**Stable Isotope Biogeochemistry Fall 2014**

**Grading**

Participation 30%

Homework and worksheets 50%

Paper discussion leads 20%

**Introduction**

Criss, Chapter 1

Hayes, Isotope Calculations

Fry, Chapters 1, 2 and 7

Bourg and Sposito… (diffusion in liquid)

Lithium diffusion paper

**Carbon Isotopes**

Mook, 1974: CO2 hydration

Wannikof, 1985: CO2 kinetic transfer air sw

O’Leary 1978: EIE decarboxylation

O’Leary 1984: CO2 diff aqueous

Paneth and O’Leary 1985: EIE carb. anhydrase

O’Leary 1988: review C fract plants

Keller and Morel 1999: CO2 fract. model

DeNiro Epstein 1978: C isotopes in diet

Mook et al. 1986: 13CO2 atmosphere

Kroopnick, 1985: 13C oceans

Schackleton et al. 1983: 13C ice cores

Bird et al. 1994: terrestrial C LGM

Boyle and Keigwin

**Nitrogen Isotopes**

Mariotti et al. 1981

DeNiro and Epstein

Granger et al. 2004

Brandes and Devol 1997

Sigman et al. 2001

Casciotti et al. 2003

Casciotti 2009 inverse isotope effect

N2 fixation…

Food webs… (Macko)

Brandes and Devol, 2002

François et al. 1997

Karl *vs*. Casciotti

Fawcett et al.

Altabet and Francois 1994

Altabet 1988

Abby’s paper

Aquifer literature paper

Cabana and Rasmussen 1994

**Oxygen Isotopes**

Craig and Gordon 1965 and Daansgaard (1964)

Dole effect Wikipedia

Bender 1990

Bender et al. 1994

Shackleton 1987

Schackleton 1977: O isotopes glaciations

Kroopnick and Craig 1987 (Dole effect)

Triple Oxygen Isotopes (Laurie’s review)

**Tracer studies**

Photosynthesis with 13C

Nitrification/ammonification with 14NH4

Denitrification/anammox tracer studies

New production

GPP with H218O

**Other isotope systems**

Si isotopes

Sulfur isotopes

Mercury isotopes

Fe isotopes

Clumped isotope paleo-thermometry