

平成 17 年度（2005 年度）
東北大学大学院理学研究科 地学専攻
博士課程前期 2 年の課程 入試問題

英語

平成 16 年 9 月 1 日 9 : 00 ~ 12 : 00 実施

注 意 事 項

1. 机の上には受験票、筆記用具、時計以外は置いてはいけません。
2. 合図があるまで問題冊子を開いてはいけません。
試験時間は 9:00 から 12:00 までです。
3. 問題は I、II、III の 3 問で、受験者全員に共通の問題です。
4. 解答はすべて解答用紙に記入します。解答は大問 1 題毎に解答用紙を別にします。解答用紙の所定の欄に受験番号・氏名・志望分野および問題番号を明記します。

問題 I 次の英文を読み、下線部(1)と(2)を和訳せよ。

(1) In December 1831, the young Charles Darwin (1809-1882) embarked as naturalist on the Beagle's voyage around the world. Among the books he carried with him was the first volume of Principles of Geology, published a year before by Charles Lyell (1797-1875). Although "the sagacious Henslow," Darwin's professor of botany, "had recommended the book to him with the reservation not to accept any of the ideas," he was fast under the spell of Lyell's ideas. After his first observation of geology, he "was convinced of Lyell's infinite superiority of ideas."

These ideas are traditionally summarized by the word "uniformitarianism," or by the term "present-day causes"—both explain that the "present is the key to the past." In opposition to geologists of his time who saw traces of former catastrophes everywhere, the author of Principles of Geology attempted to explain "former changes of the Earth's surface, by reference to causes now in operation."

(中略)

Uniformitarians certainly fought for the concept of continuity in the earth's history. This is shown, for instance, in a debate between Prévost and Dufrénoy at the Geological Society of France in 1833. Dufrénoy wanted Prévost to admit that it was possible to separate the Tertiary era into three periods, each one with its typical fauna. Prévost gave in, on the condition that Dufrénoy recognize intermediate stages. In fact, continuity in transitional stages meant refutation of violent catastrophes. Indeed, if transitions were slow, causes could be found in present-day processes.

(2) Something similar happened to Darwin when he observed coastal uplifting in South America. Noticing that the shores of Chile had been elevated "imperceptibly" after the earthquake of 1822, he concluded that "earthquakes, volcanic eruptions, and sudden uplifting of the Pacific coast must be considered irregularities of a much larger phenomenon." In other words, even discontinuities observed in present-day processes were suspected of not expressing the essence of geologic phenomena. One might almost talk of super-uniformitarianism!

(出典 : Gabriel Gohau, 1991, A History of Geology)

(参考) sagacious: 聡明な, imperceptibly: わずかに

問題Ⅱ 次の英文を読んで内容を要約せよ。

The casualty count was continuing to mount. Hundreds of people were trapped in the rubble of collapsed buildings and highways, police said. The quake, which registered a preliminary magnitude of 7.2 on the Richter scale, struck at 5:46 a.m. It destroyed houses, expressways, bridges and other structures, mainly in the Hanshin coastal area between Kobe and Osaka.

The focus of the quake was estimated to be about 20 km directly below Awaji Island in Hyogo Prefecture, where it registered an intensity of 6 on the Japanese scale of 7, according to the Meteorological Agency. It registered an intensity of 6 in Kobe, 5 in Kyoto and 4 in Osaka, the agency said. The initial jolt was followed by hundreds of aftershocks.

As of noon, 446 had been recorded, including one at 7:36 a.m. that registered 4 on the Japanese scale in the ancient capital of Nara. The National Police Agency said Hyogo Prefecture was hit hardest by the quake. As of 1:30 p.m., 436 people were reported dead, 884 suffered injuries and 583 were missing in the prefecture alone. As of 2:45 p.m., 2,163 houses were reported destroyed, also mainly in Hyogo, the NPA said. Kobe officials said 71 fires broke out in their city. Fires were also reported in other cities in the region.

The Meteorological Agency has named the quake the 1995 Southern Hyogo Prefectural Earthquake. The government set up a special task force and sent an investigative team headed by National Land Agency chief Kiyoshi Ozawa to the disaster area, according to Chief Cabinet Secretary Kozo Igarashi.

In Kobe, an eight-story building, a three-story hotel, a key building at Ikuta Shrine and hundreds of wooden buildings, collapsed, trapping people under rubble. Widespread damage to roads has also been reported. Three sections of the Hanshin Expressway collapsed in Kobe and nearby Nishinomiya, taking dozens of cars with them, police said, adding that at least three drivers appear to have been killed. Blackouts occurred in at least, 900,000 households in the Kansai region, Kansai Electric Power Co. said. Cuts in the water supply occurred across wide areas, and gas leaks were reported. Telephone services have also been affected in wide areas, prevent communication to the region from other parts of the nation. Train service was suspended in the Kansai region, and eight trains of West Japan Railway Co. and four of Hanshin Electric Railway Co. derailed. Five bridge sections collapsed between Shin-Osaka and Nishi-Akashi stations, suspending bullet train operations between Nagoya and Hiroshima. Hankyu Railway's Itami Station in Hyogo Prefecture collapsed, burying two police officers. Several parts of a wharf in Kobe port sank, preventing ferries from mooring.

The earthquake is the biggest to hit the region since 1946, when one registering 8 on the Richter scale killed more than 1,300 people. The Meteorological Agency said Tuesday's temblor is the first to register a magnitude of 6 in Kobe since the agency started keeping records in 1926.

(The Japan Times 1995年1月18日の記事より、一部改変)

(参考) casualty : 負傷者 rubble : がれき collapse : 崩壊する Richter scale : リヒター
スケール (地震のマグニチュードをはかる方法の一つ) Japanese scale : (気象庁の)震度階
をさす Meteorological Agency : 気象庁 intensity : 震度 aftershock : 余震 jolt : 激しい
揺れ wharf : 埠頭 temblor : 地震
derailed : 脱線

問題Ⅲ

A. 次の文章を英訳せよ。

二酸化炭素は重要な温室効果ガスの一つである。最近 100 年間に大気中の二酸化炭素濃度は約 30%増加し、著しい地球温暖化をもたらした。氷期-間氷期を通じたより長い時間スケールで見ても、極域の氷床コアに記録された二酸化炭素濃度と気温との間には密接な相関があることが、長年の研究によって確立されてきた。最近では、大気中の二酸化炭素濃度の変化を予測する様々な数値モデルが開発されつつある。これらのモデルでは、二酸化炭素の発生源と吸収先とが多数考慮されている。

(参考) 温室効果ガス greenhouse gas

B. アメリカの大学の修士課程へ入学（留学）を希望する際、指導教官として受入れて欲しい教授に下のような手紙を書くとしよう。空欄部分に挿入すべき、自分の卒業論文（またはこれまで履修してきた講義や実習等）の内容と留学してからの研究についての希望を伝える 50 - 100 語程度の英文を書け。内容と英文の両面から採点する。

Dear Professor ****,

I am an undergraduate student in geology at Tohoku University in Sendai, Japan, and expecting to obtain my bachelor degree in March 2005. I would like to apply to your graduate school and continue (begin) my studies under your supervision.

Yours sincerely,

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