

## Chat questions from "NCL regridding" webinar on Jan 9, 2015

Sender	Message
Mary Haley	Hi all. As usual, please use this chat feature if you have any questions during the lecture.
Gus Correa	Cubed sphere became popular. CESM seems to have it (experimentally?) and GFDL has a different version (split into 6 cube faces). Are these dealt with by NCL? Thanks, Gus.
Gus Correa	Likewise for "column" grids as in land models.
Gus Correa	Reminder: Positive data (or bounded data in general), may get out of bounds after regridding. E.g. specific humidity, tracer concentration. Specially if using splines, Fourier Transforms, etc. Right?
Gus Correa	Don't stop your talk. Go ahead. (Can get negative tracer concentration after regridding.)
Gus Correa	Yes, with the SH interpolation I've got negative values for specific humidity, etc. Thanks, Dennis.
Gus Correa	The ESMF steps sound somewhat similar to SCRIP. Is it based on SCRIP (a sparse matrix is actually the "weight file")?
Robert Oehmke	It uses the same weight file as SCRIP (so it's interchangeable), but we developed the code/algorithms independently.
Gus Correa	I am a bit confused. Is this step just creating the weight file, or actually regridding the variable?
Ernesto Munoz	It would be nice to have guidelines on the contents of the mapping file WgtFileName.
Robert Oehmke	If it's regional, we don't connect the periodic boundary.
Jonathan Buzan	What if the Source Grid does not have 2D Lat and 2D Lon?
Mary Haley	Here's a message from Bob Oehmke, an ESMF developer with NOAA: ESMF uses the same weight file format as SCRIP (so that it's interchangeable), but we developed the code/algorithms to generate the weights independently.
Mary Haley	In addition to ESMF regridding examples, we have some NCL/ESMF script templates that you can download to help you get started with this form of regridding: <a href="http://www.ncl.ucar.edu/Applications/Templates/#ESMFRegriddingTemplates">http://www.ncl.ucar.edu/Applications/Templates/#ESMFRegriddingTemplates</a>
Mary Haley	Here's the link to the ESMF regridding examples: <a href="http://www.ncl.ucar.edu/Applications/ESMF.shtml">http://www.ncl.ucar.edu/Applications/ESMF.shtml</a>
Ernesto Munoz	Great. Thanks.
Ernesto Munoz	It's just that these weight/mapping files are used by the ocean diagnostics package to regrid data before comparing to observations. It has not been clear to me how these were generated. But with your information I think I can get at that.

Mary Haley Ernesto, if you do an "ncdump -h" or "ncl\_filedump" on the weights file, there might be some global file attributes that tell you how the file was created. Some attributes you might see include; title : ESMF Offline  
Regridding Weight Generator normalization : destarea  
map\_method : Bilinear remapping ESMF\_regrid\_method : Bilinear

Mary Haley I agree, though, it seems that more information would be handy.

Mary Haley Here are the examples that Dennis is referring to:  
[http://www.ncl.ucar.edu/Applications/grid\\_fill.shtml](http://www.ncl.ucar.edu/Applications/grid_fill.shtml)

Mary Haley And one for binning:  
<http://www.ncl.ucar.edu/Applications/binning.shtml>

Mary Haley Final chance for questions!

Ernesto Munoz how do I save this chat? lol

Gus Correa Thank you Dennis, Mary and Bob. Very good information as usual. Gus