Note: this tool was created by Tom Craig in 2017. Ask Glenn for his final report for a more detailed description of how the program actually works.

1. Navigate to your desired output folder in a terminal window
2. Start IDL in the terminal (command: **idl**)
3. Open DRM in the IDL command line (command: **@drm**)
4. Load in the '*.cmap.gz' files you would like to stitch together (click **'Load Files'** button)
5. Move the files you would like to stitch together into the 'Selections' panel (by clicking on them in **'Files'** panel)
6. Click the **'Programs'** tab (right-most tab) at the top of the DRM main menu
7. Click the **'Cylindrical Map'** option to reveal a sub-list of programs
8. Click on the **'Longitudinal Map Tool'** program in the sub-list; a new window will appear with the individual files on the left-hand panel and a blank right-hand panel
9. In the top of the right-hand panel, click on the small diamond-shaped button next to the **'Sigmoid Stitch'** option and then click back to the **'Gradient Stitch'** option
    a. **The program will not work unless you do this step!!!**
10. Play around with the **'Left Crop'** and **'Right Crop'** sliders while turning on/off the **'Invert Crop'** option in order to get a feel for how they work.
    a. In the right-hand panel, you will see the sections of the resulting lmap are brighter where two images are overlapping compared to the rest of the lmap. You want this brighter section to be as small as possible while still maintaining smooth, horizontal lines across the top and bottom of the lmap (this creates less jagged edges at the poles).
11. Play around with the value for the **'Gradient Slider'**. This is the number of pixels that will be blurred together at the seam where two images are joined together. (This is changing the actual value of the radiance shown in the map, which is not ideal but absolutely necessary for making nice seams and visually-coherent maps).
    a. I usually keep my Gradient Slider set at 10 or 11.
12. If you want to use the **'Mu Cutoff'** or **'k (Mu/0 corrections)'** sliders, then you need to have the corresponding '*.mu.gz' and *.mu0.gz' files in the same folder as your '*.cmap.gz' files.
    a. I don't use them and instead apply the mu-cutoff and limb-corrections to my cmaps before stitching them together with a script that I wrote, so I do not keep the corresponding '*.mu.gz' files in the same folder as my limb-corrected '*.cmap.gz' files.
13. Save your finished lmap by clicking the **'Save as FITS files'** button in the top-right corner of the Longitudinal Map Tool window. This will automatically create a '*.lmap.gz' and a '*.residuals.lmap.gz' file in whatever folder you started IDL/opened DRM from.
    a. The filename of your '*.lmap.gz' file is the base filename of whichever '*.cmap.gz' you loaded into DRM first. (pro-tip: change it as soon as you're done to something that you will actually remember)
    b. The '.lmap.gz' header has a record of the filenames of the '*.cmap.gz' files you used to create the lmap if you forget