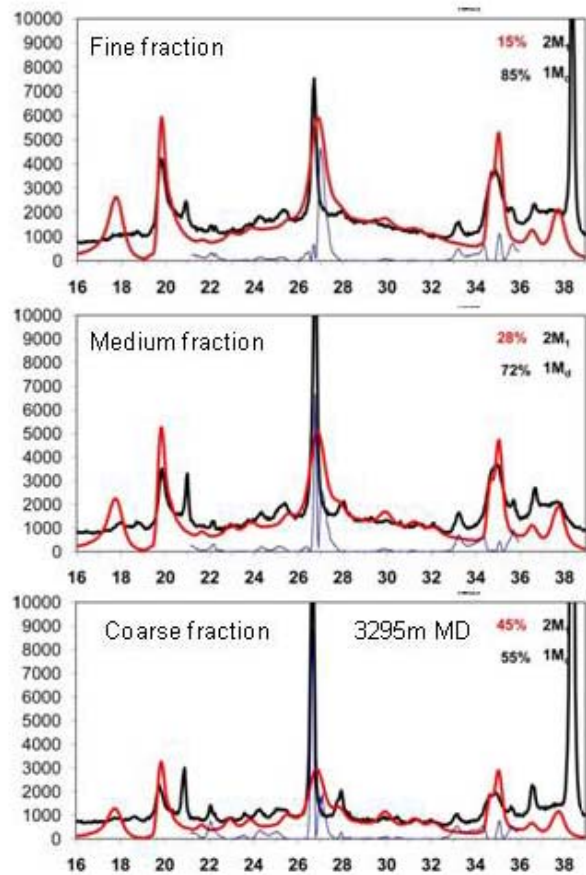
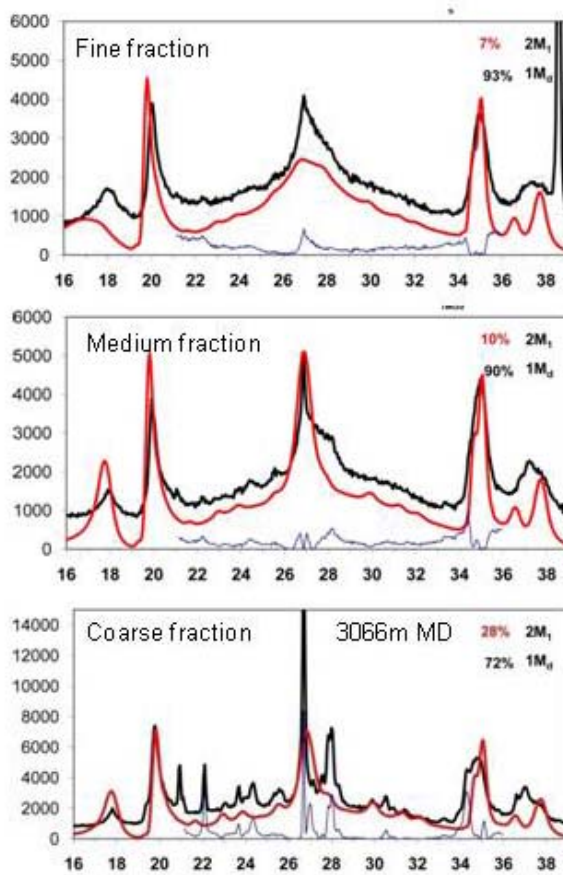
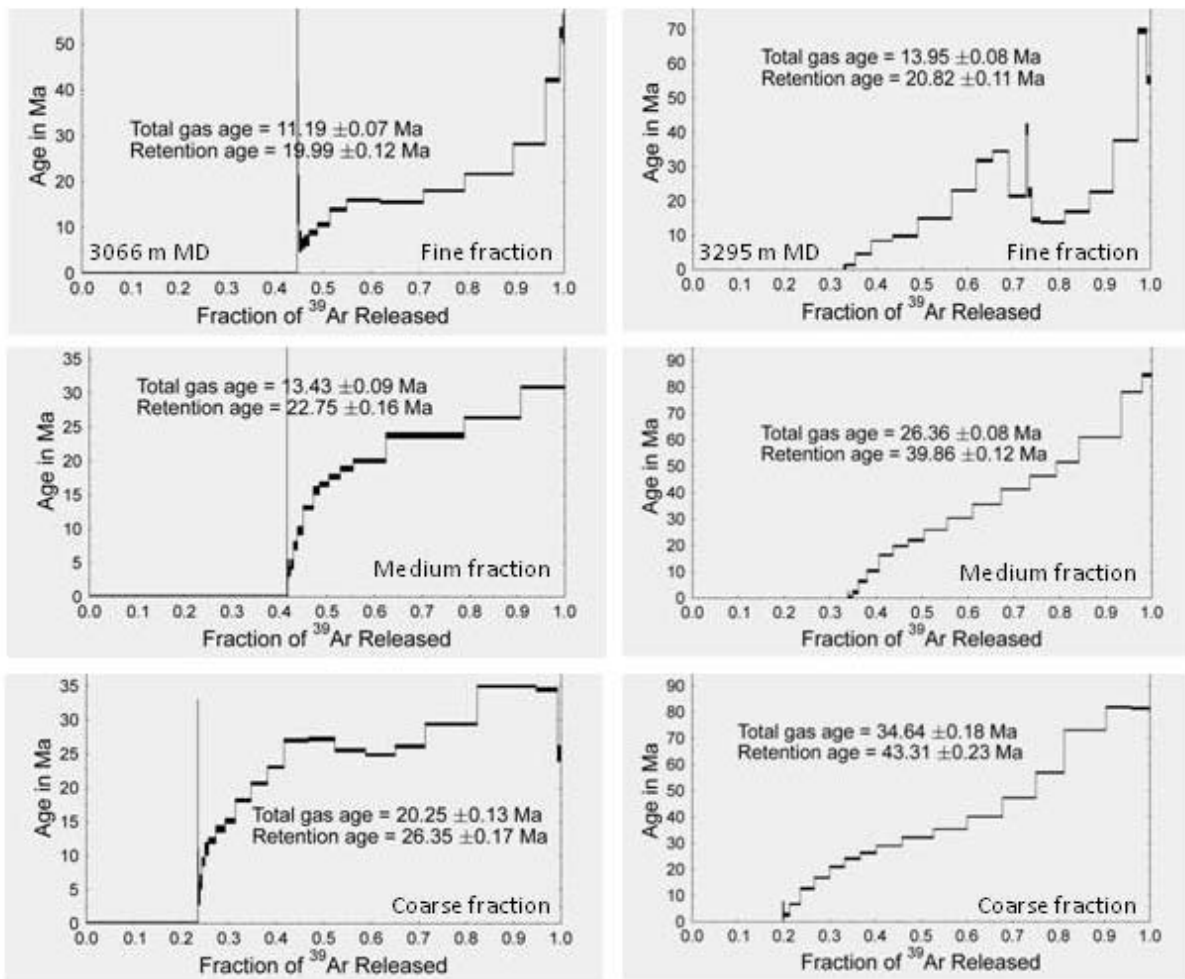


TEM lattice fringe images show I-S and C-S particles and their chemical composition.



Best matches of calculated WILDFIRE patterns with the different grain size fractions of the natural SAFOD samples.



$^{40}\text{Ar}/^{39}\text{Ar}$  spectra for the different grain size fractions of fault rocks from the SAFOD drillhole at 3066 m and 3296 m MD.

Table containing depth, grain-sizes, %1M and 2M illite, total gas age and retention age data of the two sample-sets investigated.

depth	grain size	% 1M	% 2M1	TGA	RA
(m)	( $\mu\text{m}$ )	illite	illite	(Ma)	(Ma)
3066	< 0.2	93	7	$11.19 \pm 0.07$	$19.99 \pm 0.12$
	0.2-0.4	90	10	$13.00 \pm 0.05$	$20.99 \pm 0.08$
	0.4-1	83	17	$13.43 \pm 0.09$	$22.75 \pm 0.16$
	1-2	72	28	$20.25 \pm 0.13$	$26.35 \pm 0.17$
3296	< 0.1	85	15	$13.95 \pm 0.08$	$20.82 \pm 0.11$
	0.1-0.75	72	28	$26.36 \pm 0.08$	$39.86 \pm 0.12$
	0.75-1.0	55	45	$34.64 \pm 0.18$	$43.31 \pm 0.23$