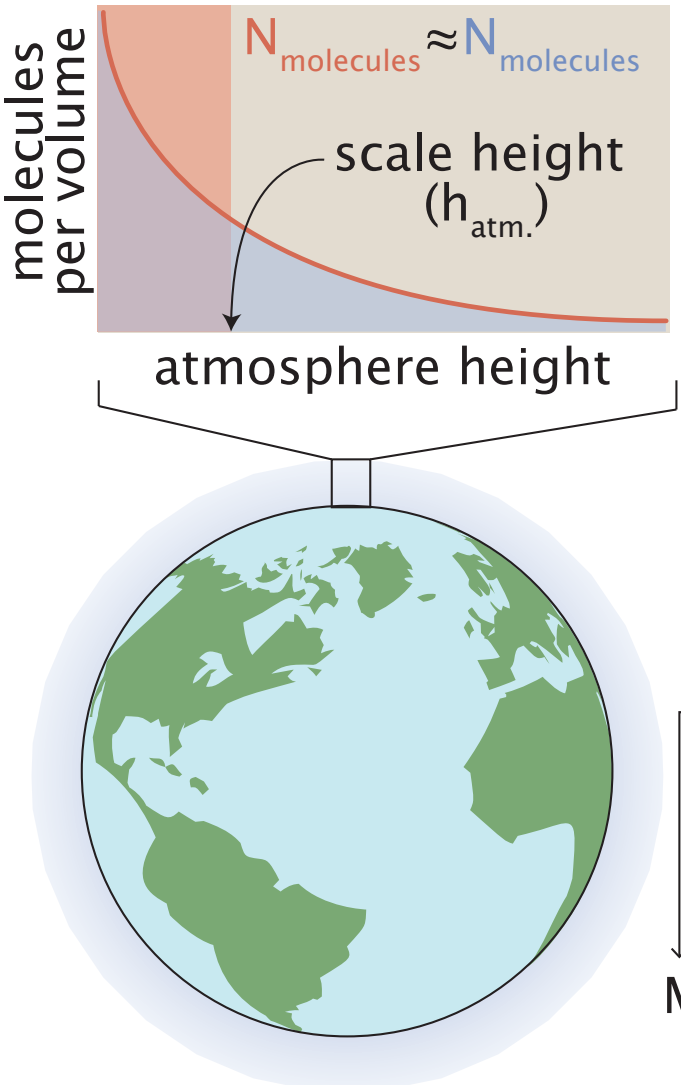
WHAT'S THE MASS OF ATMOSPHERIC METHANE?



$h_{atm.} \approx 10\ km$

$A_{earth} \approx f \times 10^{8}\ km^2$

$V_{atm.} \approx A_{Earth} \times h_{atm.} \approx 10\ km \times f \times 10^{8}\ km^2 \approx f \times 10^{9}\ km^3$

$\rho_{atm.}^{(sea\ level)} \approx f \times 10^{34}\ molecules\ /\ km^3$

$N_{molecules} \approx V_{atm.} \times \rho_{atm.}^{(sea\ level)} \approx 10^{44}\ molecules$

$c_{methane} \approx \frac{2\ CH_4\ molecules}{10^{6}\ molecules}$

$mw_{methane} \approx 16\ Da\ /\ molecule$

$M_{methane} \approx N_{molecules} \times c_{methane} \times mw_{methane} \approx f \times 10^{12}\ kg\ CH_4$