



UNIVERSIDADE DE ÉVORA
ESCOLA DE CIÊNCIAS E TECNOLOGIA
DEPARTAMENTO DE GEOCIÊNCIAS

Transformar CO₂ em rocha

O papel do Geólogo na proteção do ambiente

Jorge Pedro

jpedro@uevora.pt



Instituto de Ciências da Terra



InCarbon

*In situ carbonation for reduction of CO₂ emissions
from Power and Industrial sources in Alentejo*



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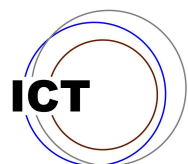


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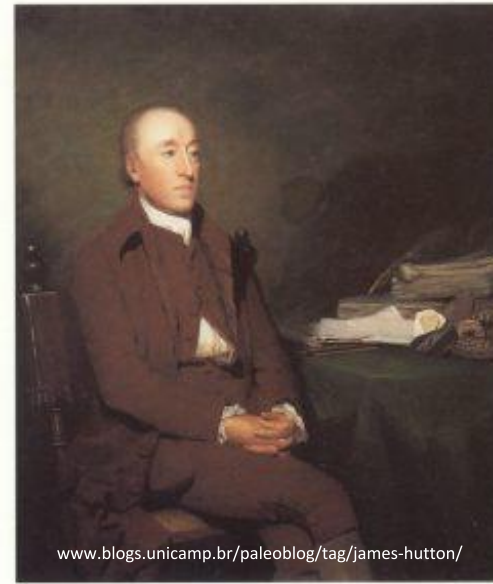
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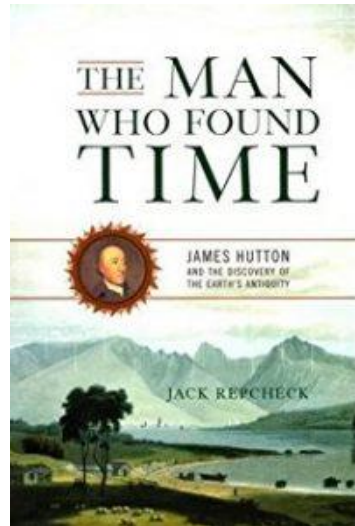
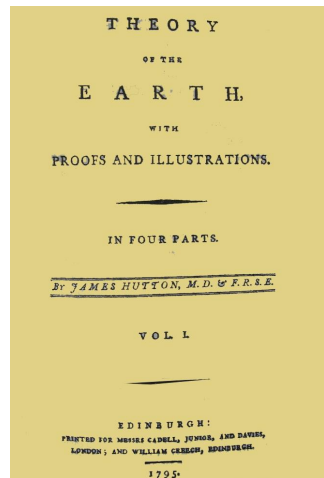
Dia do Geólogo

- 1º fim de semana de abril – Rússia;
- 30 maio – Brasil;
- 11 e 12 maio - Portugal e Espanha.

Com objetivo de homenagear James Hutton, considerado o “Pai da Geologia”



(1720 – 1797)

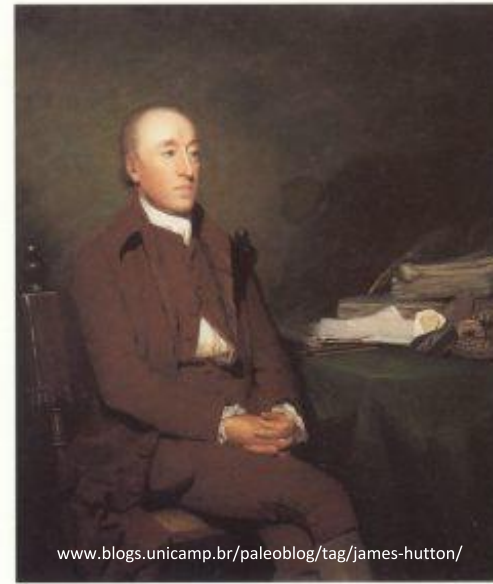


Propôs o princípio científico do “**Uniformitarismo**”, também referido como “**Princípio das Causas Atuais**”

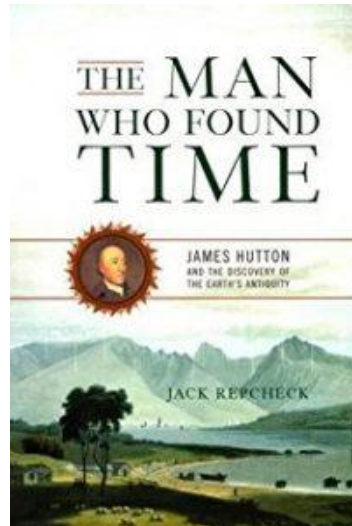
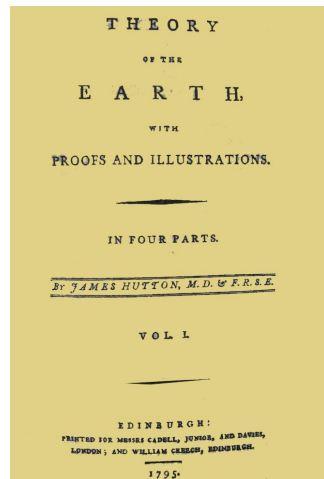
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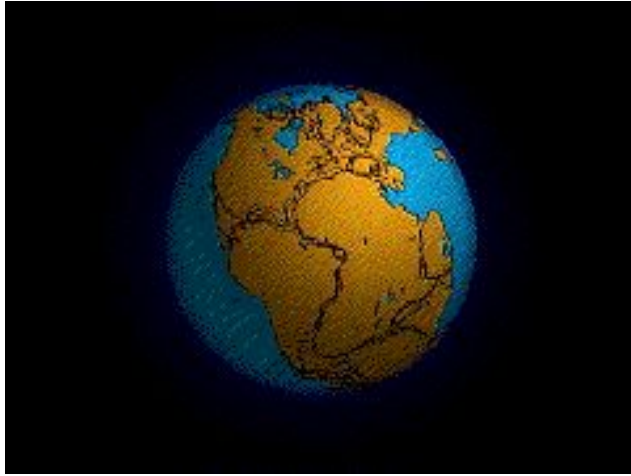


(1720 – 1797)

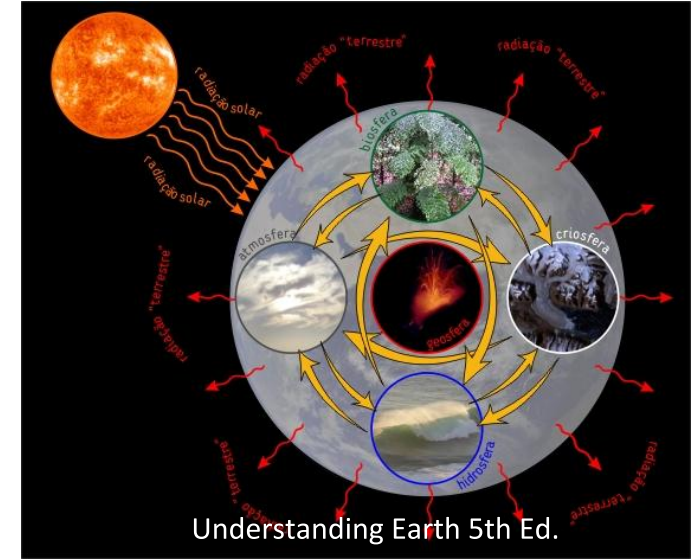
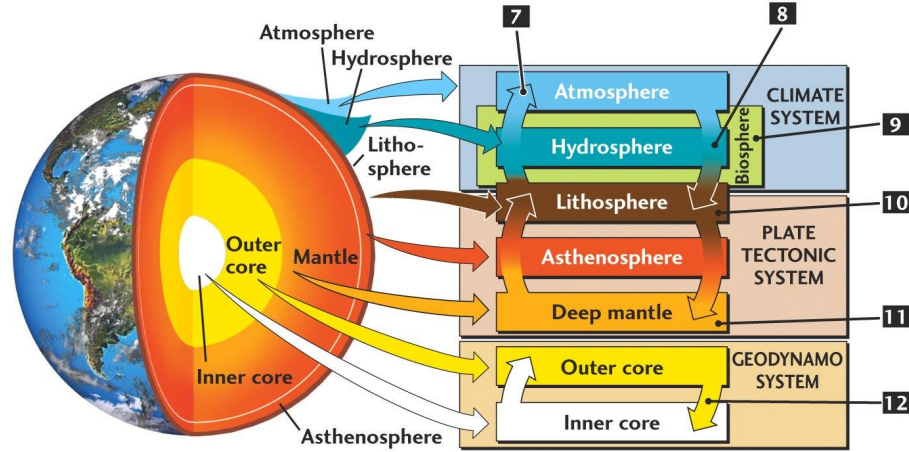


Uniformitarismo, opõe ao **Catastrofismo** e defende que os fenómenos geológicos atuais, são idênticos aos fenómenos geológicos que ocorreram no passado.

Geólogo no séc. XXI



THE EARTH SYSTEM IS ALL PARTS OF OUR PLANET AND THEIR INTERACTIONS



Geógrafo <->

Geografia

Geofísico <->

Geofísica

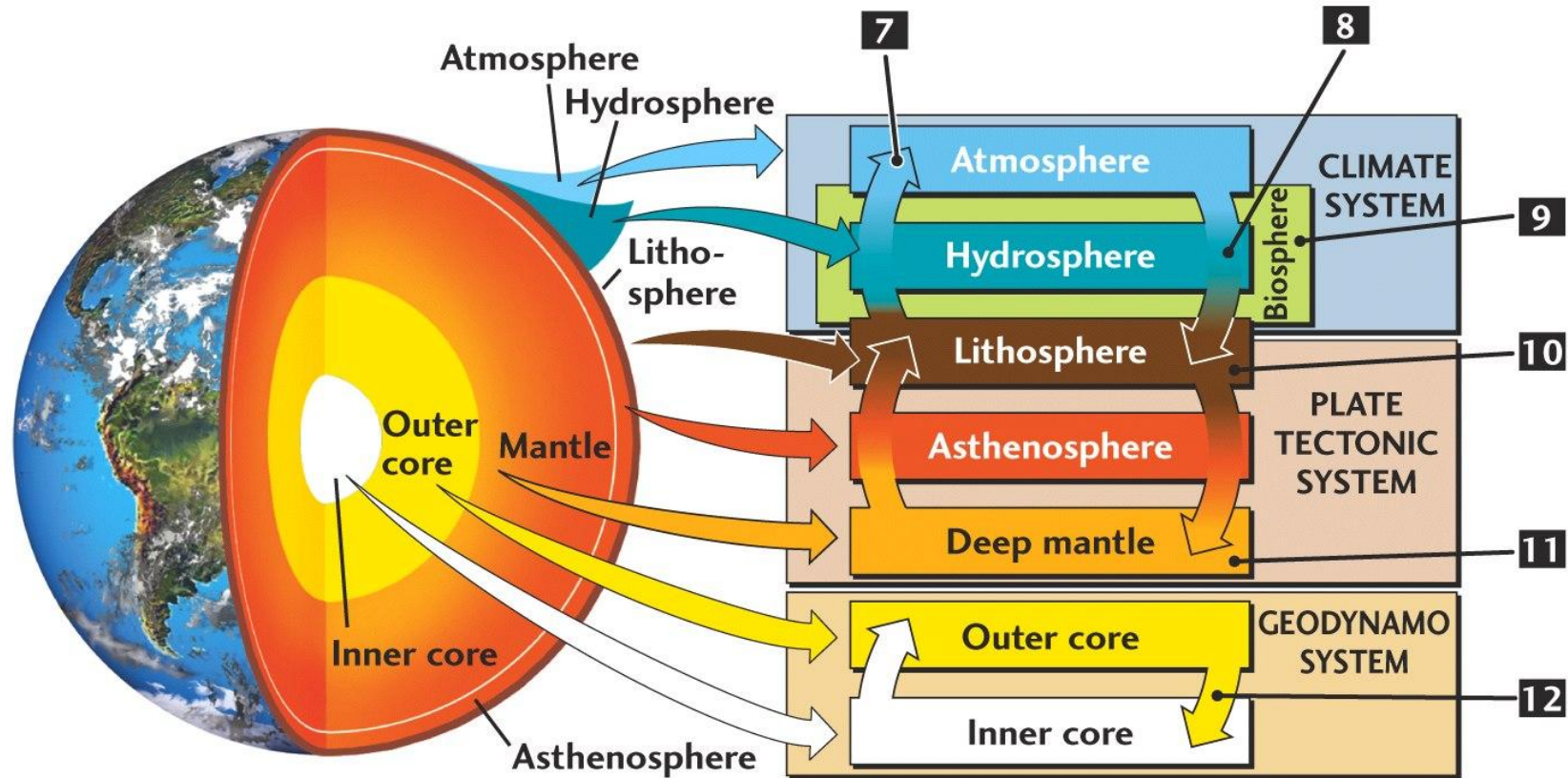
Geoquímico <->

Geoquímica

Geólogo <-> Geologia

Geólogo no séc. XXI

THE EARTH SYSTEM IS ALL PARTS OF OUR PLANET AND THEIR INTERACTIONS



Se existirem desequilíbrios nos subsistemas terrestres?



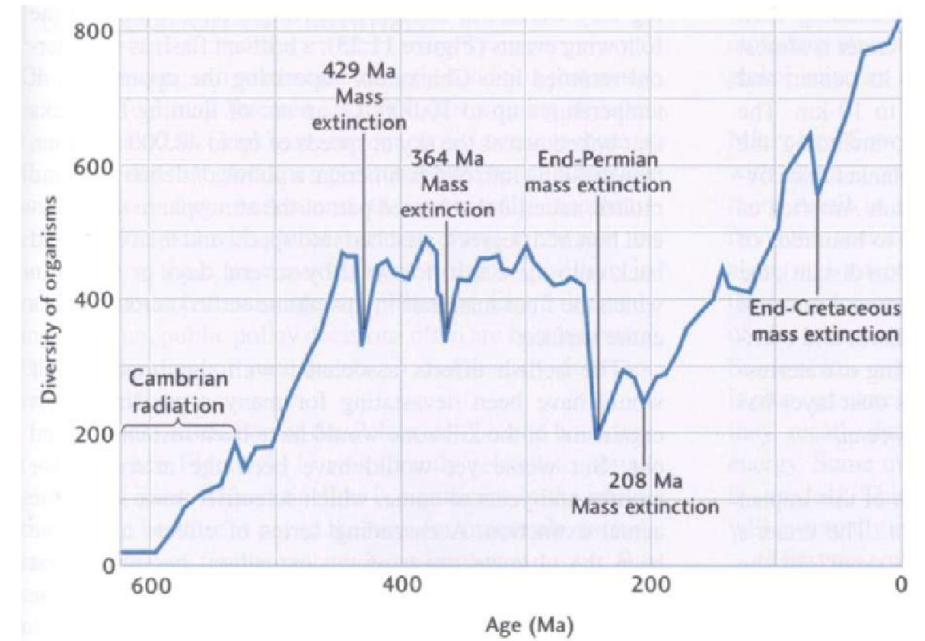
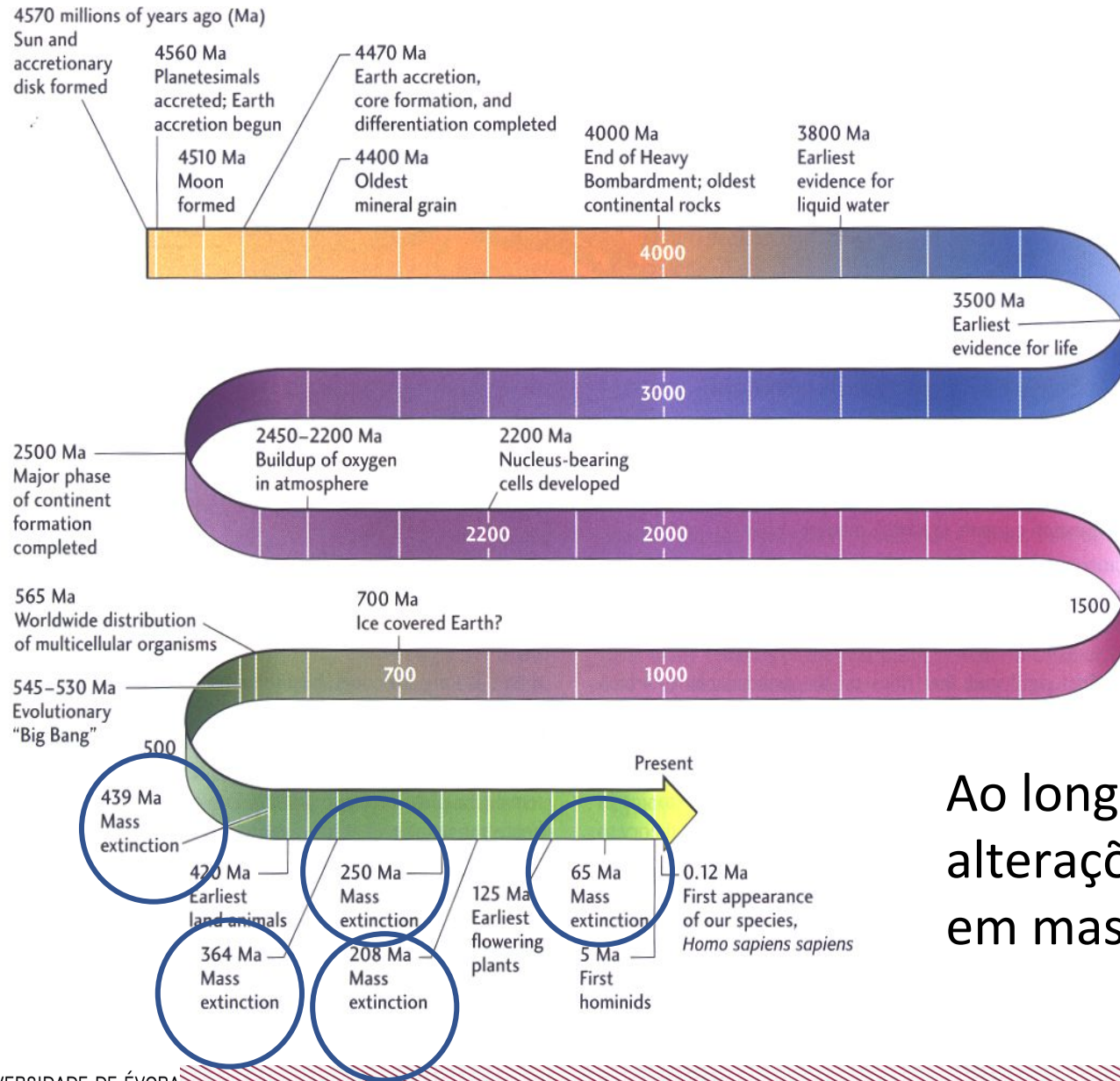
A SOLUÇÃO ESTÁ NA NOSSA GERAÇÃO

GREVE ESTUDANTIL MUNDIAL 15 MARÇO PELO CLIMA

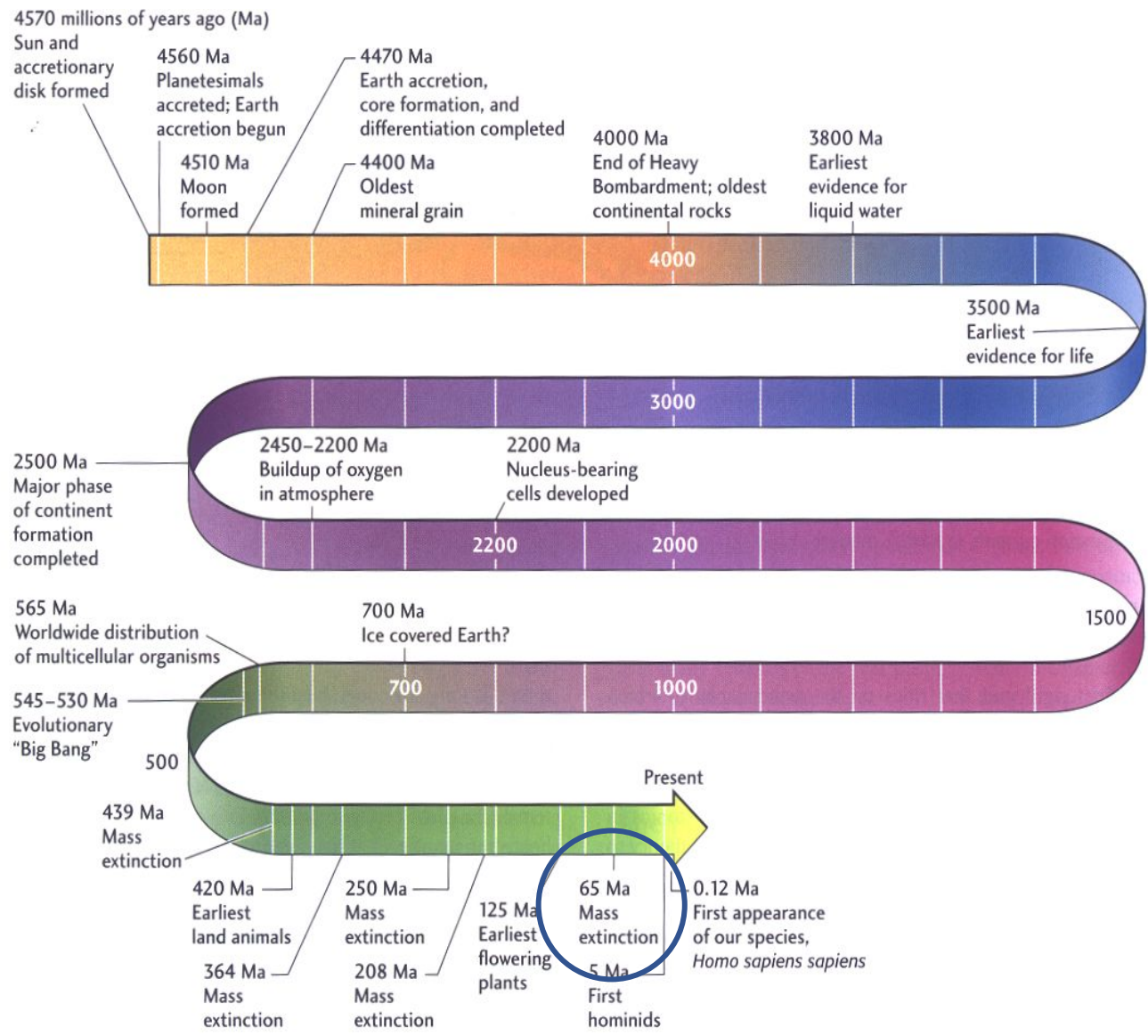


Greta Ernman Thunberg

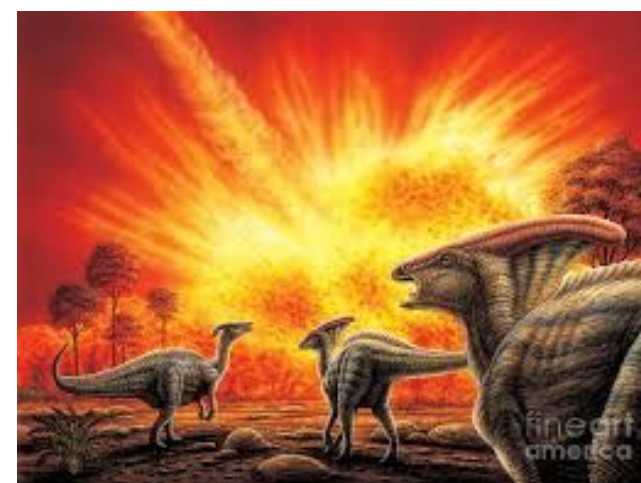




Ao longo do tempo geológico existiram diversas alterações climáticas, traduzidas por extinções em massa!

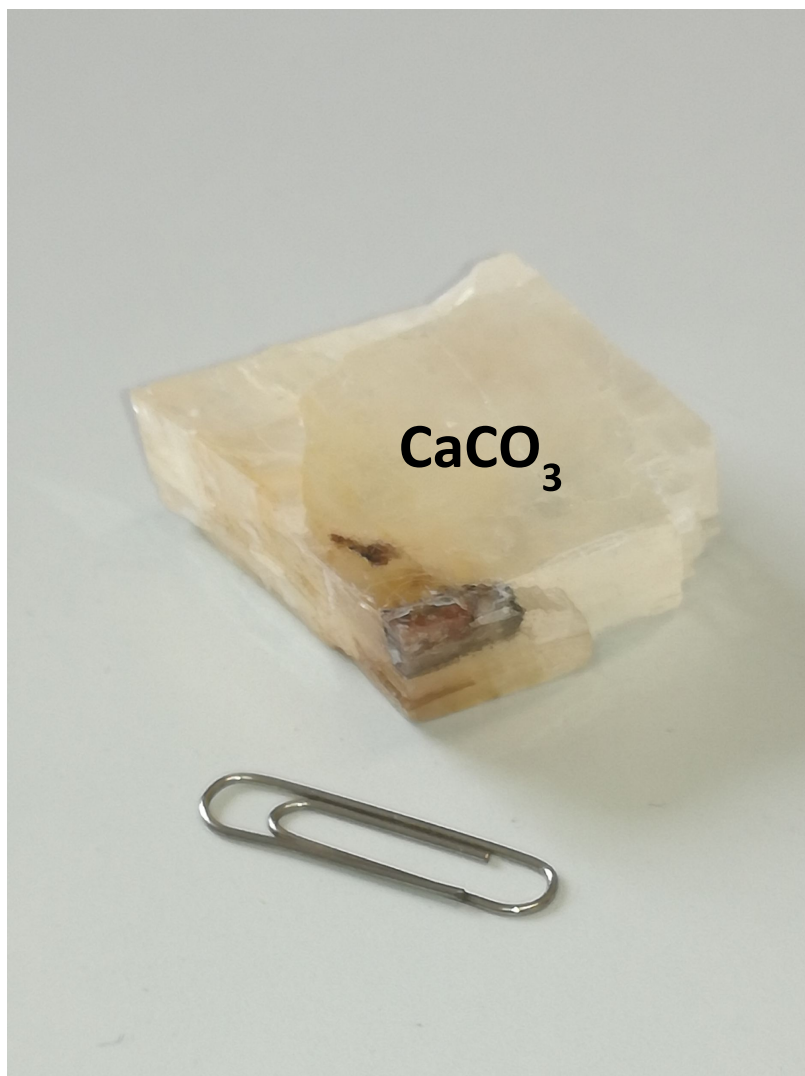


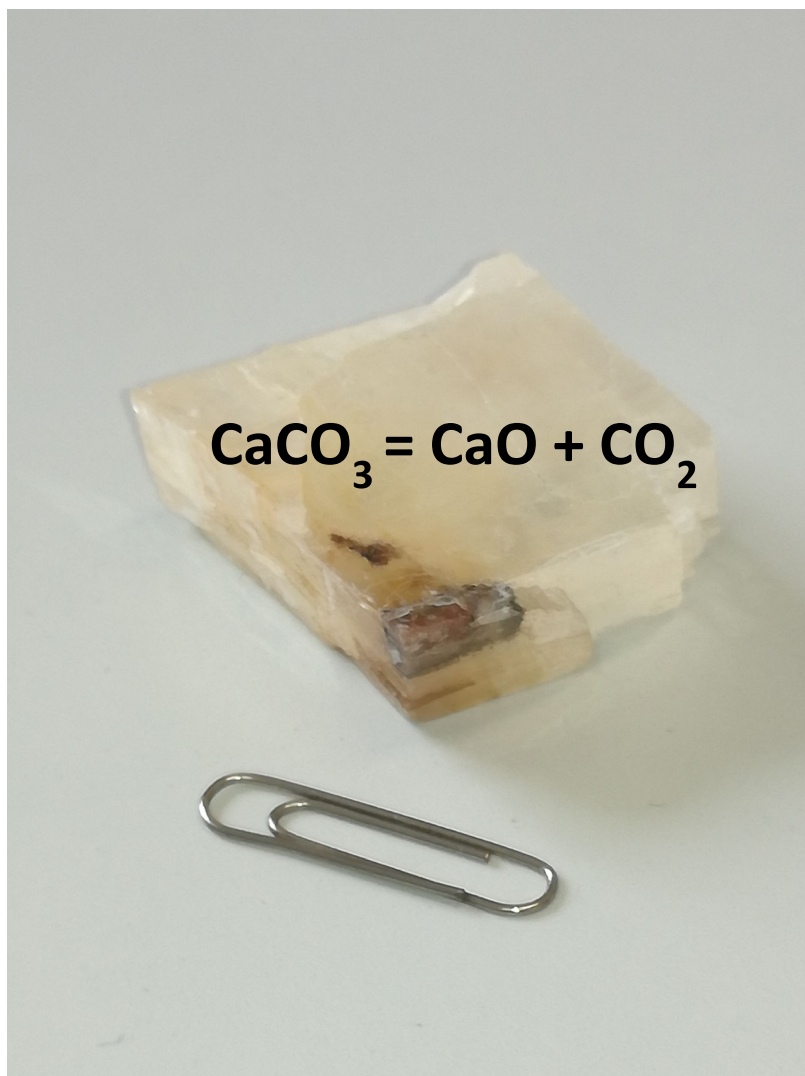
A mais "mediática"

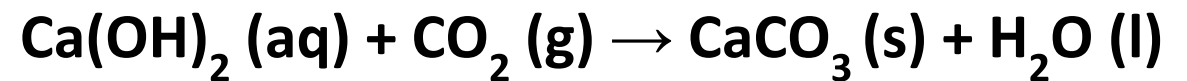
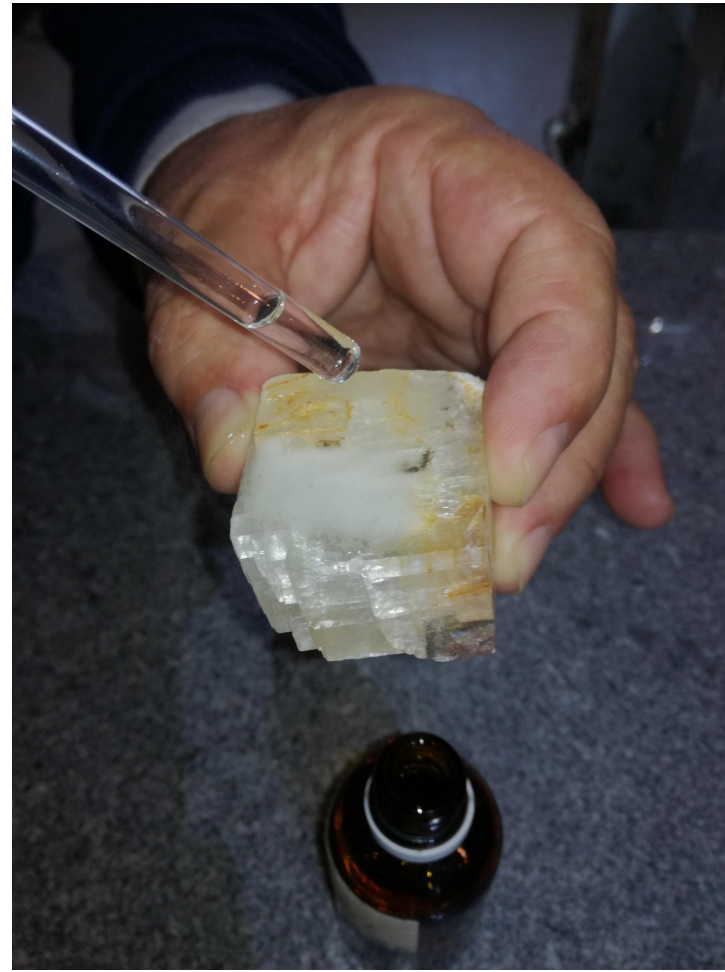
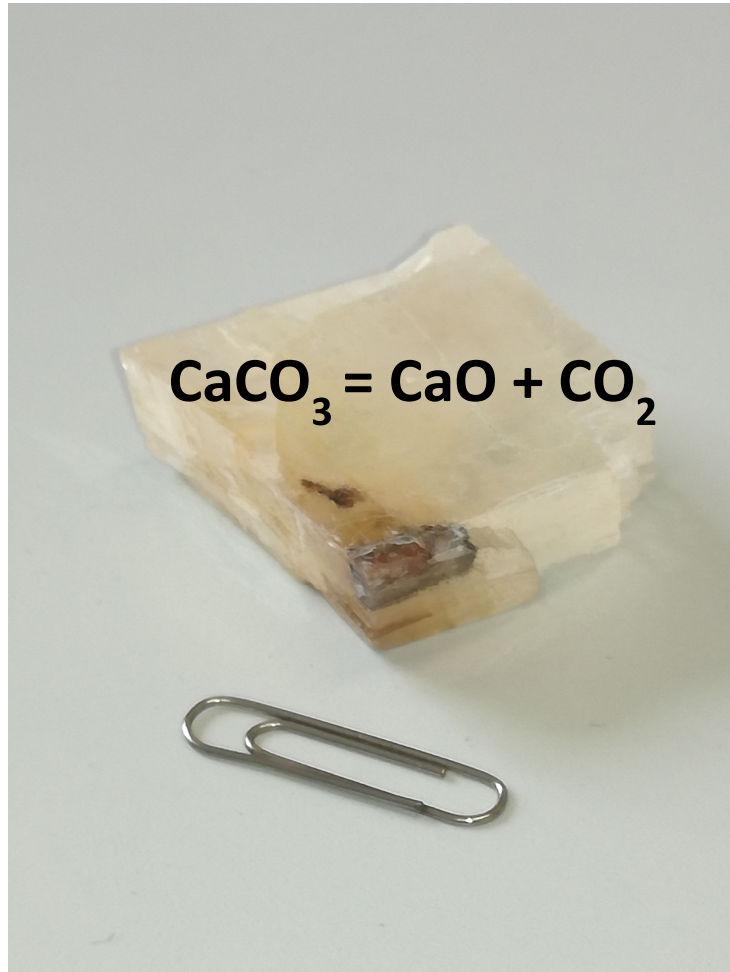


As alterações climáticas que ocorrem atualmente têm ação Humana, contrariamente às que ocorreram no passado geológico, que ocorreram única e exclusivamente por processos naturais.

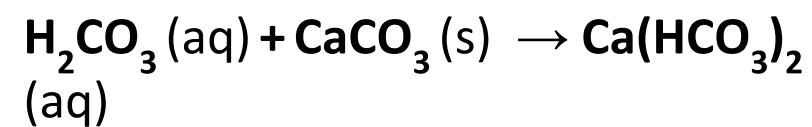








Grutas calcárias:



Fotos de Pedro Costa, NECA - Núcleo de Espeleologia da Costa Azul Fonte: <http://www.lneg.pt>



Google Earth

Image Landsat / Copernicus
US Dept of State Geographer
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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Vista do Espaço (Altitude: 7392 km)



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Google Earth

Image Landsat / Copernicus

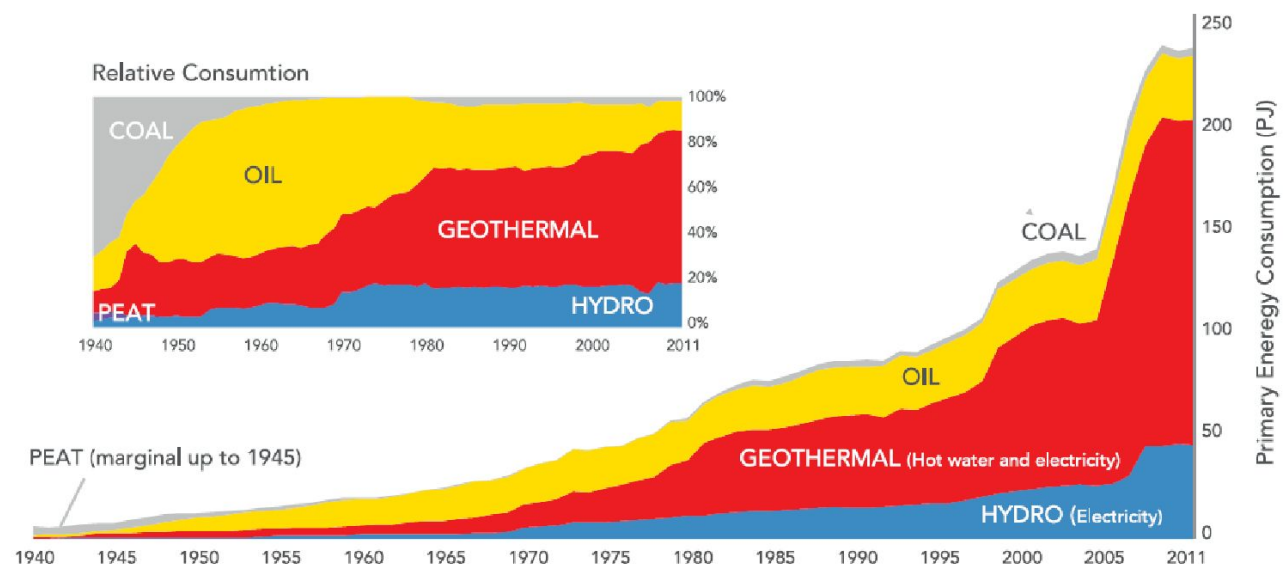
Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image IBCAO

Data LDEO-Columbia, NSF, NOAA

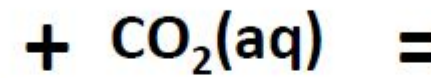
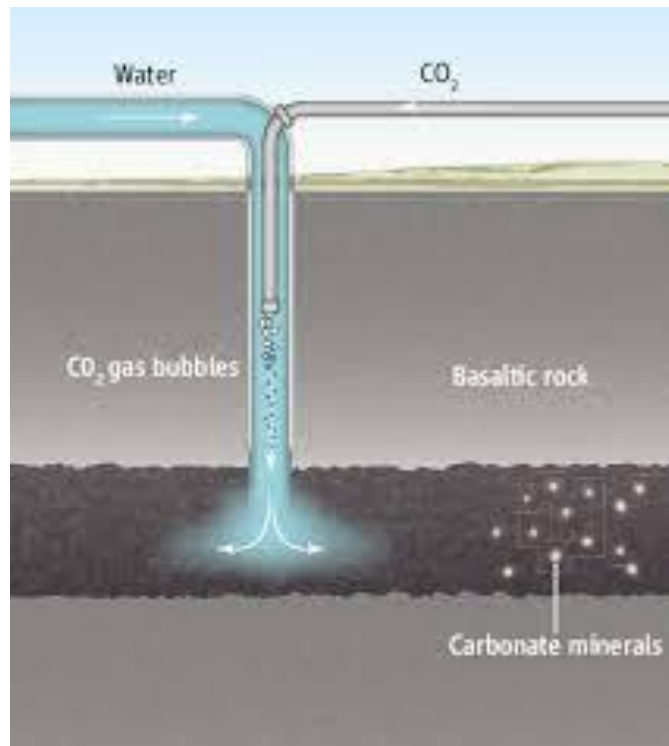


Energia geotérmica:

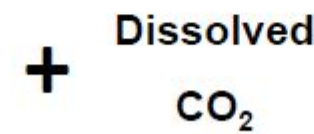


Fonte: www.icelandgeothermal.is

CCS – Carbon Capture and Storage



Calcium -
Magnesium
Silicate Rock



(Ca, Mg, Fe)
Carbonate

Fonte: www.carbfix.com



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As instalações mais poluentes

Empresa	Instalação	Toneladas CO ₂	% do total nacional
EDP - Gestão da Produção de Energia, S.A.	Central Termoelétrica de Sines	8.683.899	13,5%
Tejo Energia, S.A.	Central Termoelétrica do Pego	3.615.854	5,6%
Petróleos de Portugal - Petrogal, S.A.	Refinaria de Sines	2.547.397	3,9%
CIMPOR - Indústria de Cimentos, S.A.	Cimpor - Centro de Produção de Alhandra	1.307.922	2,0%
TAP - Transportes Aéreos Portugueses, S.A.	-	1.160.829	1,8%

Fonte: Associação Ambientalista Zero





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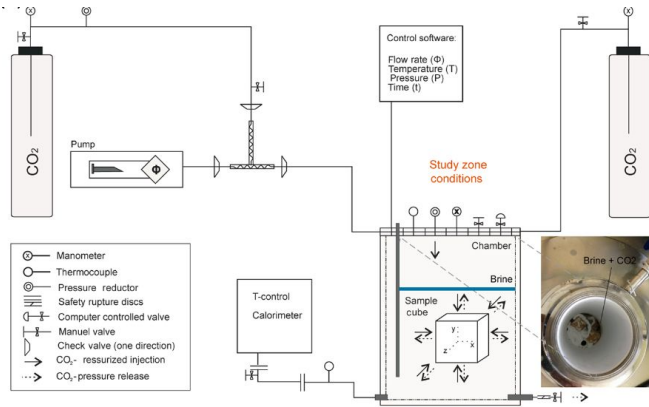
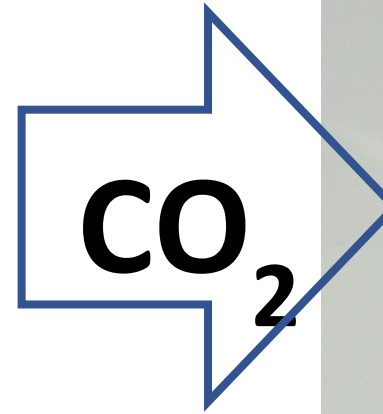
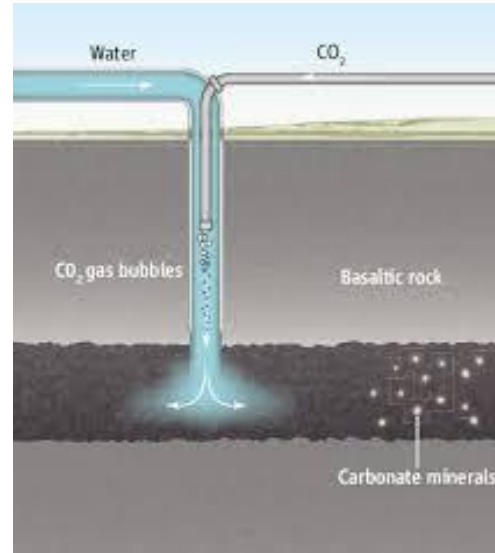


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Licenciatura em Geologia

<https://www.dgeo.uevora.pt>

[https://www.dgeo.uevora.pt/ensino/licenciaturas/curso/\(codigo\)/135](https://www.dgeo.uevora.pt/ensino/licenciaturas/curso/(codigo)/135)



Sigam-nos:

The screenshot shows the website for the Department of Geosciences at the University of Évora. The header includes navigation links for SIUE, GesDoc, and social media. The main banner features a photograph of hands holding a geological compass over a rock sample, with the word "GEOLOGIA" overlaid. Below the banner, there are sections for "DEPARTAMENTO DE GEOCIÊNCIAS" and "NOTÍCIAS", including a calendar entry for "Dia do Geólogo 2018" on May 12th.

<https://www.dgeo.uevora.pt/>

The screenshot displays the Facebook profile for the Department of Geosciences at the University of Évora. The profile picture and cover photo both feature the university's logo and name. The page includes a navigation menu on the left, a post creation area, and a section for "Eventos futuros" featuring a poster for "CIG 2019". The right sidebar shows the department's mission statement and community statistics.



https://www.facebook.com/DGEOC/?view_public_for=1180125082161391