APPLYING DOUBLE-DIFFERENCE METHODS FOR LONG RANGE TRACKING OF SPERM WHALES (*Physeter macrocephalus*) ON A SMALL APERTURE VERTICAL ARRAY

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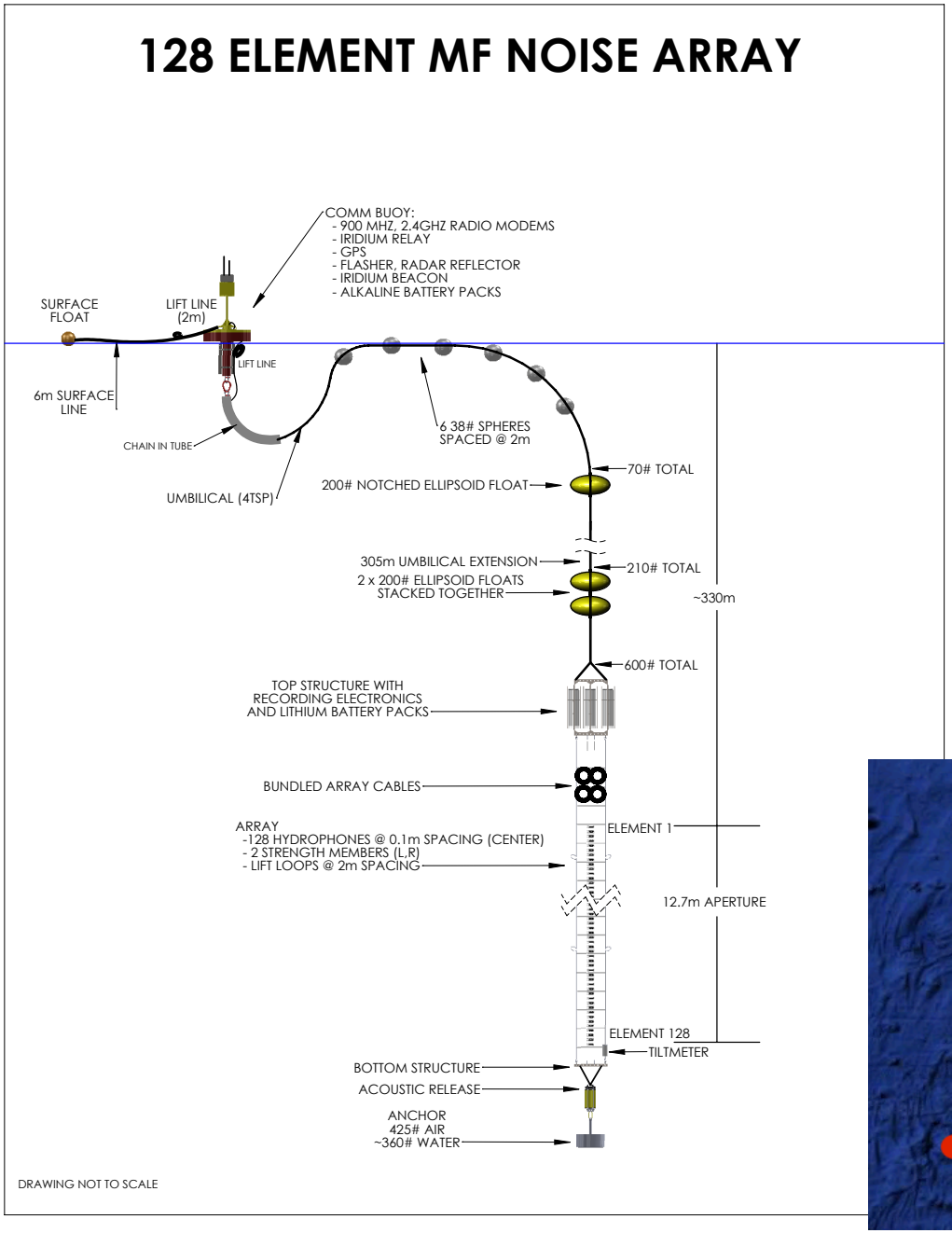
BACKGROUND:

- Double-difference method originally developed in seismology to localize earthquakes (Waldhauser & Ellsworth, 2000) and later introduced to underwater acoustics for tracking fin whales using a bottom mounted seismometer network (Wilcock, 2012).

OBJECTIVE:

- Adapt double-difference method to tracking sperm whales on a small aperture vertical hydrophone array in deep water.



- 128 hydrophones
- 12.7 m aperture (0.1 spacing)
- Deployed at 330 m depth
- 4 km deep waters in flat bathymetry area
- February 2014
- Used to simulate short-aperture localization methods from mobile platforms.

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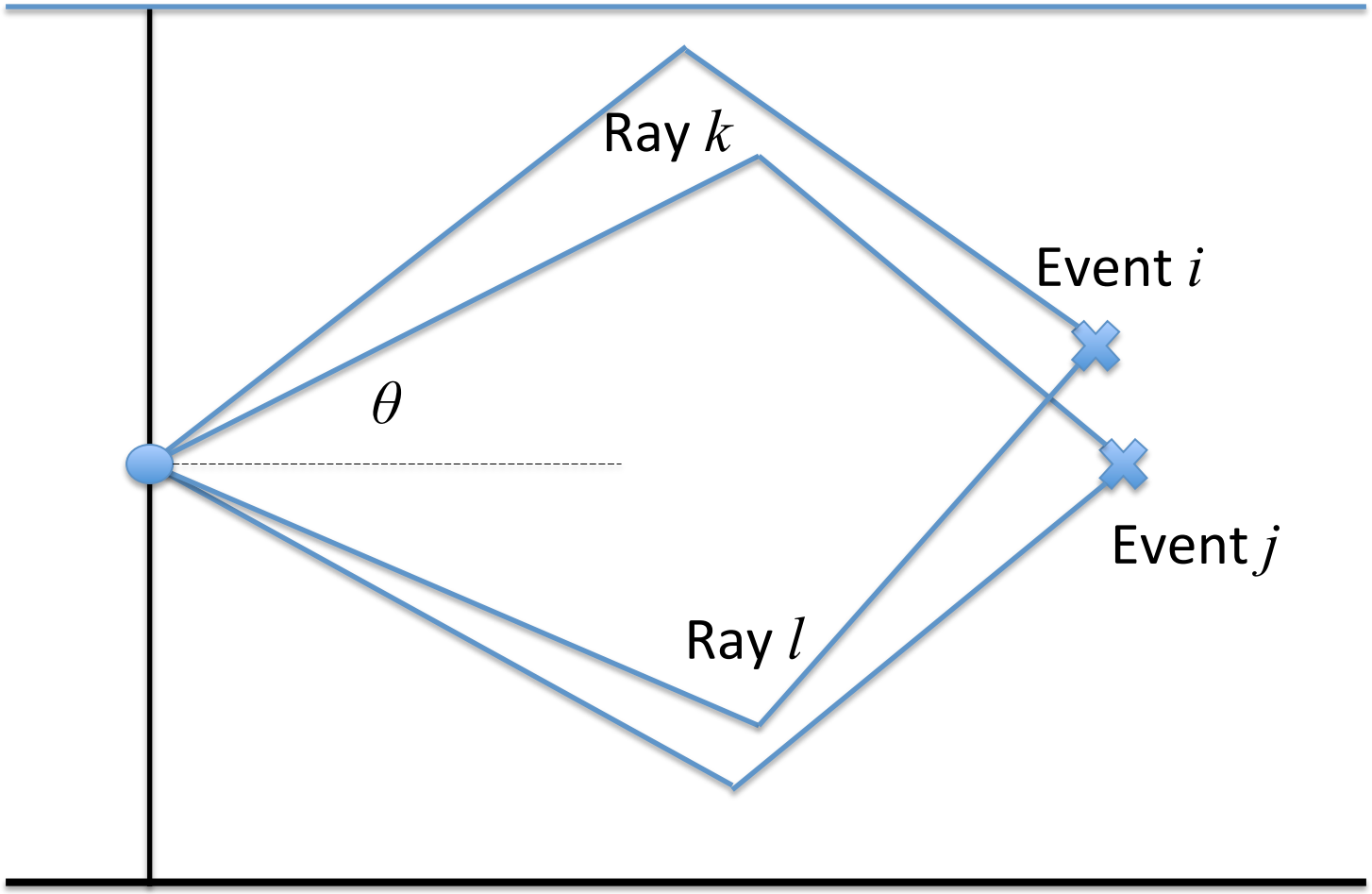
MOTIVATION:

- Standard ray propagation modeling often yields scattered results due to array tilt and range-dependence/model mismatch of the acoustic environment (sound speed, bathymetry). The double-difference method may be more robust and compensate for these features.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Thank you, and come see my poster tomorrow !