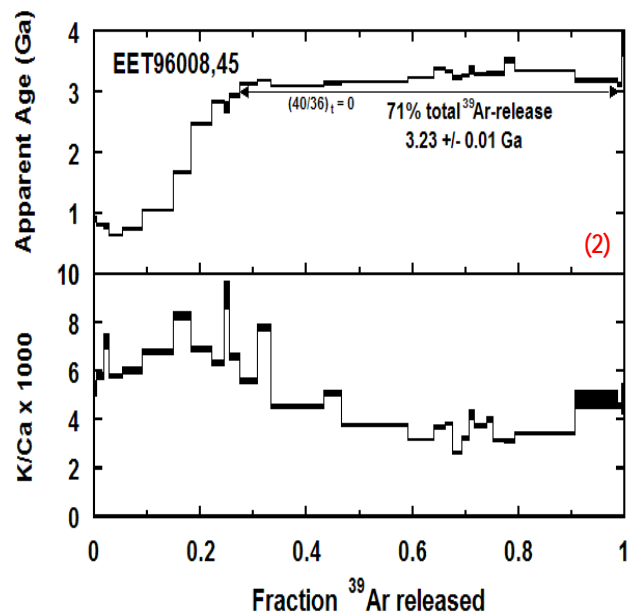


reported Re-Os systematics of LAP to be disturbed at ~10 Ma, however the much younger event did not disturb the Ar systematics. Considering the fractured appearance of the plagioclase and pyroxene in this sample, and the suggestion by [7] that this basalt was subjected to pressures of <30 to >75 GPa, remains the question whether the 2.915 Ga age represents to the crystallisation of a second flow of LAP as suggested by [12] or due to an impact event that may have disturbed the K-Ar system and reset the clock to a younger age. Based on experiments to study the shock-effects and the K-Ar system, [15] concluded that shock pressures up to 52.5 GPa do not disturb the K-Ar clock, instead to reset the K-Ar system on a non-molten material, it is necessary an extensive period at high temperatures. Bogard et al. [16] conducted shock experiments over a large interval from 29 to 70 GPa, which overlaps the pressures suggested for LAP [7]. These authors concluded that Ar loss can be due to extensive grain fracturing and heating during shock, and that large scale gas loss in shocked, but unmelted samples requires that materials reside for prolonged periods of time at elevated temperatures in a relatively hot impact formation, either inside or outside the crater cavity. This prolonged heating environment could occur during extrusion of an overlying lava flow [12]. Also we note that the age of 2.92 Ga for LAP is similar to that obtained for two other lunar basalt meteorites NWA032 (2.80 Ga) and for NWA773 (2.91 Ga) [17].

EET96008 The age spectrum for EET96008 is shown in Fig. 2. The initial 28% of ^{39}Ar release gives relatively young apparent ages (0.63 to 2.93 Ga) indicating Ar loss from the low-temperature sites. The lowest apparent age obtained is 630 ± 9 Ma perhaps representing the timing of an impact event that caused this Ar loss. This region of the spectrum is also characterised by a high K content as indicated by the relatively high K/Ca values (Fig. 2). For the remaining 72% of ^{39}Ar release an age of 3.22 ± 0.01 Ga is determined (3.09 ± 0.02 to 3.77 ± 0.20). This age is slightly lower than the U-Pb isochrons of 3.53 ± 0.27 Ga and 3.52 ± 0.10 Ga obtained for apatite and whitlockite respectively [9].

Cosmic Ray Exposure (CRE)-ages LAP02205 contained negligible trapped Ar and yields a CRE age from Ar released at high temperature of ~64 Ma (using a production rate of $1.086 \times 10^{-8} \text{ cm}^3 \text{ g}^{-1} \text{ Ca Ma}^{-1}$ based on the chemical composition of LAP02205 and production rates of [18]). This exposure age is comparable with the CRE age determined for the cumulate portion of NWA 773 of ~73 Ma [17]. For the basalt EET96008, the total $^{38}\text{Ar}/^{36}\text{Ar}$ of this meteorite is ~1.44 which is just slightly lower than the cosmogenic value of ~1.54 possibly indicating presence of minor trapped Ar components. The total CRE-age calculated from the ^{38}Ar released at a production rate $1.032 \times 10^{-8} \text{ cm}^3 \text{ g}^{-1} \text{ Ca Ma}^{-1}$ is approximately 15 Ma. This age diverges from those suggested by [19] corresponding to a "recent exposure on the Moon" at 26 Ma and an "early exposure on the Moon" ≤ 9 Ma.

Summary Both LAP02205 and EET96008 show petrographic similarities to previous investigations works [1-7, 9, 10]. The Ar-Ar age of 2.915 ± 0.010 Ga obtained for LAP is indistinguishable from that reported earlier [12&13] and the CRE-age is ~64 Ma. Both ages are similar to those obtained for NWA773 [17]. Ar-Ar analysis of EET96008 shows evidence for Ar disturbance occurring 630 Ma ago. The age obtained for the intermediate and high temperature steps of 3.22 ± 0.01 Ga is similar to the age obtained for the U-Pb isochron of phosphates [9]. This age is similar to that calculated to be the age of the flow where the Luna 24 lander collected samples [20]. Considering the low-Ti and low-Fe composition of EET, Mare Crisium maybe a good candidate as the source region on the lunar surface from where EET was excavated. A source region for LAP02205 is the NW region of the Oceanus Procellarum.



Refs.: [1] Joy et al (2004), LPSC 35th, abst.#1545. [2] Joliff et al. (2004), LPSC 35th, abst.#1438. [3] Mikouchi et al (2004) LPSC 35th, abst.#1548. [4] Korotev et al (2004) LPSC 35th, abst.#1416. [5] Righter et al (2004) LPSC 35th, abst.#1667. [6] Anand et al (2004) LPSC 35th, abst.#1626. [7] Zeigler et al (2005) MAPS 40, 1703-1722. [8] Mikouchi (1999) LPSC 30th, abst.#1558. [9] Anand et al (2003) GCA, 67, 3499-3518. [10] arren and Ulf-Møller (1999) LPSC30th, abst.#1450. [11] Nishiizumi et al (1999) LPSC30th, abst.#1980. [12] Nyquist et al. (2005) LPSC 36th I, abst# 1374. [13] Anand et al. (2006) GCA 70, 246-264. [14] Day et al. (2005) LPSC 36th abst.# 1424. [15] Jeßberger & Ostertag (1982), GCA 46, 1465-1471. [16] Bogard et al. (1987), GCA 51, 2035-2044 [17] Fernandes et al. (2003) MAPS 38, 555-564. [18] Eugster&Michel (1995), GCA 59, 177-199. [19] Eugster et al. (2000) MAPS 35, 1177-1181. [20] Fernandes&Burgess (2005) GCA69,4919-4934.