Questions & Answers, Session 2

Please type your questions in the Question Box. We will try our best to get to all your questions. If we don't, feel free to email Cindy Schmidt (cynthia.l.schmidt@nasa.gov) or Amber Jean McCullum (amberjean.mccullum@nasa.gov) your question(s).

Question 1: What is Wi?
Answer 1: Another name for that is the stratum weight. If you go to the spreadsheet (the easiest way to see exactly what Wi is) - but it's the weight - the percentage of the total area of classified pixels for each class divided by total area of whole classified map.

Question 2: Is area accuracy better to use than pixel based?
Answer 2: I think that area accuracy gives you better information about the accuracy assessment because it takes into account the area of each class and then the percent correct classified pixels. So you get a better indication using unbiased area estimates of the overall accuracy of the map. And plus, it gives you better info because it gives you an unbiased area estimate for each class, which you can't get using pixel-based error matrix.

Question 3: Could you please give an example how would you describe the classification accuracy using calculated values, especially connection to the area in hectares.
Answer 3: Not sure what this question is, but the classification accuracy is in percent not in hectares. So, essentially, if you have an overall accuracy of 78% that means that overall, on average, that the chance that you'll - that a pixel will be correctly classified is 78%. It doesn't transfer into area or hectares. The confidence interval of the unbiased area estimates is the error (in hectares) of your area estimate for that class.

Question 4: What do you think is the final conclusion about the overestimation in the area?
Answer 4: The fact that our land cover classification has overestimated an area *is* the final conclusion. Something to be aware of if reporting the area of a class, if you just use the land cover estimation, you're overestimating that class. Then you need to look at the error matrix to see where the confusion is coming from. What's being included that shouldn't be? In our example, we got hardwood and conifers confused. In the exercise, it appears we were confusing agriculture and bare ground too, so you may

want to conduct another classification and analyze the spectral properties to minimize that confusion or take more ground measurements.

Question 5: Would this approach help you decide how to aggregate pixels into polygons (to generalize to a coarser resolution than at the native pixel)
Answer 5: That's a good question. However, I don't know if this approach is a good method for doing that. This approach tells you where you have confusion between classes, but it does not specifically inform you on how to aggregate the pixels. You would need to go back and examine the spectral properties in order to do that.

Question 6: Could you please tell us, what is the statistic for image classification among Kappa location, kappa strata, kappa standard an overall kappa?
Answer 6: Last week we discussed why we aren't including Kappa - in the literature in recent years, a lot of researchers are determining Kappa is not a relative statistic for accuracy assessments. We can give you references to some of the papers that have been written on that. But we chose not to use kappa in our webinars because of the findings in the literature. One reference, *Death to Kappa:*
https://www.researchgate.net/publication/233196329_Death_to_Kappa_Birth_of_quantity_disagreement_and_allocation_disagreement_for_accuracy_assessment

Question 7: what is the spatial resolution of the classified image?
Answer 7: The spatial resolution of the classified image is the same as the original imagery. We use Landsat imagery for landsat classification, which has a 30 m pixel size.

Question 8: can we get a copy of your spreadsheet to make sure we did it right?
Answer 8: We did not include the spreadsheet with the correct answers, so that the participants would do the calculations on their own. However, there are pictures of the correct values in the in the exercise, so you can check your answers against those.

Question 9: So should our numbers match the exercise as we go along? How user's and producer's accuracy have influence on future simulation? Does both has different impact in terms of errors of omission and commission?
Answer 9: Yes - the numbers should be exactly the same as in the exercise because you're using the same error matrix in the spreadsheet. If you're using a different land cover map, of course your errors will be different.

Question 10: How do you recommend to calculate area statistics over time in a consistent manner, using maps that are updated with a change detection?
Answer 10: So there's some really good reference information on how to do that and we can give you those references. This is through Boston University - they've developed some methodology for doing area assessment for change detection. It's essentially the same process, but you have to understand and know what that change is. Your classes might be change and no change, and a few other classes. Here is the reference for calculating error matrices for change detection.

Beeoda website for Earth Observation Data Analysis: http://beeoda.org/

Question 11: How do the user's and producer's accuracy influence a future simulation? Do both have different impacts in terms of errors of omission and commission?
Answer 11: Yes. The users and producer's accuracy or errors of omission and commission, gives you an idea of where you're including pixels in a classified image when you shouldn't be and excluding them in another class. It gives you an idea of where your confusion is. Their value is really in understanding which classes you're confusing with each other. Then you can go back and redo your classification and figure out how to separate those classes better. Or you can say that when using your map, you'll have confusion between certain classes. Those are the best uses of errors of omission or commission (or user's and producer's accuracy).