

Supplement 4

*⁴⁰Ar/³⁹Ar radiometric age estimate sample results for
boreholes DSDP Leg 38 sites 350 and 348.*

Summary table of the $^{40}\text{Ar}/^{39}\text{Ar}$ age spectra dating estimate of core samples of wells DSDP Leg 38 sites 348 and 350 in comparison to the existing age K/Ar analysis (1) [Kharin et al., 1976], the new $^{40}\text{Ar}/^{39}\text{Ar}$ age analysis (2) [OSU Argon Geochronology Laboratory], and the magnetic polarity chron age model (3) [Gradstein et al. 2012].

DSDP Well	Core; section	Sample Id	K/Ar age (1)	$^{40}\text{Ar}/^{39}\text{Ar}$ Age (2)	Polarity Chron (3)	Comment
38 - 348	32; Sec. 4	BCR004907 271	18.2 Ma ± 2.4 Ma	~ 22.23 Ma ± 0.31 Ma	C6Bn.2n	
38 - 348	33; Sec. 2	BCR004907 273	18.2 Ma ± 2.4 Ma	~ 23.19 Ma ± 0.61 Ma	C6Cn.2r	
38 - 348	34; Sec. 2	BCR004907 276	19.4 Ma ± 2.2 Ma	~ 22.15 Ma ± 0.26 Ma	C6Bn.2n	
38 - 350	14; Sec. 2	BCR004907 312	-	No Age	-	Very fine -crystalline to glassy basalt, segment is altered, and is part of the bed rock for the intrusive section just below.
38 - 350	14; Sec. 3	BCR004907 314		No Age		
38 - 350	16; Sec. 1	BCR004907 310	33.5 Ma ± 2.8 Ma	~ 49.28 Ma ± 0.30 Ma	C22n	New age dating connects this igneous events caused by the Iceland Plateau Rift I (Brandsdóttir et al. 2015 & Blischke et al. 2017).
38 - 350	16; Sec. 2	BCR004907 316	to	~ 44.05 Ma ± 0.21 Ma	C20r	
38 - 350	16; Sec. 3	BCR004907 318	50.5 Ma ± 5.5 Ma	~ 46.58 Ma ± 0.30 Ma	C21n	

Note 1

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Although the sample contained good plagioclase phenocrysts in its matrix, the cumulative ^{39}Ar gas release did not form a stable plateau (Fig. 8 in manuscript). Cumulative gas release records that form a stable plateau for more than 50-70% of their heated interval over time are considered robust [Swindle and Weirich., 2017]. Shorter gas release plateaus are considered mini plateaus resulting in a higher uncertainty. If a rock sample has been disturbed by thermal reheating after its emplacement, ^{40}Ar - ^{39}Ar radiometric ages will be lower than the true age [Swindle and Weirich, 2017]. The overall radiometric dating uncertainty range has improved with ^{40}Ar - ^{39}Ar dating for site 350 despite potential reheating issue.