

International Symposium on Radiometric Dating Studies

-Frontier of Technical developments and Applications of
CHIME and AMS ^{14}C Dating Methods-

Date: January 15-17, 2007

Venue: Symposium Hall, Nagoya University

Organizer: Center for Chronological Research, Nagoya University

Purpose: Both CHIME U-Th-Pb and AMS ^{14}C dating methods have been intensively investigated for more than 25 years at Nagoya University, and the technical studies as well as applications of the methods have been accelerated since the establishment of our research facility, the Center for Chronological Research (CCR), since 2000. At present, both dating methods are inevitable for chronological researches on the history of earth environments and human developments. This symposium aims to summarize the present status of both dating methods and to survey prospective frontiers of both technical and application developments.

Symposium program

Monday, 15 January 2007

9:30-10:00 Opening

SESSION 1 CHIME dating studies

10:00-11:00 **What is essential for metamorphic lithology with and without excess**

Keynote **Ar on Argon dating?**

ITAYA, T. (Okayama University of Science, Japan)

11:00-11:40 **The Birth of Gondwana: timing and thermal spikes constrained
Invited chemical dating of monazites**

SANTOSH, M.W. (Kochi University, Japan)

11:40-12:00 **Lu-Hf dating of eclogite from the Sanbagawa belt, Japan**

WALLIS, S.R. (Nagoya University, Japan)

12:00-13:00 Lunch Break

13:00-14:00 **Protocol and pitfalls of CHIME dating**

Keynote SUZUKI, K. (Nagoya University, Japan)

14:00-14:20 **Chemical dating of crystalline rocks from the Bohemian massif,
Poland**

KUSIAK, M.A. (Nagoya University, Japan)

14:20-15:00 **Radiometric ages and Nd-Sr isotopic compositions of**

Invited **plutonic rocks from the Ulleungdo volcanic island, South Korea**

- KIM, K.H. (Ewha Women's University, Korea, RO)
- 15:00-15:40 **What minor phases reveal about the timing of major phase growth**
- Invited DUNKLEY, D.J. (NIPR, Japan)
- 15:40-16:00 **Effect of gold coating in quantitative EPMA: A MC study of monazite**
- KATO, T. (Nagoya University, Japan)
- 16:00-17:00 Discussions

POSTER SESSION

- 17:00-18:30 Poster Presentations

Tuesday, 16 January 2007

- SESSION 2 AMS ¹⁴C dating studies**
- 09:30-10:20 **Present Status of AMS ¹⁴C facility of Nagoya University and its applications to archeology and geology**
- Keynote NAKAMURA, T. (Nagoya University, Japan)
- 10:20-11:10 **Development of an Automated Combustion and Gas-fed Ion Source System for Environmental Monitoring and Biomedical ¹⁴C Applications**
- Invited KIESER, W.E. (University of Toronto, Canada)
- 11:10-11:30 **Atmospheric radiocarbon calibration curve beyond 12.4 cal kyr BP**
- KITAGAWA, H. (Nagoya University, Japan)
- 11:30-11:50 **Radiocarbon content in single-year tree rings of Japanese cedar**
- MIYAHARA, H. (Nagoya University, Japan)
- 11:50-13:00 Lunch Break
- 13:00-13:50 **Some Radiocarbon and Other Applications at the NSF-Arizona AMS Laboratory**
- Invited JULL, A.J.T. (University of Arizona, USA)
- 13:50-14:40 **The Erlangen AMS-facility: status, applications and the prospect of ¹⁴C measurements of microgram samples**
- Invited KRETSCHMER, W. (University of Erlangen, Germany)
- 14:40-15:30 **Applications of NIES-TERRA ¹⁴C dating for bone sample from Japan**
- Invited YONEDA, M. (University of Tokyo, Japan)
- 15:30-15:50 Coffee Break
- 15:50-16:10 **¹⁴CO₂ emission from the ground surface in a Japanese forest**

- MORIIZUMI, J. (Nagoya University, Japan)
- 16:10-16:30 **Diurnal variation of CO₂ concentration, $\Delta^{14}\text{C}$ and $\delta^{13}\text{C}$ in an urban forest: Estimate of the anthropogenic and biogenic CO₂ contributions**
- TAKAHASHI, H.A. (Geological Survey of Japan, AIST, Japan)
- 16:30-16:50 **Re-examination of eruptive history of Kuju volcano (SW Japan) by thermoluminescence and radiocarbon methods**
- OKUNO, M. (Fukuoka University, Japan)
- 16:50-17:10 **An improved extraction system to measure carbon-14 terrestrial ages of meteorites and pairing of the Antarctic Yamato-75097 group chondrites.**
- MINAMI, M. (Nagoya University, Japan)
- 17:10-17:30 **Radiocarbon dating of ancient Japanese document and Kohitsugire calligraphy**
- ODA, H. (Nagoya University, Japan)
- 17:30-18:30 Discussions
- 18:30-20:30 Reception

Wednesday, 17 January 2007

SESSION 3 The 19th symposium on chronological studies at the Nagoya University Center for Chronological Research in 2006 第 19 回 (2006 年度) 名古屋大学年代測定総合研究センター シンポジウム

- 09:30-09:40 挨拶
中村俊夫 (名古屋大学年代測定総合研究センター長)
- 09:40-10:00 名古屋大学タンデトロロン 2 号機の現状と利用
中村俊夫 (名大年代測定セ)

【一般講演】

- 10:00-10:20 放射性炭素測定による太陽活動周期性と極小期
宮原ひろ子 (名大年代測定セ)
- 10:20-10:40 紀元前 5 世紀の宮崎クスノキ材年輪中の ^{14}C 濃度の測定
永治健太郎 (名大太陽地球研)
- 10:40-11:00 関東平野中央部の高 Cl^- 濃度地下水に関する同位体的研究
安原正也¹・高橋 浩¹・稲村明彦¹・高橋正明¹・牧野雅彦¹・半田
宙子¹・林 武司²・中村俊夫³・太田友子³ (¹産総研・²東大院新
領域・³名大年代測定セ)
- 11:00-11:20 地質学、年代学による伊吹山地域に伝わる河道閉塞の伝承へ
のアプローチ

- 後藤晶子・鈴木和博・中村俊夫・池田晃子（名大年代測定セ）
- 11:20-11:40 熱ルミネッセンスと放射性炭素法を用いたルソン島（フィリピン共和国）の火山活動に関する年代学的研究
奥野 充（福岡大理地球圏科学）
- 11:40-12:00 鎌倉由比ガ浜埋葬人骨および獣骨の地球化学的研究
南 雅代¹・中村俊夫¹・平田和明²・長岡朋人²・鶴澤和宏³（¹名大年代測定セ・²聖マリアンナ医科大学・³東亜大学）
- 12:00-13:00 昼食
- 【特別講演】
- 13:00-14:00 佐賀市東名遺跡の年代とその問題点
松井 章（国立奈良文化財研）
- 14:00-15:00 遊牧と灌漑の年代：ヨルダン南部ジャフル盆地の調査から
藤井純夫（金沢大文）
- 15:00-15:20 休憩
- 【一般講演】
- 15:20-15:40 チベット・プマユムツォ湖の柱状堆積物に見られる年代逆転に関する一考察
松中哲也¹・西村弥亜¹・渡邊隆弘²・中村俊夫²・寺井久慈³・中野志穂³・Zhu Liping⁴（¹東海大院海洋・²名大年代測定セ・³中部大院応用生物・⁴Institute of Tibetan Plateau Research, Chinese Academy of Science, China）
- 15:40-16:00 シベリア・チベット地域の湖沼から採取した湖底柱状堆積物の放射性炭素年代測定
渡邊隆広¹・中村俊夫¹・西村弥亜²・河合崇欣³（¹名大年代測定セ・²東海大院海洋・³名大院環境）
- 16:00-16:20 古人骨試料の年代測定-妙音寺洞穴人骨試料の前処理について-
三原正三¹・黒坂禎二¹・中村俊夫²・小池裕子¹（¹九大院比較社会文化・²名大年代測定セ）
- 16:20-16:40 中近東アナトリア地域におけるカマン・カレホユック遺跡の文化編年
大森貴之¹・中村俊夫²（¹名大院環境・²名大年代測定セ）
- 16:40-17:00 炭素 14 年代法による新潟県青田遺跡の年代研究
尾寄大真¹・小林謙一¹・坂本稔¹・中村俊夫²・木村勝彦³・荒川隆史（¹歴博・²名大年代測定セ・³福島大・⁴新潟県歴史博物館）
- 17:00-17:20 富山県氷見市大境洞窟遺跡から採取した木質炭化物の ¹⁴C 年代測定
西本 寛¹・中村俊夫²（¹名大院環境・²名大年代測定セ）
- 17:20-17:40 茨城県牛久市観音寺における炭素 14 年代測定

坂本 稔¹・今村峯雄¹・松崎浩之²(¹歴博・²東大院工)
17:40-18:00 伝説と、遺跡と文書と C14-村松白根遺跡出土遺物の年代測定-
小田寛貴¹、三浦太一²、中村俊夫¹(¹ 名大年代測定セ、²高エネ
ルギー加速器研)

POSTER SESSION

15 Jan. 2007, 17:30-18:30

P1. Changes in sedimentation rates and sources of organic materials in Lake Baikal (Russia) and Lake Hovsgol (Mongolia) sediment cores

Takahiro WATANABE¹, Toshio NAKAMURA¹, Mitsugu NISHIMURA², Takayoshi KAWAI³ (¹Center for Chronological Research, Nagoya University, ²School of Marine Sciences and Technology, Tokai University, ³Graduate School of Environmental Studies, Nagoya University)

P2. Stable isotope proxy records ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$ and $\delta^{34}\text{S}$) for environmental changes in Lake Hovsgol sediments (cores X104 and X106) during the last 23,000 years

Fumiko Watanabe NARA¹, Takahiro WATANABE², Kazuho HORIUCHI³, Toshio NAKAMURA² and Takayoshi KAWAI⁴
(¹National Institute for Environmental Studies, ²Center for Chronological Research, Nagoya University, ³Department of Earth and Environmental Sciences, Hirosaki University, ⁴Graduate School of Environmental Studies, Nagoya University)

P3. Timing of the landslide-damming at Anegawa upstream, Shiga Prefecture; revealed by AMS ^{14}C dating.

Akiko GOTO, Kazuhiro SUZUKI, Toshio NAKAMURA, Akiko IKEDA (Center for Chronological Research, Nagoya University)

P4. Groundwater study using drill holes in the Abukuma granitic province, NE Japan: the multi-isotopic approach to evaluate crack water stability

Hiroshi A. TAKAHASHI¹, Masaya YASUHARA¹, Hitoshi TSUKAMOTO¹, Kohei KAZAHAYA¹, Akihiko INAMURA¹, Noritoshi MORIKAWA¹, Masaaki TAKAHASHI¹, Toshio NAKAMURA², Tomoko OHTA², Keisuke NAGAO³, Hirochika SUMINO³ (¹Geological Survey of Japan, AIST, ²Center for Chronological Research, Nagoya University, ³The University of Tokyo)

P5. Study by AMS ^{14}C dating on the temporal transition of timber circle remains in Ishikawa prefecture, Japan

Hiroshi NISHIMOTO¹, Toshio NAKAMURA² (¹Graduate School of Environmental Studies, Nagoya University, ²Center for Chronological Research, Nagoya University)

P6. Stable Isotope Variations of Human Bones from Kaman-Kalehöyük Site, Turkey

Takayuki OMORI¹, Toshio NAKAMURA² (¹Graduate School of Environmental Studies, Nagoya University, ²Center for Chronological Research, Nagoya University)

P7. Radiocarbon Dating of Mammoth Samples from Russia at the Nagoya AMS Facility

Toshio NAKAMURA¹, Tomoo OZAWA², Viktor M. MIKHELSON³, Peter A. LAZAREV⁴, Kigen ARAI⁵, Shin-ichi SANO⁶ (¹Center for Chronological Research, Nagoya University, ²Graduate School of Environmental Studies, Nagoya University, ³Cytological Institute, Russian Academy of Sciences, St. Petersburg, ⁴Mammoth Museum, Academy of Sciences, Sakha Republic, ⁵Nagano Paleontological Museum, ⁶Japan Association for the 2005 World Exposition, Aichi, and Fukui Prefectural Dinosaur Museum, Katsuyama)

P8. Variations of C/N ratios, $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values in human bone sections

Mai TAKIGAMI¹, Masayo MINAMI², Toshio NAKAMURA² (¹School of Science, Nagoya University, ²Center for Chronological Research, Nagoya University)

P9. Estimation of paleotemperature from racemization of aspartic acid in combination with radiocarbon age

Masayo MINAMI¹, Masami TAKEYAMA², Yasushi MURANAKA², Toshio NAKAMURA¹ (¹Center for Chronological Research, Nagoya University, ²School of Science, Nagoya University)

P10. Age mapping of young monazite and zircon

Kazuhiro SUZUKI, Takenori KATO, Izumi KAJIZUKA, Monika KUSIAK, Akiko GOTO (Center for Chronological Research, Nagoya University)

P11. Provenance analysis based on clastic composition and CHIME age of detrital zircons on the Lower Jurassic Yamaoku Formation, Chugoku Mountains, Southwest Japan

Hiroshi KAMIKUBO¹, Makoto TAKEUCHI¹, Kazuhiro SUZUKI² (¹Graduate School of Environmental Studies, Nagoya University, ²Center for Chronological Research, Nagoya University)

P12. CHIME monazite ages and P-T conditions of metasediments from the Altai orogen, China

Masaki ENAMI (Graduate School of Environmental Studies, Nagoya University, Japan)