

10. 23 수

- 15:15~15:30 **남극대륙 북빅토리아랜드 후기 고생대 빙하퇴적체의 층서와 퇴적환경**
우주선*, 오재룡, 오창환, 박태윤, 최문영
- 15:30~16:00 Coffee Break

광물학 및 암석학

좌장 : 박창근

- 16:00~16:15 **Early Paleozoic metamorphism in the Mountaineer Range of northern Victoria Land, Antarctica**
Sang-Bong Yi*, Mi Jung Lee, Seunghee Han
- 16:15~16:30 **Microstructures of mantle xenoliths from the Mt. Melbourne, northern Victoria Land, Antarctica**
Daeyeong Kim*, Munjae Park, Yongcheol Park, Hwayoung Kim, Mi Jung Lee, Katsyoshi Michibayashi
- 16:30~16:45 **Onset of the Ross orogeny, Antarctica: a northern Victoria Land perspective**
Taehwan Kim*, Yoonsup Kim, Moonsup Cho, Jong Ik Lee
- 16:45~17:00 **백령도-평택-아산 지역 후기 신생대 알칼리 현무암의 근원 물질에 대한 지구화학적 연구**
김선규*, 최성희
- 17:00~17:15 **밀도범함수이론 연구를 통한 황화철광물의 상전이 현상 예측**
손상보*, 권기덕
- 17:15~17:30 **동적 충격 변성 과정으로 인한 비정질 산화물의 고밀도화의 미시적 원인 규명**
김효임*, 이성근
- 17:30~17:45 **핵과 맨틀 경계부의 초저속도층 마그마의 원자 환경 연구**
김용현*, 이우수, 김효임, Paul Chow, Yuming Xiao, Guoyin Shen, 이성근
- 17:45~18:00 **Low melting temperature of anhydrous mantle materials at the core-mantle boundary**
Taehyun Kim, Byeongkwan Ko, Eran Greenberg, Vitali Prakapenka, Sang-Heon Shim, Yongjae Lee*

Onset of the Ross orogeny, Antarctica: a northern Victoria Land perspective

남극 로스 조산운동의 시작: 북빅토리아랜드의 관점에서

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The Ross orogen of the Transantarctic Mountains and its eastern Australian equivalents such as the Delamerian orogen formed a 4,000-km-long Andean-style belt along the Pacific margin of Gondwana. Following a series of Neoproterozoic rifting events related to break-up of Rodinia, convergent tectonics is believed to have been active since as early as Ediacaran time. This late Neoproterozoic subduction initiation model is primarily based upon the large population of detrital zircon at the period, although the major pulse of arc granitoids was at the Cambro-Ordovician. In this study, we report the finding of rift-related mafic magmatism of Ediacaran age preserved in Cambrian eclogites of the Ross orogen. We propose that in northern Victoria Land, situated at the Pacific end of the Transantarctic Mountains, the onset of convergent tectonics should postdate the Ediacaran rifting event.

Inherited zircon cores from two eclogite samples are characterized by the presence of subtle oscillatory zonation and acicular apatite inclusion. The zircon cores are relatively high in Th/U ratios (0.34–0.99), and yielded the $^{206}\text{Pb}/^{238}\text{U}$ ages of 590.8 ± 8.3 Ma and 603.2 ± 4.4 Ma ($t\sigma$), respectively. The Hf isotopic compositions of zircon from the same analytical pits of U–Pb analyses yielded initial $\epsilon_{\text{Hf}}(t)$ values ranging from +9.2 to +18.8. The zircon U–Pb and Hf isotopic data in combination with mildly alkalic, within-plate to continental basalt-like geochemistry of the eclogites suggest that their gabbroic protoliths should be a spatial-temporal equivalent to *c.* 600–580 Ma rift to passive margin magmatic rocks of eastern Australia. Dominantly siliciclastic composition of associated metasedimentary rocks further supports an extensional setting of northern Victoria Land-eastern Australia pair at *c.* 600–580 Ma. This is in marked contrast to an existing model for *c.* 590–570 Ma arc initiation on the basis of age data from the Barrovian metamorphism in southern Victoria Land, and the detrital zircon and granitic tills in central Transantarctic Mountains. Therefore, we suggest diachronous tectonic inversion events from rift to arc in the Ross-Delamerian orogens: (1) from Ediacaran (*c.* 600–580 Ma) rifting to early Cambrian (*c.* 540–530 Ma) convergent orogeny in the eastern Australia-northern Victoria land pair; and (2) from Cryogenian (*c.* 670–650 Ma) to Ediacaran (*c.* 590–570 Ma) possibly in the rest of the Transantarctic Mountains.