THE AGE OF THE ICE AT THE FRONTIER MOUNTAIN BLUE ICE FIELD (ANTARCTICA) CONSTRAINED BY $^{40}Ar/^{39}Ar$ CHRONOLOGY OF ENGLACIAL TEPHRA.

L. Folco[1], P. Curzio[1], M. A. Laurenzi[2], M. Mellini[3] and A. Zeoli[1]. [1] Museo Nazionale dell'Antartide, Università di Siena, Italy. E-mail: folco@unisi.it. [2] Istituto di Geoscienze e Georisorse, CNR - Area della Ricerca di Pisa, Via G. Moruzzi 1, 56124 Pisa, Italy. [3] Dipartimento di Scienze della Terra, Università di Siena, Via Laterina 8, 53100 Siena, Italy.

Englacial tephra are chronostratigraphic markers of the Antarctic ice sheet. Structural, mineralogical, geochemical and geochronological data on selected samples collected during the 1995, 1997, 1999 and 2001 PNRA expeditions allowed the reconstruction of a chronostratigraphic framework for the Frontier Mountain blue ice field – an important meteorite trap on the southeastern flank of Talos Dome in northern Victoria Land. The stratigraphic thickness of the blue ice succession is ~1150 m. The $^{40}Ar/^{39}Ar$ age of one layer close to the stratigraphic bottom of the ice succession is 100±5 ka and constrains the maximum age of the bulk of Frontier Mountain blue ice. The 49±11 ka age of a second layer at a depth of ~950 m in the stratigraphic succession indicates that >90% of the ice is younger than this value. These ages agree well with terrestrial ages of meteorites found on this ice (up to 140±30 ka; [1], [2], [3]), suggesting that a mechanism of exhumation of meteorites in the blue ice field by ablation after englacial transport is at work at Frontier Mountain.

References: [1] Welten K. C. et al. 2001. *Meteoritics & Planetary Science* 36:301-317. [2] Welten K. C. 2006. *Meteoritics & Planetary Science* 41:1081-1094. [3] Folco L. et al. 2006. Earth & Planetary Science Letters 248:209-216.

Acknoledgements: This work was supported by the Italian Programma Nazionale delle Ricerche in Antartide (PNRA).