

Program of the meeting

April 22 (Thursday)

Opening ceremony (Chair: Yingwei Fei)

8:30 – 8:45	Rixiang Zhu	Welcome
8:45 – 9:00	Connie Bertka	The Deep Carbon Observatory - A New Science Initiative
9:00 – 9:45	Robert M. Hazen	Keynote Lecture: Unanswered questions in deep carbon science
9:45 – 10:00		(Break)
		Role of CO ₂ on mantle melting (Chairs: Marc Hirshman and Xi Liu)
10:00 – 10:20	Marc Hirschmann	The early Earth carbon cycle
10:20 – 10:40	Adrian Jones	Carbon-rich melts in the deep mantle
10:40 – 11:00	Xi Liu	Effect of CO ₂ on the partial melting of peridotite: clues from some simple systems
11:00 – 11:20	Greg Yaxley	Experimentally determined phase and melting relations of carbonate eclogites from 2.5 to 20GPa
11:20 – 11:40	Eiji Ohtani	Effect of Carbon and Hydrogen on Phase and Melting relations and Melt Properties at High Pressure
11:40 – 12:00	Daniel Frost	The stability of carbonate bearing minerals and melts with respect to diamond in the Mantle
12:00 – 13:30		Lunch Break
		Carbon-bearing phases in the subduction zone (Chairs: Max Schmidt, Yong-fei Zheng)
13:30 – 14:10	Yong-Fei Zheng	Keynote Lecture: Recycling of carbon in a continental subduction zone
14:10 – 14:30	Max Schmidt	Carbonate recycling through melting of pelagic sediments from 2.5 to 25 GPa
14:30 – 14:50	Yoshi Tatsumi	Subduction and plume factories: their roles in mantle evolution and material recycle
		Carbonates and other C-bearing minerals in Earth's deep interior (Chairs: I-Ming Chou and Eiji Ohtani)
14:50 – 15:10	Thomas Stachel	Diamonds and the Deep Carbon Cycle
15:10 – 15:30	Michael Walter	The Deep Carbon Cycle as Revealed in Diamonds from Juina, Brazil
15:30 – 15:45		(Break)
15:45 – 16:05	Steven B. Shirey	Terrestrial macro-diamonds: tracers of ancient carbon-rich fluids delivered geologically to the deep continental
16:05 – 16:25	Pierre Cartigny	Diamonds from the Dachine komatiite and the possible existence of a deep very ¹³ C-depleted reservoir
16:25 – 16:45	Larissa Dobrzhinetskaya	Diamonds from ultrahigh pressure terranes - a key for understanding crustal carbon reservoir in Earth's interior
16:45 – 17:05	Jingsui Yang	Diamond and moissanite in ophiolitic mantle rocks and podiform chromitites: A deep carbon source?
17:05 – 17:25	Alexandra Navrotsky	Carbon in the Lower Mantle and Core: Accessory Minerals and Analogue Materials

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C-H-O-S fluids in the subduction zone and mantle (Chairs: Zhenhao Duan, Dimitri Sverjensky, Robert Bodnar)

8:30 – 9:10	Zhenhao Duan	Keynote Lecture: The phase and chemical changes of C-bearing fluids and minerals
9:10 – 9:30	Giulia Galli	Insights into carbon based materials and mixtures from quantum simulations
9:30 – 9:50	John H. Weare	1st principle simulation of H-bond structure, ion association, and proton and ligand transfer reactions in metal ion hydration shells under ambient and extreme conditions
9:50 – 10:10	Dimitri Sverjensky	Theoretical prediction of hydrocarbon-mineral-water reactions at elevated temperatures and pressures
10:10 – 10:25	(Break)	
10:25 – 10:45	Craig Manning	CO ₂ and other volatiles in subduction zones: reducing the deficit by crustal-scale sequestration
10:45 – 11:05	Robert Bodnar	Fluid and melt inclusion evidence for the distribution of carbon in the Earth
11:05 – 11:25	Qiang Zhou	HPT elastic properties of liquid methane
11:25 – 11:45	Dionysis Foustoukos	Methane oxidation and formation of metastable organics under hydrothermal and supercritical water
11:45 – 12:05	Javier A. Montoya	High pressure studies on extended phases of CO ₂
12:05 – 13:30	Lunch Break	
13:30 – 13:50	I-Ming Chou	Two Types of Optical Cells for the Study of C-H-O-S Fluids at Moho and Sedimentary Basins
13:50 – 14:10	Isabelle Daniel	Solubility of carbonate in aqueous fluids at HP-HT: a combined X-ray and Raman spectroscopic study
Volcanic activities and Earth's degassing (Chairs: Zhengfu Guo, David Hilton)		
14:10 – 14:30	Claude Jaupart	Controls on the global rate of eruption on Earth
14:30 – 14:50	David Hilton	Towards understanding carbon recycling at subduction zones – the case of Central America
14:50 – 15:10	Giuseppe Etiope	Carbon degassing from the Solid Earth: light hydrocarbons and CO ₂ emissions into the atmosphere
15:10 – 15:25	(Break)	
15:25 – 15:45	Zhengfu Guo	Natural emissions of CH ₄ and CO ₂ from volcanic and geothermal sources in Tengchong Volcanic Field, SE Tibet
15:45 – 16:05	Li-Hui Chen	Carbonated mantle sources for Cenozoic intra-plate alkaline basalts in Shandong, North China
16:05 – 16:25	Tsanyao Frank Yang	Ancient magmatic CO ₂ degassing in sedimentary formation of western Taiwan: Helium and carbon isotopic
16:25 – 17:30	Poster	

Yingwei Fei, Marc Hirschmann, Youxue Zhang, Hans J. Mueller, Mingjie Zhang, Kenji Kato, Hiroyuki Kagi, Long Li, Yongli Wang, Fangfei Li, Jianhua Wang, Jianguo Du, Guodong Zheng, Duofu Chen, Qiong Liu, Yun Liu, Jianguo Du, Mingjie Zhang, Xianbin Wang

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April 24 (Saturday)

Tectonic-environmental changes and the carbon cycle (Chair: Zhengtang Guo)

8:30 – 9:10	Pinxian Wang	Keynote Lecture:
9:10 – 9:30	Guiot Joel	Carbon storage estimates in vegetation and soil during the last 21 ka BP: a review of literature and new results based on data-model fusion
9:30 – 9:50	Zhengtang Guo	On the Cenozoic tectonic-climate changes in Asia and the carbon cycle
9:50 – 10:10	Haibin Wu	Tectonic Event during Early Miocene to changes on Terrestrial Carbon Cycle in East Asia.

10:10 – 10:25 (Break)

Deep life and deep organic synthesis (Chairs: Hailiang Dong, George Cody)

10:25 – 10:45	George D. Cody	Experimental Organosynthesis under deep Crustal and Mantle Pressures
10:45 – 11:05	Alexander Goncharov	Abiogenic hydrocarbons produced under upper-mantle conditions
11:05 – 11:25	Hailiang Dong	The Deep Subsurface Microbiology Research in China: Results from Chinese Continental Scientific Drilling
11:25 – 11:45	Vladimir Trofimov	OIL-REFILLING CHANNELS AND THE STRUCTURAL FEATURES OF THE EARTH'S CRUST IN OIL AND GAS
11:45 – 12:05	Russell J. Hemley	Closing remarks: Science Highlights and Future Prospects

12:05 – 13:30 Lunch Break

13:30 – 15:30	(Panel discussion)	International collaborations
		Panelists: Yingwei Fei, Zhenhao Duan, Zhengtang Guo, Connie Bertka, David Hilton, Andian Jones
		1. Observations: organize long-term, large-scale field exploration to address long-standing questions
		2. Analysis and experiment: invest in development of instrument to advance carbon research
		3. Theory and experiment: build better models by integration
		4. Integration: Choose a project to integrate observations, analysis, theory, experiments, and modeling
		5. Others
16:00 – 18:00	Party in the Park	(Depends on the weather)
18:30 – 22:00	Evening adventure	in the city

April 25 (Sunday)

Post Conference Cultrve Tour to The Great Wall

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Poster Title

Yingwei Fei	Carbon in the core
Marc Hirschmann	Preliminary investigations of C-O-H solubility at reduced condition in a haplobasaltic liquid, with applications to magma oceans
Youxue Zhang	Deep carbon cycle
Hans J. Mueller	Elastic and Inelastic Properties under Simulated Mantle Conditions
Kenji KATO	Competitive methanogenesis from organic and inorganic substrates in warm water of deep subsurface
Hiroyuki Kagi	Valence state of metal ions in mineral inclusions of natural diamonds
Long Li	Tectonic effects on organic carbon accumulation in the subducting sediments
Jianhua Wang	Carbon of Nitrogen evolution and transportation deep inside the Earth based on the study of C and N Isotopes and N Concentrations in Diamonds From Fuxian and Mengyin, China
Guodong Zheng	TBD
Duofu Chen	TBD
Mingjie Zhang	Abundant volatiles in subcontinent mantle lithosphere beneath eastern China
Jianguo Du	Behavior of sedimentary organic matter in a closed system at high pressure and temperature
Xianbin Wang	An abiogenic hydrocarbons in commercial gases from Songliao Basin, China
Qiong Liu	Equation of state for carbonate crystals and liquids
Yun Liu	TBD
Yongli Wang	TBD
Fangfei Li	TBD

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