



Questions & Answers Session 2

Please type your questions in the Question Box. We will try our best to answer all your questions. If we don't, feel free to email Amita Mehta (amita.v.mehta@nasa.gov), Sean McCartney (sean.mccartney@nasa.gov) or Juan Torres-Pérez (juan.l.torres-perez@nasa.gov).

Question 1: I have a question on SeaDAS. Is the software interoperable with GIS software packages such as ArcGIS and QGIS?

Answer 1: You can export shapefiles from SeaDAS to a GIS software. Please refer to this pdf on SeaDAS tools from the SeaDAS webpage which contains useful information:

https://seadas.gsfc.nasa.gov/docs/SeaDAS_Tools.pdf

Question 2: Could you please provide a step by step guideline to activate OCSSW in SeaDAS software in windows? It will help us a lot.

Answer 2: You need to install a virtual machine with Linux (or Windows WSL) and set up the OCSSW server running on the VM. See instructions below:

https://seadas.gsfc.nasa.gov/client_server/

Question 3: At which level are data georeferenced?

Answer 3: Level-1A are georeferenced.

Question 4: What would be the average transmittance value for the atmosphere, assuming a clear sky?

Answer 4: There is not a definite answer as there is a lot of variation. 80 percent of a typical image is atmospheric and 20 percent is reflectance.

Question 5: I am a little unclear about using SeaDAS OCSSW in Windows.

This page <https://seadas.gsfc.nasa.gov/downloads/> states

“Note: previous SeaDAS version 8.0.0 did not support Windows processing but the current SeaDAS version 8.1.0 does support Windows processing”

Could you clarify it. Thank you!



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Answer 5: Currently, the OCSSW is not available for Windows - but visualization and analysis are. But at some point OCSSW will be available also. Refer to Q2.

Question 6: How are the in situ observations estimated every time there is a satellite overpass?

Answer 6: It is practically impossible to do in situ observations every time there is a satellite overpass. For MODIS or VIIRS this would require daily in situ data. You establish your in situ observations timeline based on the research question to be answered, if there is a particular season with less probability of clouds or calmer waters, etc. The important aspect is to plan your data collection within 30min-1hr before or after the satellite overpass to make sure you are characterizing basically the same water mass as when the satellite was flying by.

Question 7: How can I know the actual time of the satellite overpass for our desired area to acquire MODIS data?

Answer 7: There is a satellite overpass predictor on NASA Ocean Color Web (Software and Tools → Online Tools). Once you specify latitude-longitude, and start and end dates of interest, then it provides a list of overpass times in that time period.

Question 8: Does the Windows version of SeaDAS have the same capability as the Ubuntu version?

Answer 8: Please refer to Q2.

Question 9: Can I use a screen size smaller than 15 inches to run SeaDAS? Will there be a configuration error?

Answer 9: It is not the physical size; it is the monitor's pixel resolution what matters. The system requires 8-bit resolution (256 colors).

Question 10: Can we expect OCSSW for windows in the near time?

Answer 10: I want to say yes, but we are unsure when that date will be.

Question 11: Do we need a source code version for SeaDAS command-line mode?

Answer 11: You can get a compiled version. You do not have to start with source code.



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Question 12: I installed SeaDAS 7.5.1 from a previous course, and it says it is updated. Is there any substantial difference with the version 8.1?

Answer 12: Sentinel-3 toolbox is included in 8.1.0. The GUI looks a bit different too (color selection window, layer manager, etc.).

Question 13: Please can you share the level 1 data?

Answer 13: Acquisition of Level 1 data was covered in Session 1 of this series. Please refer to the short Demo from Session 1.

Question 14: Because I am on Windows, I cannot run the OCSSW. But I have installed the OCSSW on Ubuntu WSL (windows subsystem for Linux). The question is, can I run the same exercise on the command line? If so, how to do it?

Answer 14: We will get back to this question (we have only used Mac and Linux so far).

Question 15: I use the Windows version of SeaDAS. When I import data in (.nc) format, the data file cannot be read (I downloaded the data from NASA Ocean Color). Is there a solution for that? (The data are SST data and Chlorophyll-a data).

Answer 15: Please refer to the Ocean Color Forum for help opening files in SeaDAS with Windows.

<https://oceancolor.gsfc.nasa.gov/>

https://oceancolor.gsfc.nasa.gov/forum/oceancolor/topic_show.pl?tid=8978

Question 16: As we know, the correction coefficients vary regionally. Can we use a mix of global and regional coefficients with algorithm development?

Answer 16: Yes, it is possible to modify global coefficients for a region by using regional in situ data.

Question 17: Is there a reference document to know more about the parameters listed in SeaDAS that can be understood better before selecting them for processing?

Answer 17: Please refer to this pdf on SeaDAS tools from the SeaDAS webpage which contains useful information. https://seadas.gsfc.nasa.gov/docs/SeaDAS_Tools.pdf



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Question 18: Is it possible that daytime SST is lower than nighttime SST in the ocean in any case?

Answer 18: There are components of wind and water with the measurements of SST. Cloud cover can also be a factor as well. Due to the dynamic nature of oceans, there are many factors at play.

Question 19: For atmospheric correction you point out it depends on water geographic and other properties. Is there a specific guide for the choice of the right atmospheric correction method?

Answer 19: We recommend you go to the Ocean Color Forum for reference. Where different models get their information varies and there are multiple types to account for any potential issues.

Question 20: What is the advantage of generating L2 files locally to downloading them directly? Is there a difference in resolution?

Answer 20: L2 data in SeaDAS and Ocean Color are based on algorithms that have been previously developed. When developing your own algorithm, the use of L1 data is necessary. L2 data is useful for analyzing patterns.

Question 21: Why start with L1A data when higher-level standard products are already available for MODIS and VIIRS?

Answer 21: The idea is to show how the processing is done (for those unfamiliar with these types of analyses). Refer to Q20.

Question 22: Is there any tutorial on YouTube for using SeaDAS?

Answer 22: Yes see links below:

https://www.youtube.com/watch?v=rSTM1e7tfsg&t=358s&ab_channel=NASAOcean

https://www.youtube.com/watch?v=5dIwCK7IDXE&t=988s&ab_channel=NASAOcean

Question 23: Can I generate Level 2 data from Level 1 data in Windows by other image processing software?

Answer 23: Not that we are aware of.



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Question 24: I just installed the SeaDAS plug-in for SNAP, can it do the same capability as the exercise done in the demo? How does one do semi-analytical or analytical models in SeaDAS?

Answer 24: We will not be covering this within the scope of this webinar series. We will look into this further.

Question 25: What are the background expressions/mathematical equations that were developed to extract these water quality parameters from the satellite products?

Answer 25: We provided links to these equations and algorithms within the presentation.

Question 26: Are the products generated with l2gen the same as those proposed for download on the Ocean Color website?

Answer 26: Yes. If you download L2 data, it should be the same.

Question 27: At v2011_L2_LAC_OC images there show some kind of strip pattern colors. What is the reason for this strip pattern?

Answer 27: This is not uncommon in image processing. For VIIRS, this occurs when pixels in imagery overlap and is more of a technical anomaly than anything else.

Question 28: Is there a way to define which Python (NOT the version) to use to set up a path for SeaDAS in case there are several Python installations (e.g., the computer default Python doesn't request so you want to use the one "science", [e.g. conda])?

Answer 28:

Question 29: Are there safe and reliable links where we can download the requirements (Python, etc.) that should be available before installing SeaDAS?

Answer 29: We will provide a link to that.

Question 30: As we have seen during the demonstration, there are some missing data probably due to shallow water or clouds or turbidity. Is there any difference in data acquisition for high and low tides?

Answer 30: It is possible. We will look into this further.



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Question 31: How does one deal with missing data?

Answer 31: Binning is a process you can use.

Question 32: For the chlorophyll-a Puerto Rico example are there any flags on the website that can show us the reasons for the anomalies?

Answer 32: Not in the NOAA website shown here. For coastal areas, because of the pixel size in this case (4km once processed) most likely the flags are related to adjacency issues, this is mixed land/water pixels. Also, there could be the issue of bottom reflectance if the area is very shallow or has very clear waters.

Question 33: Is there an available online dataset of historical in situ observations around the world for Chlorophyll-a and SST?

Answer 33: Yes. SeaDAS has in situ data with Chlorophyll-a and SST.

Question 34: Are there chlorophyll-a products available that were derived from Sentinel-2 data or would it be possible to make these yourself?

Answer 34: I am not sure of a Sentinel-2 product that deals with Chlorophyll-a.