Geosciences Division
Physical Research Laboratory

Tuesday Seminar

Clumped isotopes in air CO_2 and carbonates: implications to global carbon cycle and paleoclimate studies

Abstract

Molecules containing two rare isotopes (e.g., $^{13}C^{18}O^{16}O$ in CO_2), called clumped isotopes are powerful tools to independently constrain the sources of CO_2 in the atmosphere and paleo temperature reconstruction. This is due to their unique physical and chemical properties such as the abundance of ^{13}C-^{18}O bond is purely temperature dependent and is independent of the oxygen isotopic composition of parent material unlike oxygen isotope thermometry in which oxygen isotopic composition of original water must be known for any kind of paleoclimate study. In this talk I will briefly discuss the principles and applications of clumped isotopes in CO_2. I will also present our recent results on identifying sources of CO_2 in the atmosphere, quantifying anthropogenic fractions of CO_2 in urban and industrial areas, paleo temperature reconstruction using various carbonate archives and endothermic/ectothermic thermoregulations of dinosaurs using clumped isotopes. Also I will discuss some advanced applications and future prospects of clumped isotopes.

Speaker: **Dr. A. H. Laskar, Post-Doctoral Fellow**
Academia Sinica, Taiwan

Date	Time	Venue
21-April-2015	16:00 hrs	Ground Floor Lecture Hall

All are invited to attend and participate in discussion
Tea at 15:30 hrs

Neeraj Rastogi, Seminar Secretary, Geosciences Division