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This a document concerning the testing results of package 'RadialPlotter'

  CAM and MAM routines are checked by using OSL De data provided by Schmidt et al (2012). Routine FMM is testing by using unpublished OSL data from the Tengger Desert.

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Testing CAM using published data from Schmidt Silke et al (2012) :

addsigma=0

Sample.No	Schmidt et al	RadialPlotter
AL1	64.1(2.1)	64.0701(2.1210)
AL2	5.92(0.33)	5.8917 (0.3254)
AL3	51.8(1.6)	51.8076(1.6306)
AL4	60.0(2.7)	59.2572(1.9339)
AL5	51.9(1.8)	51.8541(1.7303)

Testing MAM3 using published data from Schmidt Silke et al (2012) :

addsigma=0.1

Sample.No	Schmidt et al	RadialPlotter
AL1	43.4(2.1)	43.3759(2.3360)
AL2	2.37(0.18)	2.3709 (0.1863)
AL3	36.8(2.0)	36.8335(2.3691)
AL4	39.0(1.9)	39.3375(2.0441)
AL5	30.4(1.5)	29.7030(1.5533)

addsigma=0.2

Sample.No	Schmidt et al	RadialPlotter
AL1	50.5(3.8)	50.4985(5.1117)
AL2	3.04(0.21)	2.9778 (0.2456)
AL3	44.6(3.2)	44.5920(3.2833)
AL4	46.2(3.4)	47.6405(3.8872)
AL5	37.6(2.3)	36.7683(2.4373)

Testing FMM using OSL De data from the Tengger Desert, results
that obtained through R package 'RadialPlotter' are compared
with results calculated using JAVA software 'RadialPlotter'
written by Vermeesch Pieter (2009), the best number of
components is picked out automatically:

addsigma=0

Sample.No	Aliquots	Components	JAVA RadialPlotter					R RadialPlotter				
				P	sP	ED	sED		P	sP	ED	sED
			comp1	0.38	0.11	21.99	0.45	comp1	0.3763	0.1094	21.9945	0.4458
GL1-1	35	3	comp2	0.51	0.11	25.66	0.36	comp2	0.5090	0.1134	25.6568	0.3599
			comp3	0.11	0.16	33.75	0.88	comp3	0.1147	0.0589	33.7479	0.8773
				P	sP	ED	sED		P	sP	ED	sED
			comp1	0.224	0.079	4.01	0.16	comp1	0.2236	0.0795	4.0123	0.1591
			comp2	0.136	0.072	5.42	0.24	comp2	0.1361	0.0724	5.4202	0.2351
GL1-2	35	5	comp3	0.169	0.078	7.59	0.15	comp3	0.1691	0.0777	7.5885	0.1545
			comp4	0.357	0.09	9.39	0.15	comp4	0.3569	0.0902	9.3899	0.1522
			comp5	0.11	0.16	15.3	0.35	comp5	0.1143	0.0538	15.2992	0.3478
				P	sP	ED	sED		P	sP	ED	sED
GL2-1	29	2	comp1	0.304	0.1	29.29	0.79	comp1	0.3041	0.0997	29.2937	0.7869
			comp2	0.696	0.1	36.66	0.58	comp2	0.6959	0.0997	36.6554	0.5843
				P	sP	ED	sED		P	sP	ED	sED
			comp1	0.37	0.10	27.97	0.49	comp1	0.3644	0.1035	27.9695	0.4949
GL2-2	33	4	comp2	0.35	0.11	32.65	0.75	comp2	0.3549	0.1114	32.6364	0.7510
			comp3	0.242	0.094	38.29	0.59	comp3	0.2423	0.0936	38.2921	0.5935
			comp4	0.04	0.18	52.1	4.0	comp4	0.0384	0.0386	52.0698	4.0360
				P	sP	ED	sED		P	sP	ED	sED
			comp1	0.251	0.093	24.1	1.0	comp1	0.2514	0.0926	24.0614	1.0346
GL2-3	34	4	comp2	0.58	0.11	31.03	0.42	comp2	0.5817	0.1056	31.0286	0.4170
			comp3	0.134	0.067	38.92	0.64	comp3	0.1337	0.0669	38.9188	0.6395
			comp4	0.03	0.16	45.74	0.91	comp4	0.0331	0.0325	45.7360	0.9119
				P	sP	ED	sED		P	sP	ED	sED
			comp1	0.163	0.078	24.5	1.0	comp1	0.1627	0.0776	24.5182	1.0034
GL2-4	28	4	comp2	0.53	0.12	31.2	0.69	comp2	0.5336	0.1221	31.1975	0.6881
			comp3	0.23	0.11	36.3	1.0	comp3	0.2322	0.1090	36.3119	1.0424
			comp4	0.07	0.18	51.9	1.6	comp4	0.0714	0.0487	51.9113	1.6351

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Showing the results of FMM using sample AL5 from published
De data of Schmidt Silke et al (2012), AL5 has a total of
114 aliquots, here seting the maxcomp to be 100:

addsigma=0

ncomp	BIC	maxlik
2	837.2715	-411.5314
3	405.2022	-190.7606
4	226.0011	-96.4238
5	177.5005	-67.4373
6	149.5803	-48.7411
7	146.3973	-42.4134
8	137.9239	-33.4405
9	145.771	-32.6278
10	154.6878	-32.35
11	163.8763	-32.2081
12	172.7932	-31.9303
13	182.2656	-31.9303

14	191.738	-31.9303
15	201.2104	-31.9303
16	210.6828	-31.9303
17	220.1552	-31.9303
18	229.6276	-31.9303
19	239.1	-31.9303
20	248.5724	-31.9303
21	258.0448	-31.9303
22	267.5172	-31.9303
23	276.9896	-31.9303
24	286.4619	-31.9303
25	295.9343	-31.9303
26	305.4067	-31.9303
27	314.8791	-31.9303
28	324.3515	-31.9303
29	333.8239	-31.9303
30	343.2963	-31.9303
31	352.7687	-31.9303
32	362.2411	-31.9303
33	371.7135	-31.9303
34	381.1859	-31.9303
35	390.6583	-31.9303
36	400.1307	-31.9303
37	409.6031	-31.9303
38	419.0755	-31.9303
39	428.5479	-31.9303
40	438.0203	-31.9303
41	447.4927	-31.9303
42	456.9651	-31.9303
43	466.4375	-31.9303
44	475.9099	-31.9303
45	485.3823	-31.9303
46	494.8547	-31.9303
47	504.3271	-31.9303
48	513.7995	-31.9303
49	523.2719	-31.9303
50	532.7443	-31.9303
51	542.2167	-31.9303
52	551.6891	-31.9303
53	561.1615	-31.9303
54	570.6339	-31.9303
55	580.1062	-31.9303
56	589.5786	-31.9303
57	599.051	-31.9303
58	608.5234	-31.9303
59	617.9958	-31.9303
60	627.4682	-31.9303
61	636.9406	-31.9303
62	646.413	-31.9303
63	655.8854	-31.9303
64	665.3578	-31.9303
65	674.8302	-31.9303
66	684.3026	-31.9303
67	693.775	-31.9303
68	703.2474	-31.9303
69	712.7198	-31.9303
70	722.1922	-31.9303
71	731.6646	-31.9303
72	741.137	-31.9303
73	750.6094	-31.9303
74	760.0818	-31.9303
75	769.5542	-31.9303
76	779.0266	-31.9303
77	788.499	-31.9303
78	797.9714	-31.9303
79	807.4438	-31.9303
80	816.9162	-31.9303
81	826.3886	-31.9303
82	835.861	-31.9303
83	845.3334	-31.9303
84	854.8058	-31.9303
85	864.2782	-31.9303
86	873.7506	-31.9303
87	883.2229	-31.9303

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88      892.6953        -31.9303
89      902.1677        -31.9303
90      911.6401        -31.9303
91      921.1125        -31.9303
92      930.5849        -31.9303
93      940.0573        -31.9303
94      949.5297        -31.9303
95      959.0021        -31.9303
96      968.4745        -31.9303
97      977.9469        -31.9303
98      987.4193        -31.9303
99      996.8917        -31.9303
100     1006.3641       -31.9303
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Firstly, saving outcomes above to object x, then
using following code to draw a plot of type PDF:

```
pdf(file='AL5.pdf')
par(mar=c(5, 5, 3, 5))
plot(x[,1],x[,2],type='l',col='blue',lwd=2,ann=FALSE, las=2)
points(x[,1],x[,2],col='black',cex=0.5)
legend(c(60,90), c(200,400), c("BIC", "maxlik"),cex=1.5, pch=1,col=c('blue','red'))
mtext("BIC value", side=2, line=3.5)
arrows(20,700,8,700)
text(20, 700, "ncomp=8", cex=2, pos=4)
par(new=TRUE)
plot(x[,1],x[,3],type='l',col='red',lwd=2,axes=FALSE,ann=FALSE)
points(x[,1],x[,3],col='black',cex=0.5)
mtext("Maxlik", side=4, line=3.5)
axis(4)
mtext('Number of component',side=1,line=3.5)
abline(v=8, col = "black",lwd=3,lty=2)
title('FMM results for sample AL5')
dev.off()
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References:

Schmidt, S., Tsukamoto, S., Salomon, E., Frechen, M., Hetzel, R., 2012. Optical dating of alluvial deposits at the orogenic front of the andean precordillera (Mendoza, Argentina). Geochronometria, 39 (1), pp. 62-75.

Vermeesch, P., 2009. RadialPlotter: a Java application for fission track, luminescence and other radial plots, Radiation Measurements, 44 (4), pp. 409-410.