**Session 3: Individual projects**

Recall that the general progression we are following for individual projects is as follows:

1. Obtain and import species’ occurrence records (session 1)
2. Obtain and manipulate environmental layers (sessions 2, 3)
3. Run and evaluate species distribution models (sessions 4, 5)
4. Apply the models and discuss applications (sessions 6, 7)
5. Prepare final report and present to the class (session 8-10)

Main tasks for this session are:

1. Reading: Focus on Chapter 4 of the Horning et al. Text
2. Complete the lab exercise for your chosen study region and taxa.

Update your project proposal in light of what we have covered this session. In particular, explore whether remote sensing data (such as land cover data) are available that could be useful for your project. Try looking at what other data are available from NASA or NOAA, or also try USGS (<https://www.usgs.gov/core-science-systems/science-analytics-and-synthesis/gap/science/land-cover/>).

1. If your ideas have developed further, add some more text to your Methods section.

Please email a single presentation slide with your final remote sensing image (NDVI) from this week’s lab to Pete, before next session, and be prepared to very briefly update the group on your project.

If you would like comments on your updated proposal, please email to Pete by 6pm before the next session. It is perfectly fine if you do not want comments, but please meet the deadline if you do.

Additional Resources Related to Session 3:

* Blvand et al 2013. Applied Spatial Data Analysis with R. Springer. (Book)
* Weimerskirch, H, et al. 2020. Ocean sentinel albatrosses locate illegal vessels and provide the first estimate of the extent of nondeclared fishing. PNAS 117(6):3006-3014. <https://www.pnas.org/content/117/6/3006>
* R-sig-Geo email list. <https://stat.ethz.ch/mailman/listinfo/r-sig-geo>
* Biodiversity informatics at AMNH: Remote Sensing Interactives: <http://www.amnh.org/our-research/center-for-biodiversity-conservation/biodiversity-informatics/remote-sensing-interactives>

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Additionally, in preparation for next session's lab, it will be useful if you can all download Maxent to your laptops by following these steps:

First, you will need to have the Java Runtime Environment installed. You can install this following the instructions here:

<http://www.java.com/en/download/windows_xpi.jsp?locale=en&host=www.java.com:80>

Windows users should also make sure they choose 64x java to install.

Next, the Maxent software can be downloaded from:

<https://biodiversityinformatics.amnh.org/open_source/maxent/>

You simply need to register and then download the .zip file. This includes a 'readme' with instructions, but all you need to do is unzip and save the three files into the same directory. You will launch the program in Windows by double-clicking the maxent.bat file. Check it works, and let Pete know if you are having problems.

Finally, while you are on the Maxent site, **please also download the tutorial document since** we will use this during the lab. There's no need to download the example data - you will use your own data.