

Dominant Wave Period

- Dominant or peak wave period, depicted as **DPD** on the NDBC web site (Table 1, below), is the period corresponding to the frequency band with the maximum value of spectral density (wave energy) in the nondirectional wave spectrum. In other words, the dominant wave period represents the most energetic wave in the spectrum.
- Note: Ignore APD (average period) as there is no such wave in the real world!
- Examination of [Plot of wave energy versus frequency \(and period\)](#) from buoys (Figure 1) will depict the most energetic wave.
- Generally waves can be broken down into:
 - local wind wave -- generally 3 to 6 second period
 - fresh swell (wave generation region just upstream)--generally 7 to 10 second period
 - pure swell (wave generation region well upstream) -- generally greater than 10 second period
 - A typical sea state will have all different wave types.
 - In Figure 1, all three wave types are depicted.
 - The Detailed Wave Summary from NDBC (Table 2) depicts the swell period (in this case a pure swell) and also the wind wave period.

Buoy Conditions

M	D	TIME	WDI	WSP	GS	WVH	DP	AP	PRE	PTD	ATM	WTM	DEW
M	D	(EDT)	R	D	T	T	D	D	S	Y	P	P	P
)		kts	kts	ft	sec	sec	in	in	°F	°F	°F
10	10	10:20 a m	SSW	11.7	13.6	2.6	12	4.0	30.08	-	83.5	84.7	74.7
10	10	9:50 am	SSW	13.6	15.5	2.6	12	4.1	30.08	+0.04	83.7	84.7	73.8
10	10	9:20 am	SSW	11.7	15.5	3.0	12	4.3	30.07	-	83.5	84.7	75.0
10	10	8:50 am	SSW	11.7	13.6	2.6	12	3.9	30.07	+0.05	83.5	84.7	74.5
10	10	8:20 am	SSW	13.6	15.5	3.3	13	4.4	30.07	-	83.3	84.7	74.8
10	10	7:50 am	SSW	13.6	15.5	3.3	13	4.5	30.06	+0.04	83.5	84.7	74.8
10	10	7:20 am	SSW	13.6	15.5	3.0	13	4.0	30.05	-	83.7	84.7	74.5

Table 1. National Data Buoy Center table of data for buoy 41009 on 10/10/09.

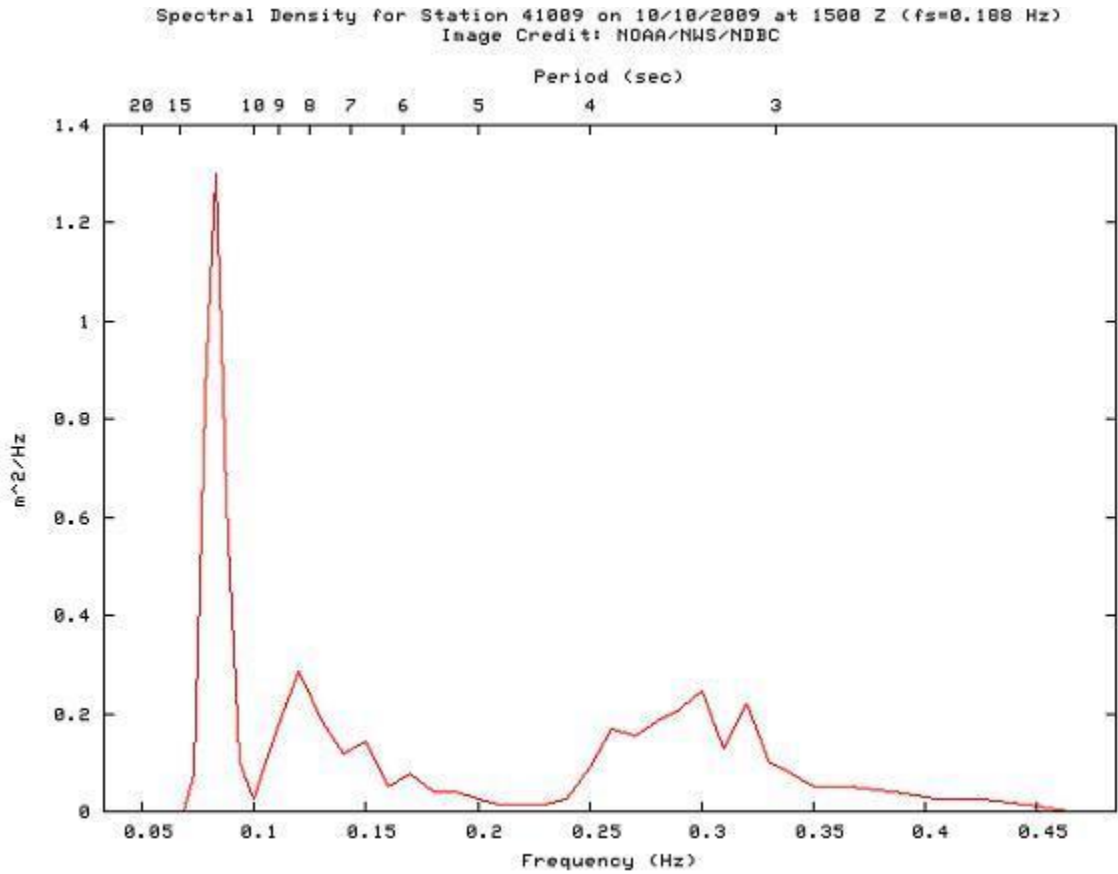


Figure 1. National Data Buoy Center plot of wave energy versus frequency and period for buoy 41009 on 10/10/09.

Detailed Wave Summary

M	D	TIME	WVH	Sw	Sw	Sw	WW	WW	WW	STEEPNESS	AP
M	D	(EDT)	T	H	P	D	H	P	D	S	D
			ft	ft	sec		ft	sec			sec
10	10	10:30 a m	2.6	1.6	12.1	N/A	2.0	3.7	N/A	N/A	4.0
10	10	10:00 a m	2.6	1.6	12.1	N/A	2.0	3.6	N/A	AVERAGE	4.1
10	10	9:30 am	3.0	2.0	12.1	N/A	2.3	3.7	N/A	AVERAGE	4.3
10	10	9:00 am	2.6	1.6	12.1	N/A	2.3	3.7	N/A	AVERAGE	3.9
10	10	8:30 am	3.3	2.0	12.9	N/A	2.3	3.6	N/A	AVERAGE	4.4
10	10	8:00 am	3.3	2.3	12.9	N/A	2.3	3.8	N/A	SWELL	4.5

10	10	7:30 am	3.0	1.6	12.9	N/A	2.6	4.0	N/A	AVERAGE	4.0
10	10	7:00 am	3.0	1.6	12.1	N/A	2.3	3.7	N/A	AVERAGE	4.1

Table 2. National Data Buoy Center Detailed Wave Summary for buoy 41009 on 10/10/09.