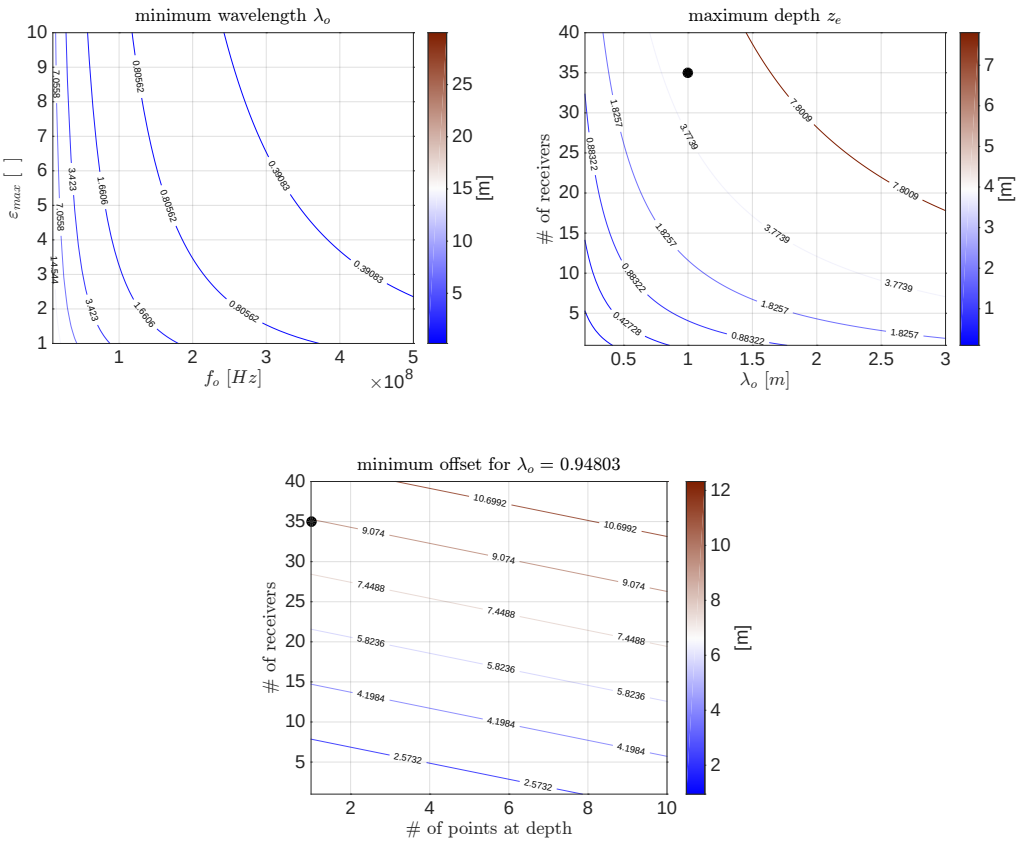

Minimum depth for linear array with distance between source and first receiver equal to λ_o and distance between adjacent receivers equal to $\lambda_o/4$. Black dots indicate $\lambda_o = 1$, $z_e \approx 4$.

$$\lambda_o = \frac{v_{min}}{f_o} = \frac{c}{f_o\sqrt{\varepsilon_{max}}}, \qquad\qquad m = \frac{m/s}{1/s}.$$

Let n_r be the number of receivers and n_f the number of illuminated points at depth z_e, where z_e is the maximum depth of sensitivity for the given array. Let the source spacing be $\lambda_o/4$. Empirically,

$$\begin{aligned} 2z_e = x_{offset} &= \lambda_o + (n_r - 1)\frac{\lambda_o}{4} \\ z_e &= \frac{\lambda_o}{2} + (n_r - 1)\frac{\lambda_o}{8} \\ x_{min} &= \lambda_o + (n_r - 1)\frac{\lambda_o}{4} + (n_f - 1)\frac{\lambda_o}{4}. \end{aligned}$$