

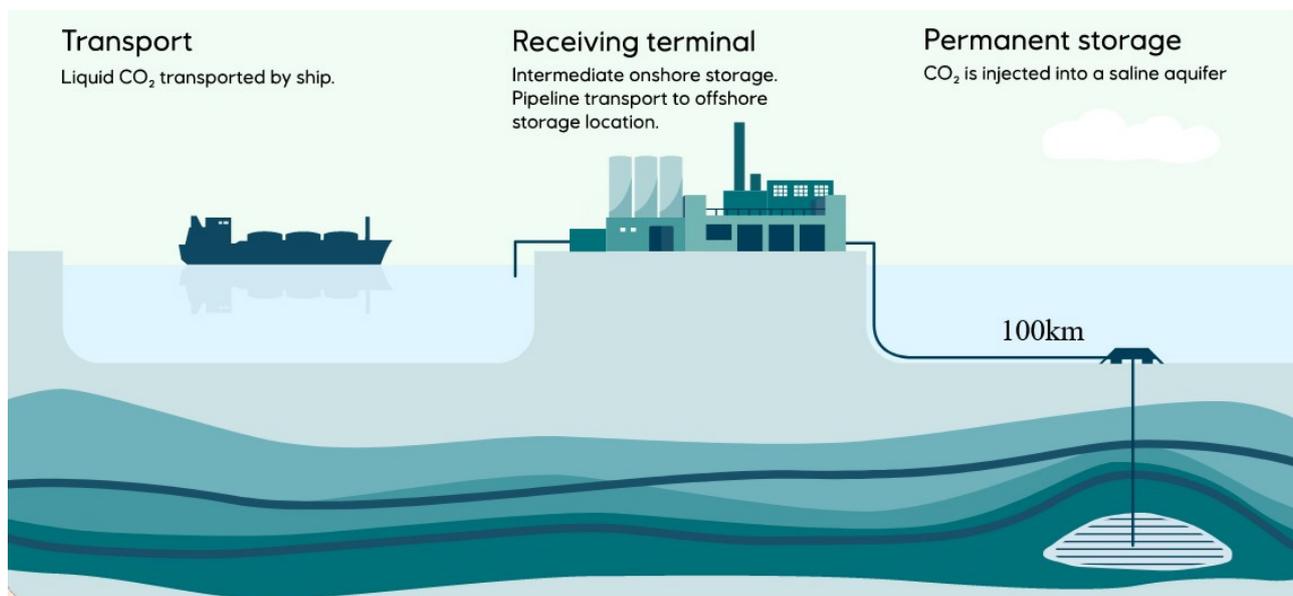
Seminario di “Avvio al Lavoro”

“Northern Lights” and the role of subsurface in Carbon Capture and Storage

Martedì, 4 aprile – ore 16:30 Aula Arduino

Relatore: **Dr.ssa Renata Meneguolo**

Equinor, Stavanger (Norway)



Capture and storage of carbon dioxide (CCS) is considered a crucial tool for the decarbonization of emissions from energy and hard-to-abate industries. Geoscience has a crucial role in the multidisciplinary assessment of the three building blocks of safe CO₂ geological storage: containment, injectivity and capacity. Subsurface investigations for CO₂ storage involve predicting the fluid movement through pore spaces (injectivity) and assessing the cap rock and storage unit geomechanical properties (containment), which determine the injectable volumes (capacity).

Forward prediction of distribution in space of static properties crucial for injectivity (porosity and permeability) is linked to the depositional environment, grain size, mineralogy and diagenesis, and is achieved by sedimentological, geophysical, petrophysical and petrological investigations.

Containment is evaluated by cap rock assessment (thickness, areal extent) and rock mechanical analyses (stress and strength measurements) for pressurization threshold and fault reactivation potential, which determine the safe operational framework.

Furthermore, a monitoring and verification plan must be developed to ensure safe operations and site management, for which geophysical data acquisition and interpretation are essential.

These evaluations are exemplified by the first worldwide cross-border and full-scale CO₂ transport and storage project, called Northern Lights. The seminar will describe the role of geoscientists in this innovative project and the specific knowledge needed to characterize the subsurface and to monitor it during the injection activities.

Proponente: **Anna Breda**