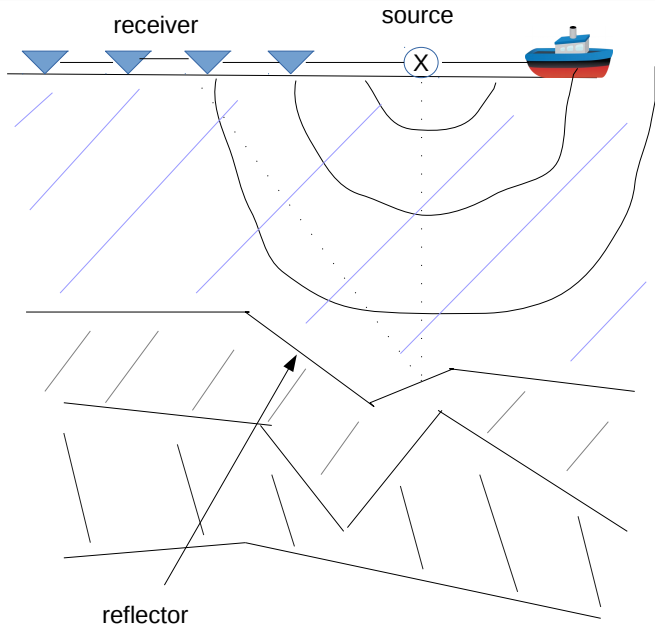


# Wave inversion

Evren, Ivan, Euan, Shaerdon, Owen, Hayley, Matthias

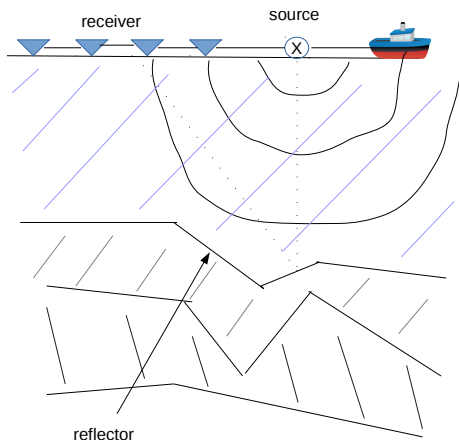
June 7, 2017

# A sketch of the problem



# 1 dimensional problem

- Measurable
  - $k$  (source-receiver distance)
  - $t(k)$  (total travel time)
- Unknown
  - $h$  (depth)
  - $v$  (velocity)
  - $\theta$  (slope)



- Q1) Given a source and a finite number of receivers, what configuration of the reflectors can you determine?
- Q2) Given a fixed number of reflectors contained in some bounded area, what is the minimum number of receivers necessary to locate all the reflectors?
- Q3) If we can specify that our receivers can either measure the acoustic pressure or its derivative with respect to time, how do the above answers change?