透過法（Ｄｅｋｅｒ－Ａｐｓ－Ｈａｒｋｅｒ－Ｍｅｔｈｏｄ）のＤＳスリット

Ｄｅｋｅｒ法は平行ビームで測定することになる。ｎｏｒｍａｌな密閉管球では焦点サイズが
１０ｍｍｘ１ｍｍであるので、ｌｉｎｅ焦点のＤＳは０．１ｍｍを使う。ｆｉｎｅ管球の
８ｍｍｘ０．４ｍｍではＤＳは０．０４ｍｍになる。
しかし、照射エリアを広くするために、ＤＳの幅を広くした場合どのような影響があるか調べる。
管球は８ｍｍｘ０．４ｍｍを使って調べた。

２０１０年０７月０７日

測定条件

Ｍｏ管球　焦点８ｍｍｘ０．４ｍｍ　５０ｋＶ－３４ｍＡ

ＤＳ：０．０５ｍｍ、０．１ｍｍ、０．２ｍｍ、０．３ｍｍ、０．４ｍｍ、０．５ｍｍ

ＳＳ，ＲＳ＝７ｍｍ

α軸、β軸は５度間隔で測定

試料：Ａｌ材

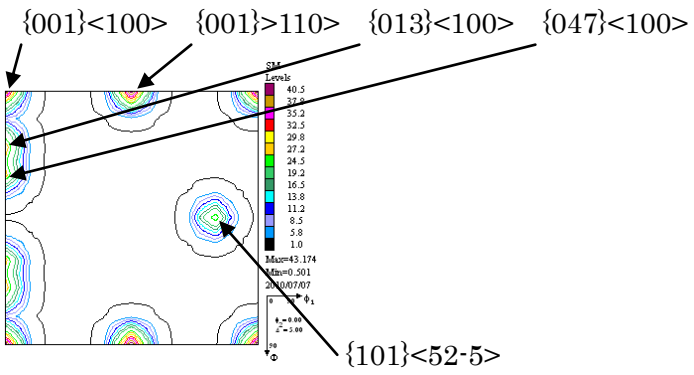
結果

	0.05mm	0.10mm	0.20mm	0.30mm	0.40mm	0.50mm
raw{111}Max	76055	151583	310065	453824	589783	724187
raw{100}Max	87170	178690	334320	493424	642406	813989
raw{110}Max	25284	48559	100412	147916	186501	221366
raw{311}Max	25588	44517	84845	127591	171902	211437
calc{111}Max	2.727	2.812	2.635	2.601	2.616	2.663
calc{100}Max	6.513	6.653	6.250	6.102	6.095	6.202
calc{110}Max	2.209	2.291	2.340	2.219	2.136	2.090
calc{311}Max	2.152	1.844	1.761	1.768	1.930	2.051
ODF	12.847	14.101	12.449	12.891	12.192	12.528
VF-ODF	12.493	11.245	11.920	12.630	11.837	12.429
recalc{111}	2.635	2.725	2.649	2.658	2.710	2.714
recalc{100}	5.782	5.936	5.907	5.964	6.019	6.088
recalc{110}	2.103	2.088	2.104	2.098	2.095	2.082
recalc{311}	1.703	1.819	1.824	1.830	1.812	1.832
{001}<100> %	31.3	31.0	34.0	32.0	32.0	32.1
{001}<110> %	2.4	3.2	2.0	0.0	0.0	0.1
{101}<52-5>%	7.2	6.2	7.0	7.0	9.0	10.2
{013}<100> %	2.0	2.4	1.0	2.0	2.0	1.3
{047}<100> %	4.5	6.9	8.0	6.0	7.0	7.8

ＯＤＦ解析結果では、小さな方位が大きな方位に吸収されているようにも見えるが、
測定領域が異なり、その中が均一ではない事を考慮すると、ほぼ同じ結果と考えられる。

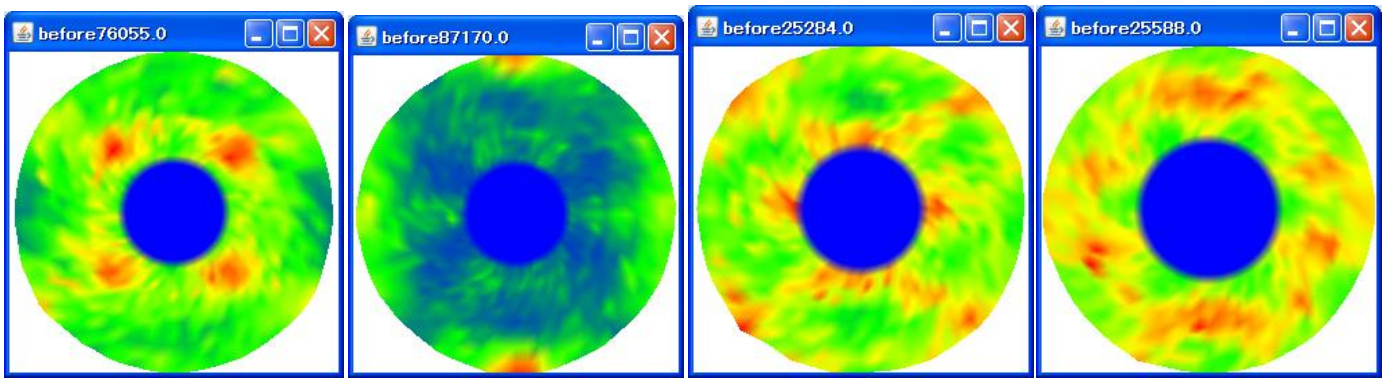
透過法では、厚さ方向で数多くの結晶粒の測定が可能になるが、それでも測定データが荒い場合、
ＤＳを広げた測定で、良い結果が得られる可能性が実証出来た。

φ２＝０．０断面

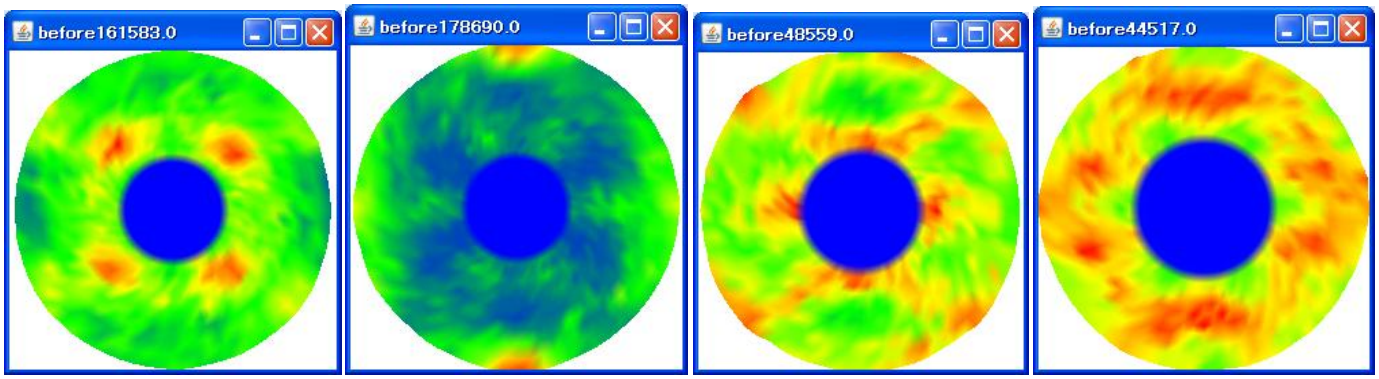


測定データ

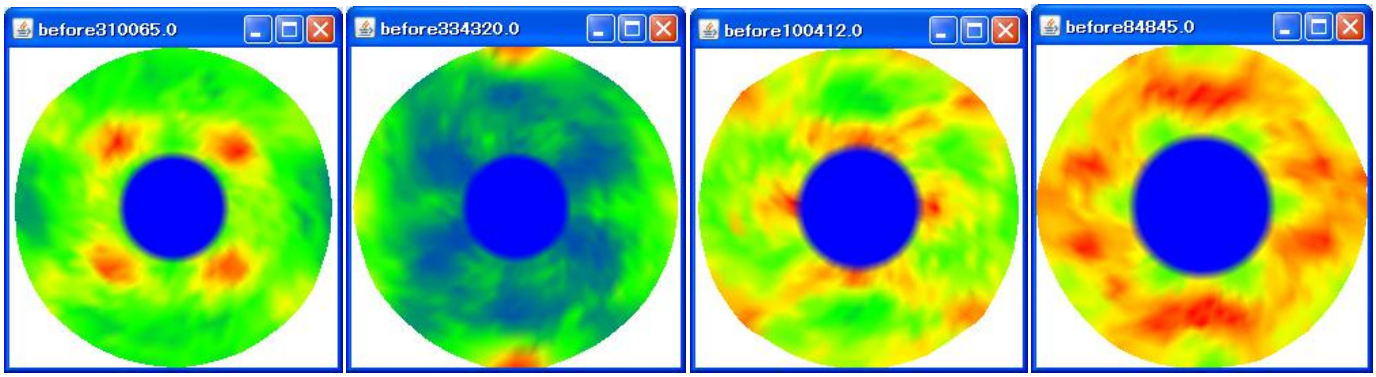
DS=0.05mm



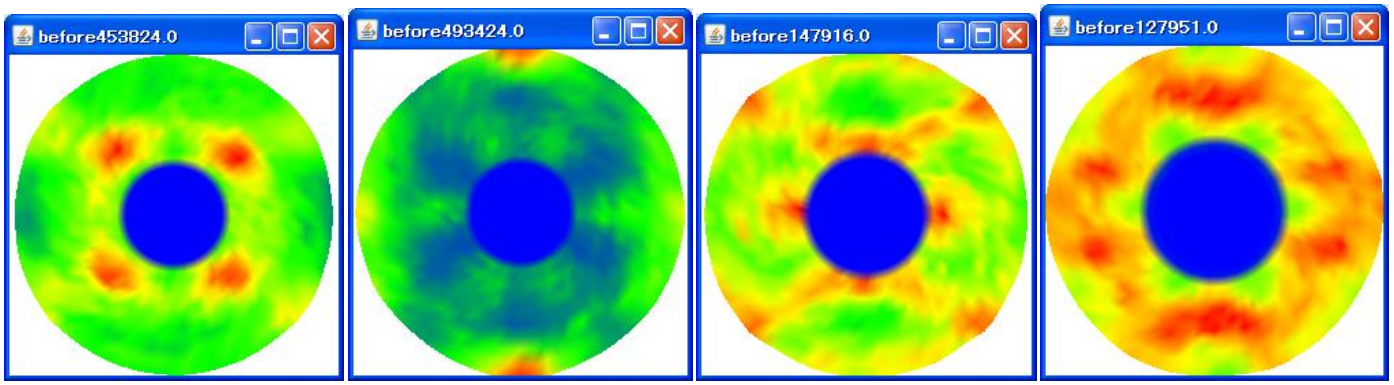
DS=0.1mm



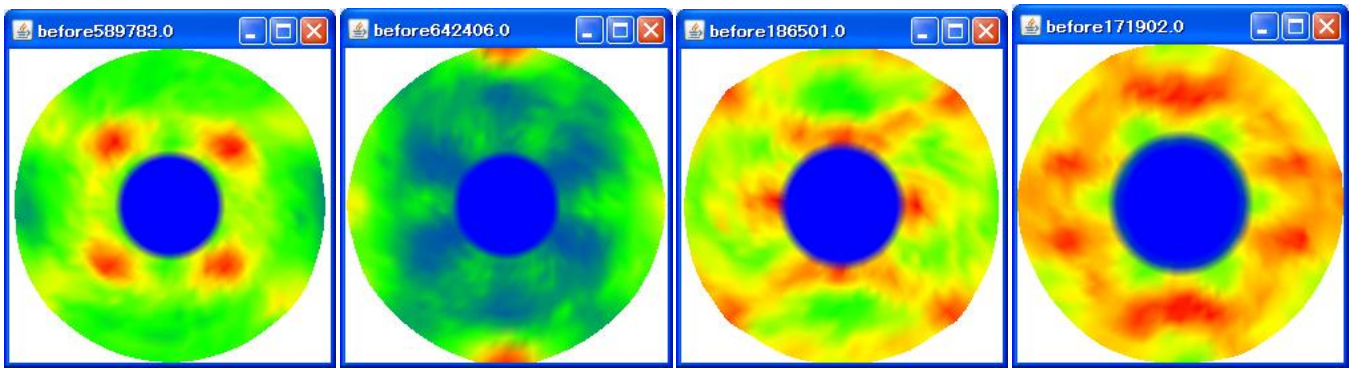
DS=0.2mm



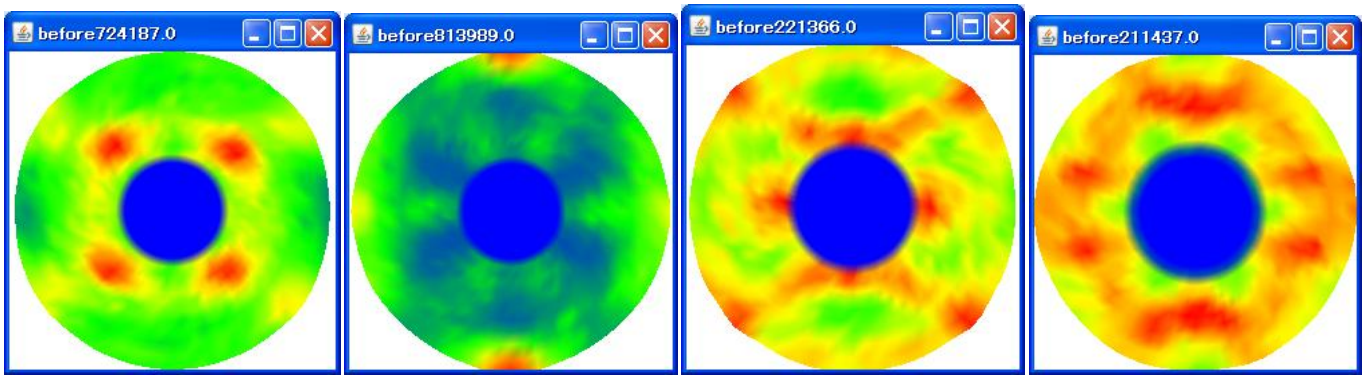
DS=0.3mm



DS=0.4mm

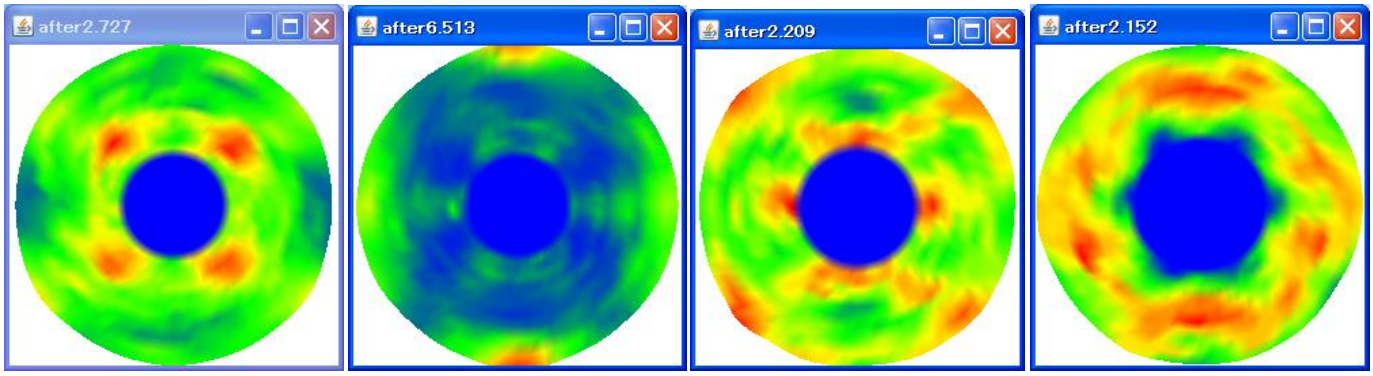


DS=0.5mm

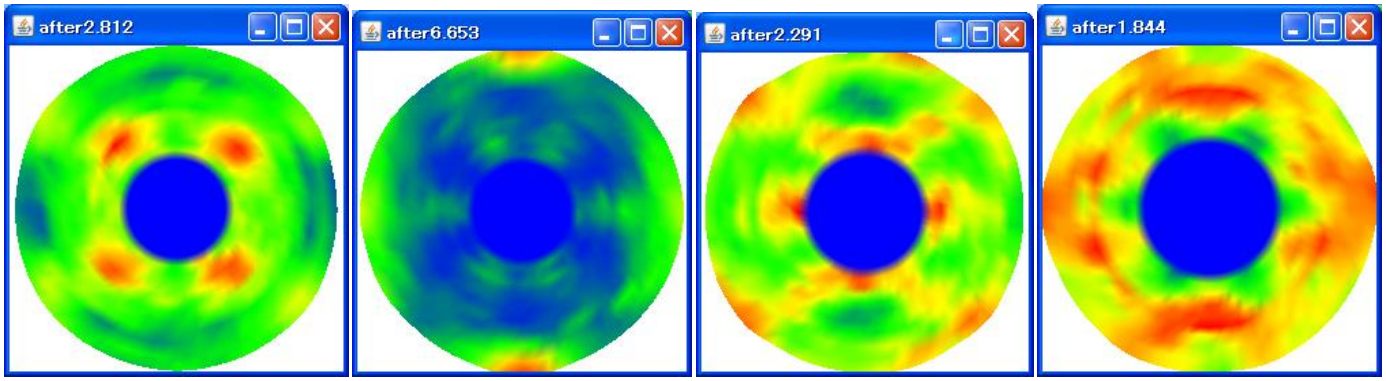


データ処理（ＢＧ，ＳＭ３、Ｄｅｆｃｏｕｓ、規格化）

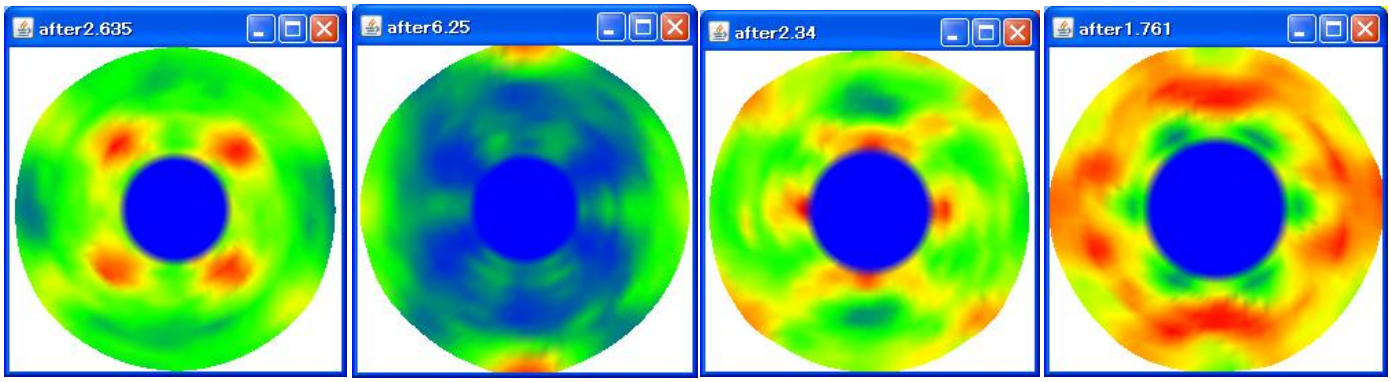
DS=0.05mm



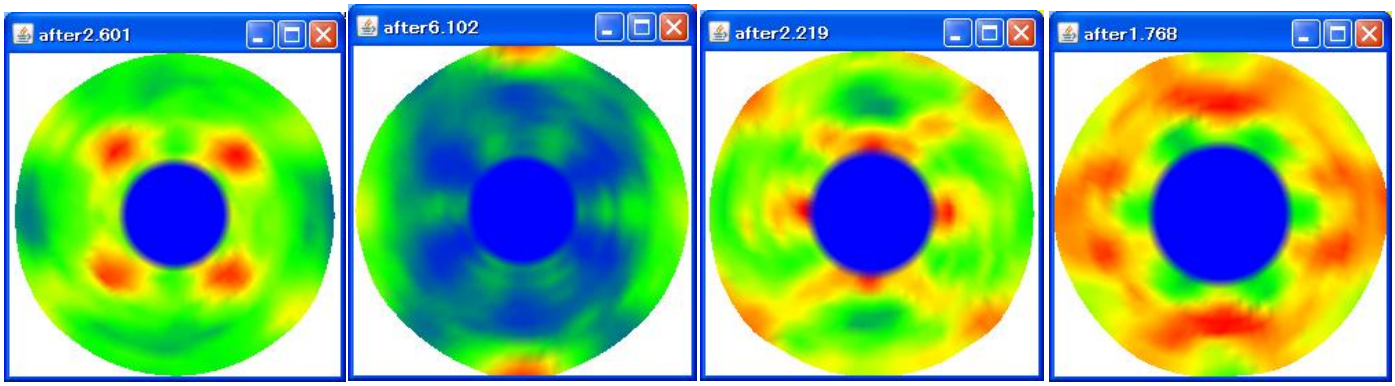
DS=0.1mm



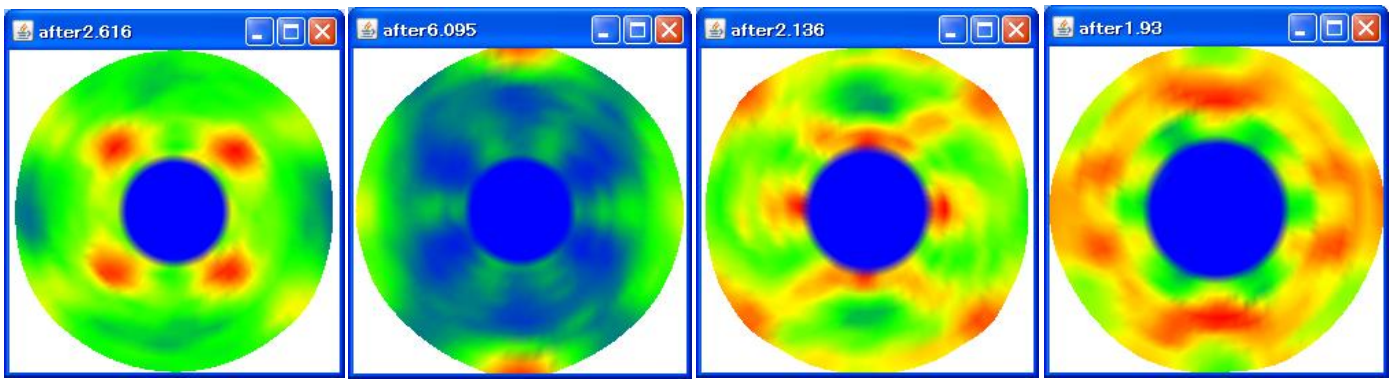
DS=0.2mm



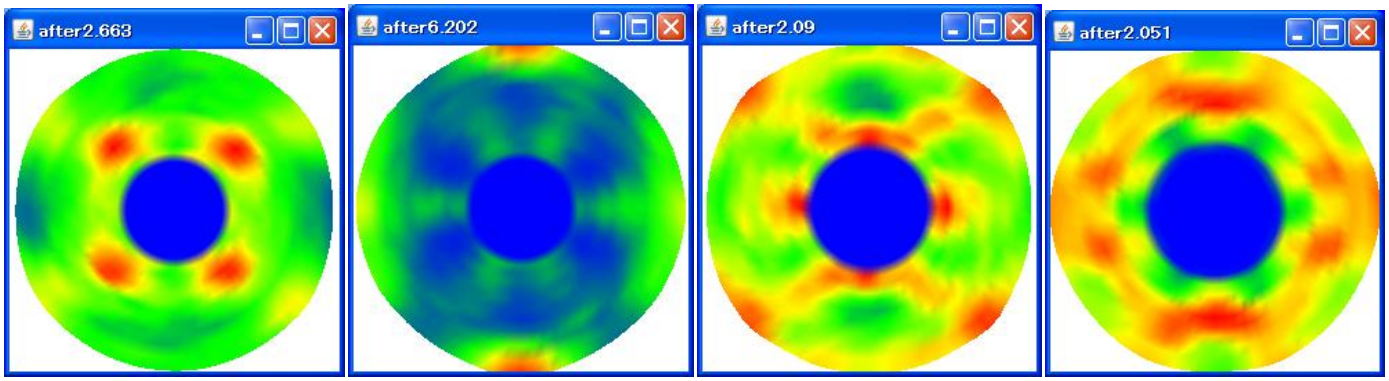
DS=0.3mm



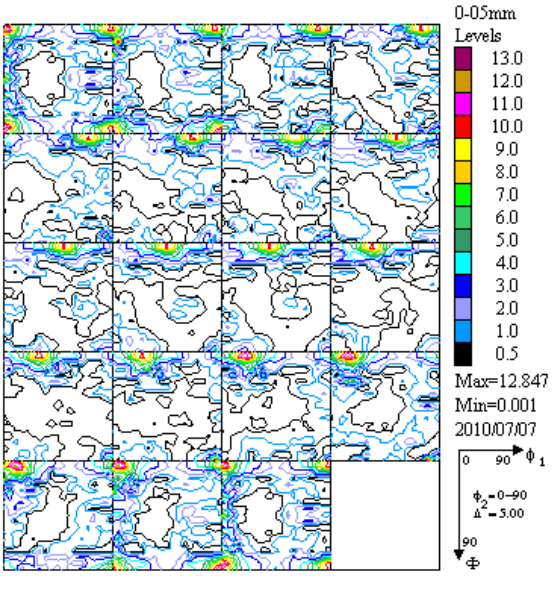
DS=0.4mm



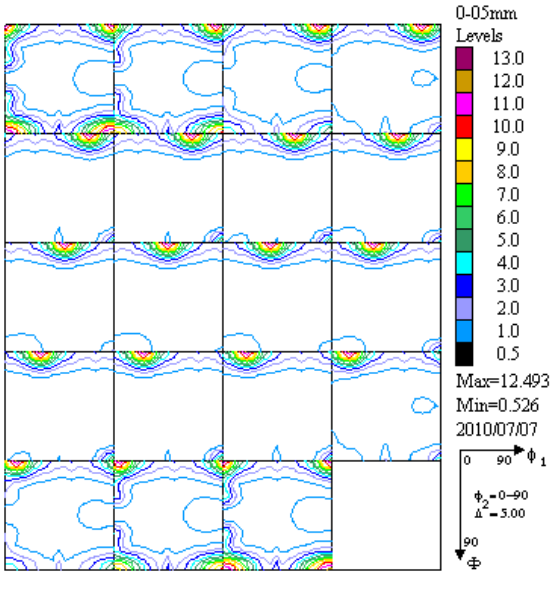
DS=0.5mm



DS=0.05mm ODF



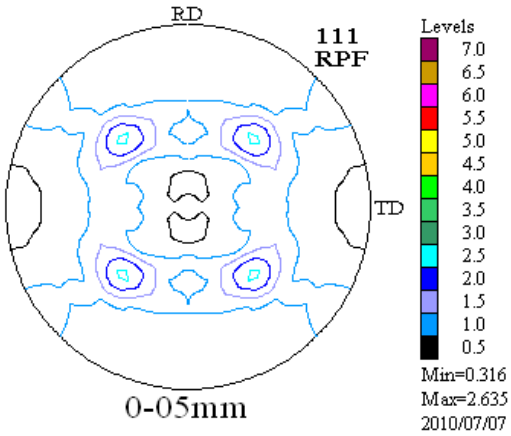
Volumefraction 後の ODF

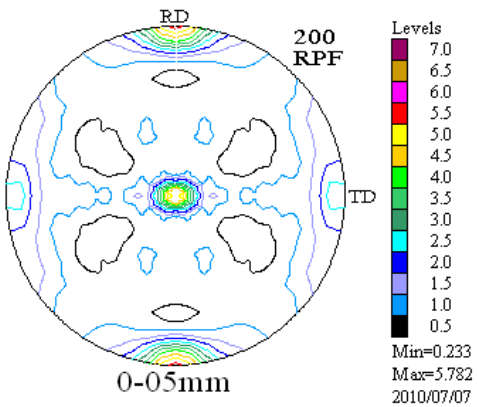


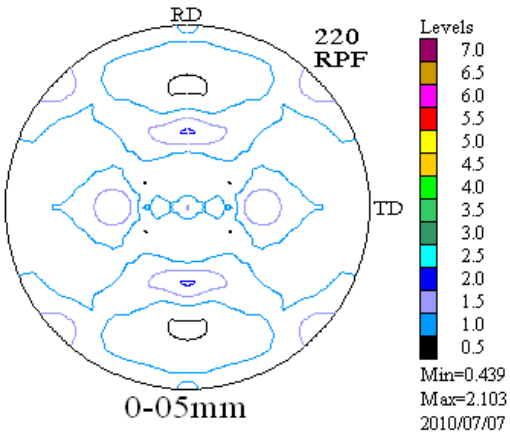
VolumeFraction 結果

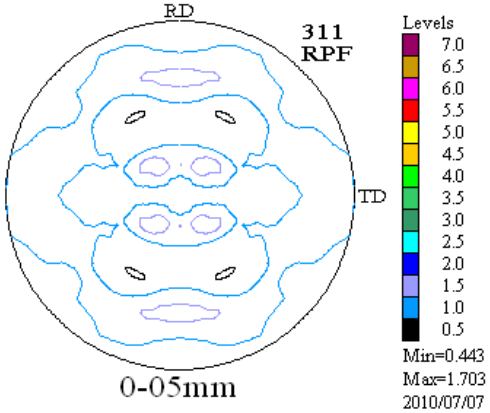
No.	VF(%)	Phi1(FWHM)	Phi(FWHM)	Phi2(FWHM)	Orientation
1:	31.3	44.8	19.8	16.1	{ 0 0 1 }< 1 0 0 > cube
2:	2.4	3.4	20.5	43.1	{ 0 0 1 }< 1 1 0 >
3:	7.2	26.9	22.9	26.8	{ 1 0 1 }< 5 2 -5 >
4:	2.0	9.9	11.0	19.7	{ 0 1 3 }< 1 0 0 >
5:	4.5	17.5	11.5	15.1	{ 0 4 7 }< 1 0 0 >
6:	52.52	Background Volume Fraction			

測定結果のＯＤＦから再計算極点図

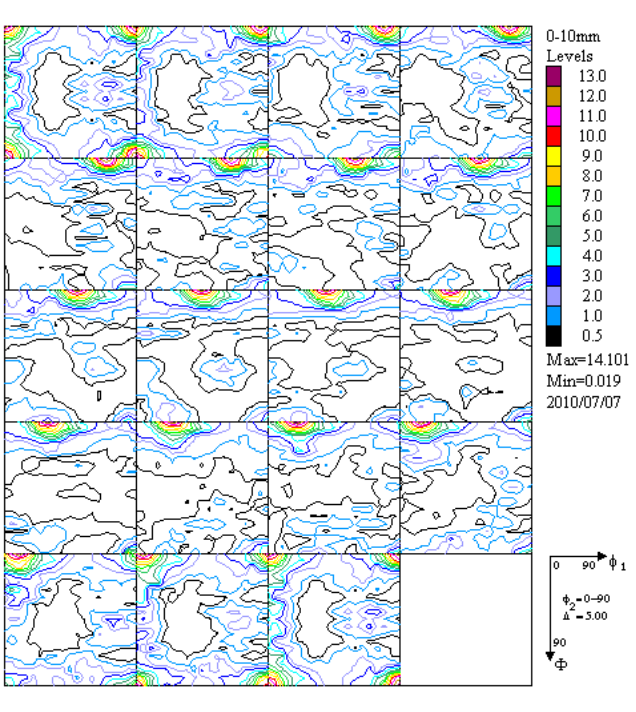


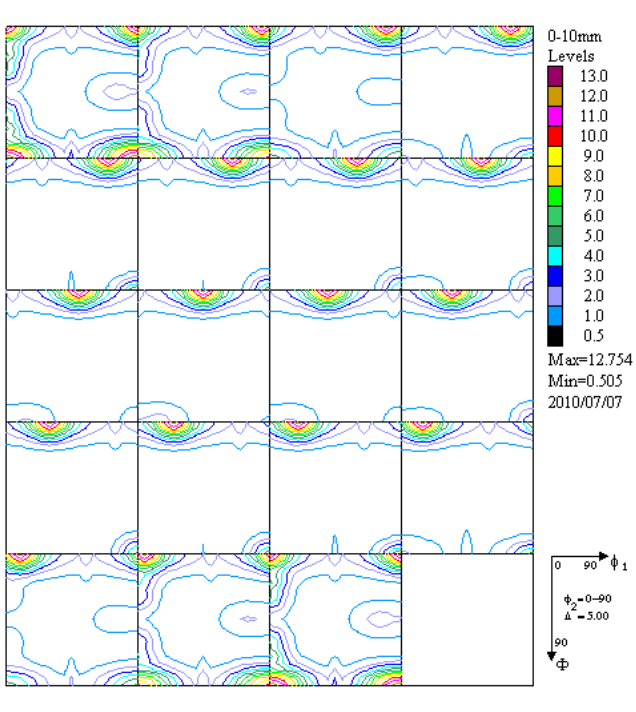




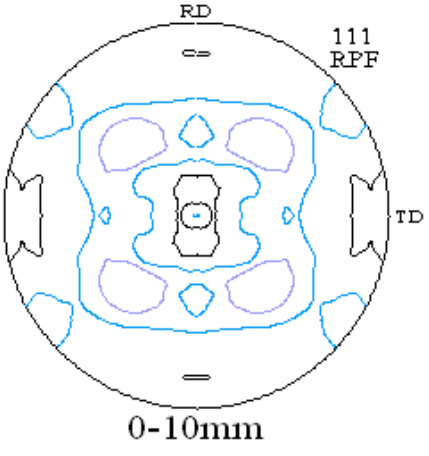


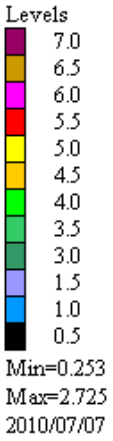
DS=0.1mm ODF

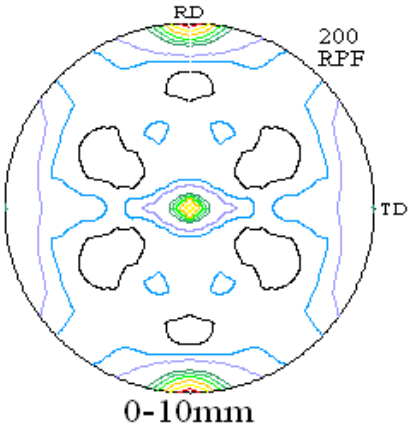


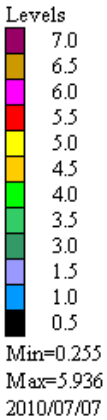


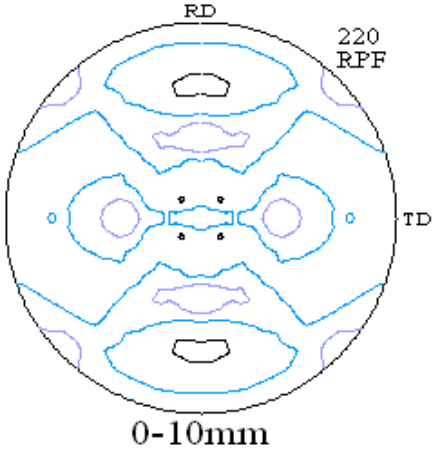
No.	VF(%)	Phi1(FWHM)	Phi(FWHM)	Phi2(FWHM)	Orientation
1:	31.0	44.4	18.1	17.1	{ 0 0 1 }< 1 0 0 > cube
2:	3.2	3.0	30.6	42.2	{ 0 0 1 }< 1 1 0 >
3:	6.2	28.5	17.9	21.0	{ 1 0 1 }< 5 2 -5 >
4:	2.4	21.7	8.4	10.1	{ 0 1 3 }< 1 0 0 >
5:	6.9	18.8	16.3	15.0	{ 0 4 7 }< 1 0 0 >
6:	50.38	Background Volume Fraction			

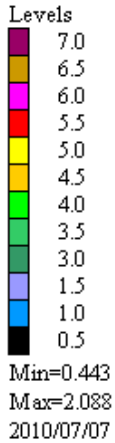


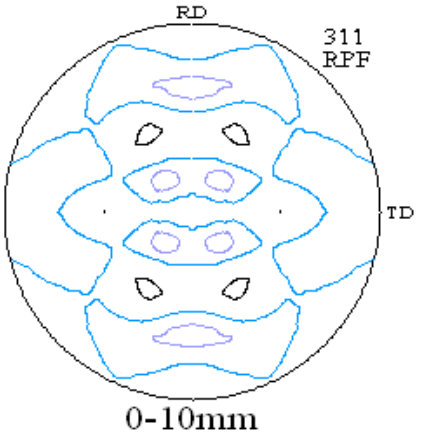


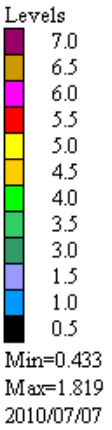




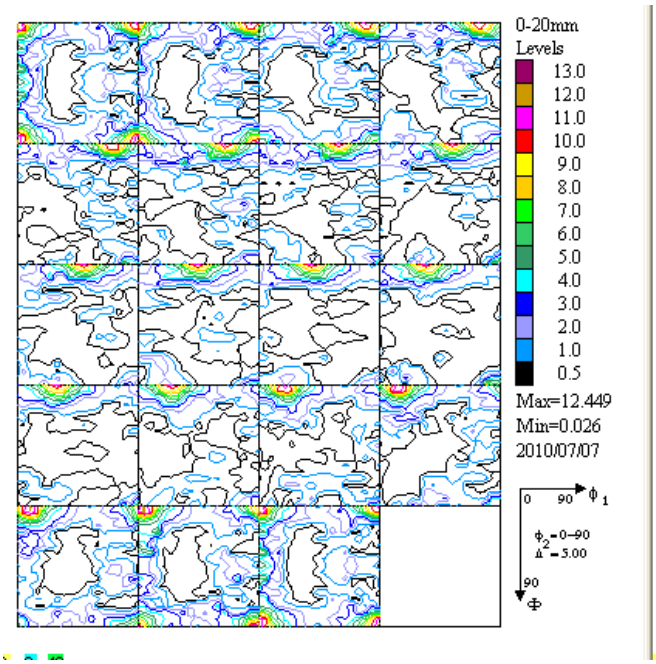


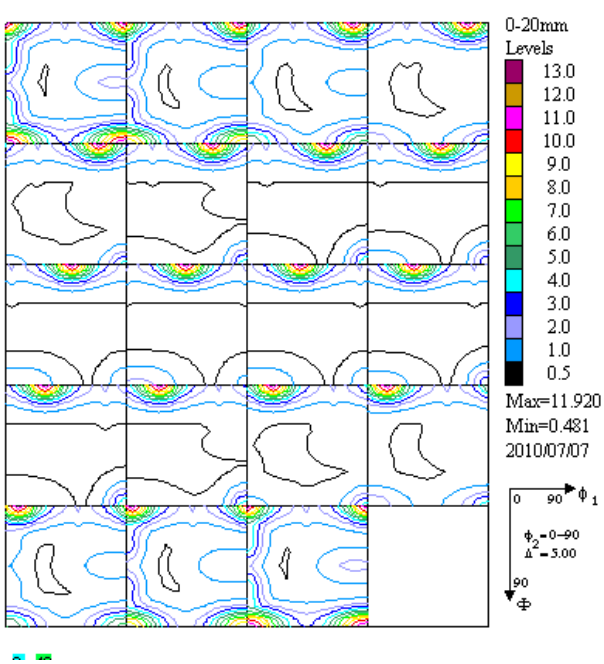




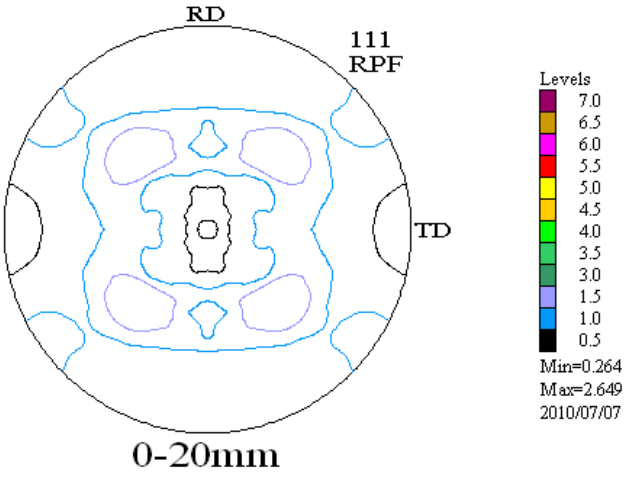


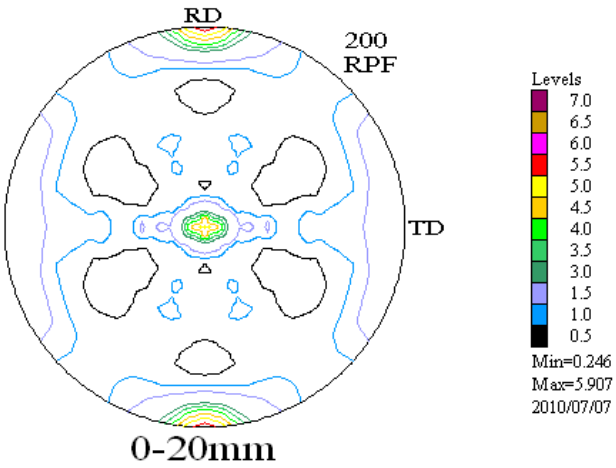
DS=0.2mm

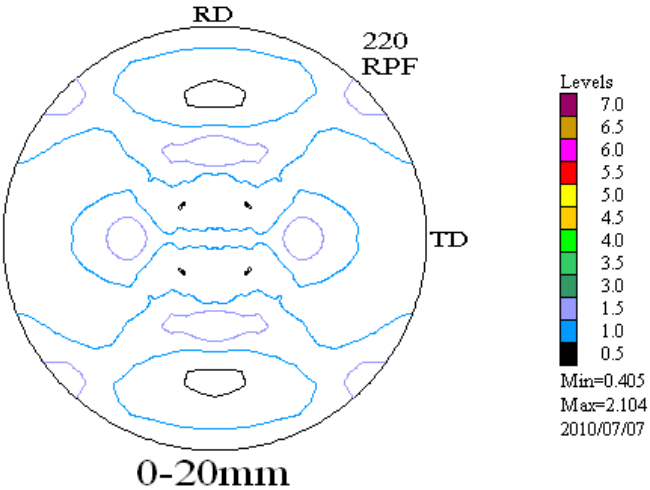


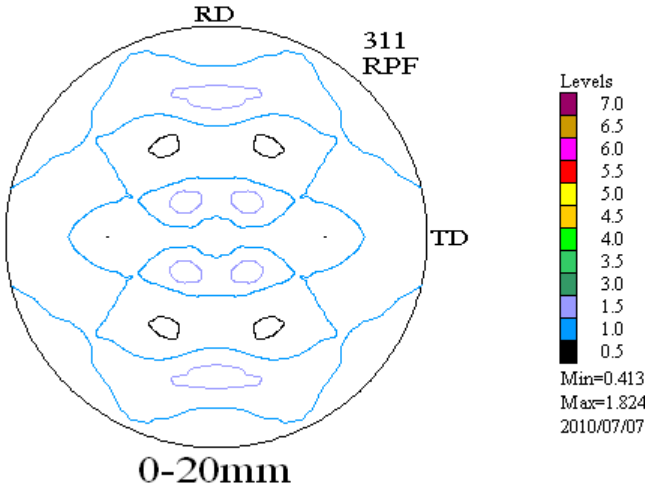


No.	VF(%)	Phi1(FWHM)	Phi(FWHM)	Phi2(FWHM)	Orientation
1:	34.0	44.8	19.0	19.5	{ 0 0 1 }< 1 0 0 > cube
2:	2.0	44.1	26.8	2.7	{ 0 0 1 }< 1 1 0 >
3:	7.0	33.6	19.6	21.4	{ 1 0 1 }< 5 2 -5 >
4:	1.0	18.0	8.3	10.8	{ 0 1 3 }< 1 0 0 >
5:	8.0	18.7	19.5	15.8	{ 0 4 7 }< 1 0 0 >
6:	48.00	Background Volume Fraction			

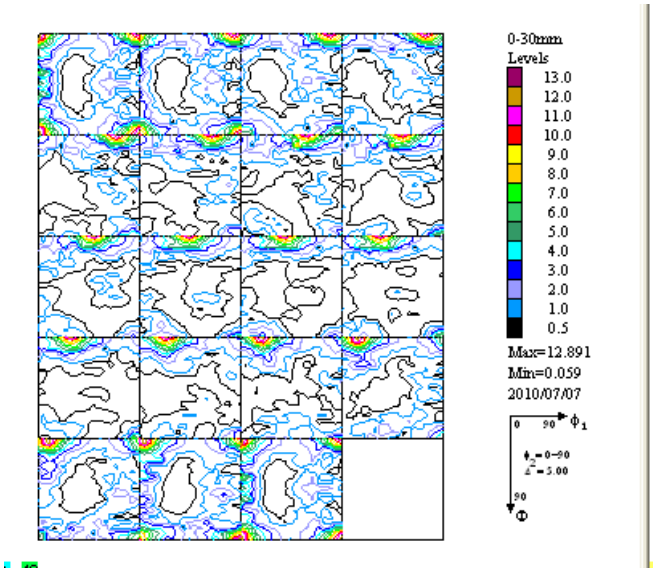


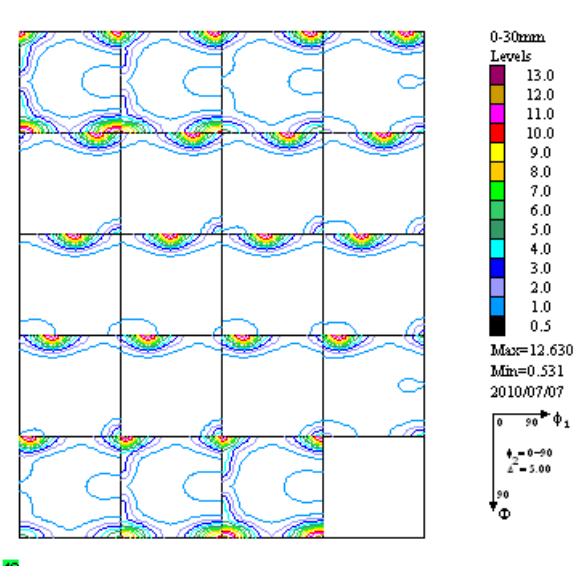




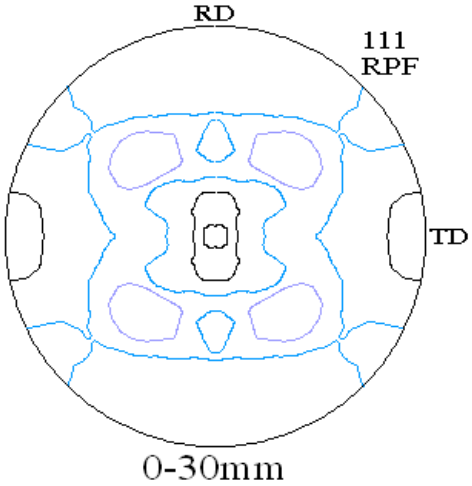


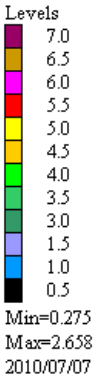
DS=0.3mm

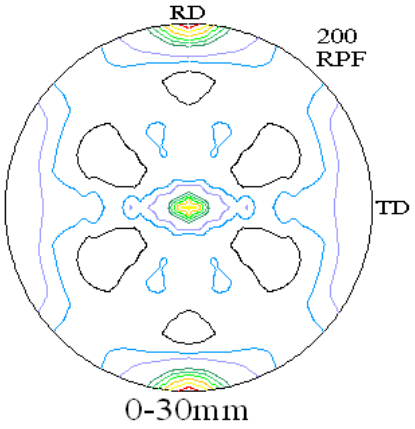


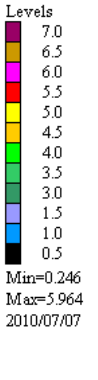


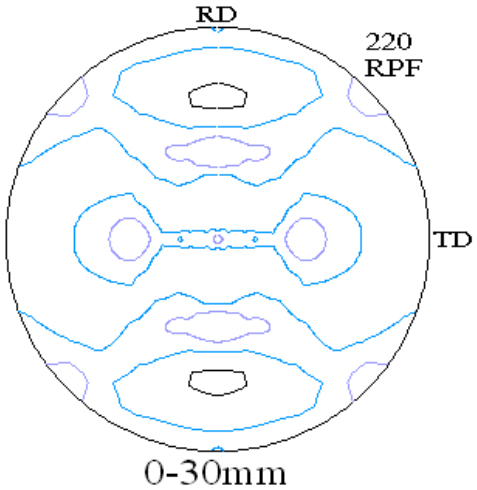
No.	VF(%)	Phi1(FWHM)	Phi(FWHM)	Phi2(FWHM)	Orientation	
1:	32.0	45.0	18.4	17.3	{ 0 0 1 }< 1 0 0 >	cube
2:	0.0	16.5	16.0	3.4	{ 0 0 1 }< 1 1 0 >	
3:	7.0	29.0	21.6	26.2	{ 1 0 1 }< 5 2 -5 >	
4:	2.0	23.3	8.8	11.9	{ 0 1 3 }< 1 0 0 >	
5:	6.0	17.5	16.8	16.0	{ 0 4 7 }< 1 0 0 >	
6:	53.00	Background Volume Fraction				

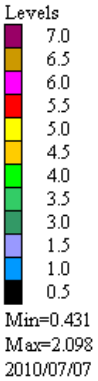


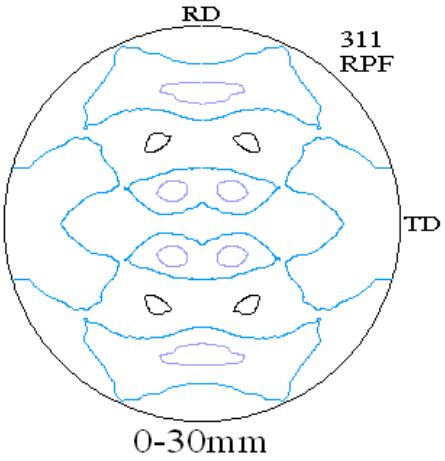


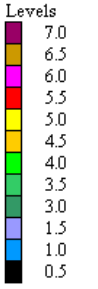




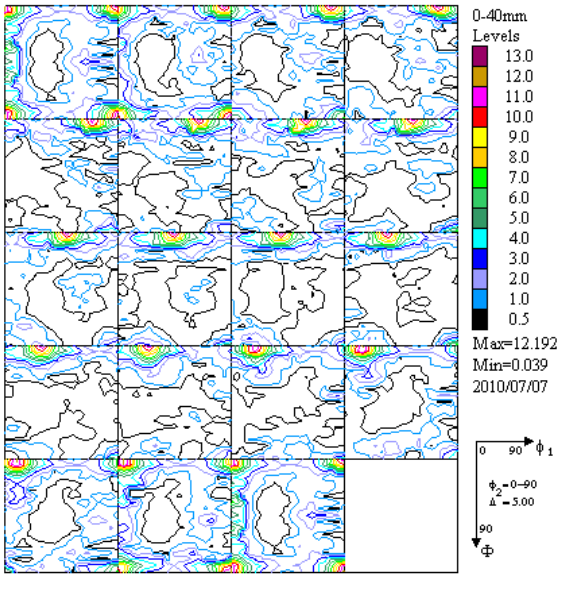


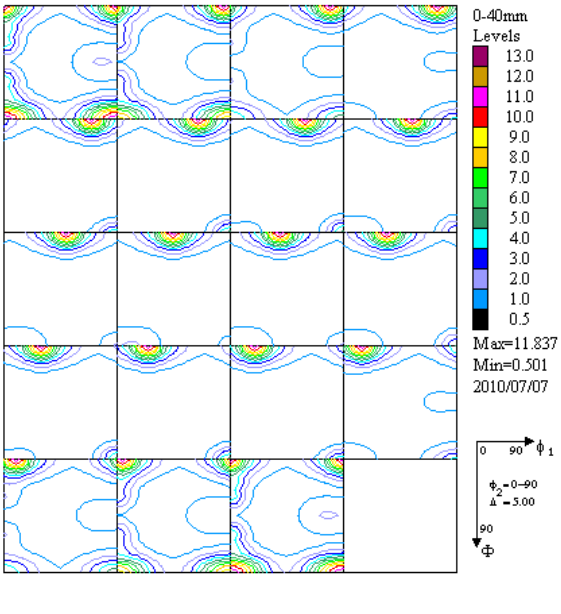




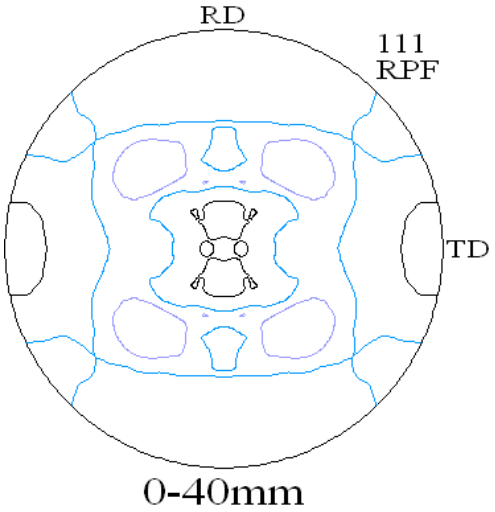


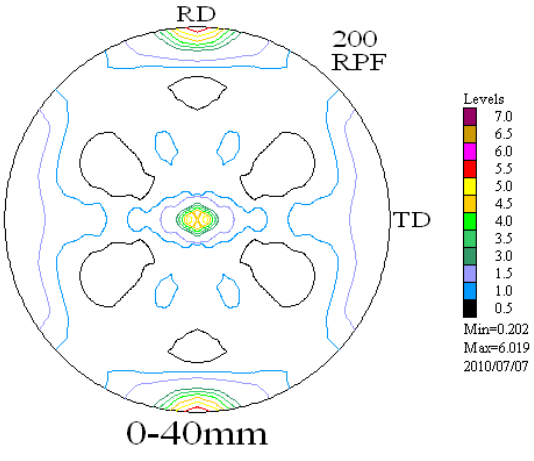
DS=0.4mm

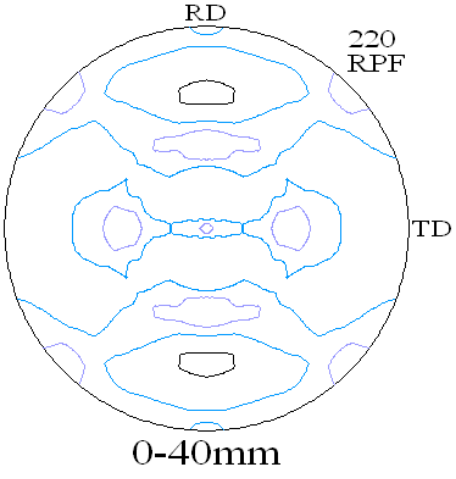


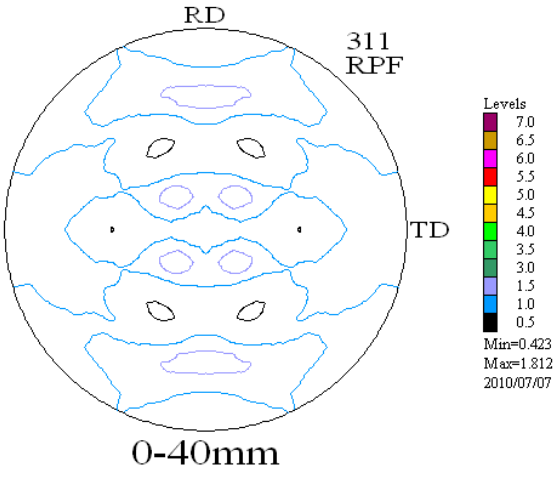


No.	VF(%)	Phi1(FWHM)	Phi(FWHM)	Phi2(FWHM)	Orientation
1:	32.0	45.0	20.0	16.5	{0 0 1}<1 0 0> cube
2:	0.0	5.5	9.9	7.4	{0 0 1}<1 1 0>
3:	9.0	30.6	22.7	27.0	{1 0 1}<5 2 -5>
4:	2.0	25.8	7.4	12.5	{0 1 3}<1 0 0>
5:	7.0	19.8	15.2	16.4	{0 4 7}<1 0 0>
6:	50.00	Background Volume Fraction			

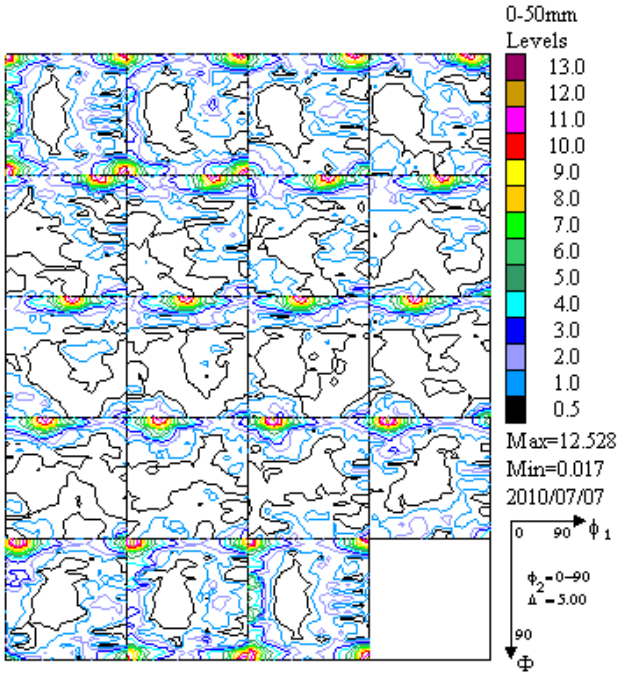


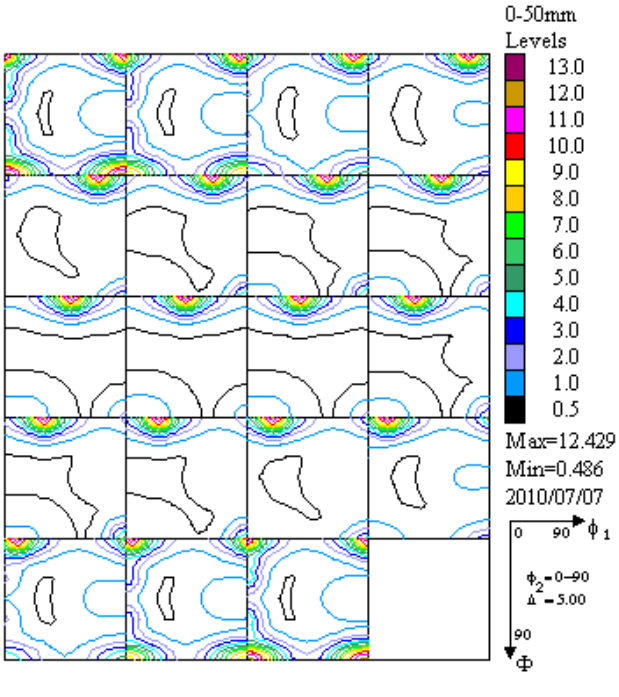




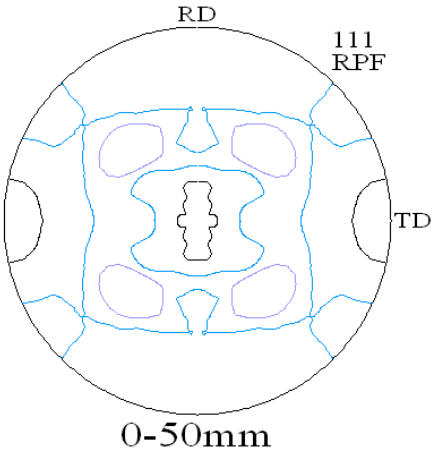


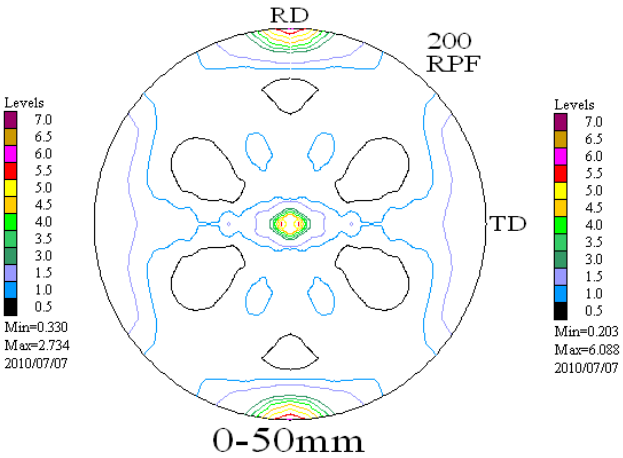
DS=0.5mm

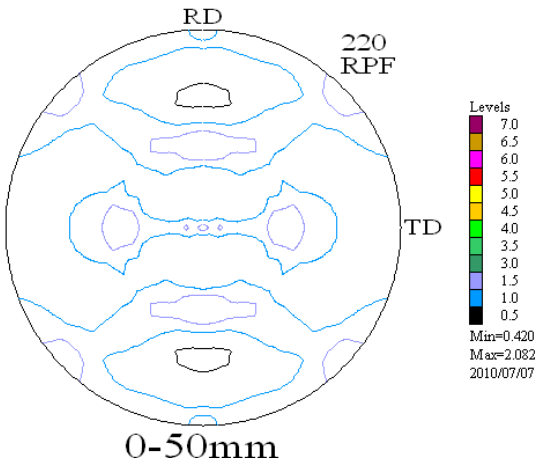


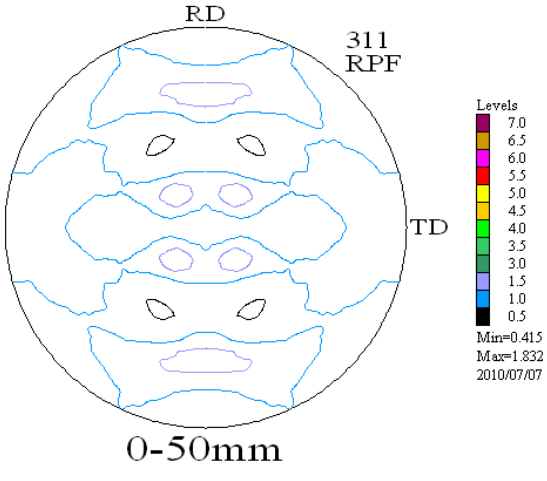


No.	VF(%)	Phi1(FWHM)	Phi(FWHM)	Phi2(FWHM)	Orientation
1:	32.1	44.9	19.5	16.1	{0 0 1}<1 0 0> cube
2:	0.1	19.9	13.8	5.5	{0 0 1}<1 1 0>
3:	10.2	31.5	26.3	30.4	{1 0 1}<5 2 -5>
4:	1.3	26.8	6.4	12.2	{0 1 3}<1 0 0>
5:	7.8	18.5	17.9	16.7	{0 4 7}<1 0 0>
6:	48.53	Background Volume Fraction			

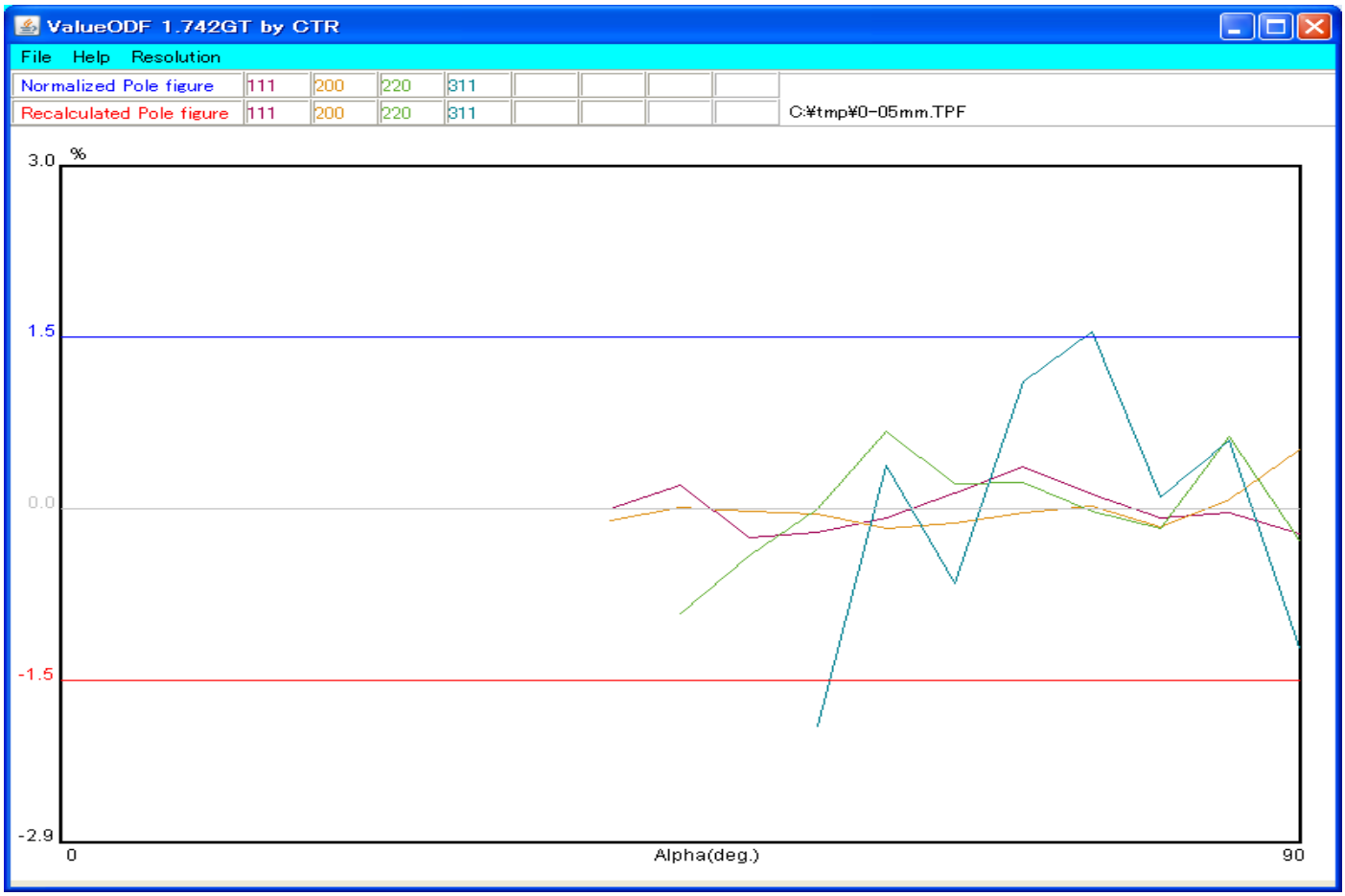




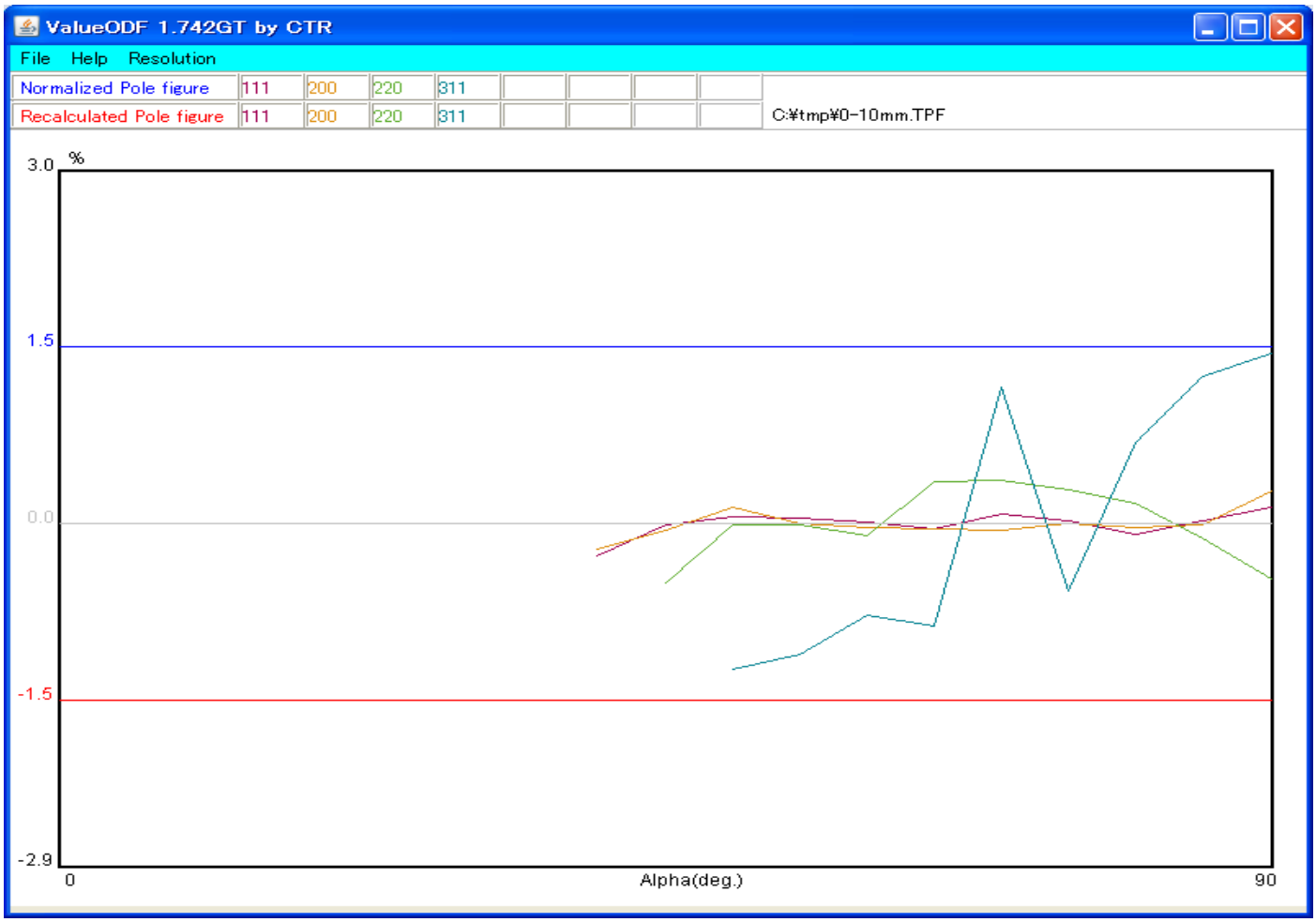




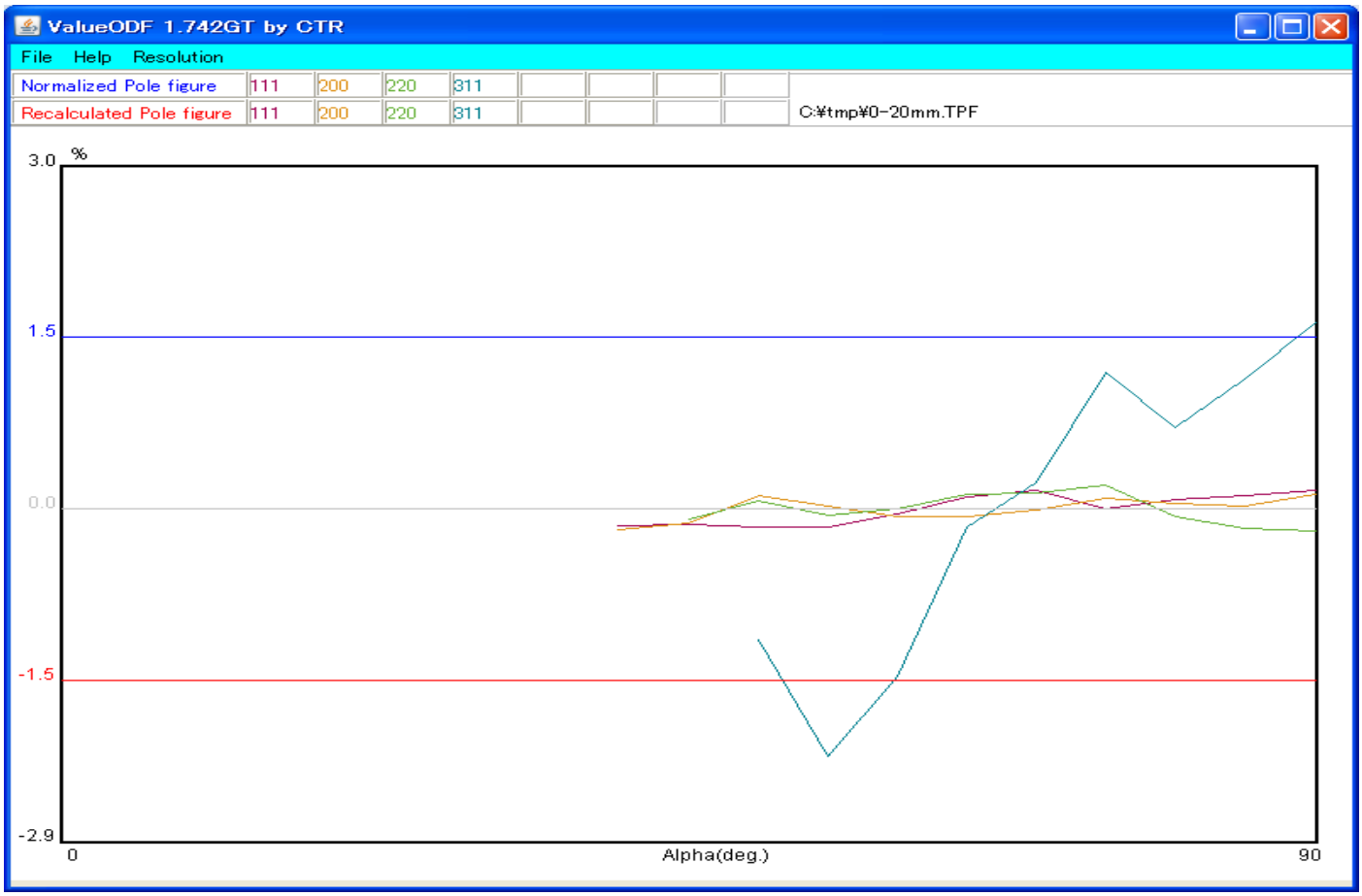
0.05mm ValueODF（ＯＤＦ入力極点図と再計算極点図の差）



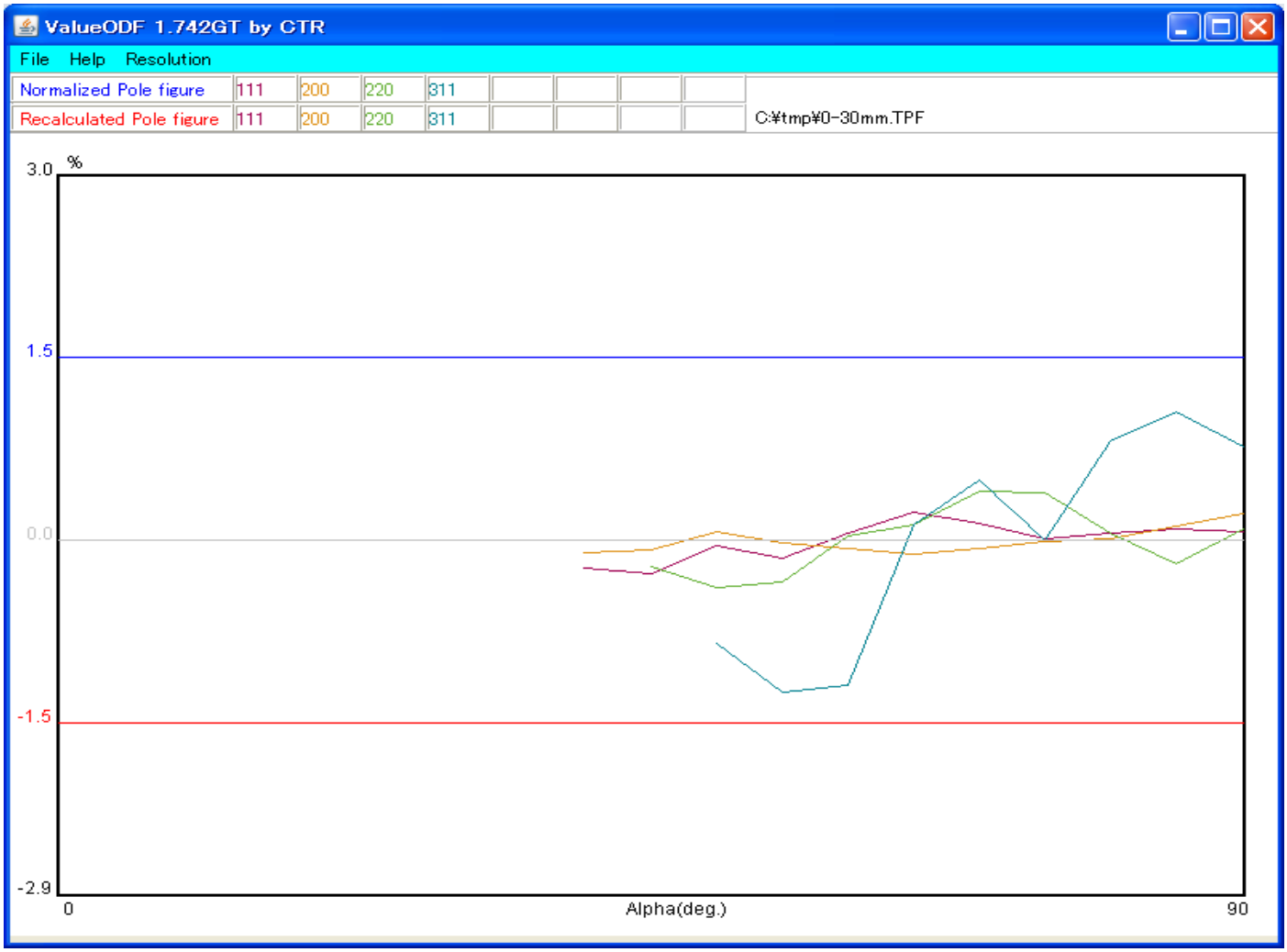
0.1mm ValueODF



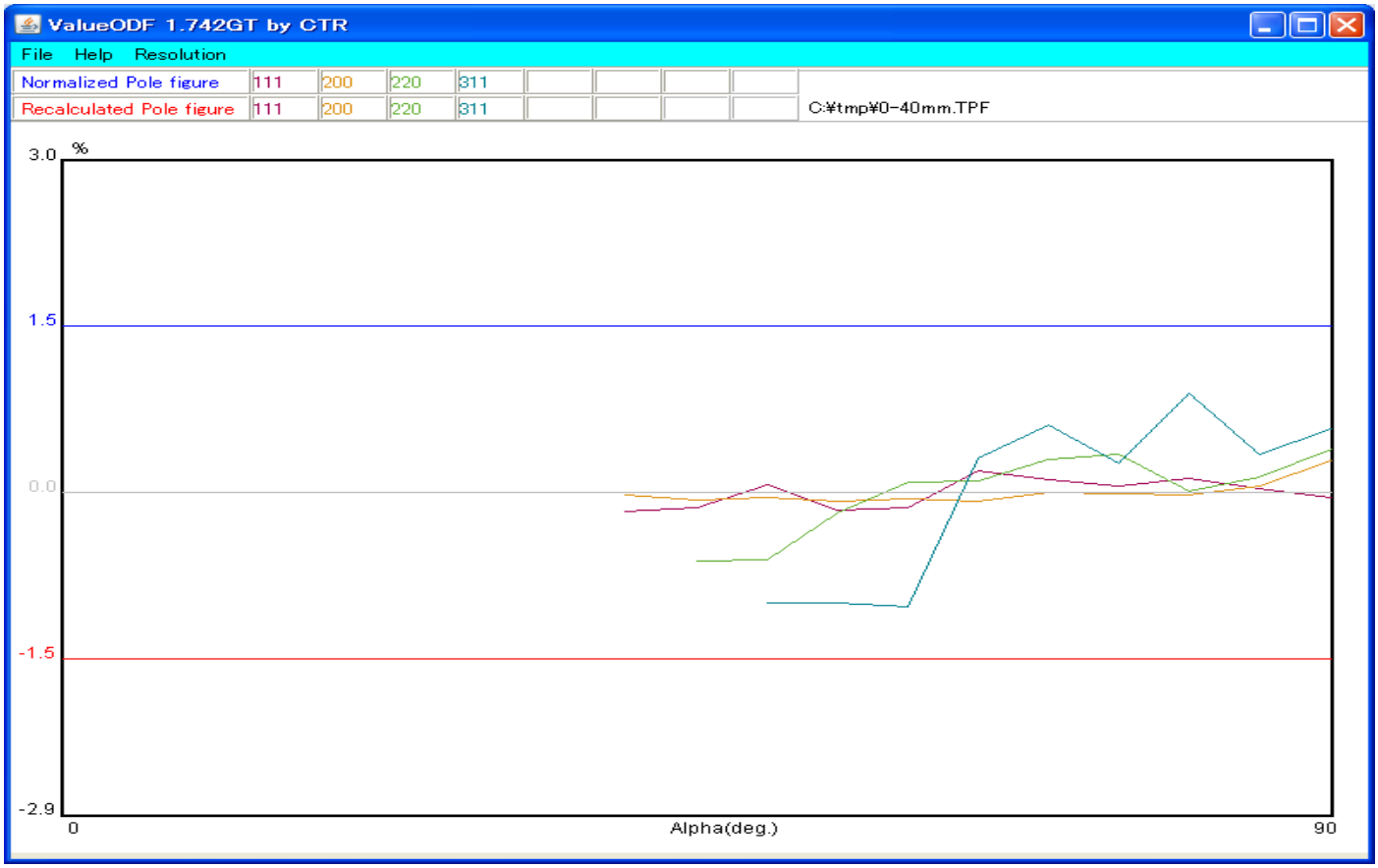
0.2mm ValueODF



0.3mm ValueODF



0.4mm ValueODF



0.5mm ValueODF