

Phytoplankton

$\text{NO}_3$

Zooplankton

$\text{PO}_4$

Fe

Diazotrophs

Diatoms

Si

# MOBI 2.1

Model of Ocean Biogeochemistry and Isotopes

DIC

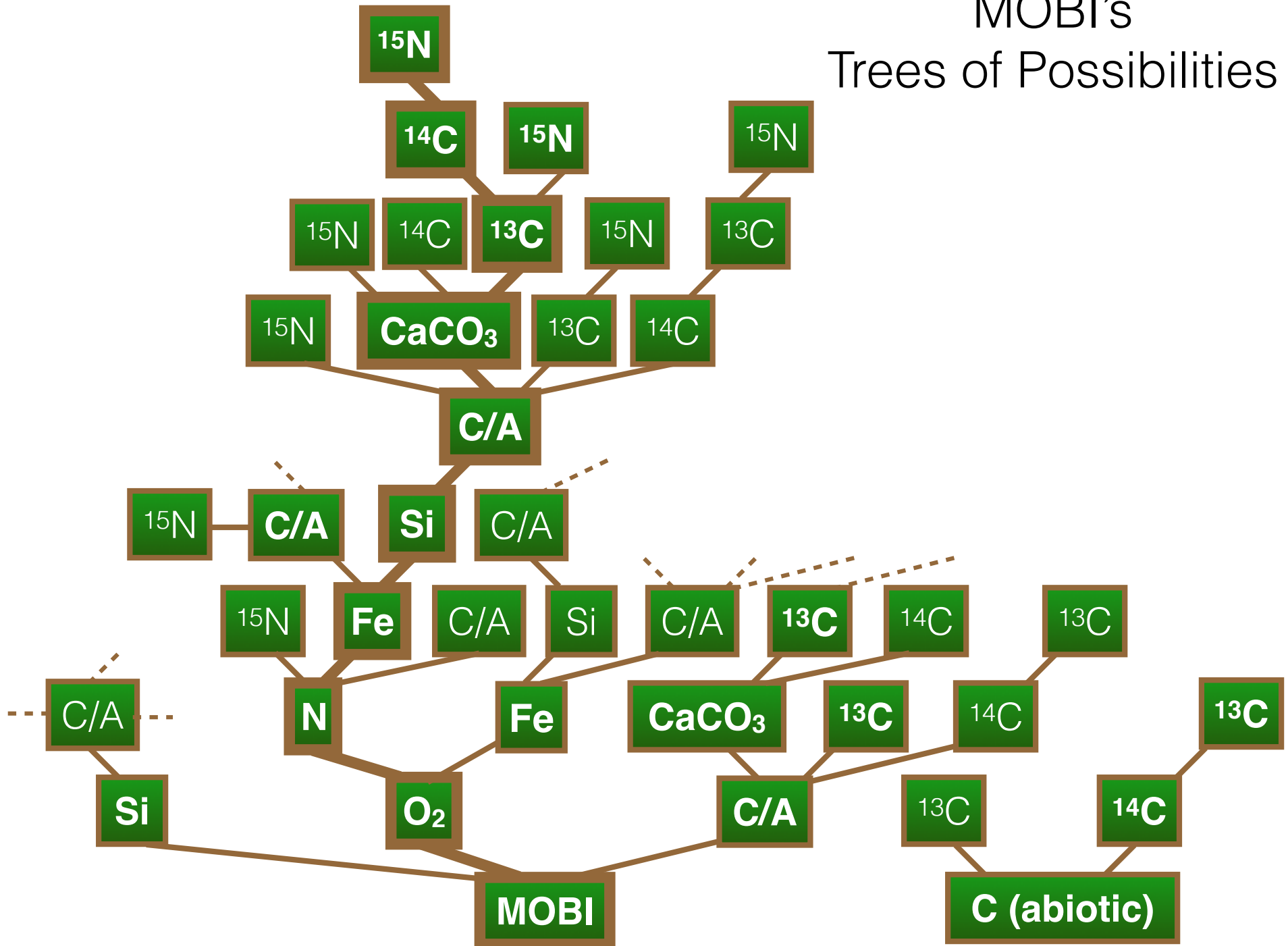
$^{13}\text{C}$

Detritus

$\text{CaCO}_3$

$^{15}\text{N}$

# MOBI's Trees of Possibilities

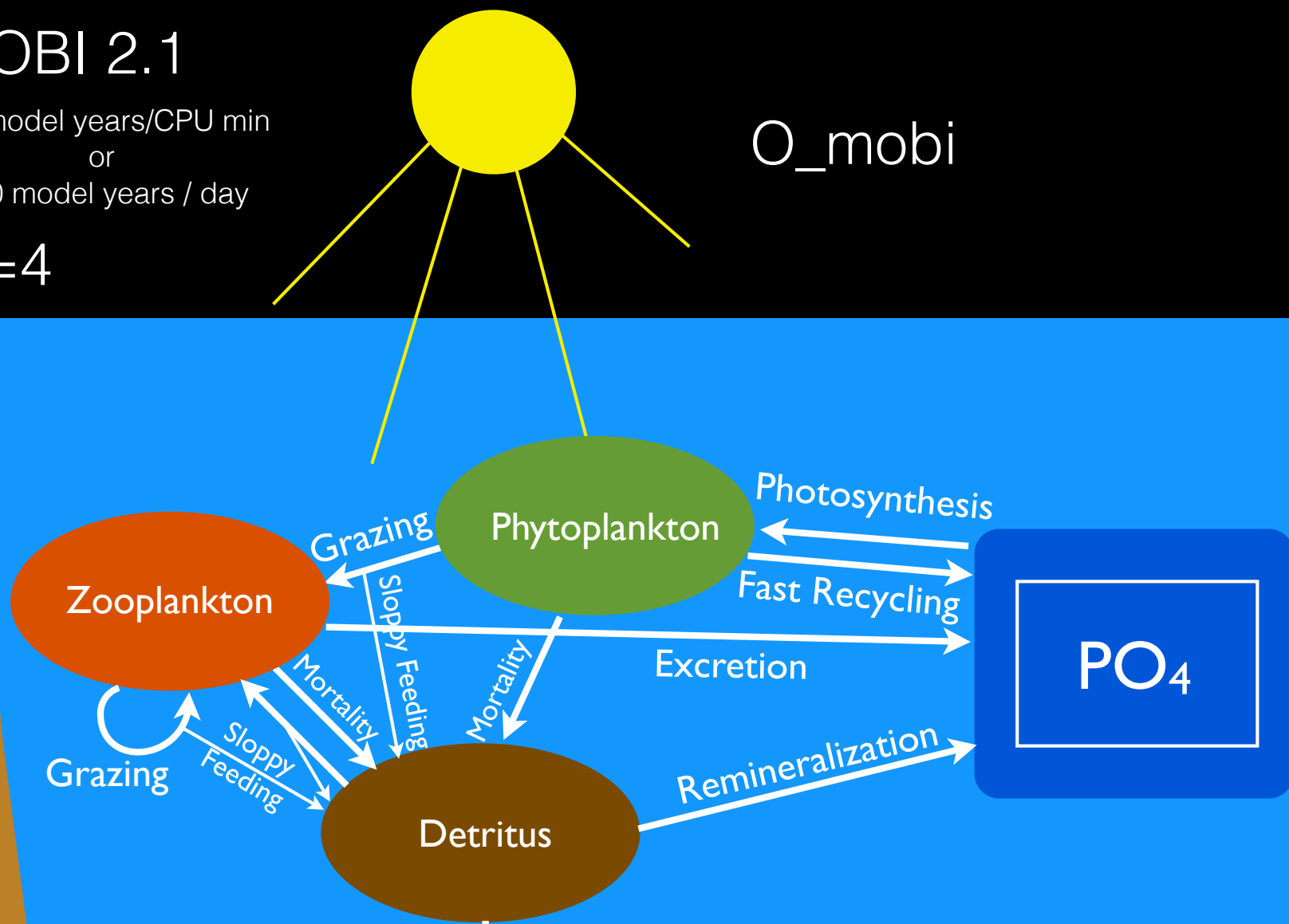


# MOBI 2.1

1.6 model years/CPU min  
or  
900 model years / day

N=4

O\_mobi



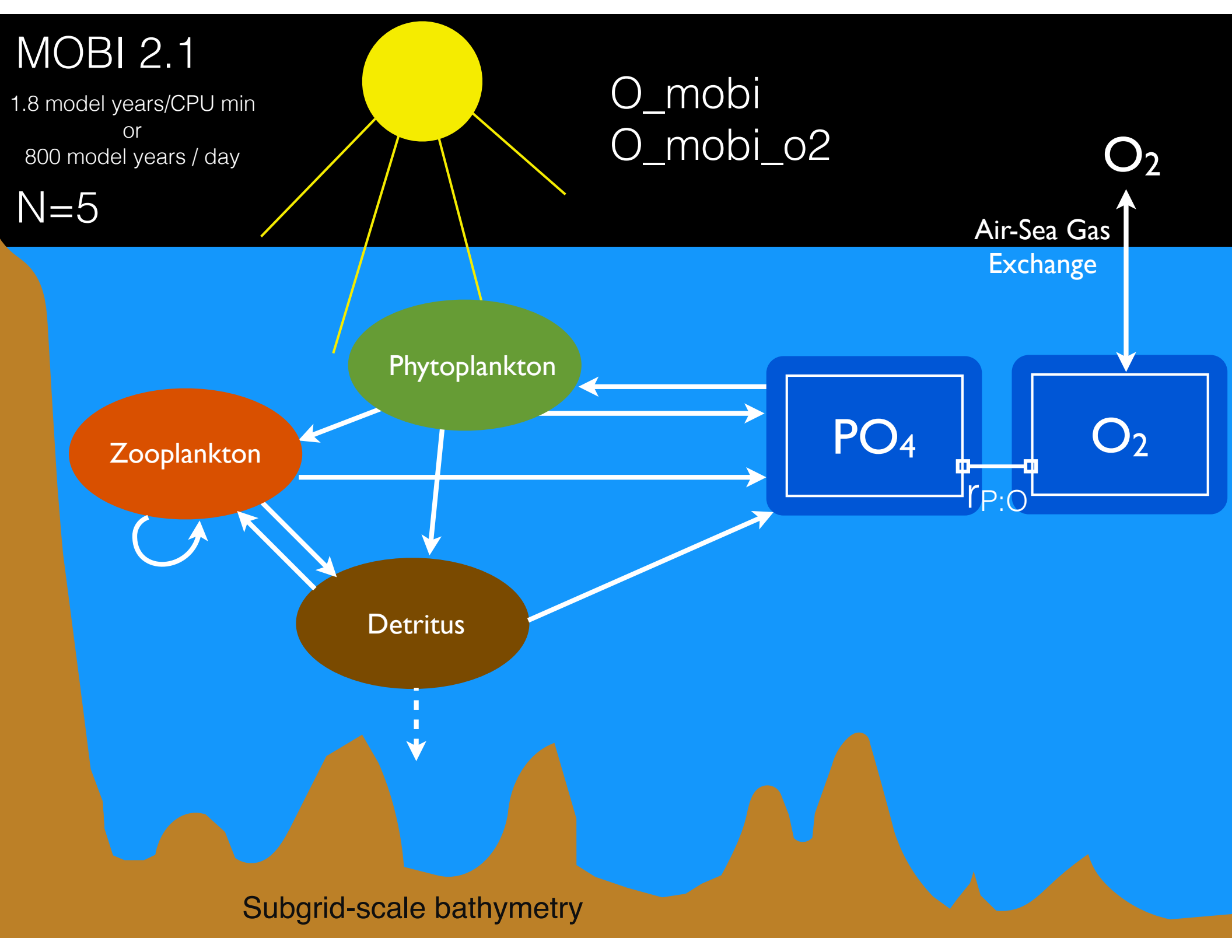
Subgrid-scale bathymetry

# MOBI 2.1

1.8 model years/CPU min  
or  
800 model years / day

N=5

O\_mobi  
O\_mobi\_o2



# MOBI 2.1

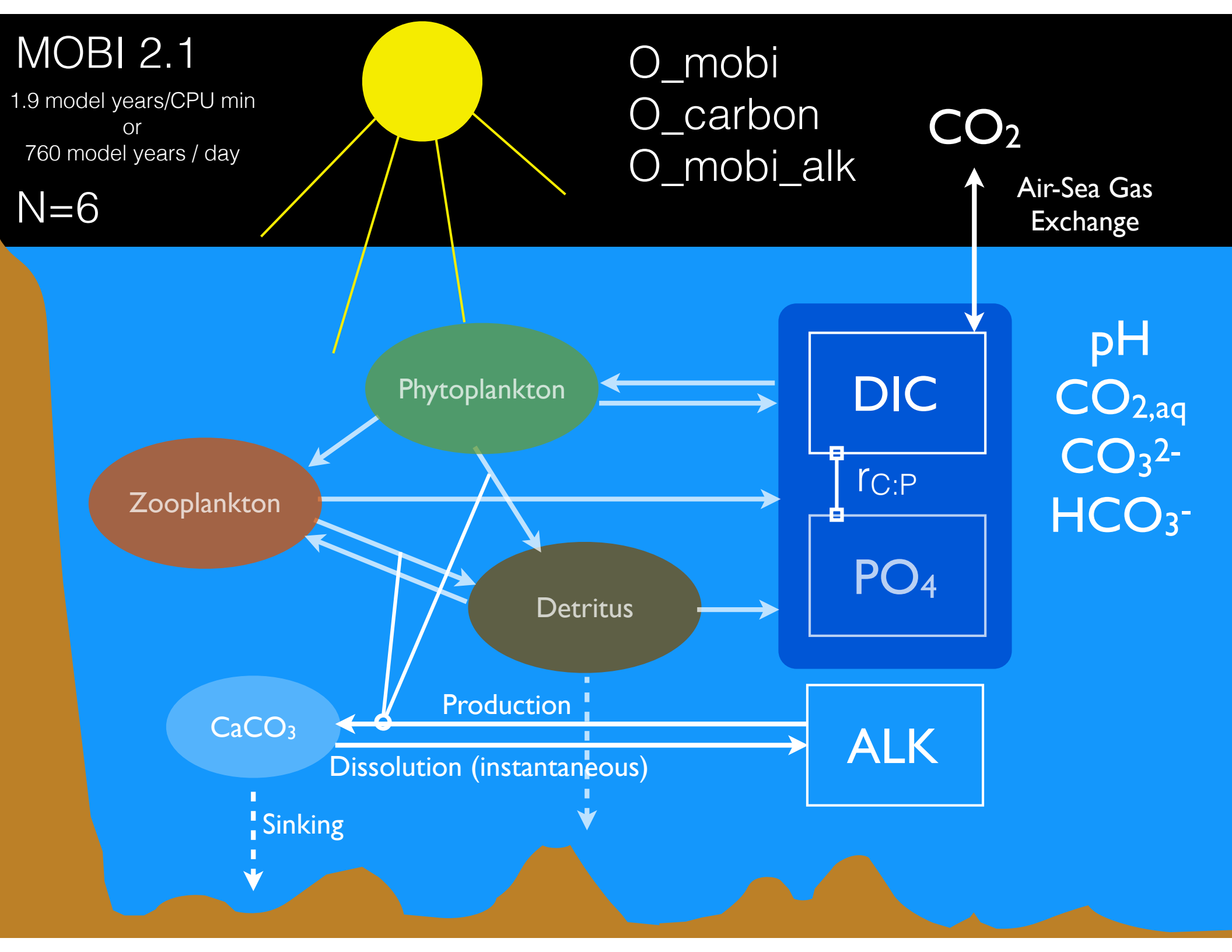
1.9 model years/CPU min  
or  
760 model years / day

N=6

O\_mobi  
O\_carbon  
O\_mobi\_alk

CO<sub>2</sub>  
Air-Sea Gas Exchange

pH  
CO<sub>2,aq</sub>  
CO<sub>3</sub><sup>2-</sup>  
HCO<sub>3</sub><sup>-</sup>

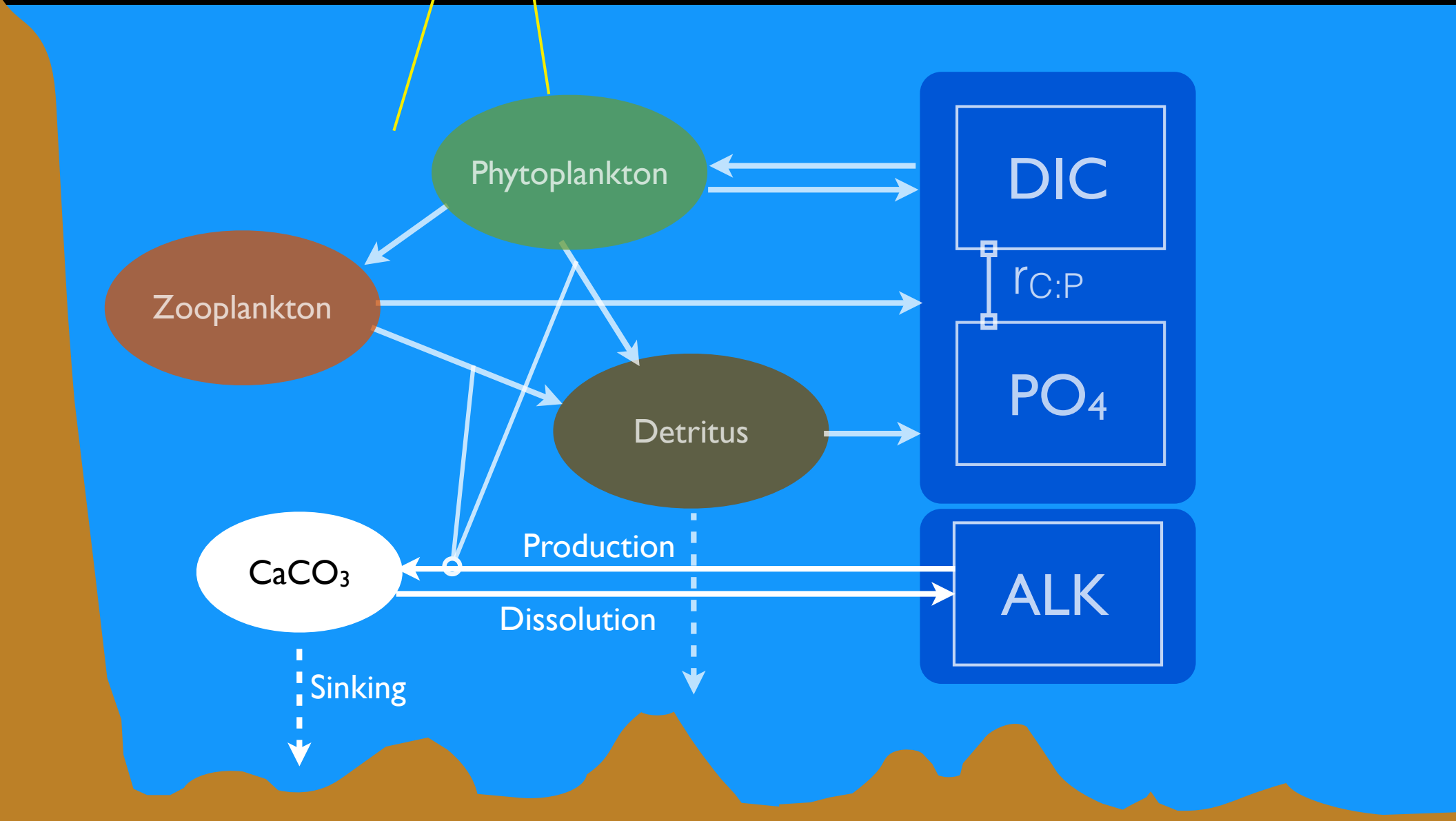


# MOBI 2.1

2.2 model years/CPU min  
or  
650 model years / day

N=7

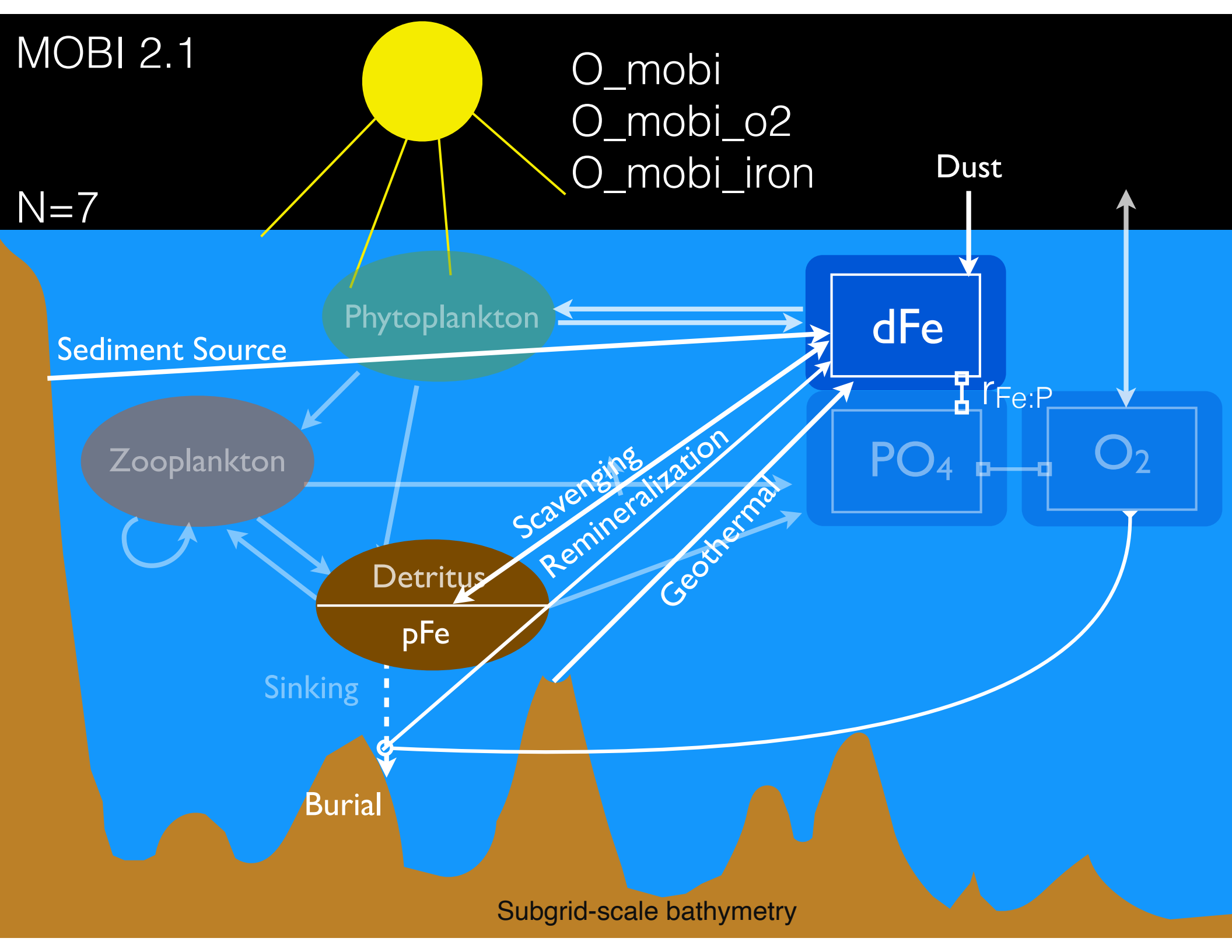
O\_mobi  
O\_carbon  
O\_mobi\_alk  
O\_mobi\_caco3



MOBI 2.1

N=7

O\_mobi  
O\_mobi\_o2  
O\_mobi\_iron

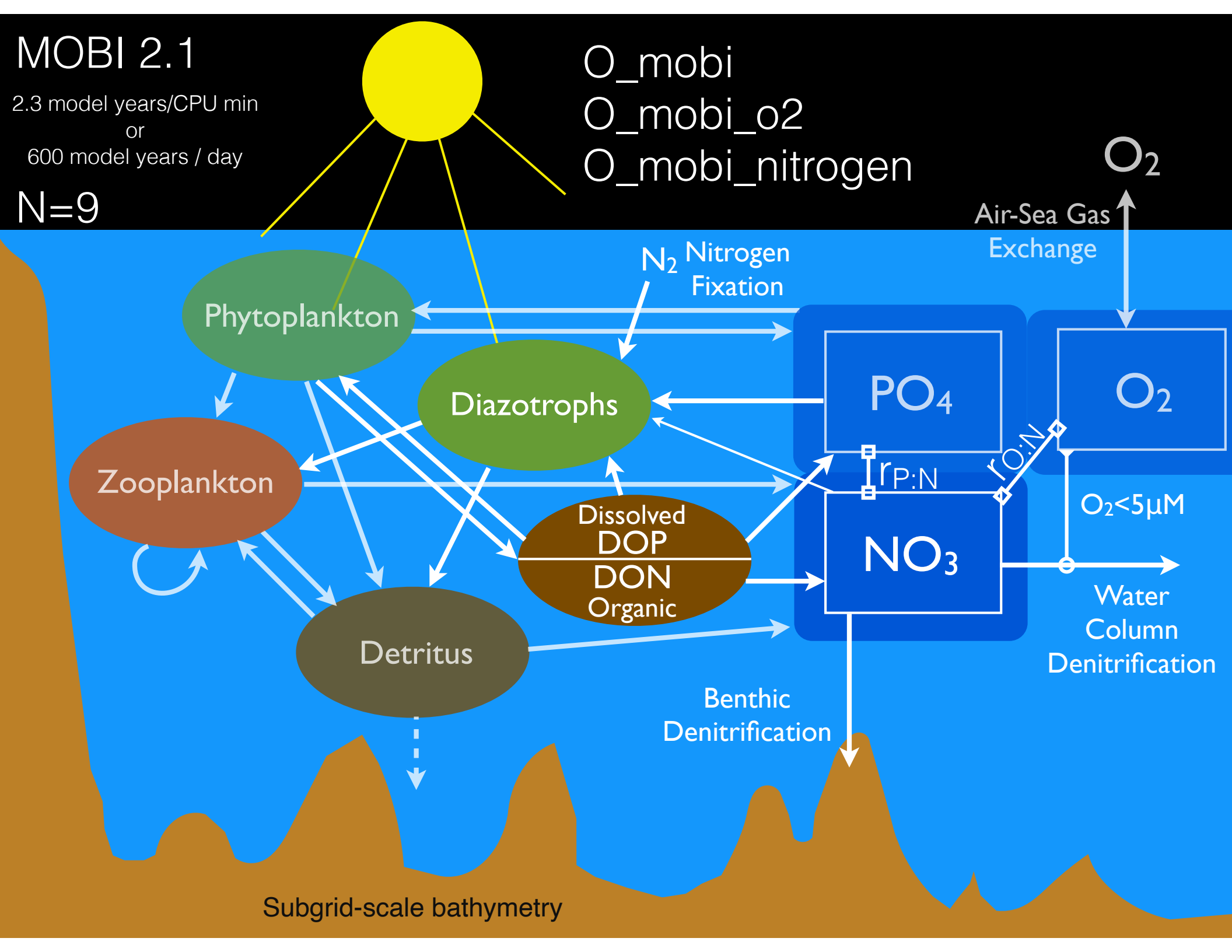


# MOBI 2.1

2.3 model years/CPU min  
or  
600 model years / day

N=9

O\_mobi  
O\_mobi\_o2  
O\_mobi\_nitrogen



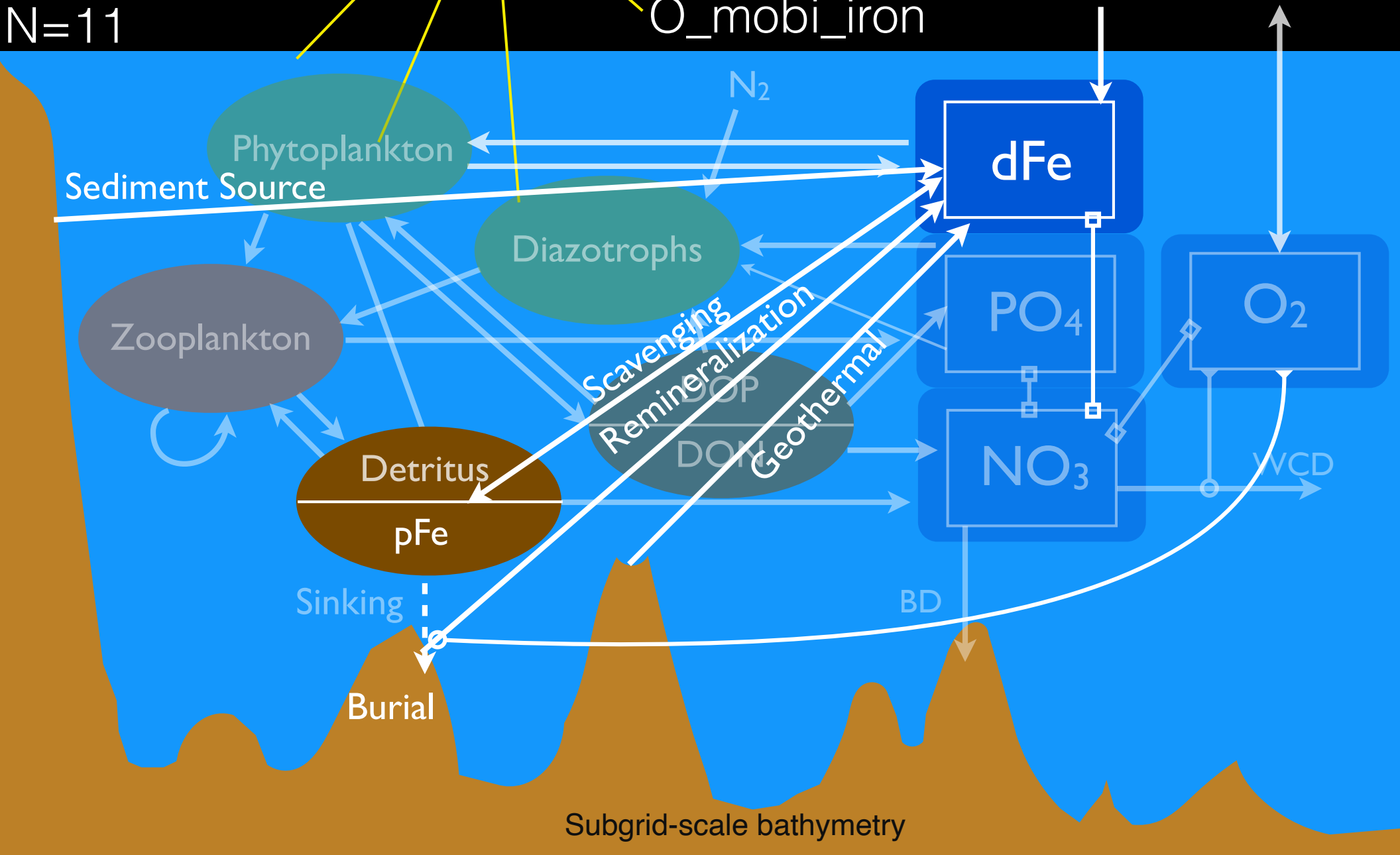


# MOBI 2.1

2.5 model years/CPU min  
or  
580 model years / day

N=11

O\_mobi  
O\_mobi\_o2  
O\_mobi\_nitrogen  
O\_mobi\_iron

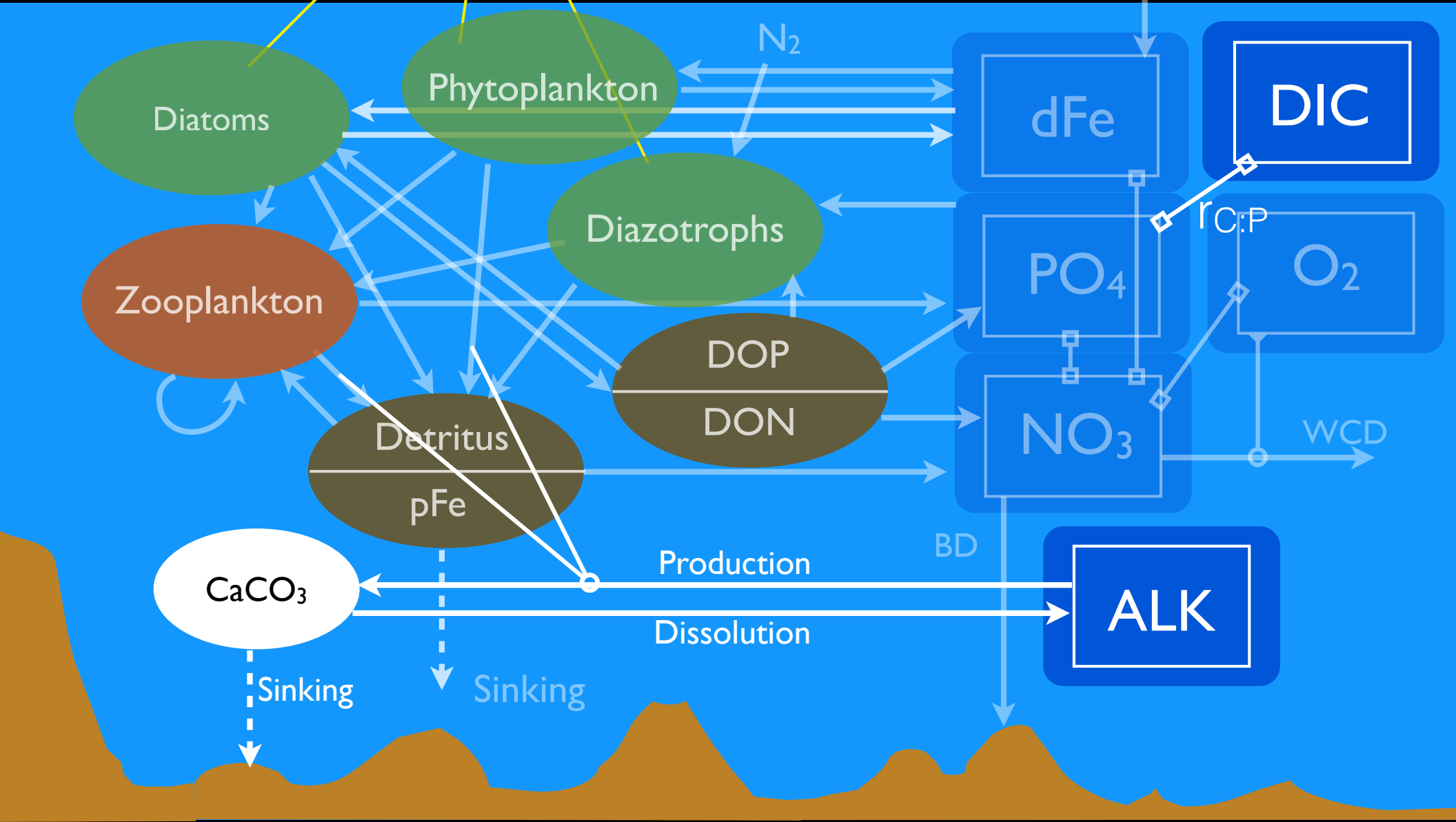


# MOBI 2.1

3.3 model years/CPU min  
or  
440 model years / day

N=15

O\_mobi  
O\_mobi\_o2  
O\_mobi\_nitrogen  
O\_mobi\_iron  
O\_carbon  
O\_mobi\_alk  
O\_mobi\_caco3



# MOBI 2.0

4.1 model years/CPU min  
or  
350 model years / day

N=23

O\_npzd

O\_npzd\_o2

O\_npzd\_nitrogen

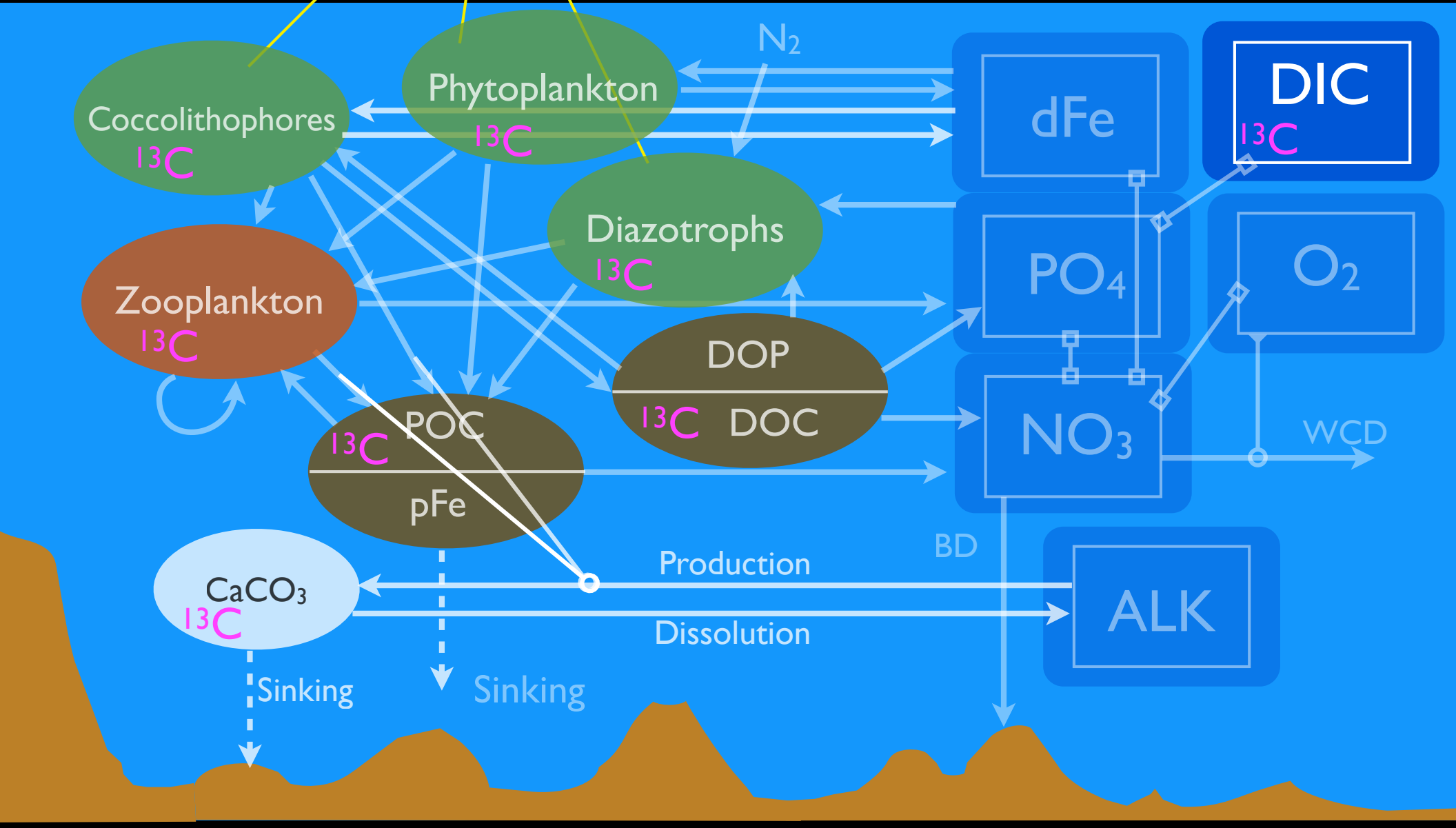
O\_npzd\_iron

O\_carbon

O\_npzd\_alk

O\_npzd\_caco3

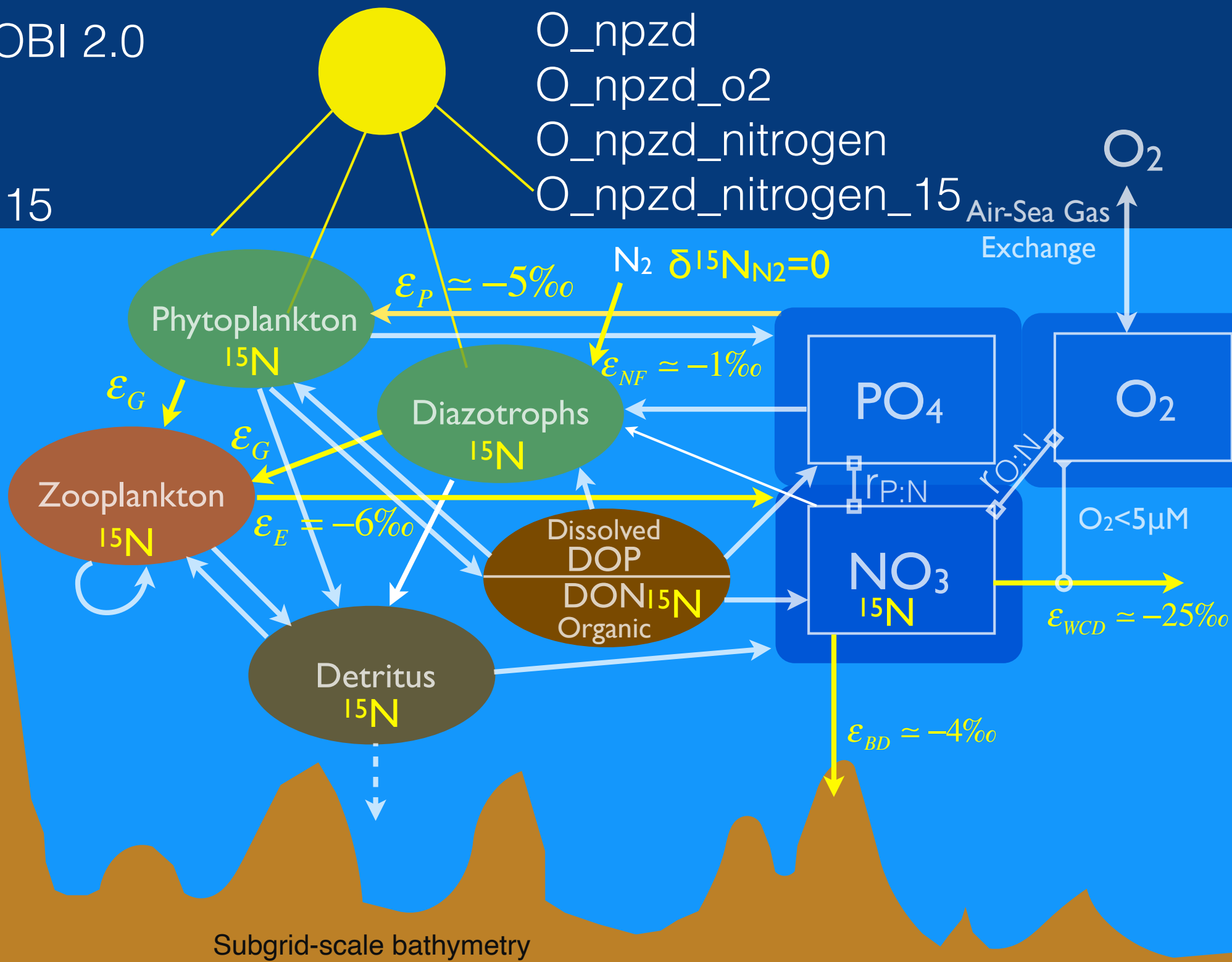
O\_carbon\_13



MOBI 2.0

N=15

O\_npzd  
O\_npzd\_o2  
O\_npzd\_nitrogen  
O\_npzd\_nitrogen\_15



MOBI 2.0

N=30

- O\_npzd

O\_npzd\_o2

O\_npzd\_nitrogen

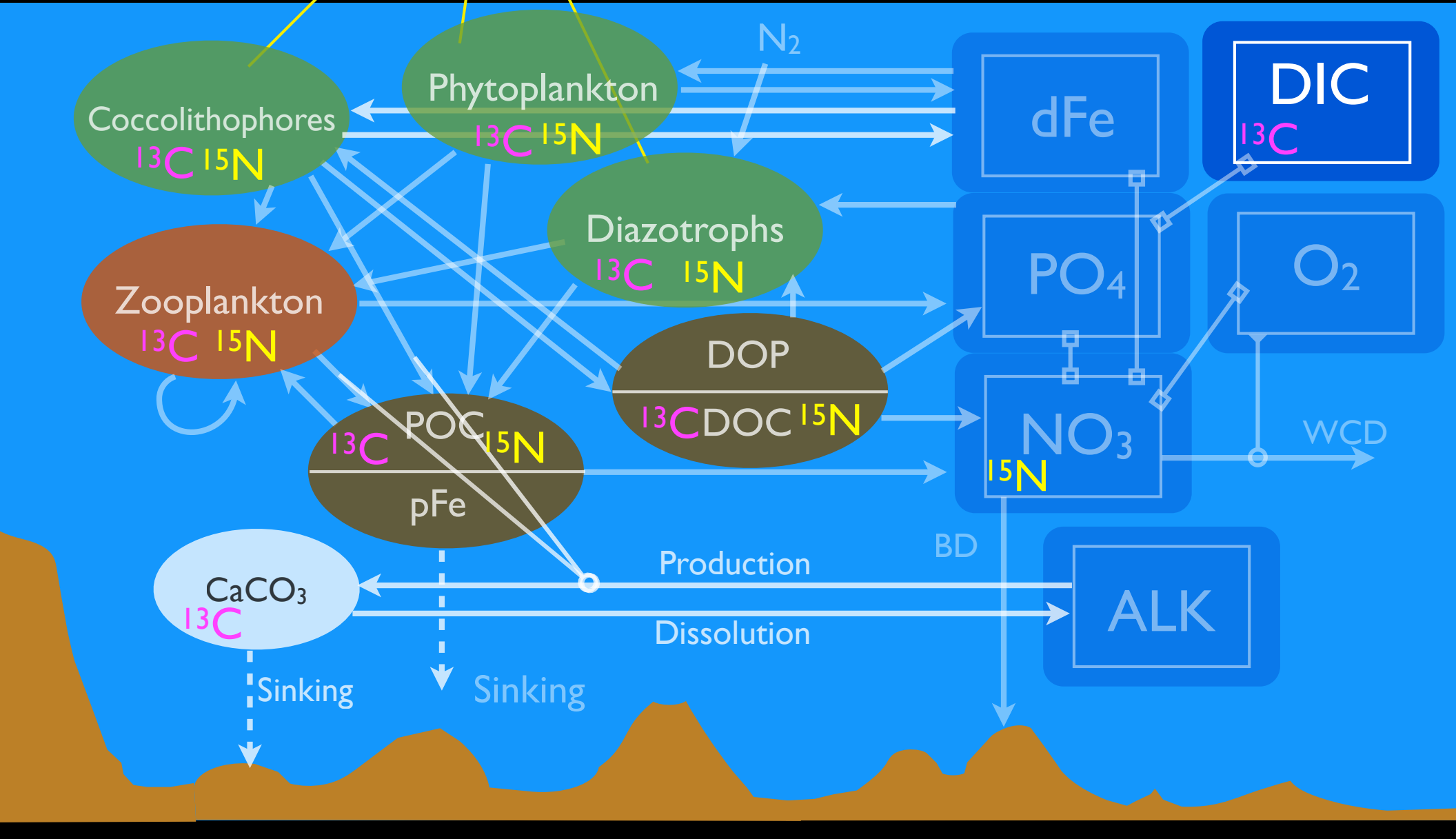
O\_npzd\_nitrogen\_15

O\_npzd\_iron
- O\_carbon

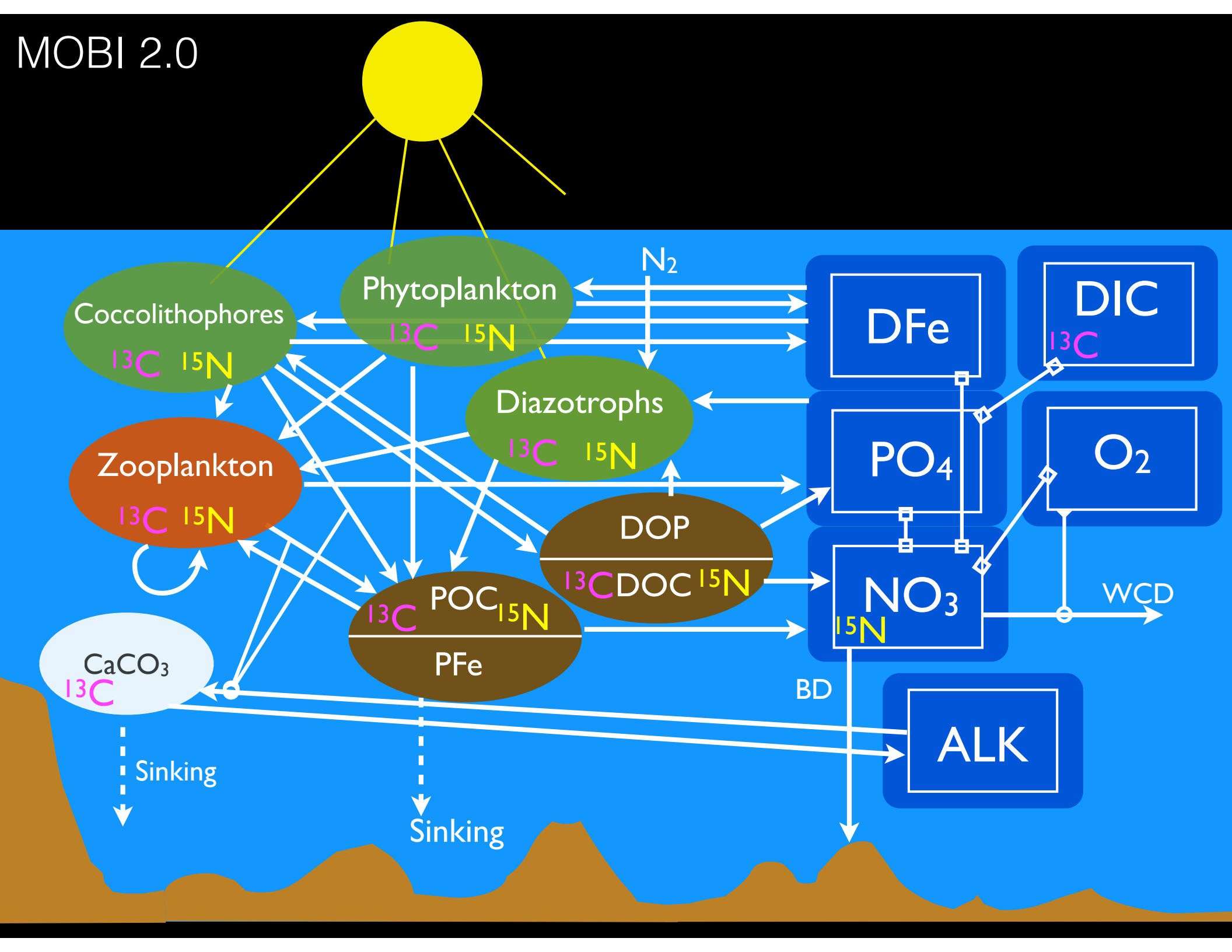
O\_npzd\_alk

O\_npzd\_caco3

O\_carbon\_13



# MOBI 2.0



MOBI 2.0

