cop22.co2geonet.com


# What is $CO_2$ geological storage?

## Carbon dioxide Capture and Storage (CCS): What it's all about and why we need it

Ton Wildenborg - TNO

President $CO_2$GeoNet

# The $CO_2$GeoNet Association:

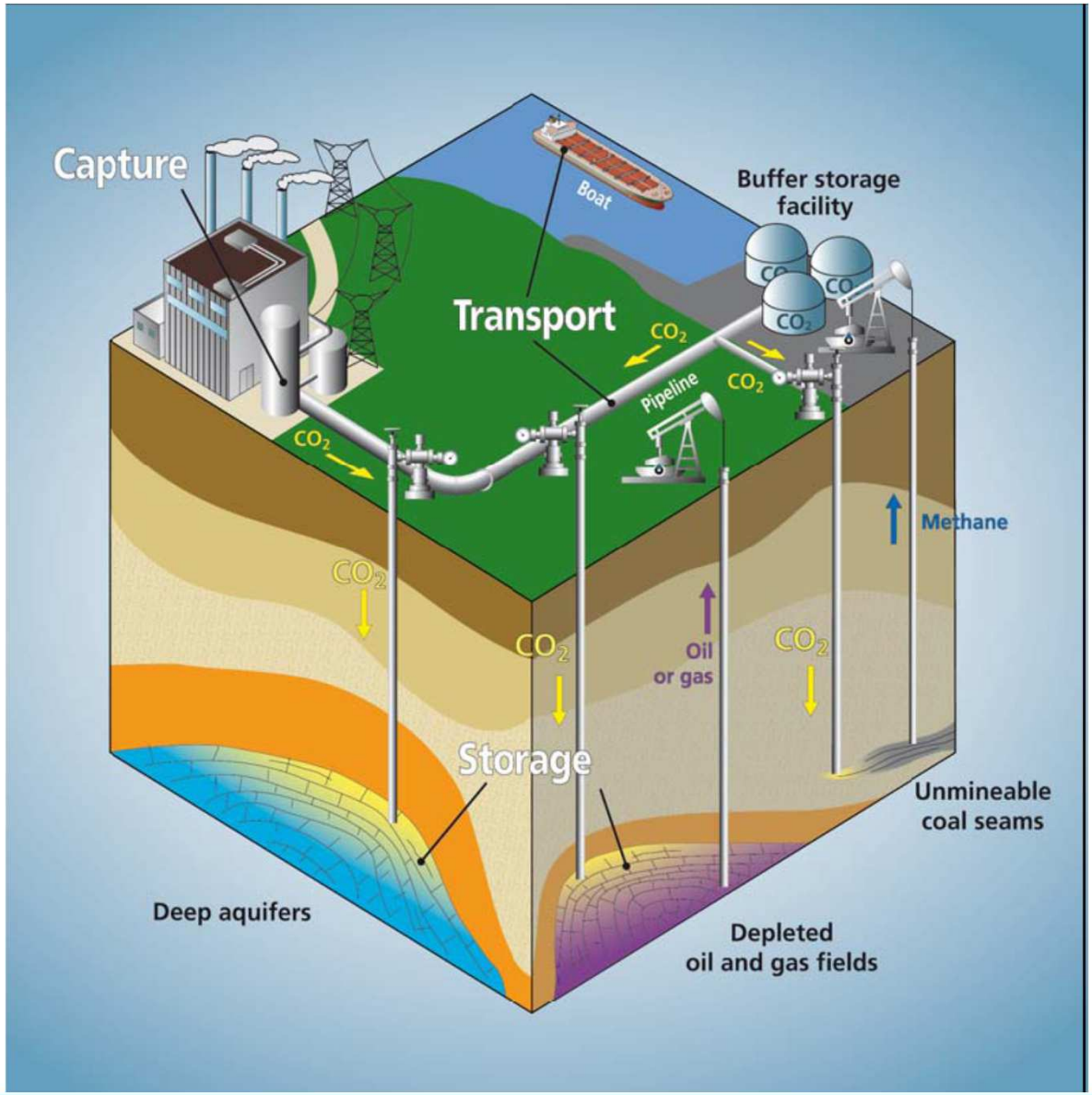
## An independent and unbiased European scientific voice on $CO_2$ geological storage


26 members in 19 countries

# My presentation topics

- CCS concept
- $CO_2$ storage principles
- $CO_2$ storage requirements
- Concluding

# $CO_2$ Capture and Storage concept



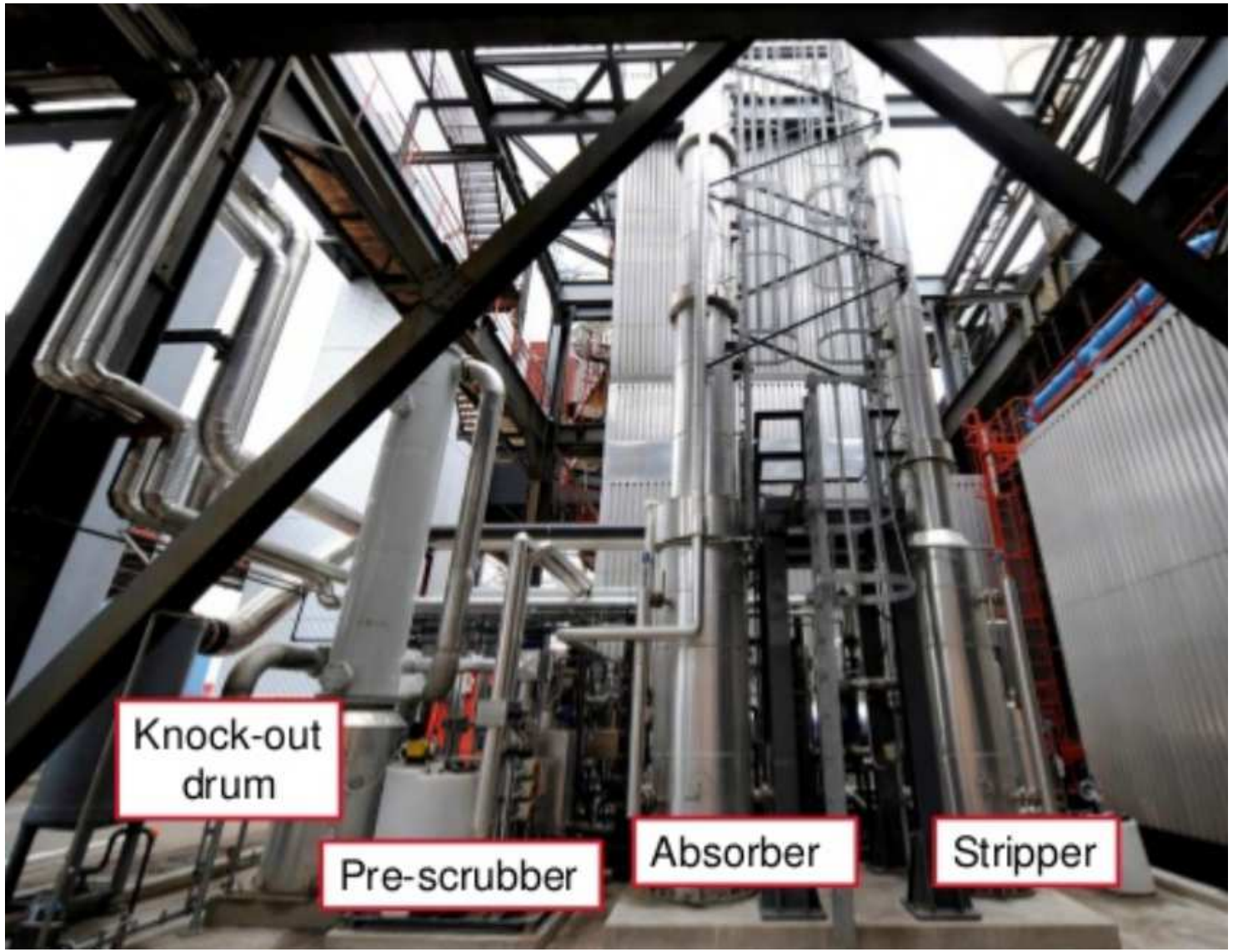

(Courtesy: BRGM)

# CCS is a reality.

- 15 Large-scale projects in 2015
- Capturing and storing 28 Mt CO2 per year

(Source: GGCSI, 2015)

# $CO_2$ capture installation




(Courtesy: TNO)

# $CO_2$ transportation

## By pipeline

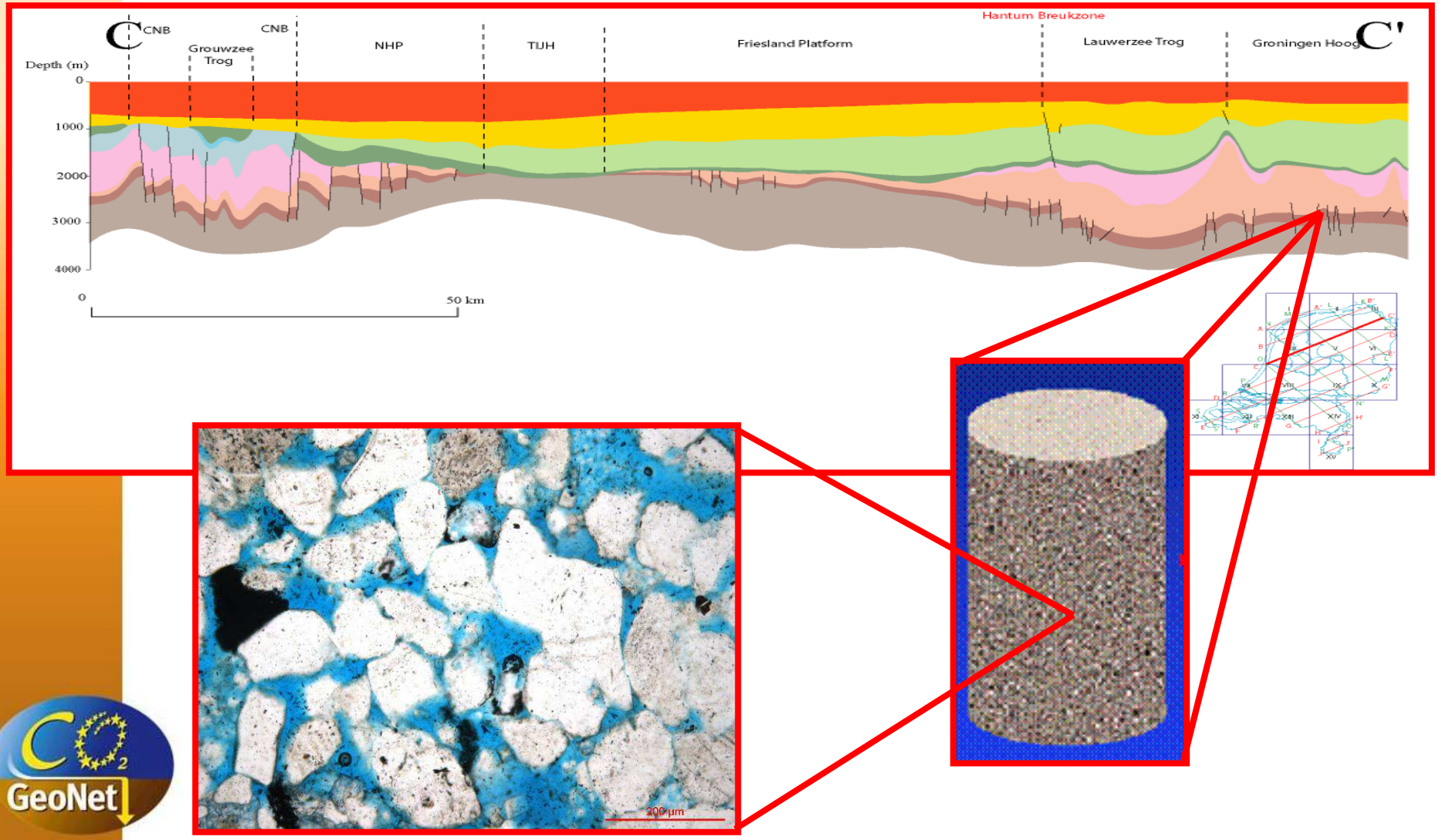

## By ship

(Source: IEA GHG & www.skdy.co.jp)

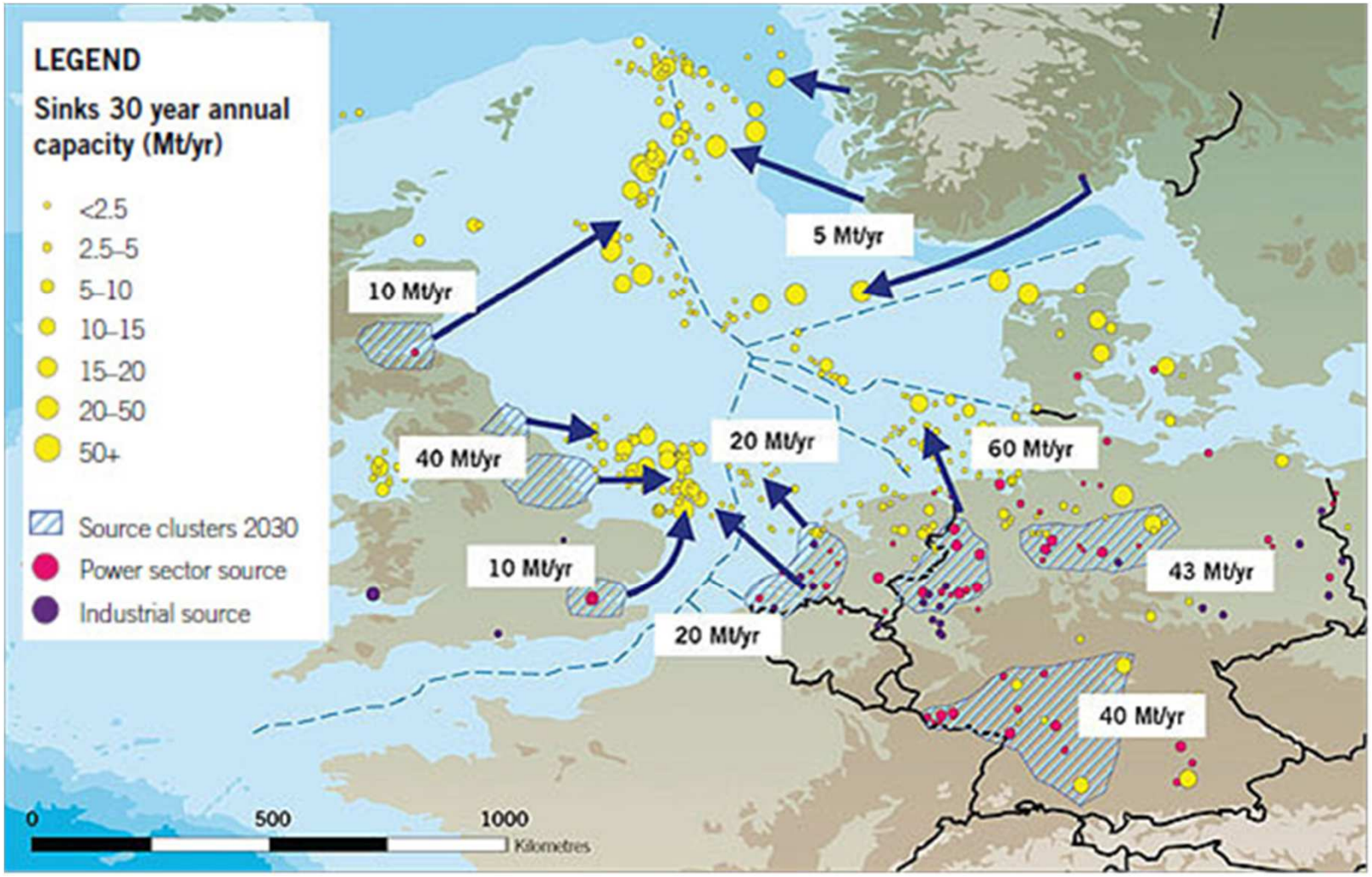
# $CO_2$ storage
## (K12-B pilot, Netherlands offshore)


- Gas reservoir at 4,000 m depth
- Since 2004 102,000 tonnes $CO_2$ injected

# $CO_2$ injection in porous rocks (aquifers, oil & gas fields)



# $CO_2$ storage potential in southern North Sea:
more than 7 gigatonnes (7,000,000,000 tonnes)




(Source: ElementEnergy, 2010)

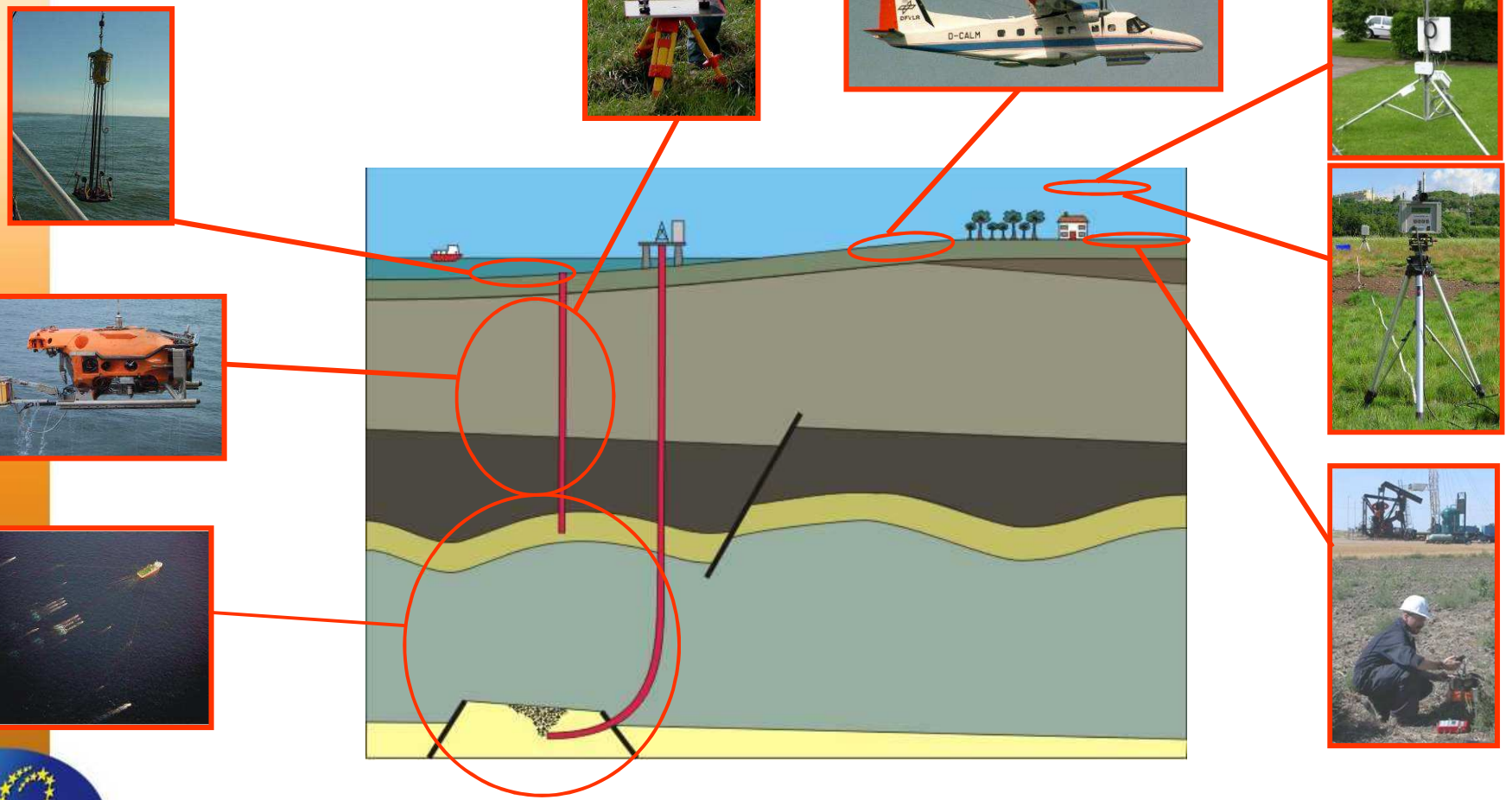
# Basic storage requirements

- Sufficient $CO_2$ storage **capacity**
- Sustainable $CO_2$ **injection rates**
- Effective **isolation** of $CO_2$ in the subsurface

# The basis for assurance of $CO_2$ storage safety

1. Proper site selection and characterisation
2. Appropriate safety assessment
3. Correct operations within safety margins (i.e. injection, closure and post-closure)
4. Careful monitoring
5. Optional remediation actions available
6. Proper understanding of the storage mechanism
7. Solid closure of the site

# Examples of monitoring



# Concluding

- All available evidence shows that **$CO_2$ storage is safe.**
- Huge storage potential available
- The storage potential needs to be unlocked by characterisation and testing.

# Contact info $CO_2$GeoNet

Web site:

www.co2geonet.eu

E-mail:

info@co2geonet.com

COP22 activities:

cop22.co2geonet.com