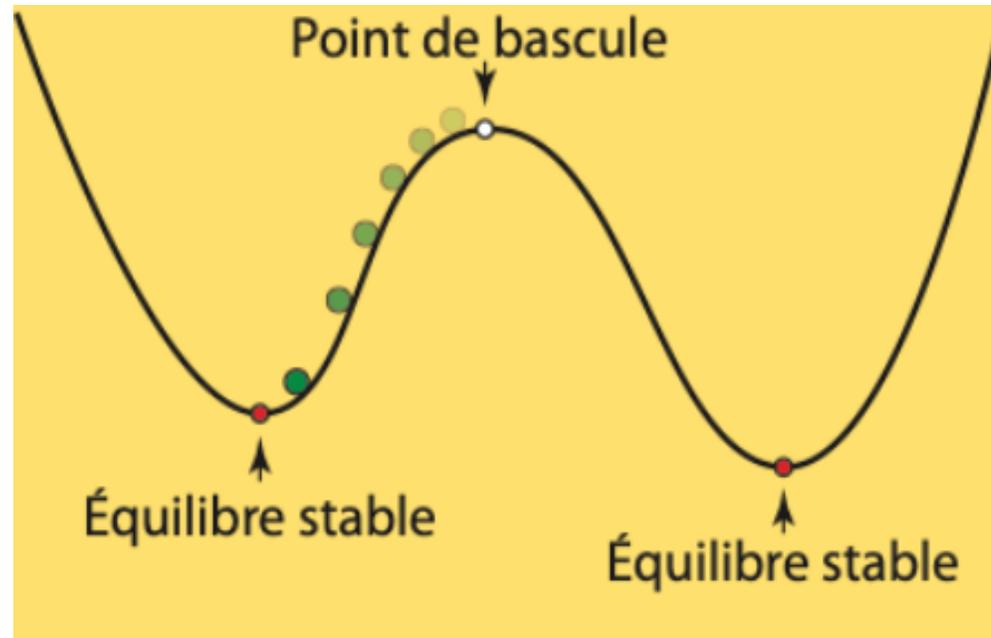
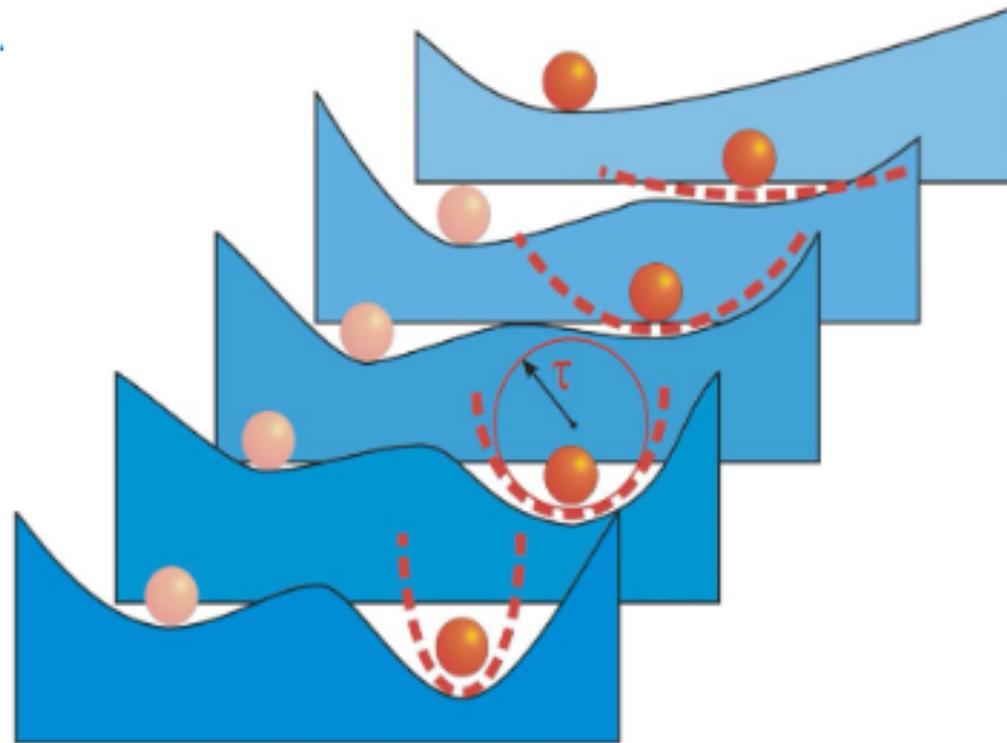


Equilibre stable, équilibre instable, point de bascule

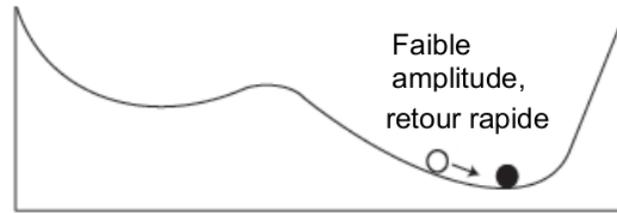


Un système qui évolue...

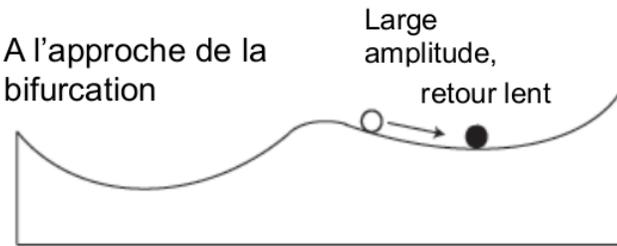


Systeme d'alerte precoce ?

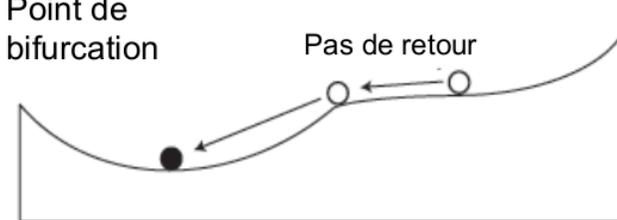
Loin d'une bifurcation



A l'approche de la bifurcation

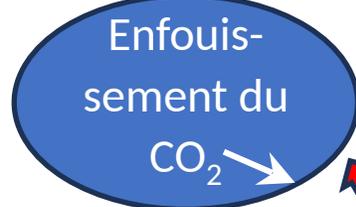


Point de bifurcation



EMISSIONS ANTHROPIQUES

ATMOSPHERE

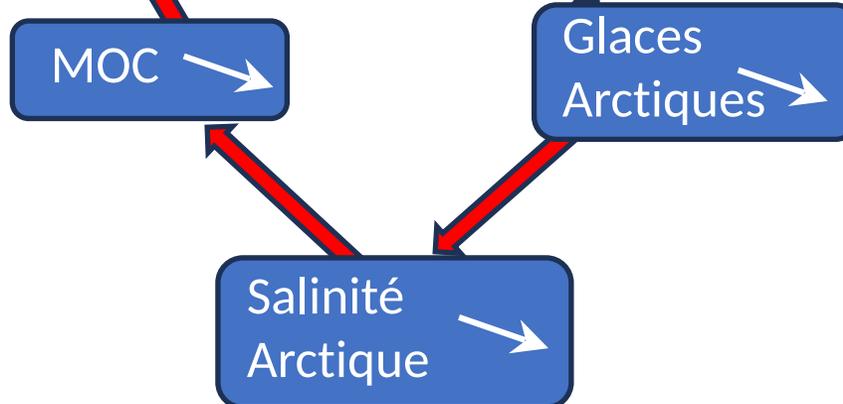


OCEAN

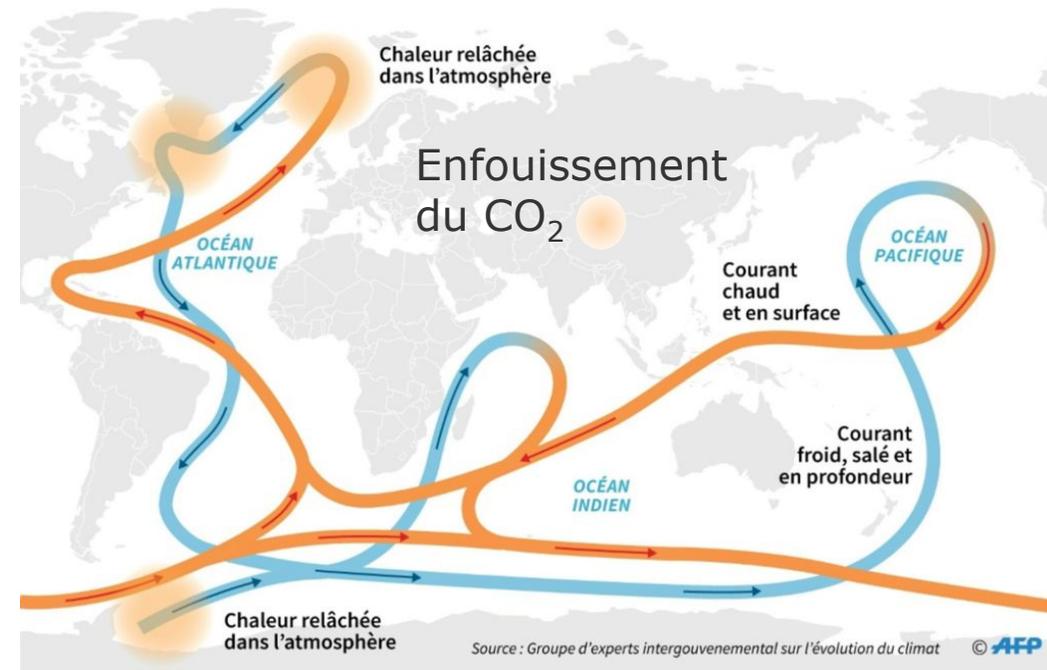


~30% des émissions anthropiques

+ de 90% des émissions anthropiques



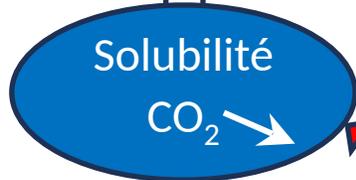
AMOC: Atlantic Meridional Overturning Circulation



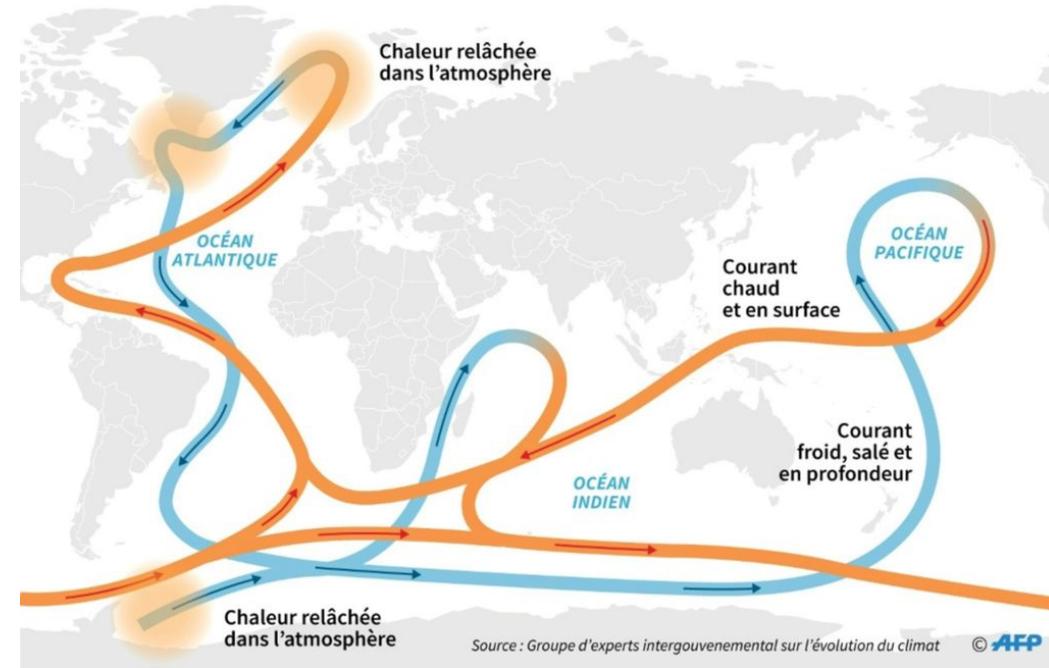
POMPE PHYSIQUE DE CO₂ MOINS EFFICACE

EMISSIONS ANTHROPIQUES

ATMOSPHERE



OCEAN



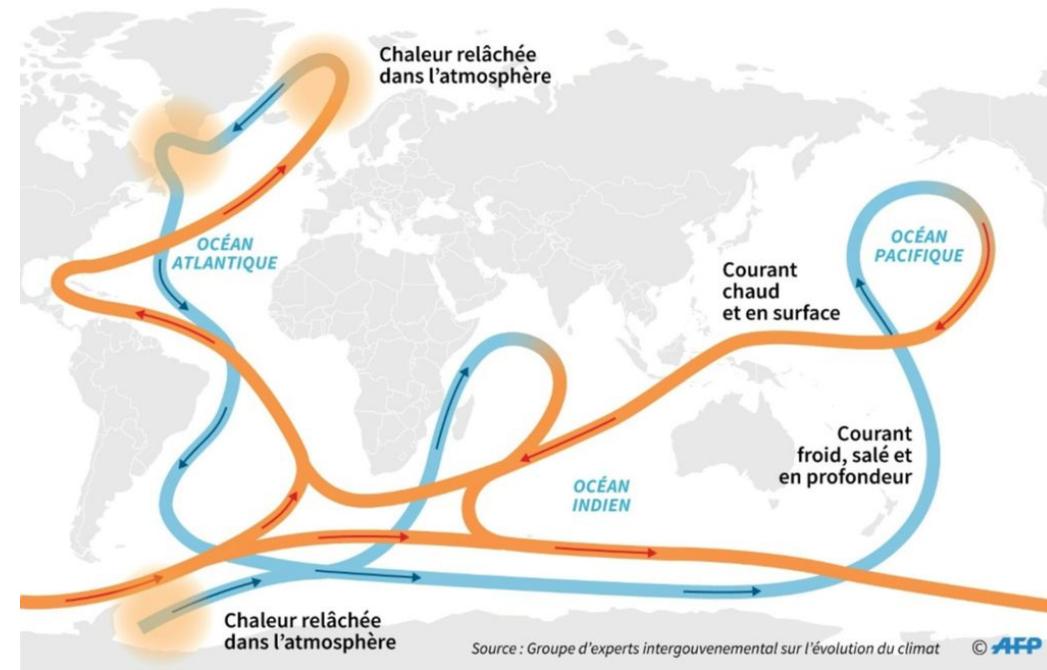
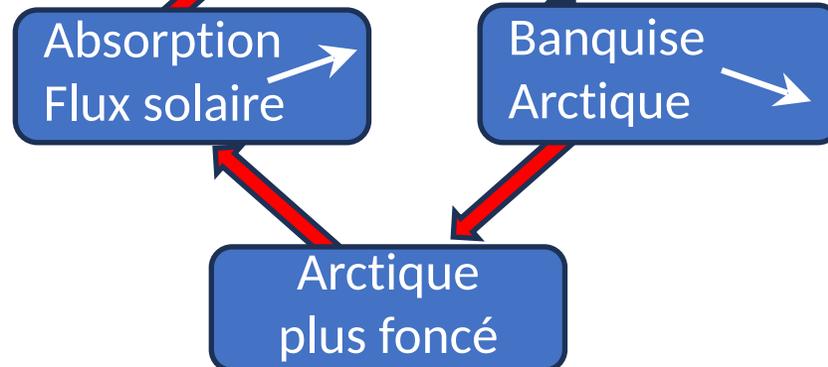
**POMPE CHIMIQUE
DE CO₂
MOINS EFFICACE**

EMISSIONS ANTHROPIQUES

ATMOSPHERE

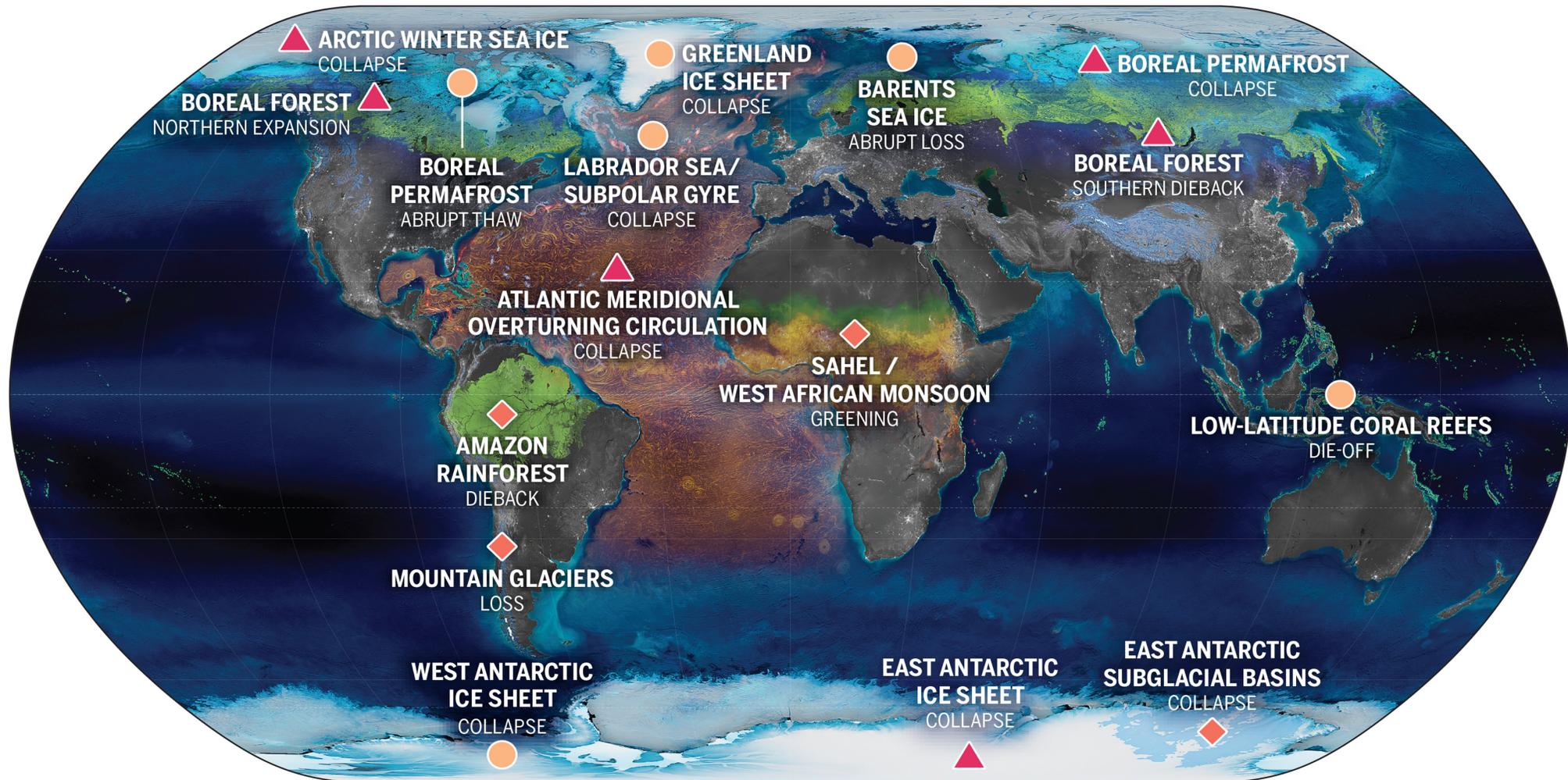


OCEAN



**RECHAUFFEMENT
ARCTIQUE ACCENTUÉ**

Éléments de bascule envisagés dans le système climatique



GLOBAL WARMING THRESHOLDS
● <2°C ◆ 2-4°C ▲ ≥4°C

(McKay et al., Science 2022)