

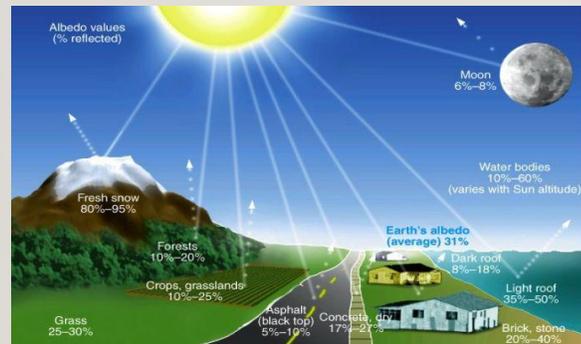
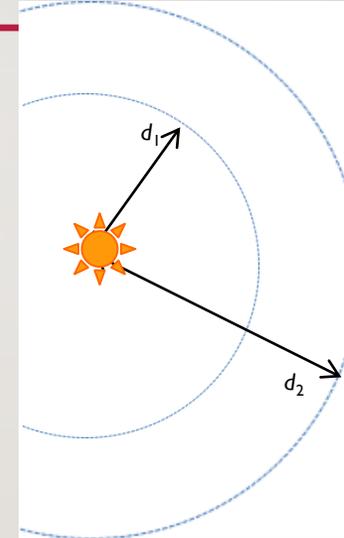
EMERGÊNCIA CLIMÁTICA: É POSSÍVEL GARANTIR ÁGUA E ESGOTO?

ALEXANDRE A. COSTA

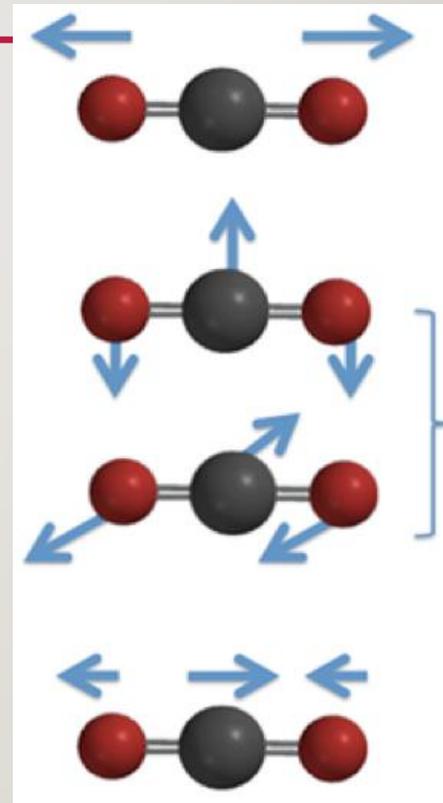
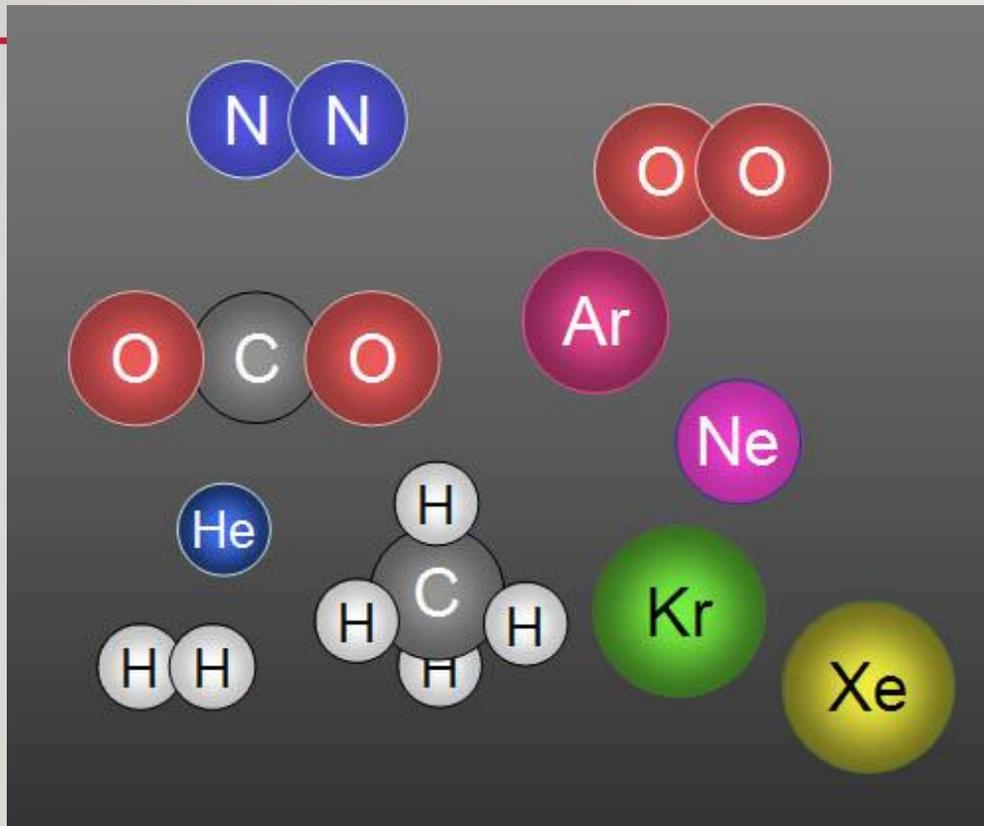
UNIVERSIDADE ESTADUAL DO CEARÁ

DE QUE DEPENDE O CLIMA DE UM PLANETA?

- Quantidade de energia que chega do sol
- Fração dessa energia que é refletida para o espaço
- Composição química da atmosfera

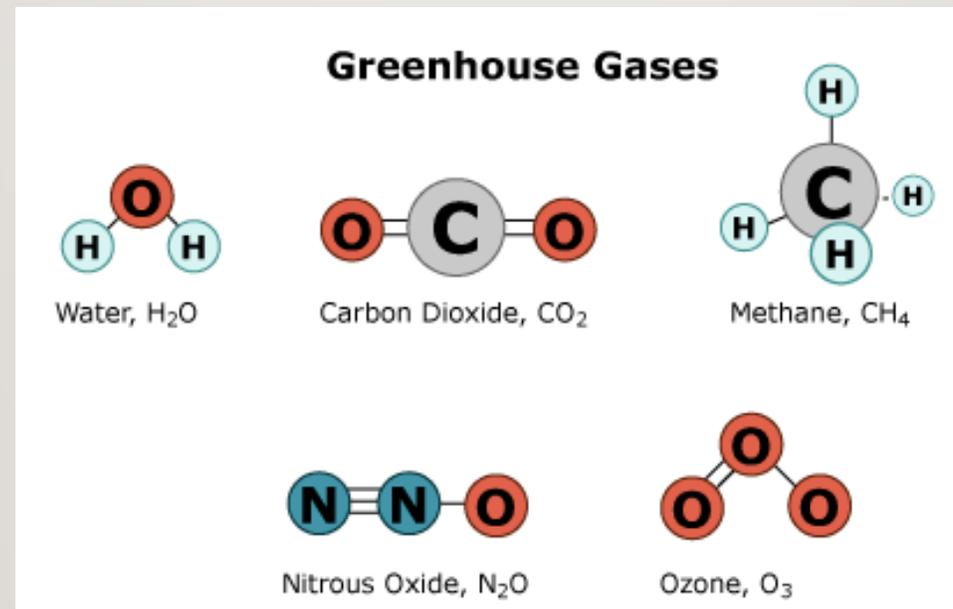


Sobre a Composição Química da atmosfera da Terra

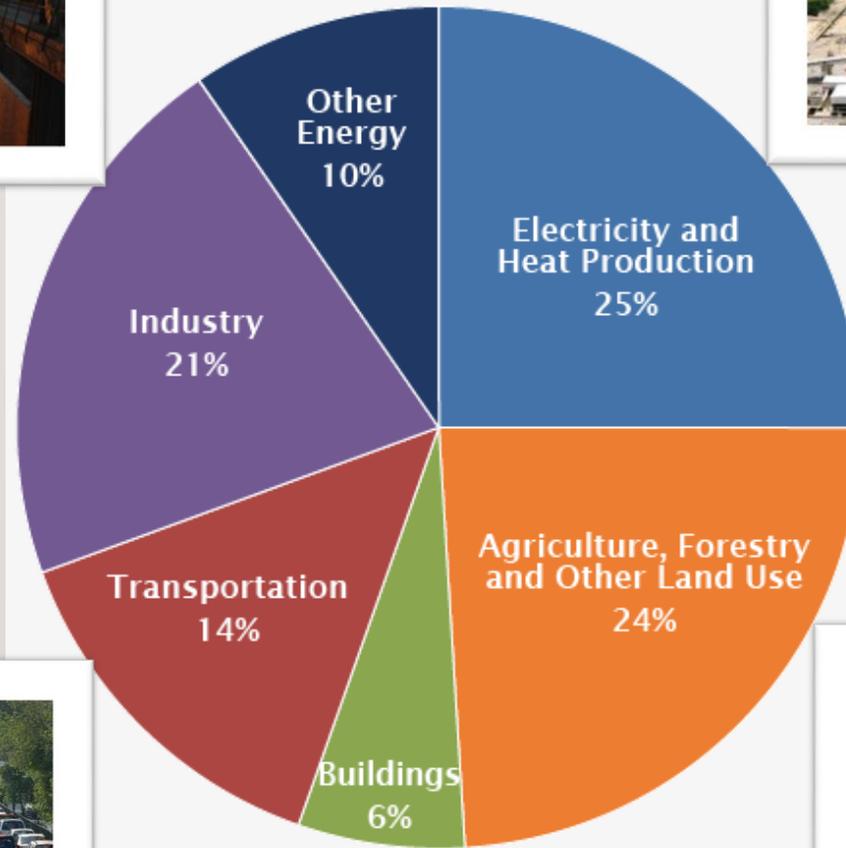


PRINCIPAIS GASES DE EFEITO ESTUFA:

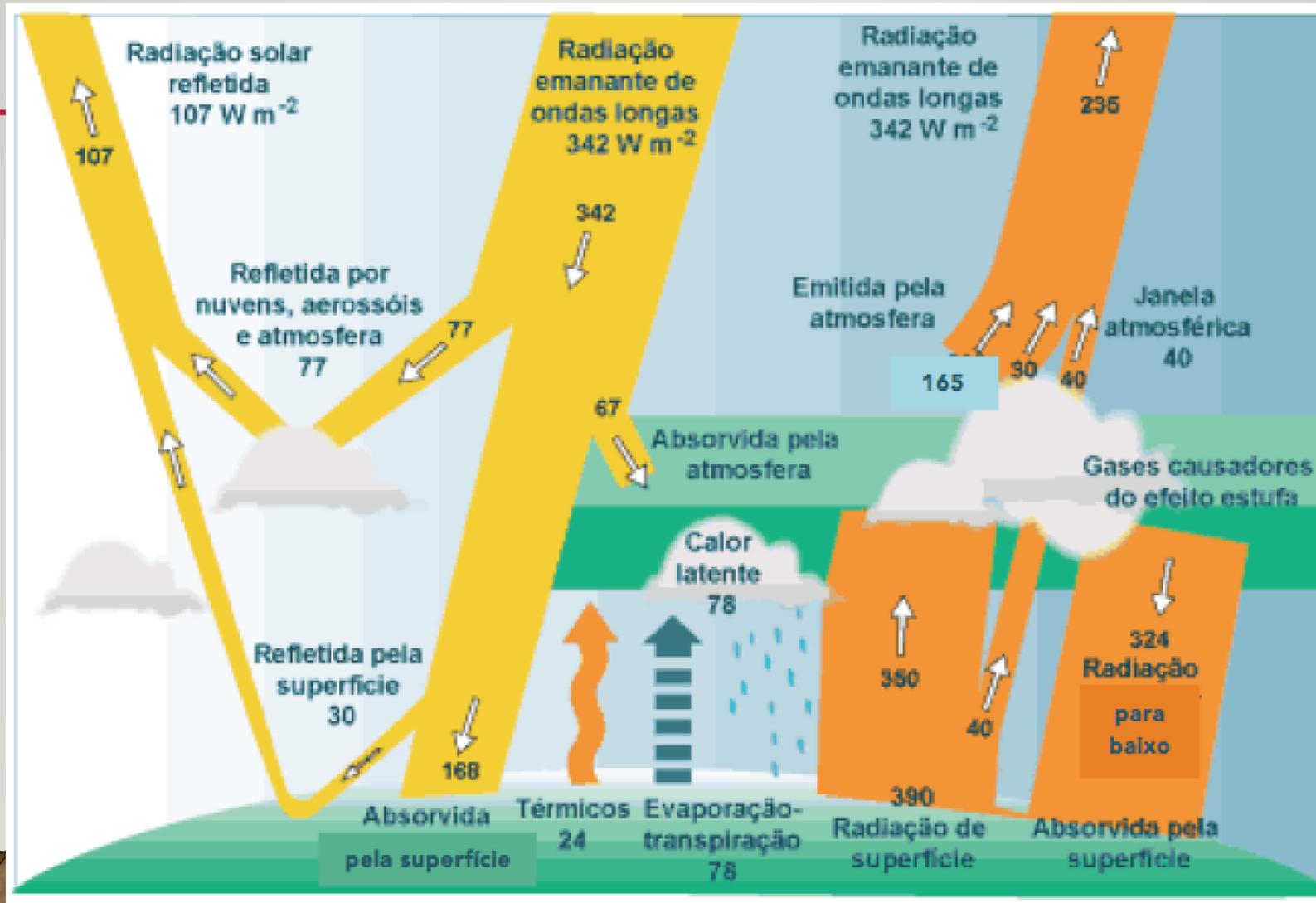
O QUE SÃO “GASES DE EFEITO ESTUVA DE VIDA LONGA”?



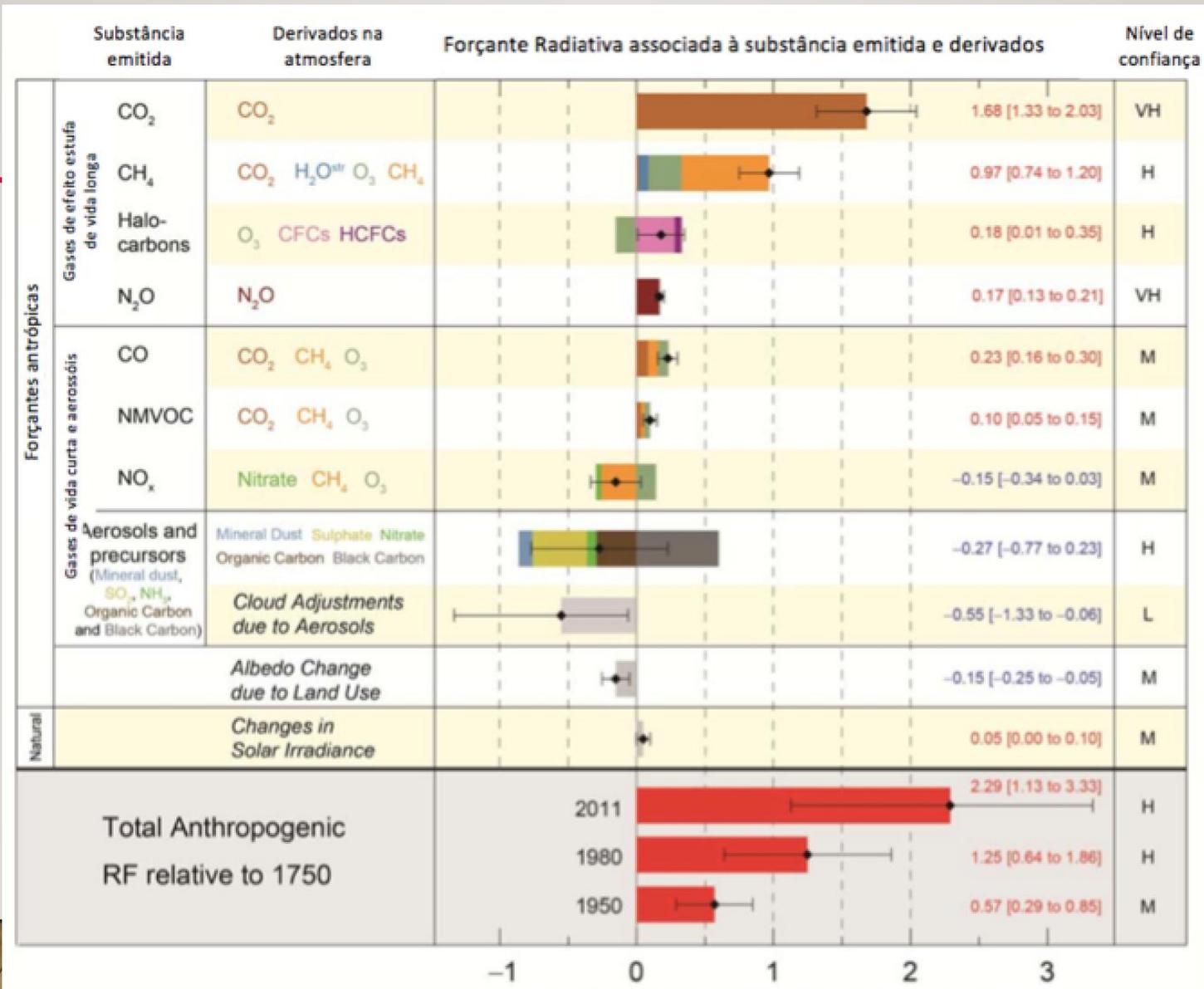
FONTES DE EMISSÕES



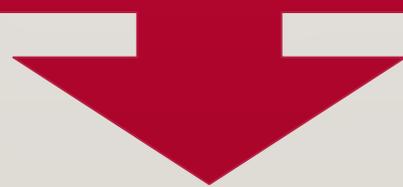
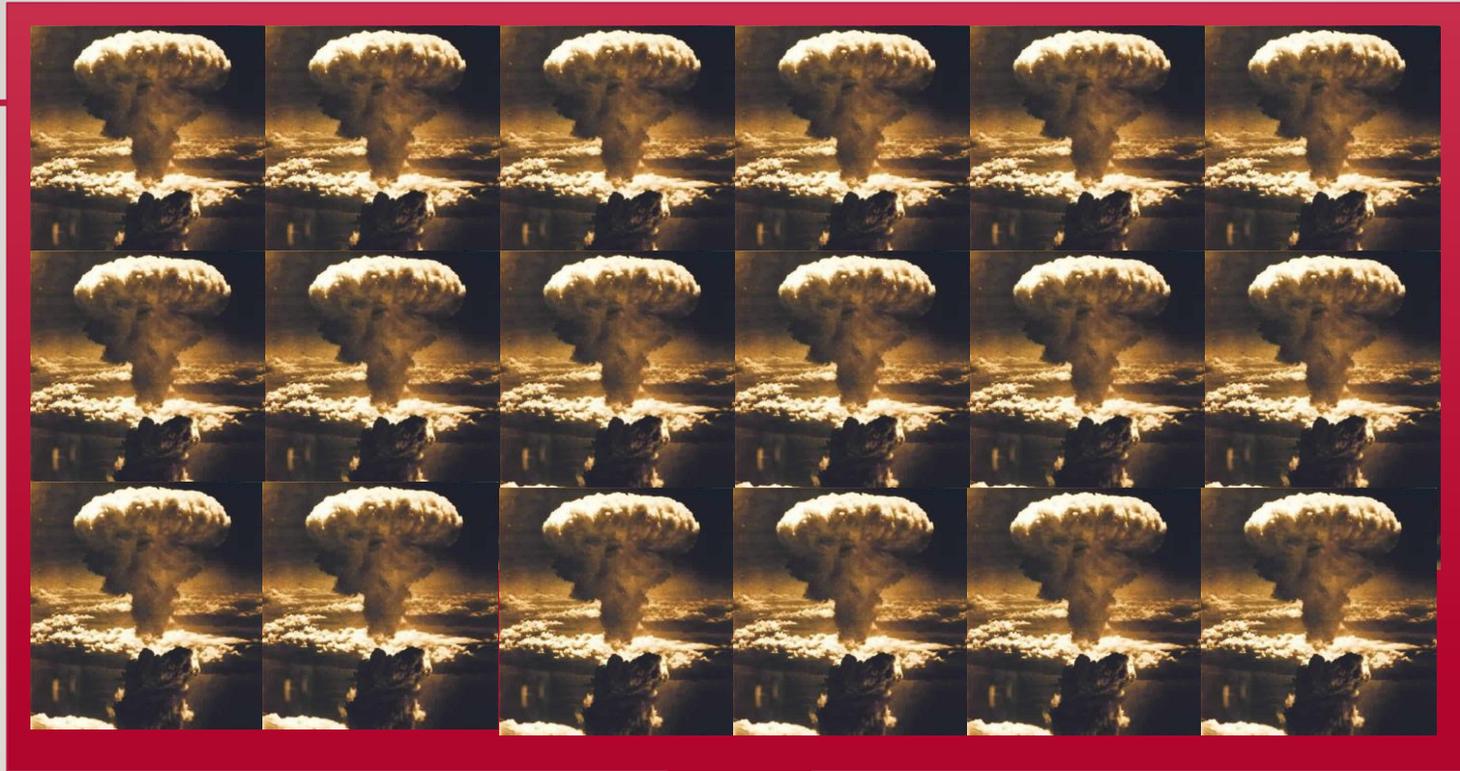
DESEQUILÍBRIO ENERGÉTICO



DESEQUILÍBRIO ENERGÉTICO

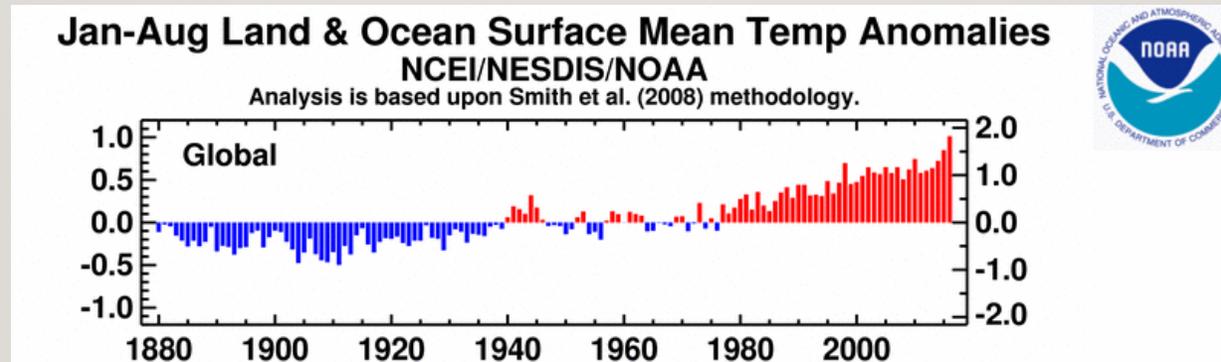
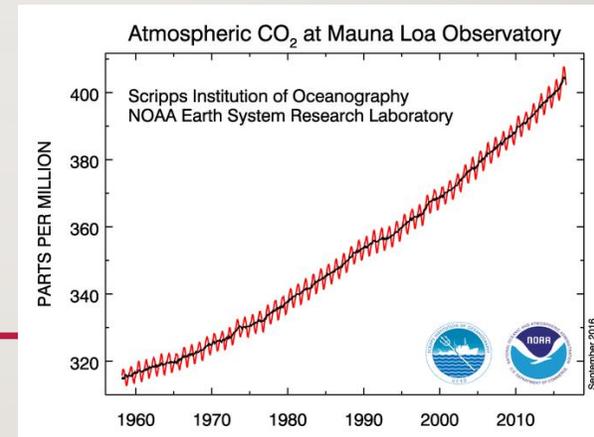
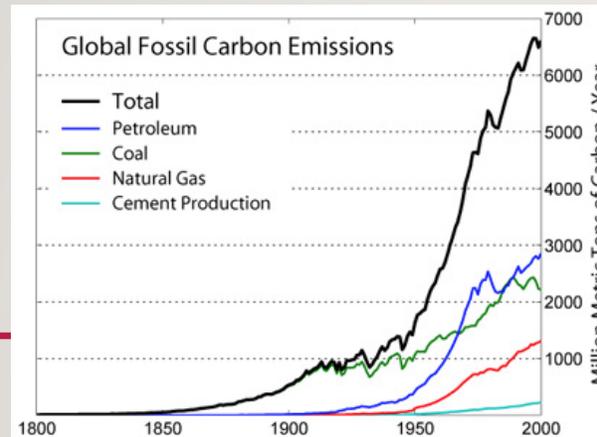


2,29 W/m² equivalem a

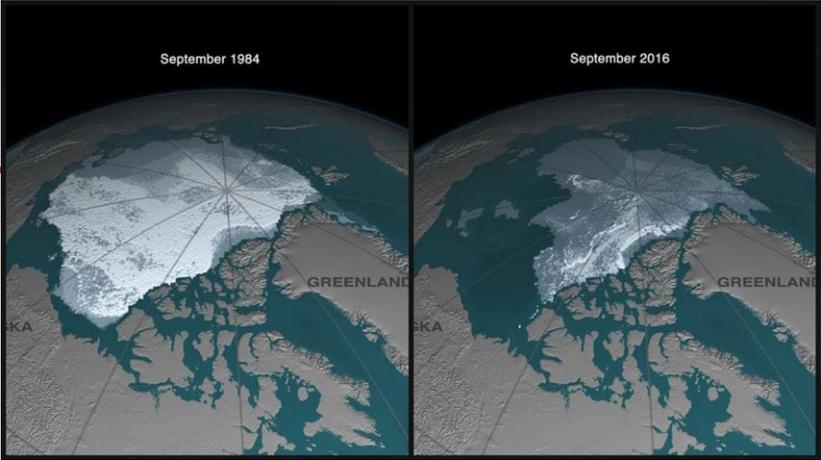


18 BOMBAS DE HIROSHIMA POR SEGUNDO

ACÚMULO DE GEES PROVOCA AQUECIMENTO DO SISTEMA TERRA



IMPACTOS JÁ SÃO VISÍVEIS



IMPACTOS SOBRE ÁGUA E SANEAMENTO

- Crise Hídrica:

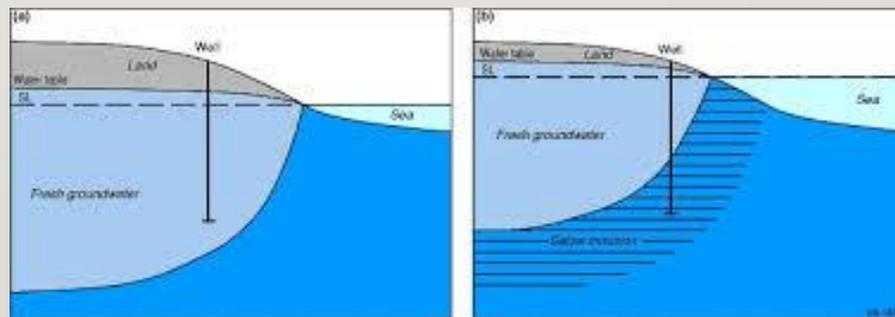
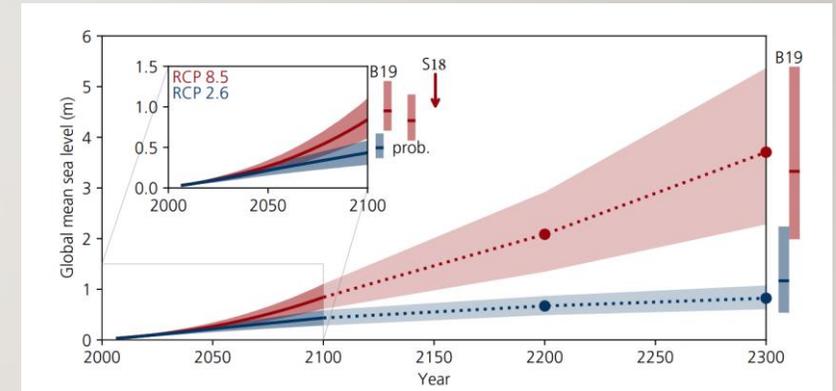
- Regiões Semiáridas
- Regiões abastecidas via derretimento sazonal
- Usos concorrentes da água



IMPACTOS SOBRE ÁGUA E SANEAMENTO

- Zona Costeira:

- Avanço do nível do Mar
- Intrusão salina
- Comprometimento do abastecimento de comunidades costeiras
- Comprometimento da rede de esgotamento sanitário



In Florida, Flushing the Toilet Is Threatened by Rising Sea Levels for Tens of Thousands of Homeowners

By Ron Brackett - September 30 2019 06:30 PM EDT - weather.com



IMPACTOS SOBRE ÁGUA E SANEAMENTO

- Eventos extremos e imigração:
 - Colapso dos sistemas de tratamento
 - Danos/destruição de infraestrutura hídrica
 - Enormes quantidades de refugiados climáticos



1,5°C – O GRANDE DESAFIO

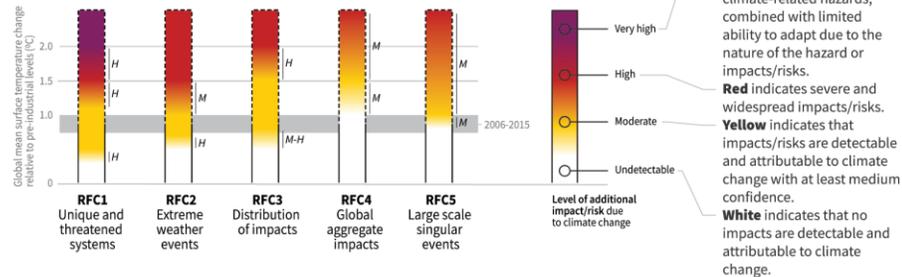
➤ Por que 1,5°C?

➤ O que é necessário?

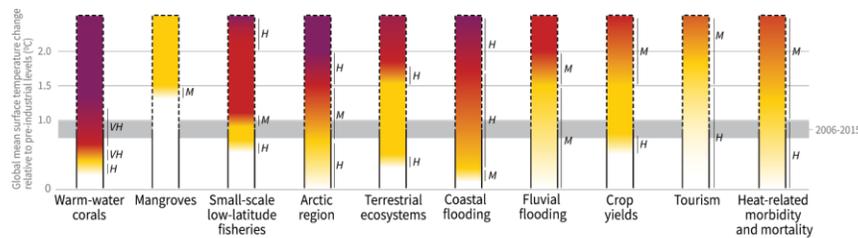
How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems

Five Reasons For Concern (RFCs) illustrate the impacts and risks of different levels of global warming for people, economies and ecosystems across sectors and regions.

Impacts and risks associated with the Reasons for Concern (RFCs)



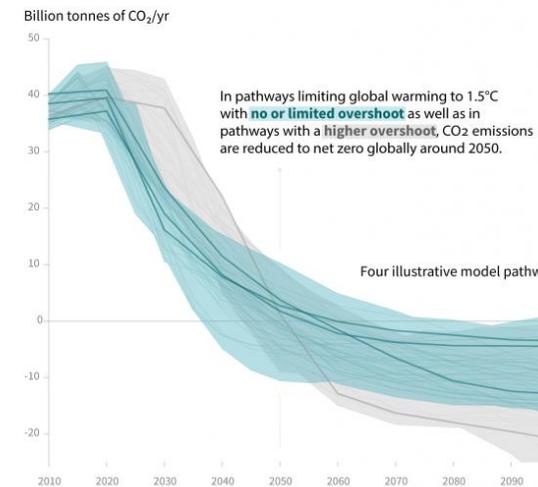
Impacts and risks for selected natural, managed and human systems



Global emissions pathway characteristics

General characteristics of the evolution of anthropogenic net emissions of CO₂, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit global warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals. Reductions in net emissions can be achieved through different portfolios of mitigation measures illustrated in Figure SPM.3b.

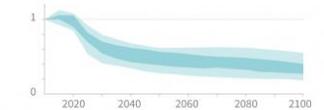
Global total net CO₂ emissions



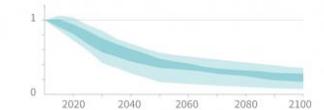
Non-CO₂ emissions relative to 2010

Emissions of non-CO₂ forcers are also reduced or limited in pathways limiting global warming to 1.5°C with no or limited overshoot, but they do not reach zero globally.

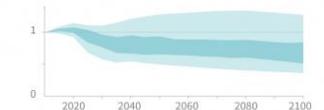
Methane emissions



Black carbon emissions



Nitrous oxide emissions

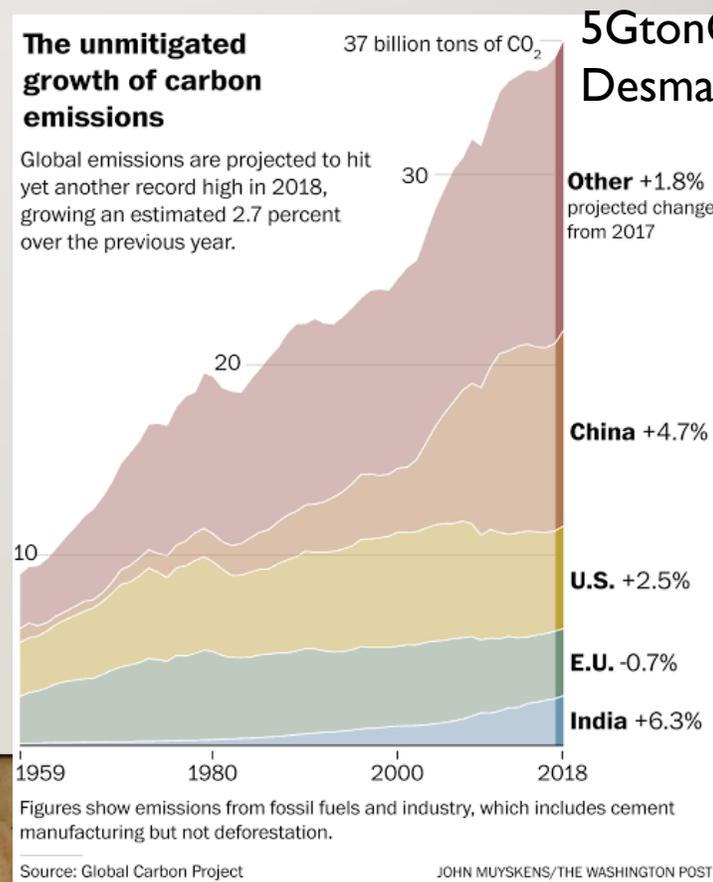


Timing of net zero CO₂: Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios

Pathways limiting global warming to 1.5°C with no or limited overshoot
 Pathways with higher overshoot
 Pathways limiting global warming below 2°C (Not shown above)

ORÇAMENTO/SALDO DE CARBONO VERSUS EMISSÕES ATUAIS/ESTOQUES FÓSSEIS

- 580 GtCO₂eq para 50% de probabilidade
- 420 GtCO₂eq para 66% de probabilidade

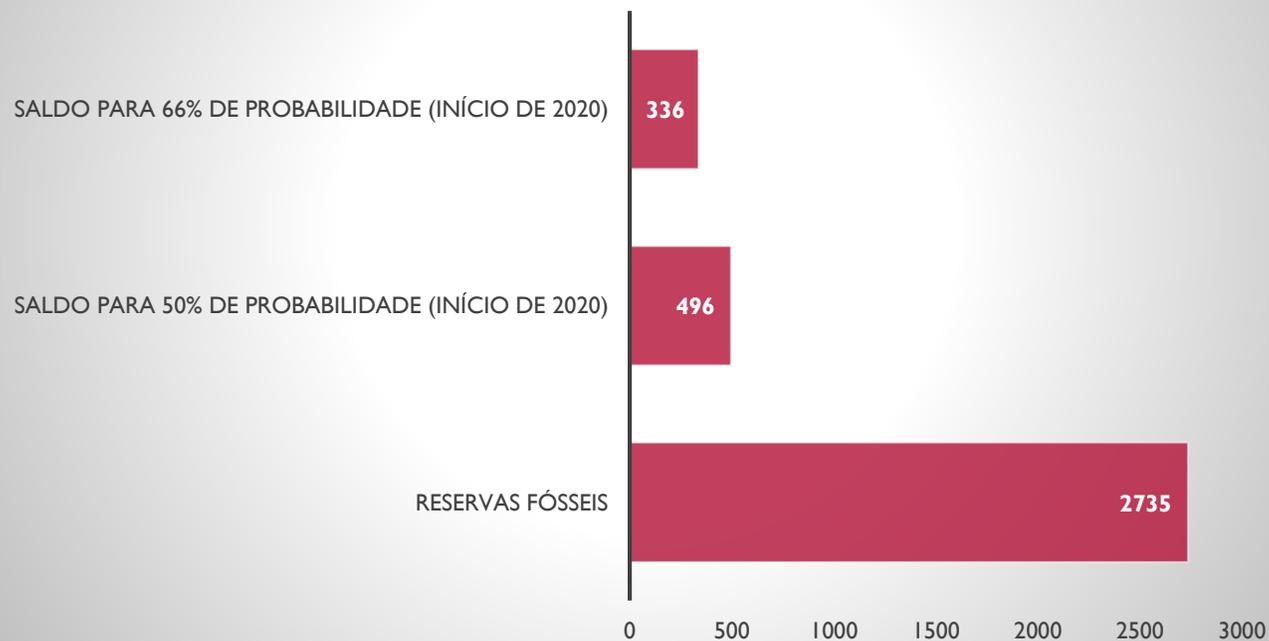


5GtonCo₂/ano por Desmatamento

-42
GtonCO₂eq
por ano

ORÇAMENTO/SALDO DE CARBONO VERSUS EMISSÕES ATUAIS/ESTOQUES FÓSSEIS

Carbono em reservas fósseis Versus Saldo de Carbono



88% dos combustíveis fósseis devem permanecer intocados (considerando desmatamento zero)

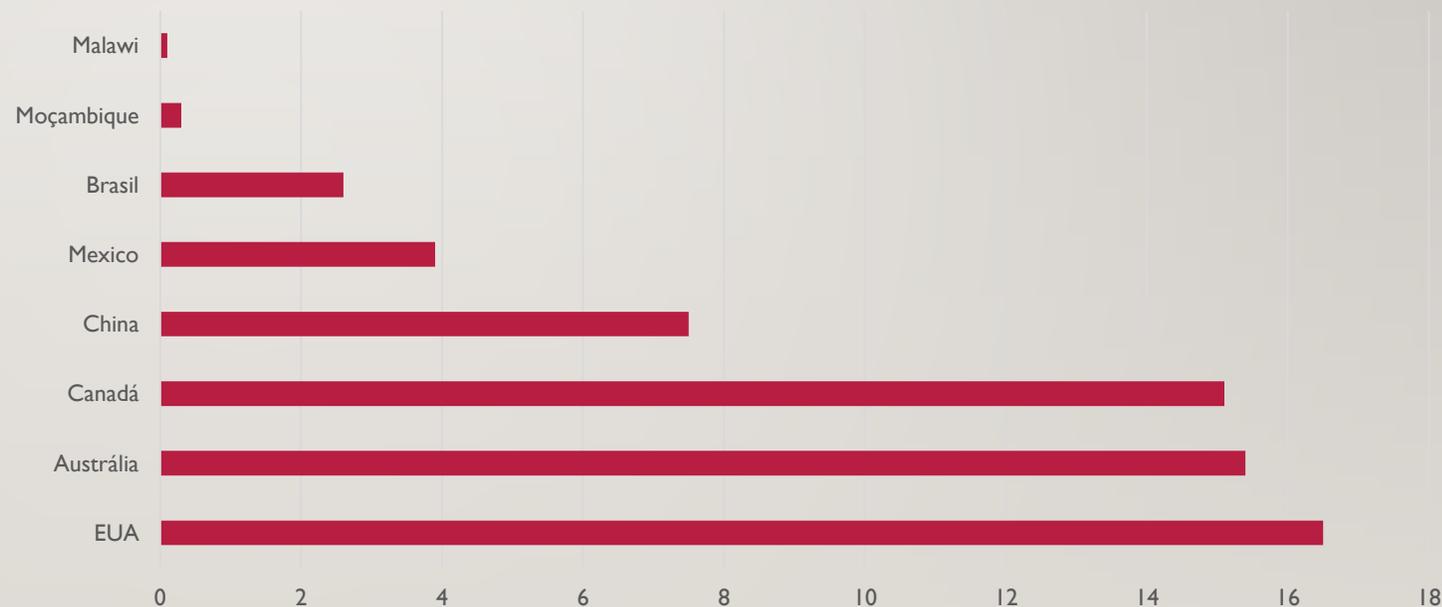
QUALQUER SAÍDA PRECISA SER JUSTA

As emissões globais per capita
terão de ser reduzidas a algo em
torno de

2,5

Tons de co2-eq/pessoa/ano
em 2030

Emissões per capita (ton CO2eq/ano)



TEM SAÍDA?

- Redução geral da demanda energética que alimenta a roda insana da extração-produção-consume-descarte
- Reestruturação produtiva, com ênfase nos setores “produtivos” mais perdulários, desnecessários e/ou intensivos em carbono (indústrias militar, de embalagens, siderurgia, automobilística etc.)
- Descarbonização plena dos sistemas energético e de transporte e redução dos deslocamentos desnecessários
- Desmatamento zero, reflorestamento, captura de carbono
- Redução geral do consumo de carnes, com ênfase em animais ruminantes
- Este modo de vida é insustentável

PARA SABER MAIS

“O QUE VOCÊ FARIA SE
SOUBESSE O QUE EU SEI”

(Blog e Canal no YouTube)



OBRIGADO

