Wave statistics for the Aasta Hansteen area.

You have been invited onboard the R/V Gunnerus, a ship that belongs to NTNU that will carry several research activities on a trip to the Norwegian Sea. The vessel will be visiting the area where the Aasta Hansteen field will be located (67° Latitude and 7°Longitude). Equinor sponsors your stay and place on the ship. The ship is equipped with a buoy that measures wave elevation every 0.5 s.

To show your gratitude to Equinor, you intend to process the wave elevation data that has been gathered for a period of 2047.5 s during the trip (See the excel data attached). The tasks are as follows:

- Perform an FFT of the data provided. Do this in Python. **Plot the wave spectrum (amplitude in m vs frequency), provide the periods with the highest amplitude on a table and report the peak spectral period (the period with the highest amplitude). Is it possible to reconstruct the original wave elevation data with this plot?**