Although there have been uncertainties in capturing the topography of the ocean nearshore, mathematical methods could prove to be possible solutions to this problem using the dispersion relationship between wavelength and the period. Stockdon and Holman used video imagery, which compared true wave signal and remotely sensed video signal to create a linear representation between wave amplitudes and phases. Holman used a 2-dimenisional method with Kalman filtering to estimate the depth, h.

Our research will compute the wave depth using wave length and wave number with a 1D model derived from using the energy flux method to create a correlation between the wave length and the wave depth from the surface. Forward Problemforwardproblem We consider the following models for the forward problem. eqnarray fp1 $\{arraylllddx\left(EC_g\right) = -\delta,$
Observe that equation fp1 is coupled using the fact that $\sigma = 2\pi T$. Hence, using equation cg and e in fp1, we obtain equation fpdelta ddx$\left(\lambda k\left(1 + 2kh\text{sinh}(2kh)\right)H^2\right) = -\delta,$