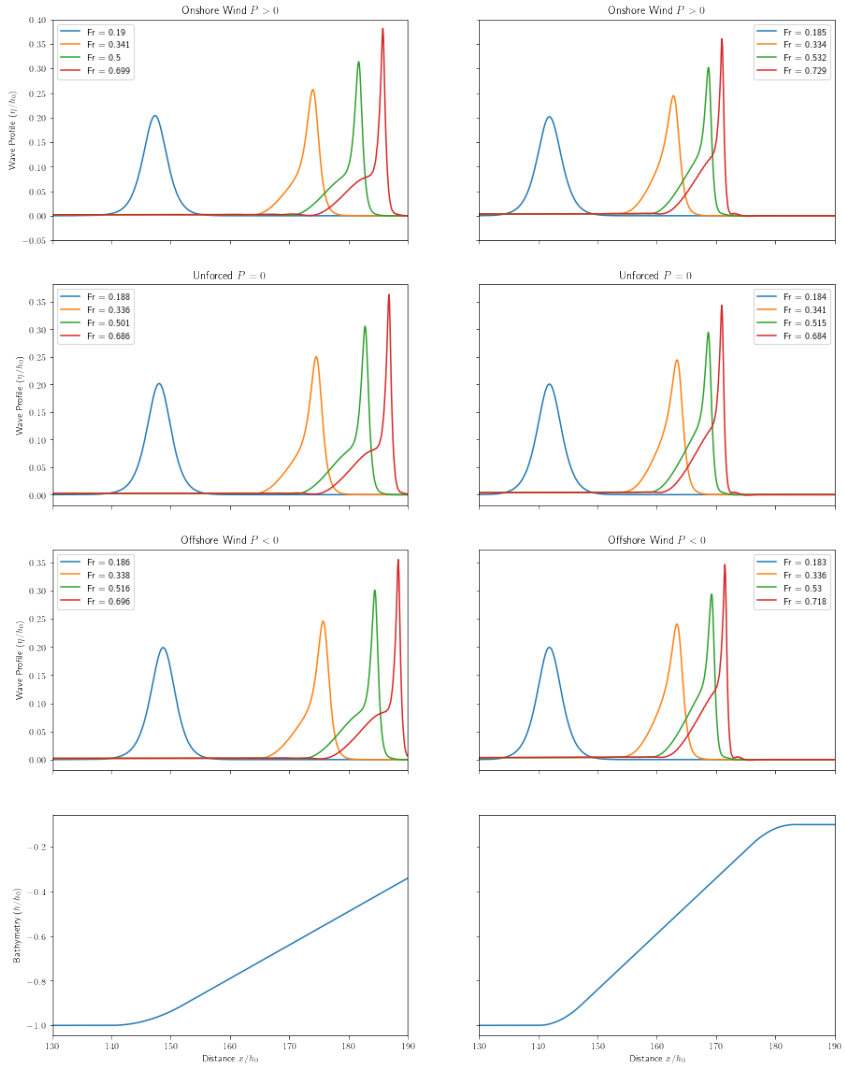
Figure 2

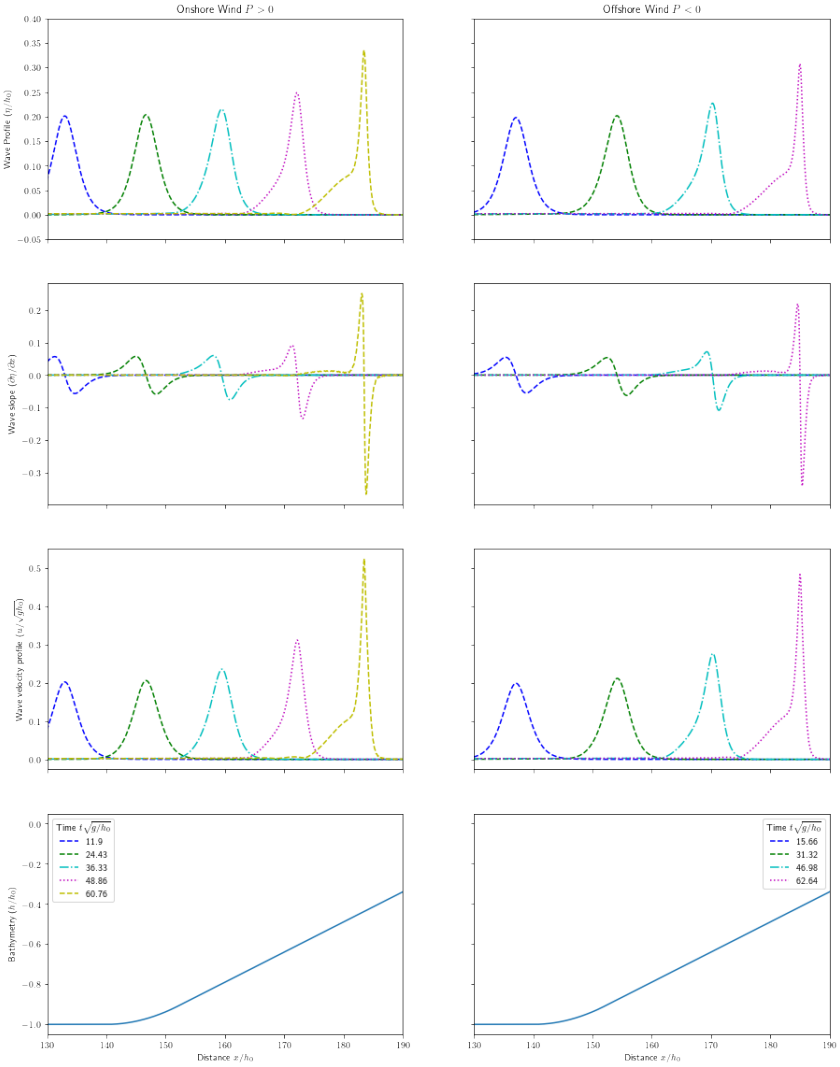
All figures use $\varepsilon_0 = 0.2, \mu_0 = 0.15$ Wave profile on y-axis with respect to distance on x-axis. Left column for $\frac{P_0}{\varepsilon_0} = 0.05, \beta = 0.015$ and right column for $\frac{P_0}{\varepsilon_0} = 0.025, \beta = 0.025$.



Removed the plots at time 0, and included plots at the thresholds for Fr $= \frac{1}{2}$ and Fr $= \frac{2}{3}$ (By threshold, we mean the first recorded instance of the wave being greater). The other two are the same as in the manuscript (1/3 threshold, and half the time to that threshold).

Figure 3

We use $\frac{P_0}{\varepsilon_0} = \pm 0.05, \beta = 0.015$. Column 1 is positive P, column 2 is negative P. Row 1 is profile η/h_0, row2 is slope $\frac{\partial \eta}{\partial x}$, row 3 is velocity $u/\sqrt{gh_0}$.



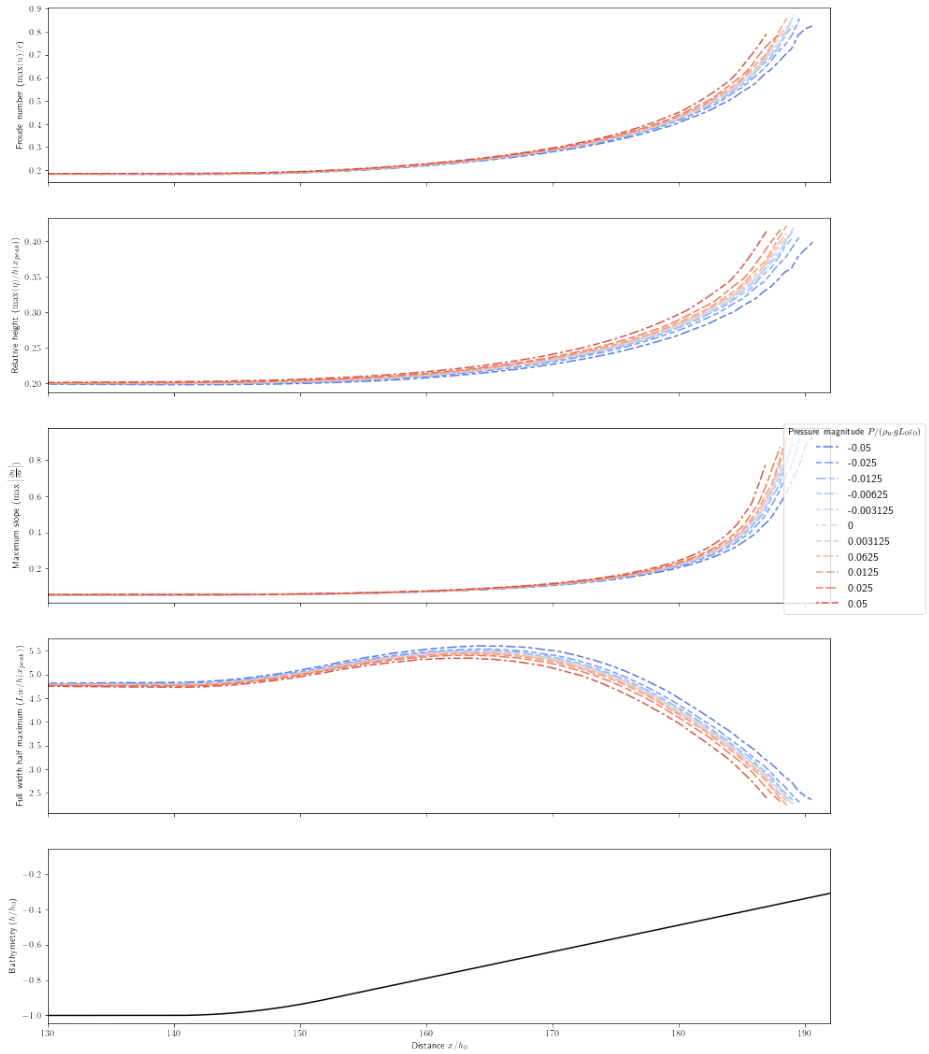
We use the same times as the manuscript, except we extend into the future by the same intervals. We should also be careful of $t = 0$, because, like in Figure 2, we do not have a time where the wind is "turned on." Perhaps we should consider re-plotting figures 2 and 3, but with offset times.

Wave velocity is calculated in the same manner as Simulator1D (in fact, we create a new instance of it and use the same functions):

$$|u| = \sqrt{(\phi_x^S)^2 + (1 + \eta_x^2)w^2}$$

Figure 4

These are for $\beta = 0.015$.

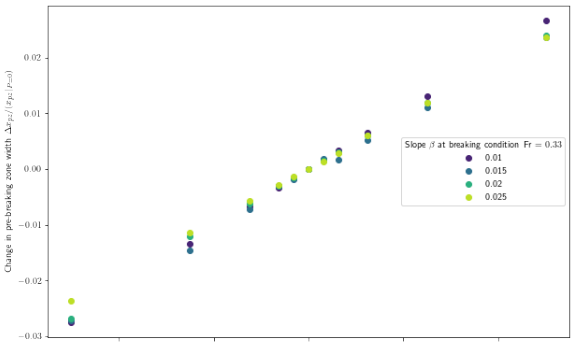


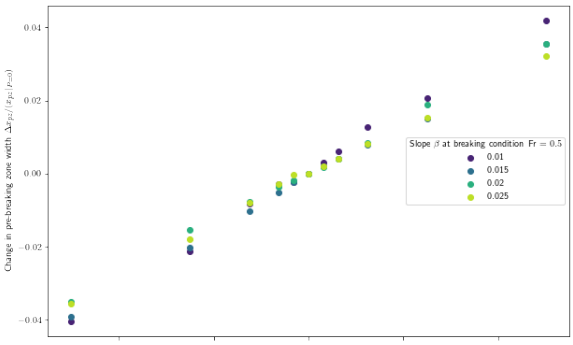
We exclude the 0.3 max-Froude number indicator here.

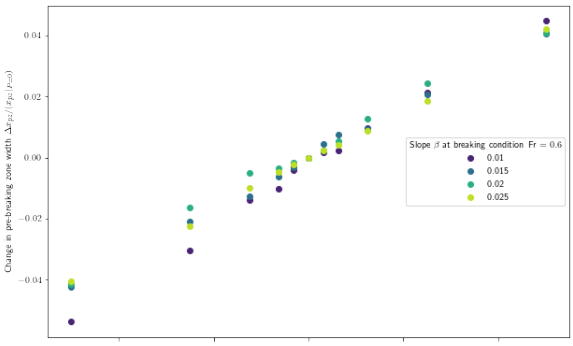
Figure 5

$\Delta x_{pz} = x_{pz} - x_{pz}|_{P=0}$. x_{pz} refers to the x position where the pre-breaking condition Fr $= \frac{1}{3}$ is met relative to the shore ("x_{shore} as the location where the bathymetry would intersect $z = 0$ if it had a constant slope β without the shallow plateau." (ZF2021, 2.8))

We also examine other breaking conditions.


Slope β at breaking condition Fr = 0.33
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p1})_{t=0}$


Slope β at breaking condition Fr = 0.5
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p1})_{t=0}$


Slope β at breaking condition Fr = 0.6
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p1})_{t=0}$

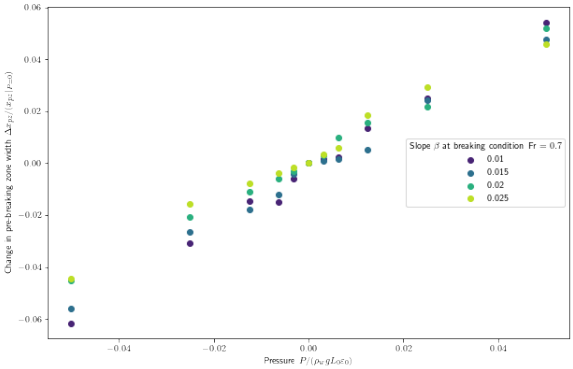
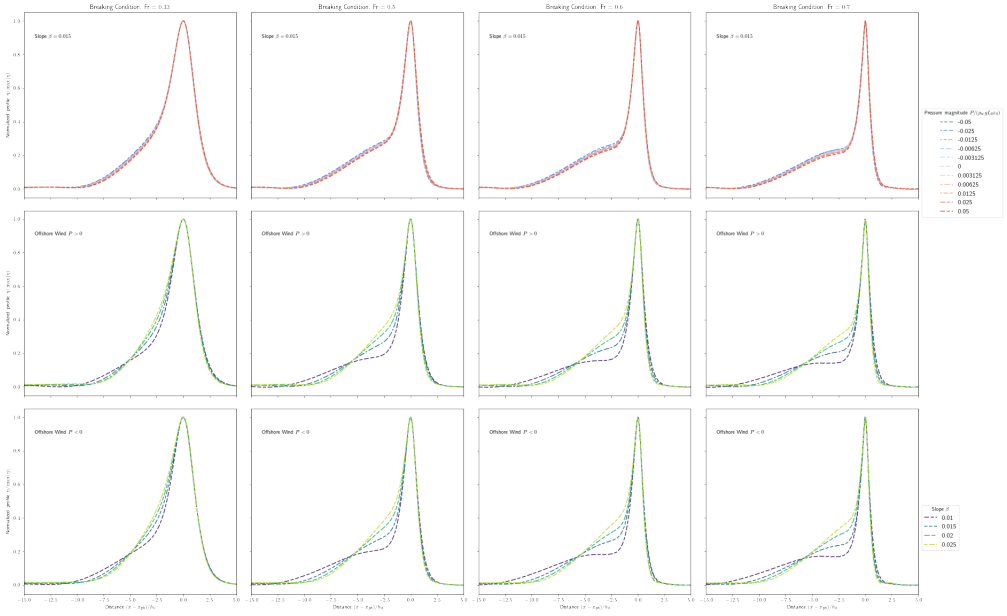

Slope β at breaking condition Fr = 0.7
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p1})_{t=0}$
Pressure $P/(\rho_w g L_0 \varepsilon_0)$

Figure 6

Profiles are normalized based by $\max(\eta)$ and offset so that 0 represents x_{pb}. Profiles occur at the pre-breaking condition First row is based on different pressures at $\beta = 0.015$. Second and third are based on different slopes at pressure magnitude $\frac{|P|}{\rho_w g L_0 \varepsilon_0} = 0.05$.

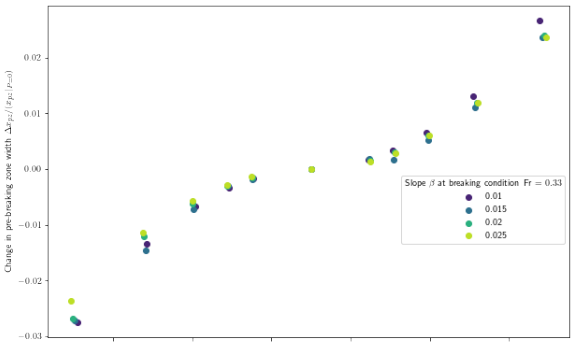


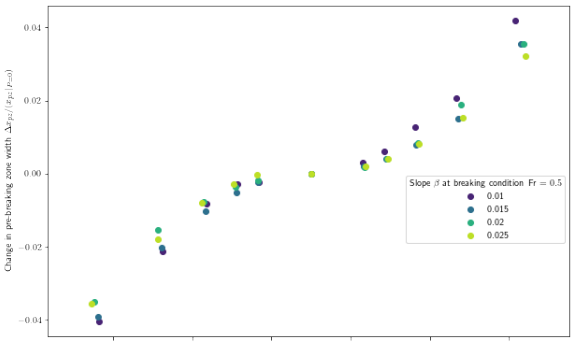
We use the same additional breaking conditions as in Figure 5.

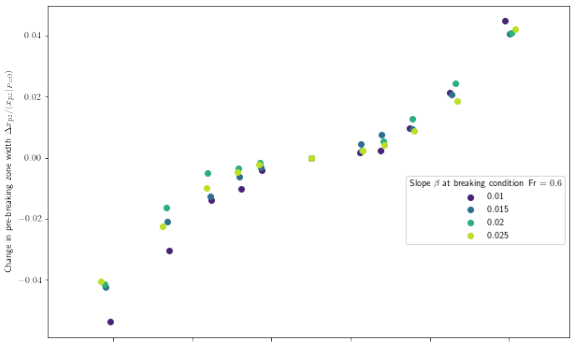
Figure 7

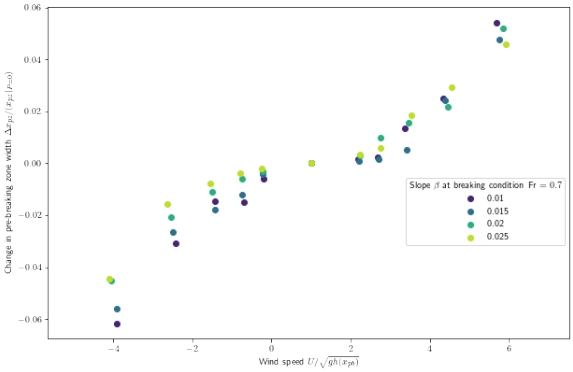
We take the same data in figure 5, but plot it with respect to $U/\sqrt{gh(x_{pb})}$. The manuscript takes after Donelan et al. (2006) in approximating

$$\frac{U}{\sqrt{gh}} = 1 \pm \sqrt{\frac{1}{5}\left|\frac{P}{\rho_w g L \varepsilon}\right| \frac{4\rho_w}{4.91\sqrt{3\varepsilon}\rho_a}}$$


Slope β at breaking condition Fr $= 0.33$
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p2}|_{t=0})$


Slope β at breaking condition Fr $= 0.5$
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p2}|_{t=0})$


Slope β at breaking condition Fr $= 0.6$
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p2}|_{t=0})$


Slope β at breaking condition Fr $= 0.7$
0.01
0.015
0.02
0.025
Change in pre-breaking zone width $\Delta x_{p2}/(x_{p2}|_{t=0})$
Wind speed $U/\sqrt{gh(x_{pb})}$