



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 contact Amita Mehta (amita.v.mehta@nasa.gov) or Sean McCartney (sean.mccartney@nasa.gov).

Question 1: Can someone help with the virtual machine installation. I'm stuck at the line to install pip...I keep getting an error that says no module named pip is found.

Answer 1: If you are having difficulties installing pip, you can try the following command:

\$ sudo apt-get install python3-pip

Also refer to the Ocean Color Forum for this information as well:

<https://forum.earthdata.nasa.gov/index.php?sid=d1a4fef91eadac614514ff5654f123c5>

Question 2: The in situ data values varied quite a bit from the remote datasets, in the table we were shown. I understand that the values may vary, but the difference in values was almost twice or higher. What do we make of that?

Answer 2: It is not surprising because of the scales involved! A point measurement is compared with integrated/averaged value in a ~1000 meter box. To derive a statistical relationship between remote sensing data and in situ data it helps to project/adjust satellite-derived data. A number of research papers are there discussing this issue.

You may find this helpful:

https://oceancolor.gsfc.nasa.gov/docs/methods/sensor_analysis_methods/

We don't want to make any judgements on in situ data from satellite measurements, especially coastal. Homogeneous water measurements work better for a larger amount of measurements. If you can see the water bed within your data in some cases, that could lead to inconsistencies. With pixel size, mosaicking can also increase the size and shape of the pixel itself. Classifying pixel types can help, but mosaicking itself is not a recommended option here. Validation has to be done farther away from the coastal regions due to a number of factors. If you have high resolution satellite data,



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land mass data is 1 km. Eliminating land at a higher resolution is possible using a land mass processing tool, especially when working with data from Sentinel and Landsat.

Question 3: Is the L1B the file we should use for L1B processing?

Answer 3: L1A and GEO files are inputs to get L1B files.

Question 4: When we have many in situ data points, how do we match them in SeaDAS with satellite images? The demo given was for a single file, if we have many files, do we do it manually, or is there an automated way of doing it?

Answer 4: Using a command line interface is a way to automate the process. Other tools such as Pixel Extract and GPT are other ways to automate the process, with some work. The GUI only works with a single file at a time, but automation is useful for hundreds of files.

Question 5: Could you talk more about the SBG inland water mission? Are these ocean procedures amenable to working in freshwaters?

Answer 5: Yes, SBG will be valid for inland/freshwaters. For the procedures, separate calibration/validation may be needed - but it will be planned.

Question 6: Do you have an idea of when OCSSW will be integrated in SeaDAS for Windows?

Answer 6: OCSSW is unable to run natively on Windows and we are unsure if/when it will be integrated. At this time a virtual machine is needed. All of the available Windows install options can be found here: https://seadas.gsfc.nasa.gov/client_server/

Question 7: During exercise 1, after step 3 of creating land masks, I am not able to add the vector file of SeaBASS. While adding the said file, it does not properly show the location on the map. How do I add the SeaBASS file?

Answer 7: Select the image you want to add SeaBASS data to, then import the SeaBASS vector file.

Question 8: Can we process Sentinel based data on SeaDAS? If so, are those steps going to be the same as MODIS or VIIRS? Any suggestions?



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Answer 8: Using the SeaDAS GUI, there is no option for Sentinel, but it can be processed through the command line. You need to install the processors for Sentinel as well before you process the data.

Question 9: There are four SeaBASS data points in the file, but the correlative plot shows only two in situ points. Why?

Answer 9: Two points may be found at the same location and show as one point. There may not be data available for that area as well. Increasing the number of points can help as well. SeaBASS .txt files can be edited as well for inconsistencies. In SeaBASS files, they also measure depth and some of the files adjust the depth closer to the surface.

Question 10: I am currently stuck at providing a proper link for python 3. (\$ sudo update-alternatives --install /usr/bin/python3 python3/usr/bin/python3.5 1). Could you please advise what I should provide to sudo so that this command works?

Answer 10: Check your python version using: **\$ python -V**

Question 11: When I am calibrating VIIRS, I get the following error: "execution exception: java.io.IOException: calibrate_viirs failed with exit code 1".

What is happening in this case?

Answer 11: We will look into this further.

Question 12: What is the concept of taking logarithmic values while calculating and comparing coefficient values?

Answer 12: The relationship between blue/green reflectance ratios and chlorophyll show better relationship when log-transformed. Please see the following paper:

<https://agupubs.onlinelibrary.wiley.com/doi/10.1029/98JC02160>

Question 13: When I try to run MODIS L2 data from L1 with MODIS_L1B it gives an error message: execution exception:java.io.IOException:modis_L1Bfailed with exit code 1. What can I do?

Answer 13: It could be an issue with the server or an issue with your Java installation. We will look into this further. Look into the inputs as well as certain inputs that will not work with other tools. <https://seadas.gsfc.nasa.gov/help/>



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Question 14: Does using local area coverage (LAC) data of MODIS give more accuracy in the validation process using in situ data compared to the available L3 data, or even the GAC data? What is the most important consideration in choosing which remote sensing data to use in our research? When should we choose the LAC or GAC data? What is the best way to describe the LAC data?

Answer 14: Go to L3 data since there is always some composite data being done. For research, analyzing multi-year data is possible. LAC is higher resolution than GAC (LAC being 1 km and GAC being 4 km).

Question 15: Is there any minimum value of R^2 (regression and correlation coefficient) that can be accepted when we perform validation? What if the value is below 50%? What might be the reasons? What might that imply?

Answer 15: If the minimum value of R^2 is 0.7 then it is acceptable. Satellite and in situ data are at different measurements. If you are looking farther out, then the scale is larger and there will always be a scaling mismatch. When it is not matching, the data isn't necessarily bad, but it does lead to complications. If the minimum value of R^2 is less than 0.5, then you need to reevaluate your data.

Question 16: When we get an equation what will be the variation and specific cases when this equation will not work well? Turbidity, seasonal changes, others?

Answer 16: Those are all reasons that could lead to variation. If you are getting a Level 2 file from SeaDAS and it is a fresh file, then some of the details won't be complete and can lead to complications. If you use the land mask tool, then you can eliminate complications from land data. Mosaicking files can lead to reshaping of the files and pixels themselves.