

Dominant Wave Period

The dominant wave period (in seconds) is a wave period associated with highest energetic waves at a specific point or area in the total wave spectrum and is always either the swell period or the wind-wave period. Dominant wave period is also known as the “peak” period. The dominant wave period will sometimes change quickly from a short wave period, like 6 seconds, which is locally generated by the local winds, to a longer wave period like 14 seconds (i.e., swells), due to a distance storm, because the amount of wave energy of these two wave groups are very similar.

For boaters, long wave periods (e.g., 12 seconds) are better for sailing because it typically means most of the waves will be swells which means a smoother ride for small boats. However, if the dominant wave period is short (e.g., 5 seconds), then waves could be treacherous/choppy for small boat operations, especially if they are more than 3 feet.

It should be noted that other waves will be present in the wave spectrum but have less energy than the dominant waves, but can still be hazardous. A situation where this could happen is in rapidly building seas or when there is a transition period between seas being dominated by swells, to being dominated by wind-waves.

See examples below of plots of wave energy versus wave period.

Figure 1. Buoy 41008 dominated by wind waves with a wave period 4 seconds with some swells around 8-9 seconds.

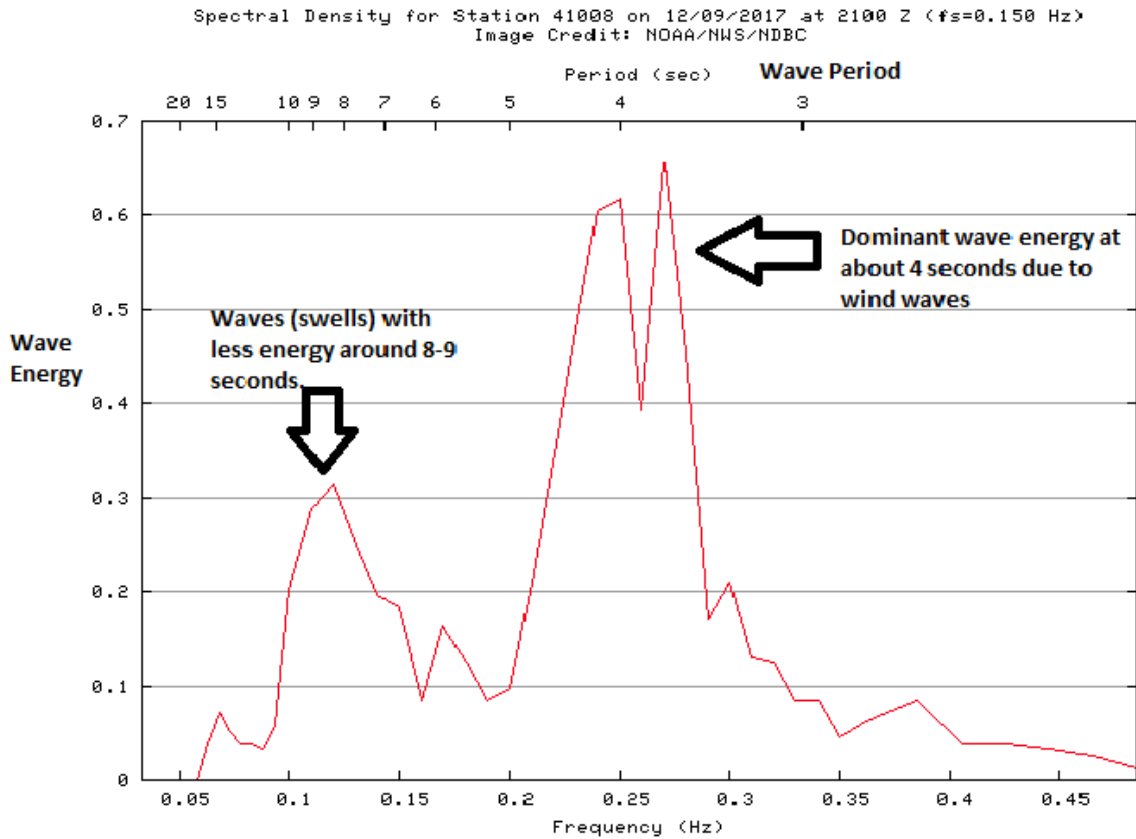


Figure 2. Buoy 42099 dominated by swells with wave period of around 9 seconds.

