

國立花蓮教育大學地球科學研究所九十六學年度招生考試試題

考試科目：專業英文

注意事項：

- (一)試卷共 2 頁 2 大題，合計 100 分。
- (二)請用橫式作答，不必抄題。
- (三)答案請依序寫在答案卷上，並於題號欄中標明題號。
- (四)試題隨同答案卷一併繳回。

一、請將下列英文短文翻譯成中文（共 2 題，每題 25 分，合計 50 分）

1. Global warming will make Earth spin faster

Of all the possible ways in which climate change could affect our planet, this is the most bizarre: as the oceans warm up, Earth will start rotating a wee bit faster, reducing the length of a day. The time it takes for Earth to complete one rotation is affected by anything that changes the distribution of the planet's mass relative to its axis of rotation. "Think of an ice skater who is spinning," says Felix Landerer of the Max Planck Institute for Meteorology in Hamburg, Germany. "When you stretch your arms out you slow down, and when you bring your arms closer to your body you spin faster." Earth, it seems, will hug itself a little bit tighter because of global warming. (From The New Scientist Magazine, 07 April 2007 issue)

2. There is considerable evidence that before 2400 million years ago, oxygen was at best a minor component of Earth's atmosphere. The subsequent onset of "red beds" and oxidized "paleosols" and the disappearance of detrital pyrite have been attributed to the rise of oxygen. But not all geologists accept this evidence. It has, for example, been argued that the oxygen content was at

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least 50% of the present atmospheric concentration throughout the last 4000 million years. The recent discovery of mass-independent fractionation in the isotopic composition of sulfur in sedimentary iron sulfides (pyrite) and sulfates makes a change in the oxygen content of the atmosphere between 2400 to 2100 million years ago almost inevitable. (取自 Wiechert, U.H. 2002, Science, Vol. 298., p 2341)

二、請將下列中文短文翻譯成英文 (共 2 題，每題 25 分，合計 50 分)

1. 預測地球各洲動態的研究起源於一九六 年代的「板塊構造學說」，以往學界以為大陸是不動的，但板塊構造學說主張，地殼由七個主要板塊和廿幾個較小板塊組成，這些板塊座落在岩漿之上，因為熱對流和重力而緩慢移動。板塊移動造成兩種作用：張裂和隱沒，張裂作用發生在兩個板塊相互遠離時，從底部湧升的岩漿形成新的地殼；隱沒作用則發生在兩個板塊互相碰撞的邊緣，其中一個板塊潛入到另一個板塊之下，然後在地函中逐漸消滅。(節錄自 2007/01/10 中時電子報，該新聞原文簡譯自紐約時報 2007/01/09 專題報導)
2. 地表環境變遷調查方式可以利用傳統測量工具例如水準儀 (auto level)、全站儀與全球衛星定位系統(global positioning system)，攝影測量 (photogrammetry)與三維雷射掃描(3D laser scan)也是常用的方法。