ADVANCING CO2 STORAGE IN ITALY WITH SIMULATIONS, BEST PRACTICES, AND E-LEARNING MODULES

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Introduction

The increasing demand for sustainable CO2 storage solutions has highlighted the need for thorough risk assessment and effective regulatory understanding. Our research addresses these needs by focusing on two critical areas:

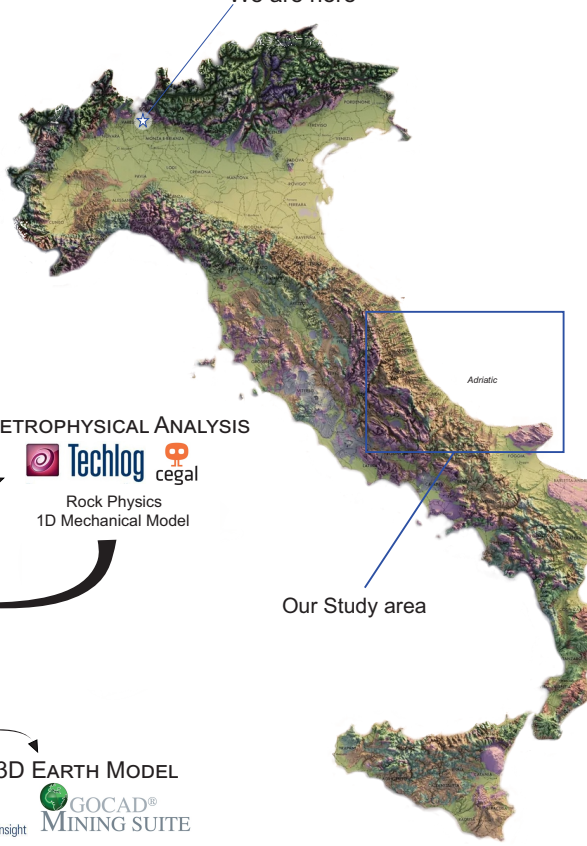
1.Risk Assessment for Depleted Reservoirs

2.Enhancing Regulatory Competence with Best practices and e-learning modules for regulators in control agencies.

Research Focus

- Fault Reactivation
- Induced Seismicity
- Pressure and Temperature Changes
- Leakage Pathways
- Cap Rock Integrity

University of Insubria
PeriGeo Research Group
We are here



Regional Geology

Petrel — Shared earth—critical insight; move

Seismic Interpretation
Fault Analysis; Slip tendency

Petrophysical Analysis

Techlog; cegal

Rock Physics
1D Mechanical Model

Stress State

WSM World Stress Map; FaultKin 8; Win-Tensor

Inversion of Earthquake Focal Mechanisms

3D Earth Model

Petrel — Shared earth—critical insight; GOCAD® Mining Suite

Engineering

CMG; CMOST

History Matching

Global Best Practices for CCS in Italy

Objectives

Provide Italian regulators with comprehensive and standardized framework to ensure consistency, safety, and environmental sustainability in the assessment of potential CO2 storage sites.

Goals

- Knowledge Dissemination:
- Standardization and Regulation Support:
- Support Compliance with International and EU Standards
- Drive Technological and Methodological Advancements

Key Products

- Interactive Web Platform:
- Documented best practices from significant CO2 storage regions and organizations

Critical Tools

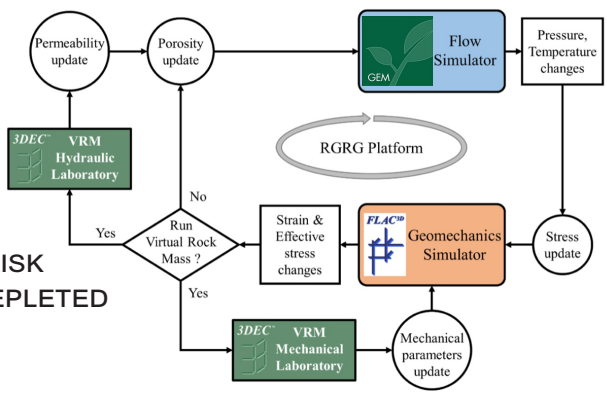
- Storage Potential Calculator:
- Monitoring Techniques Tool

Educational Resources

- Elearning modules, documents, reports, guidelines.

Database Best Practices

Fluid Flow and Geomechanics



Workflows for Risk Assessment of Depleted Reservoirs

E-Learning Modules for Italian Regulators

Purpose and Goals:

These modules are designed to equip Italian regulators with comprehensive knowledge and skills necessary for effective CO2 storage management within Italy's regulatory and environmental framework. Focused on skills crucial for navigating Italy's unique regulatory landscape, implementing best practices in local geologic settings, and addressing specific challenges faced by Italian CO2 storage projects.

Module Overview

- Basics of CO2 storage technologies
- Italian Regulatory Compliance
- Monitoring and Verification Techniques
- Global Case Studies