ACOUSTIC POSITIONING TO KM3NeT

Programa de Doctorat en Disseny, Fabricació i Gestió de Projectes Industrials

Física aplicada a les tecnologies industrials

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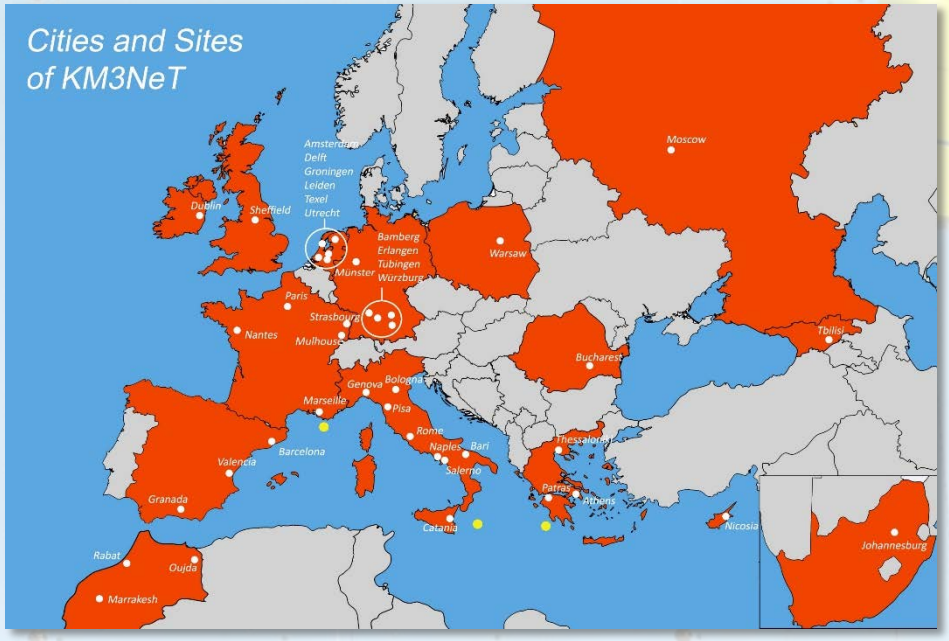
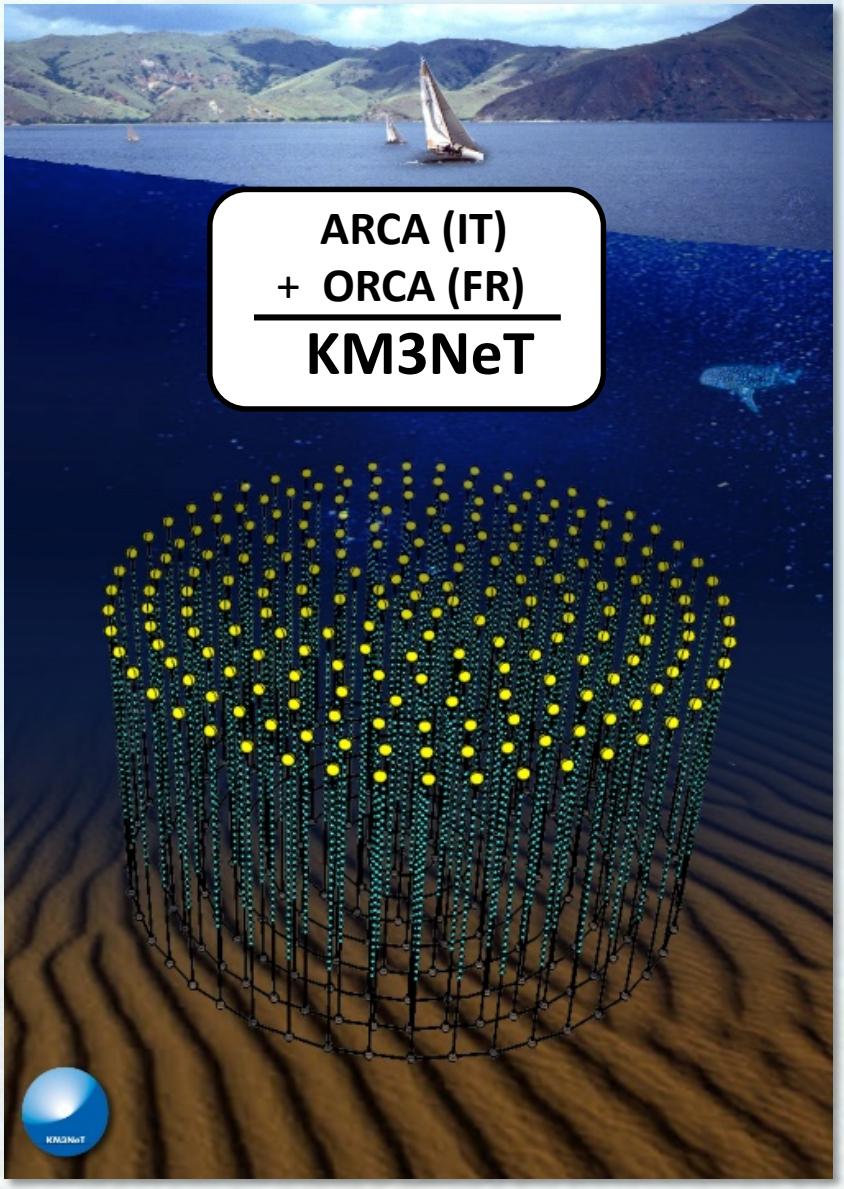
KM3NeT: Neutrino Telescope

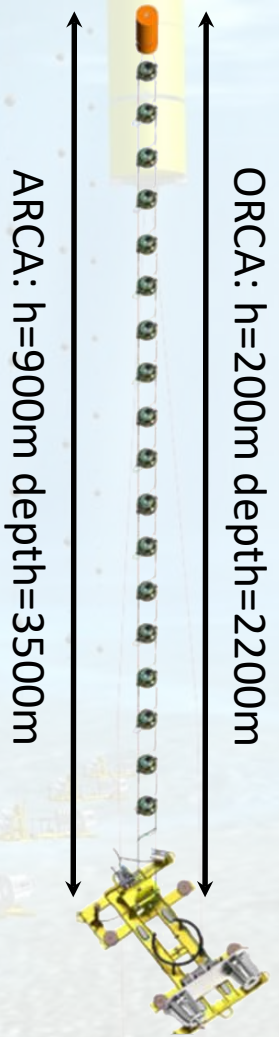




KM3NeT: Neutrino Telescope

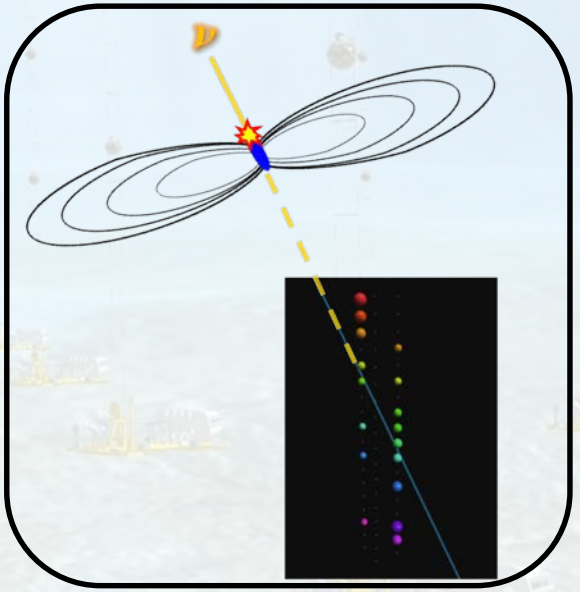
KM3NeT (phase 1)
- Improve of ANTARES
- To define KM3NeT 2.0:
  24 DU ARCA (IT)
  7 DU ORCA (FR)

DOM
31 PMTs
Piezo
Compass



DU
1 DU = 18 DOMs

KM3NeT 2.0
- ARCA (FR)
  1 km^3
  220 DU
- ORCA (IT)
  0,018 km^3
  120 DU

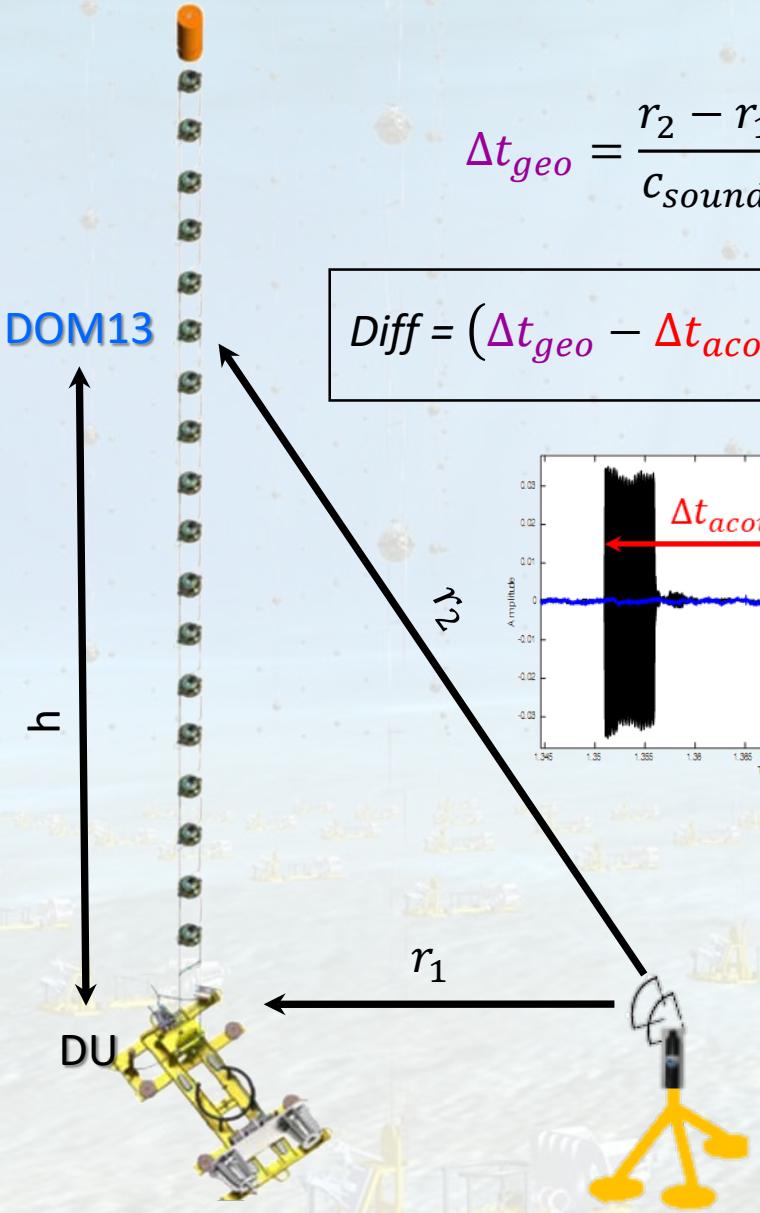


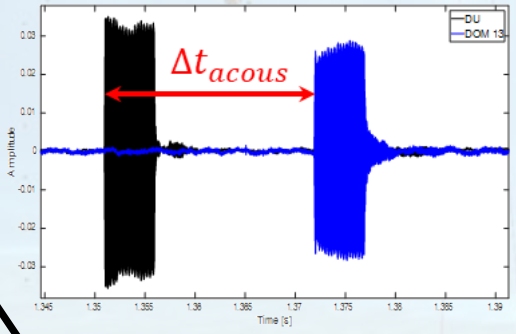
Neutrino detection

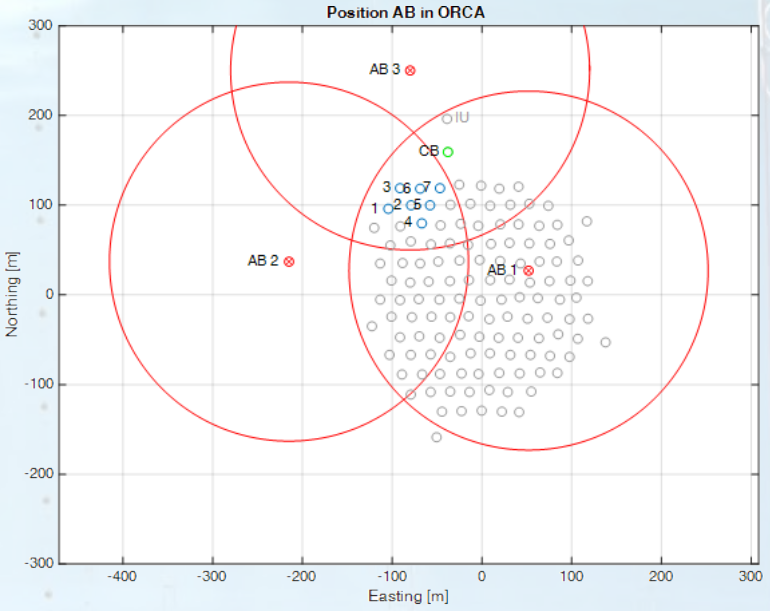
Acoustic Part in KM3NeT

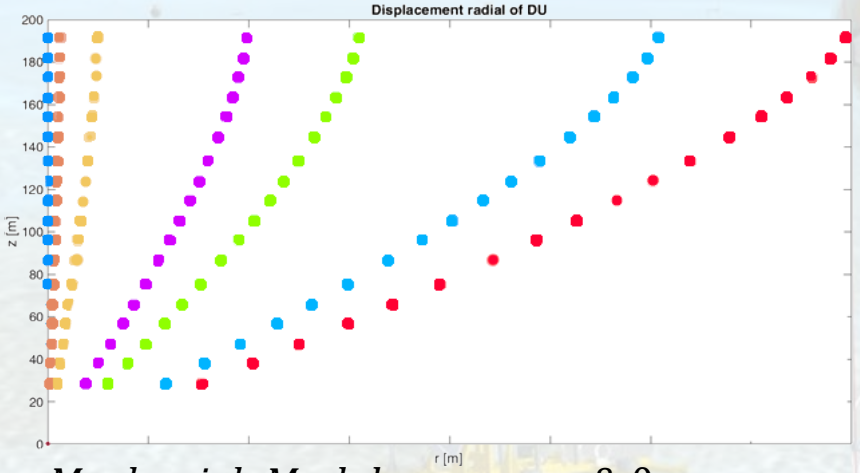
$$\Delta t_{geo} = \frac{r_2 - r_1}{c_{sound}}$$

$$Diff = \left(\Delta t_{geo} - \Delta t_{acous}\right) \cdot c_{sound}$$





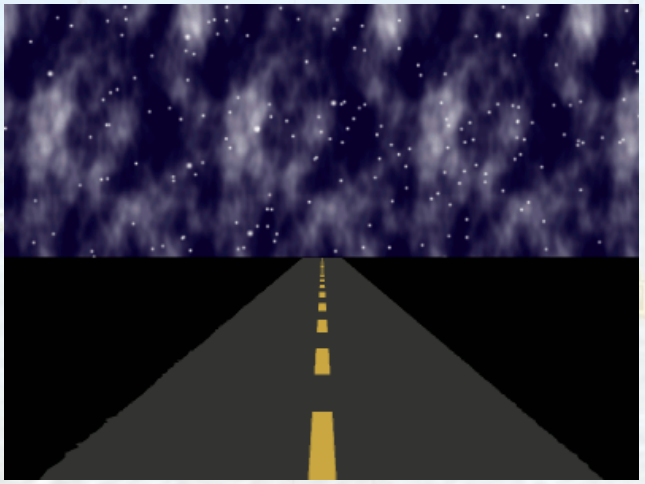




Mechanich Model $\propto v_{current}$ & $\theta_{direction}$

AIMS

- Study the most efficient analysis and define a process to signals detection in KM3NeT.
- Propose the localitation of Autonomous Beacon in ORCA (phase 1), and if its necessary in the rest of detector.
- Study the viability to detect the neutrino by acoustic process.
- That my work be the most possible satisfactory if is implement in KM3NeT.



"A long way to go…"

THANKS FOR YOUR ATTENTION

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