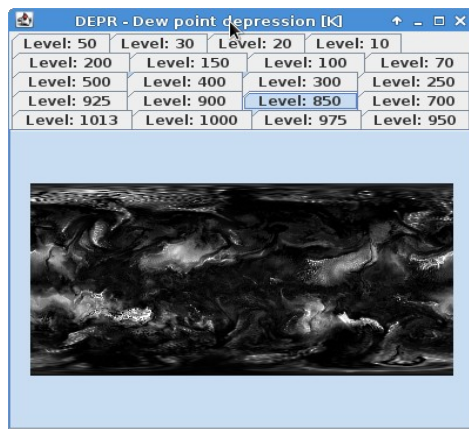
In the case of Dew point depression [K] 18 levels were found in the file MEL_nav0-3950-o.tar.

[illegible]

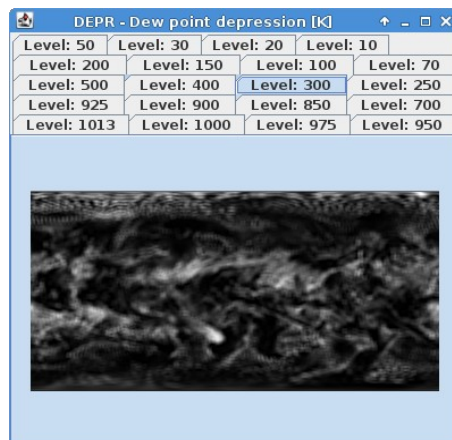
The compressed/decompressed images are displayed in Image Manager



Each images is 0 to 360 degrees in the horizontal direction 90 to -90 in the vertical directions.
The Level is presented in millibars of pressure indicating that the higher the pressure the closer to the surface of the earth.



The Level 300 is displayed below.



In the console the means for each Slice are displayed.

Slice: 0Mean :7.832671885466931

Slice: 1Mean :7.856593002187874

Slice: 2Mean :7.925678329308905

Slice: 3Mean :7.744327802159706

Slice: 4Mean :7.454642428833811

Slice: 5Mean :7.661942908389665

Slice: 6Mean :10.485554020432783

Slice: 7Mean :10.101382751814093

Slice: 8Mean :9.736938307524651

Slice: 9Mean :8.114309392963118

Slice: 10Mean :7.456201656486787

Exception in thread "main" java.lang.IndexOutOfBoundsException: slice:19, row:0, column:0

Slice: 11Mean :7.787203808884983

Slice: 12Mean :7.404464400118186

Slice: 13Mean :6.366843156037798

Slice: 14Mean :9.292957338653368

Slice: 15Mean :13.967104048224964

Slice: 16Mean :23.57073818138378

Slice: 17Mean :35.99873508391313