

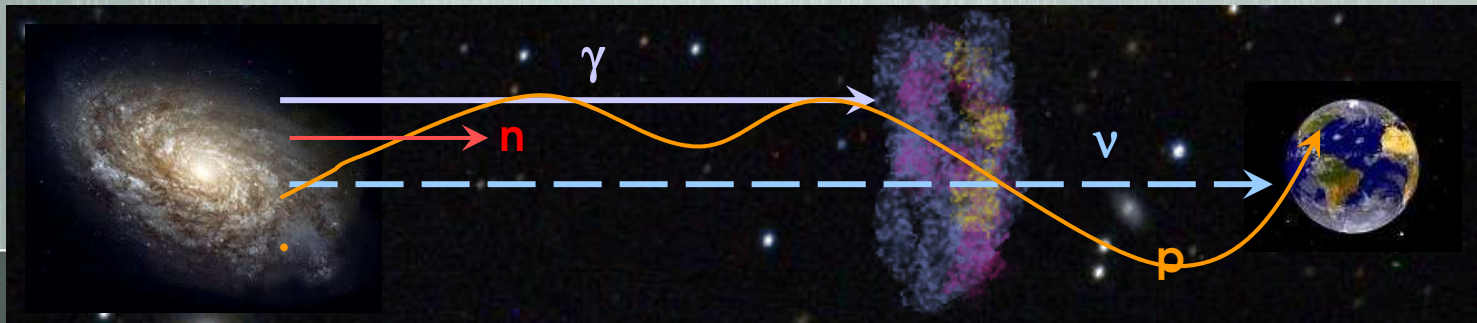
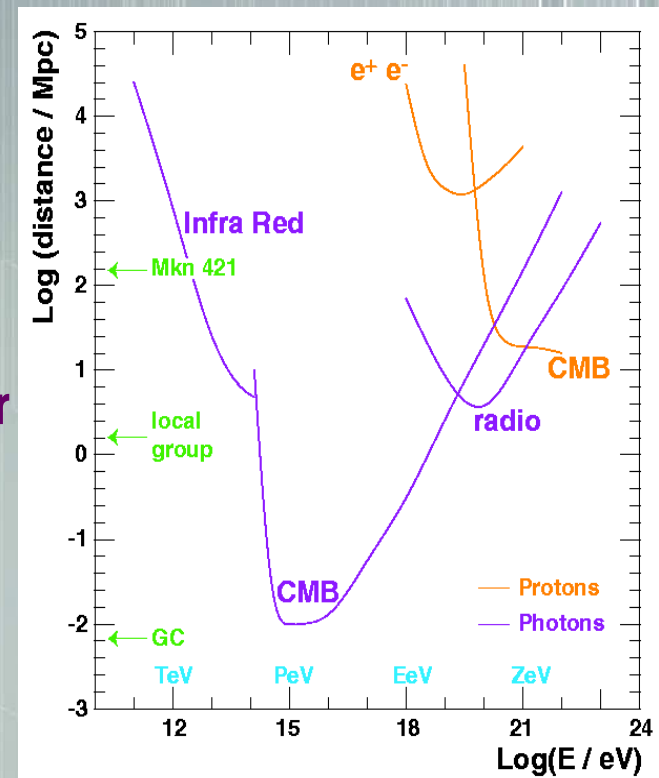
NEUTRINO ASTRONOMY

- Neutrino Astronomy is a quite recent and very promising experimental field.

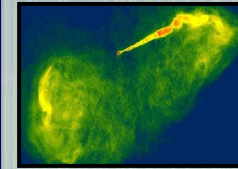
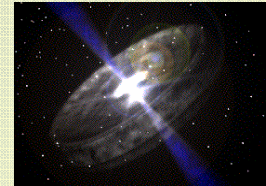
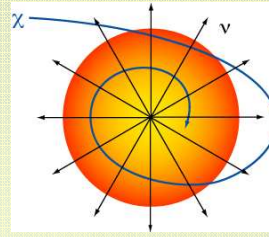
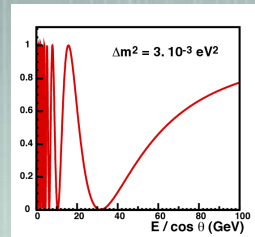
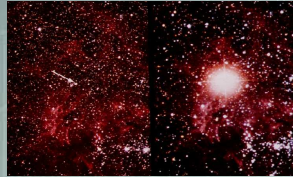
Advantages:

- Photons: interact with photons and matter
- Protons: interact with CMB and are deflected by magnetic fields
- Neutrons: are not stable
- Drawback: large detectors (~Gton) are needed.

Photon and proton mean free range path



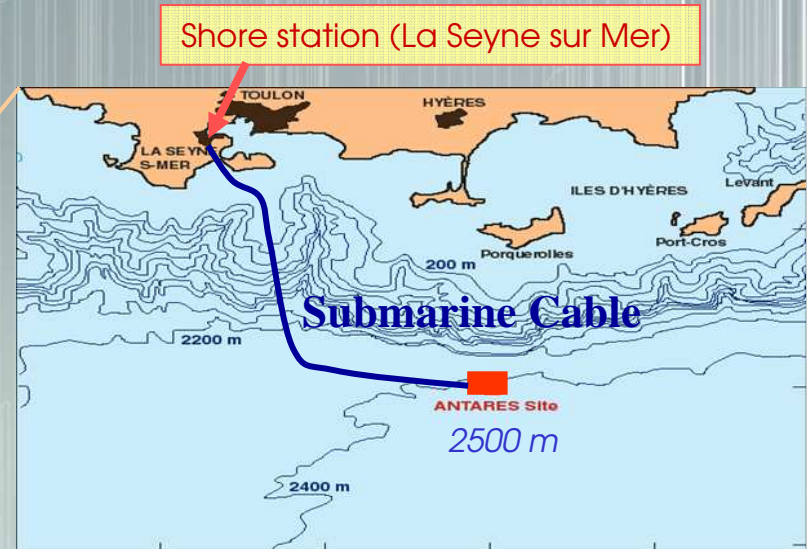
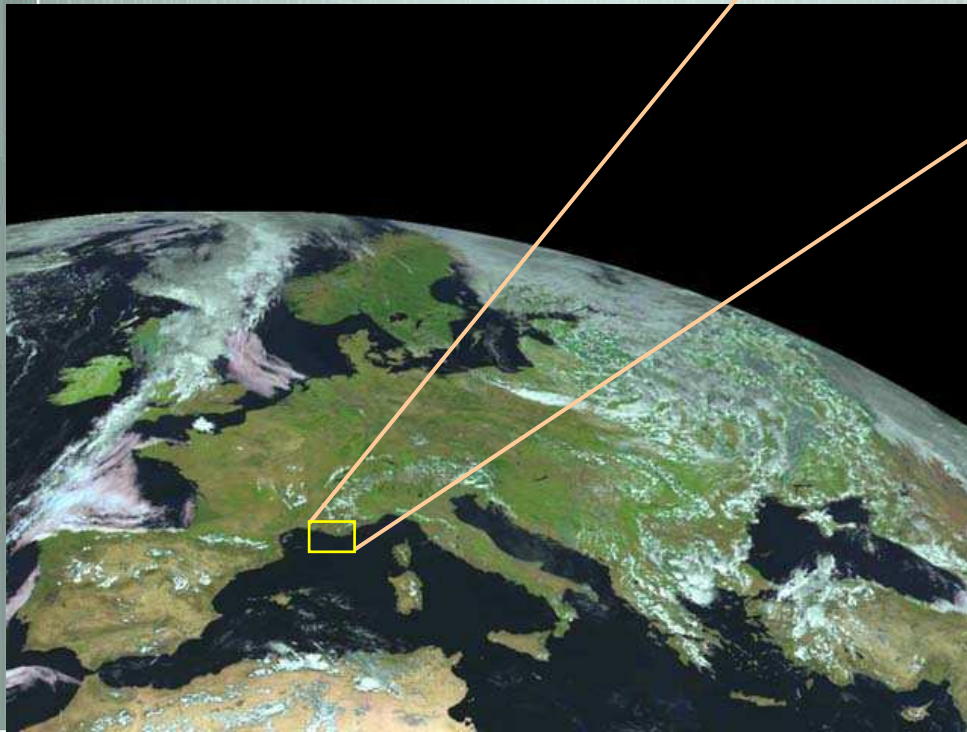
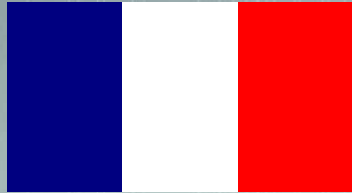
Scientific Scopes of Neutrino Telescopes



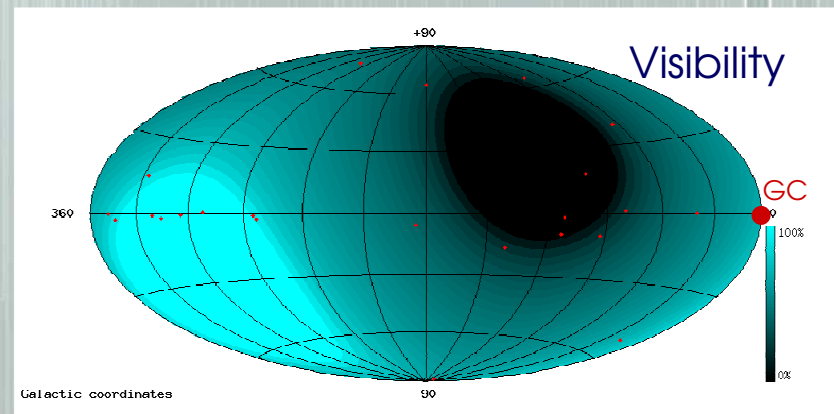
Energy	~MeV	GeV-100 GeV	GeV-TeV	TeV-PeV	PeV-EeV	>EeV
Physics	Supernovae	Neutrino oscillation	Neutralino search	Astrophysical sources (AGNs, GRBs, MQs)	AGNs, TD, GZK neutrinos	?
Signature	Average increase in the PMT counting rate	Up-going muons	Up-going muons	Up-going muons and cascades	Almost horizontal tracks	Down-going tracks

Other physics: monopoles, Lorentz invariance, super-massive DM , SUSY Q-balls, etc...

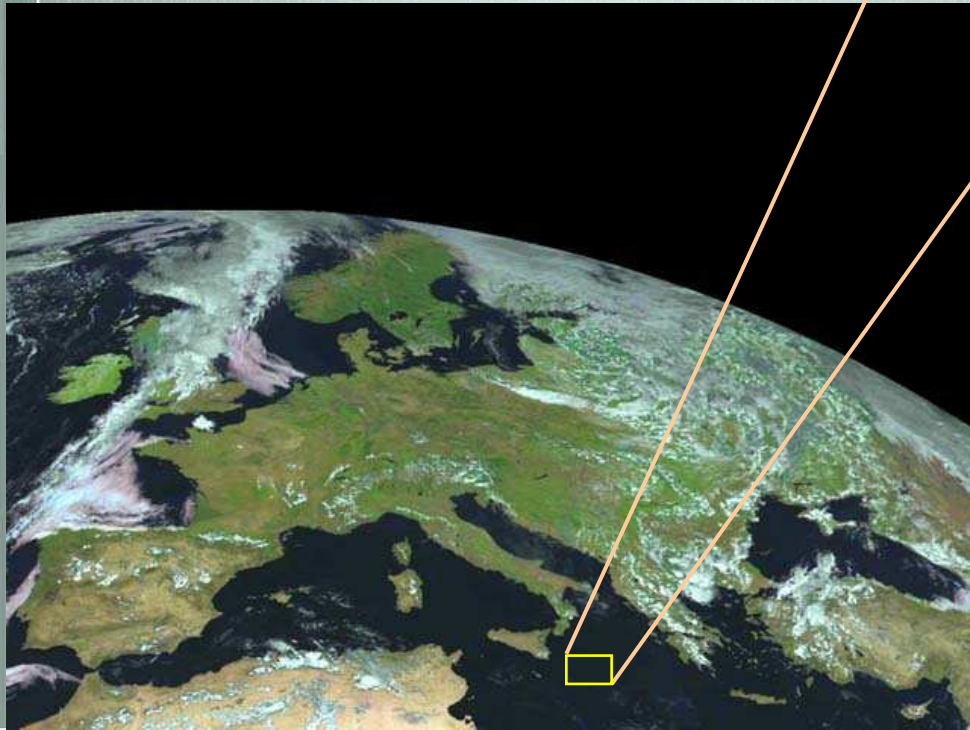
Location



- The ANTARES detector will observe 3.5π sr (0.6π sr overlap with AMANDA).
- The Galactic Centre is observable 67% of the day.



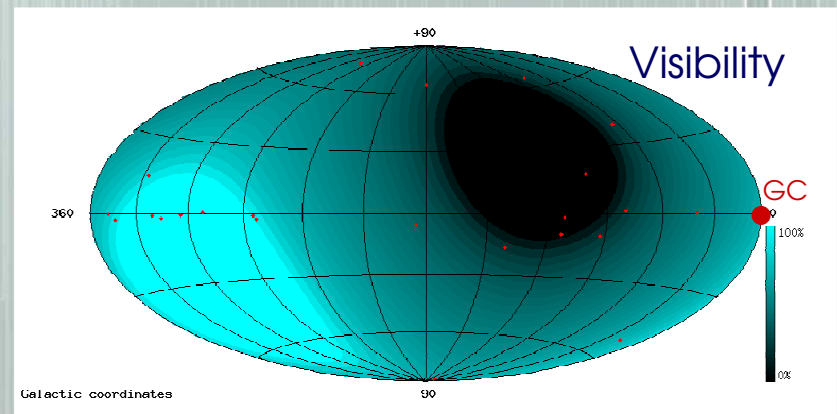
Location

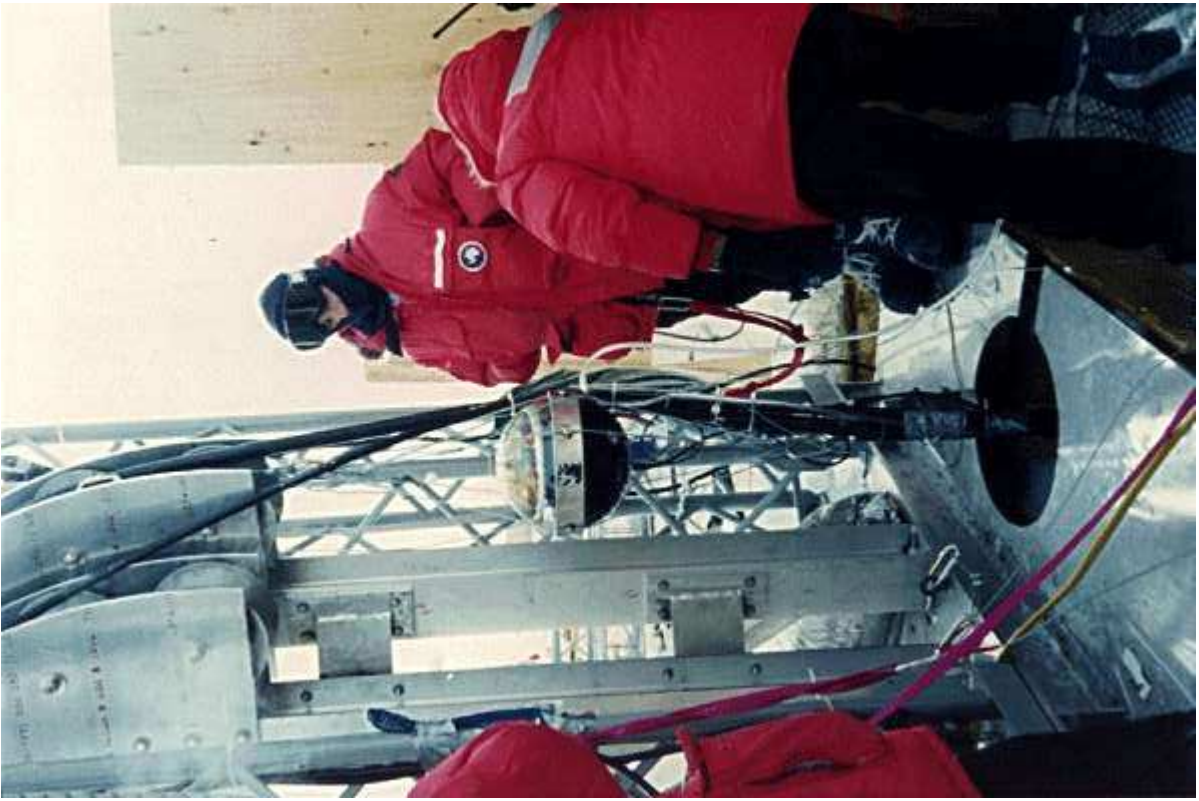


Shore station (Capo Passero)



- The NEMO detector will observe 3.5π sr (0.6π sr overlap with AMANDA).
- The Galactic Centre is observable 67% of the day.





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Looking for a Neutrino Telescope!

