2010 Tongji Short Course Schedule

Monday, August 2（**主**讲：林间教授，美国伍兹霍尔海洋研究所）

Oceanic Plates, Mid-Ocean Ridges, and Oceanic Transform Faults
海洋板块、大洋中脊、洋底转换断层的构造演化和动力学

Sub-session 1: Birth of the plate tectonics theory

Must Read Paper:

1. Davies 1999 Chapter 3 in Dynamic Earth, Cambridge University Press

Reference Papers:

1. McKenzie and Parker 1967 Nature
2. Morgan 1968 JGR
3. Le Pichon 1968 JGR
4. Wilson 1963 Scientific American
5. McKenzie, Le Pichon, Parker, and Sclater 2003 in Plate Tectonics (ed. by Naomi Oreskes), Westview Press

Sub-session 2: Structure of mid-ocean ridges

Must Read Paper:

1. Macdonald and Fox 1990 Scientific American

Reference Papers:

1. MacDonald 1982 Annual Review of Earth and Planet Sciences
2. Lin et al 1990 Nature
3. Solomon and Toomey 1992 Annual Review of Earth and Planet Sciences
4. Forsyth et al 1998 Science
5. Dick Lin Schouten 2003 Nature
6. Carbotte Small Donnelly 2004 Nature

Sub-session 3: Oceanic transform faults

Reference Papers:

1. Fox and Gallo 1984 Tectonophysics
2. Phipps Morgan Forsyth 1988 JGR
3. Detrick White Purdy 1993 Reviews of Geophysics
4. Abercrombie Ekstrom 2001 Nature
5. Gregg et al 2007 Nature
6. Tucholke et al 2008 Geology

Tuesday, August 3（主讲：林间教授，美国伍兹霍尔海洋研究所 / 杨挺副教授，同济大学）

Mantle Hotspots, Oceanic Plateaus, and Seamounts
火山热点、洋底高原、海山的形成及演化与地幔熔融的关系

Sub-session 1: The mantle plume hypothesis and debate

Must Read Paper:

1. Vink Morgan Vogt 1985 Scientifc American

Reference Papers:

1. Wilson 1963 Canadian J. of Physics.
2. Morgan 1971 Nature
3. Courtillot et al 2003 EPSL
4. GreatPlulmeDebate-ChineseSciBull2005

Sub-session 2: Hotspot and ridge interactions

Must Read Paper:

1. Dyment Lin Baker 2007 Oceanography

Reference Papers:

1. Schilling 1991 Nature
2. Small 1995 JGR
3. Scheirer et al 2000 JGR
4. Ito Lin Grahma 2003 Rev. Geophys.
5. Hey et al 2010 G3

Sub-session 3: Seamounts

Must Read Paper:

1. Kopper and Watts 2010 Oceanography

Reference Papers:

1. Tarduno et al 2003 Science
2. Sandwell Fialko 2004 JGR
3. Forsyth et al 2006 JGR
4. Wessel Kroenke 2008 JGR

Wednesday, August 4 （主讲：牛耀龄教授，英国杜伦大学）

Geochemical Cycling of the Oceanic Lithosphere
海洋岩石圈中化学元素的循环

Must Read Paper:

1. Niu_2004_JPetrology
2. Niu_O'Hara_2008_JPetrology
3. Niu_2009_CSB

Reference Papers:

1. Niu_O'Hara_2003_JGR
2. Niu_2005_GXDZH
3. GreatPlulmeDebate-ChineseSciBull2005 (Already in Tuesday reference paper)
4. Niu-2008_SciencePerspective
5. Niu&O'Hara_2009_Lithos
6. Humphreys_Niu_2009_Lithos

Thursday, August 5 （**主**讲：林间教授，美国伍兹霍尔海洋研究所 / **王**风平教授，上海交通大学）

Deep-Sea Heat Transfer, Hydrothermal Systems, and Deep Biosphere
海洋岩石圈热对流、深海热液系统及生物圈

Sub-session 1: Heat transfer in oceanic lithosphere and deep-sea hydrothermal systems

Must Read Paper:

1. Baker and German 2004 Geophysical Monograph

Reference Papers:

1. Stein and Stein 1992 Nature
2. Kelly 2002 Annual Review of Earth and Planet Sciences
3. Ramirez-Llodra Shank German 2007 Oceanography
4. Tivey 2007 Oceanography

Sub-session 2: Deep-sea biospheres

Must Read Paper:

1. Jorgensen_Boetuus_2007_NatureReviews_Microbiology

Reference Papers:

1. Fisher 2007 Oceanography
2. Santelli_et_al_2008_Nature
3. DeLong 2009 Nature
4. Wang et al 2009 PNAS
5. Meng et al 2009 ISMEJ
6. Zeng et al 2009 ISMEJ

Thursday, August 5 （主讲：王克林教授，加拿大地质调查局）

Oceanic Plate Subduction, Earthquakes, and Tsunamis
海洋岩石圈俯冲、地震和海啸

Sub-session 1: Subduction zone thermal structure

Must Read Paper:

1. Peacock and Wang 1999 Science

Reference Papers:

1. Wada and Wang 2009 G3

Sub-session 2: Study of great earthquakes and their tsunamis: a North America example

Must Read Paper:

1. Satake et al 2003 JGR

Reference Papers:

1. Kanamori 1986 Ann. Rev. EPS
2. Wang SEIZE chapter 17

Sub-session 3: Episodic Tremor and Slip and other processes

Must Read Paper:

1. Dragert et al 2001 Science

Reference Papers:

1. Rogers and Dragert 2003 Science
2. Ito et al 2007 Science

Please e-mail for Reading Materials - jlin@whoi.edu

Note to all participants:

1. MUST READ PAPERS:

Each afternoon we will discuss 2-3 "Must Read" papers on the subject of the day. All participants are required to read the "Must Read" papers. (Total 13 papers)

2. REFERENCE PAPERS:

These papers are not the required reading, but we recommend you to read these "Reference" papers if you have time or keep them for your future reference. (Total 51 papers)