Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

BPT24-P01 会場:コンベンションホール 時間:5 月 24 日 17:15-18:30

旧人と新人の進化と気候変動の関連性の分析
The Climatic effect on the distribution of Neanderhtal and Modern Humans

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寒冷化が進行するおよそ 3 万年前に絶滅したネアンデルタール人に対して、同所的に分布したにもかかわらず絶滅を逃れ、その後さらに北方へと拡散することができた現生人類の間では、どのような違いによって環境に対する適応能力の違い発生したのだろうか？両者の進化的背景として気候要因は非常に大きく、また適応した環境や生態学的ニッチの違いなどについても指摘されている。しかし、ネアンデルタール人と初期現生人類の分布範囲とそれに対応する古気候・古環境の情報はいまだ限られている。その問題に迫るために文部科学省科学研究費補助金新学術領域研究「ネアンデルタールとサピエンス交替劇の真相：学習能力の進化に基づく実証的研究」（平成 22〜26 年度）が現在おこなわれている。考古学や人類学で得られた両者の分布と文化の情報をデータベース化し、気候シミュレーションによって得られた地図上に展開すること、そしてネアンデルタール人と初期現生人類が別々に進化していたヨーロッパとアフリカにおける気候変動の差異を検討している。本発表ではこれまでに得られた各研究者の成果をもちより、研究の現状と問題点について報告する。

キーワード: 酸素同位体ステージ 3, ネアンデルタール人, 現生人類, 人類進化, 古気候, 古環境
Keywords: MIS 3, Neanderthal, Homo sapiens, human evolution, palaeoclimate, palaeoenvironment

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古環境の文献から得た情報を地図化するための WebGIS
WebGIS for mapping information derived from paleoenvironmental literature

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Web-based Geographical Information Systems (WebGIS) allow us to distribute interactive maps via the Internet. Users can handle the maps using a web browser to change the scale, contents and extent of a displayed map. WebGIS can also distribute text descriptions for particular locations. We use WebGIS to map information on paleoenvironmental literature published in academic journals. A preliminary system of WebGIS was constructed in the late 1990s and early 2000s, using ArcView IMS from ESRI as the main engine. It contained information from literature such as the location of areas studied, geomorphological and geological data used for paleoenvironmental reconstruction, target ages and eras, and references such as author names, article titles, journal names, and volume and page numbers. These data were taken from ca. 6,000 papers in international journals of earth and Quaternary sciences published between the mid-1990s and 2002. The data collection ceased in 2003 when a related research project was over. Recently another project ”Replacement of Neanderthals by Modern Humans” was launched in Japan by a group of archaeologists, anthropologists and geographers. For this project, we first transferred the data in the previous WebGIS to a new system with ArcGIS Server from ESRI. Then we added new data from articles published after 2002. We have been collecting data for the Middle East, South Europe and North Africa because they are relevant to the project. The new WebGIS will be useful for the project, because the spatial distribution of paleoenvironment and its temporal change are crucial. The system will also be used by researchers worldwide to collect basic information about existing paleoenvironmental literature.
Keywords: paleoenvironment, literature, GIS, Internet

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Multi-element isotopic analyses of Neanderthal prey from Dederiyeh Cave, Syria: palaeoecological implications
Multi-element isotopic analyses of Neanderthal prey from Dederiyeh Cave, Syria: palaeoecological implications

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The Neanderthals (Homo neanderthalensis) survived for several hundreds of thousands of years through changing climatic scenarios and complex ecological, biogeographic, and subsistence-settlement challenges. Archaeologists have written extensively about possible causes for extinction while little has been stated about the obvious ecological and social resilience they demonstrated over millennia of expansion throughout Europe and the near east. The results of initial stable isotope analysis on prey species hunted by Neanderthals at Dederiyeh cave, Syria provide proxy landmarks from which to discuss the palaeoclimatic and palaeoecological context of the northern Levant just prior to Neanderthal extirpation from the entire region approximately 40 kya. Stable carbon and oxygen isotope and strontium data suggest that Dederiyeh cave may have been an important location on an annual land use rotational schedule for Mousterian hunters. Carbon and oxygen isotopic data from wild goat and red deer reveal climatic and diet shifts suggesting niche partitioning. Strontium data indicate that both species were available in proximity to the cave all year-round; this has important implications for understanding Neanderthal land use and settlement behaviour. Age profiles of key prey species (wild goat, gazelle, and red deer) are similar to sites in the southern Levant. The significance of this research lies in the creation of stable isotope proxies for seasonal climatic reconstructions (from 18O), dietary shifts (from 13C), and keystone herbivore migration and range reconstruction (from 87Sr/86Sr) during the dynamic palaeoecological trajectories of OIS 3 (60-40 kya).

キーワード: Neanderthal, stable isotopes, Dederiyeh Cave, Syria, wild goat, red deer, prey exploitation
Keywords: Neanderthal, stable isotopes, Dederiyeh Cave, Syria, wild goat, red deer, prey exploitation