Flux J is defined by FIcks first law.

J = -D·(dc(x)/dx) (Unit: D: cm2/sec; J: number/cm2/sec)

All the CO2 is extra over what photosynthesis can scavenge

Boundary Conditions

Earth's crust 410ppm x=0

Exosphere 25ppm x=700 km

D= diffusion coefficient = 16 mm2/s, (at STP)

N1=n2*384.6/410

N(x,t)=n0(1-2(x/2sqrt(Dtπ))

X=sqrt(Dtπ)*((Nxt/N0-1)

Carbon dioxide diffusion			Welty Wicks and Wilson												
Ficks Laws															
	J = -D·(dc(x)/dx) (Unit: D: cm2/sec; J: number/cm2/sec)								Flux	-7.51314E-08					
	All the CO2 is extra over what photosynthesis can scavenge														
	Boundary Conditions														
	Earth's crust 410ppm x=0														
	Exosphere 25ppm x=700 km														
	Change distance to cm.		700000000	cm											
	D= diffusion coefficient = 16 mm2/s, (at STP)														
	Change D to correct units		0.16	16 cm2/s, (at STP)											
	Ar 410ppm we have 3501 moles			At 25ppm we have 214 moles.											
	N(x,t)=n0(1-2(x/2sqrt(Dt⍰))														
		n0	3501												
		D	0.16												
		t	time (s)												
		pie	3.14												
	Boundary Conditions			year	n	t	ppm	moles	distance	X=sqrt(Dtπ)*((Nxt/N0-1)					
	year	co2 conc		2015	0	0	404.2	3446							
				2016	1	31536000	407.8	3477	23.52044983	$cmyr^{-1}$	from earths surface to exosphere				
									23.52044983	$cmyr^{-1}$					
	2015	404.2							0.064439589	cm per day					
	2016	407.8													