

アルミニウムA社P材-1,5の解析

粉末random試料によるdefocus補正

Rp%評価

Random(BG)%評価

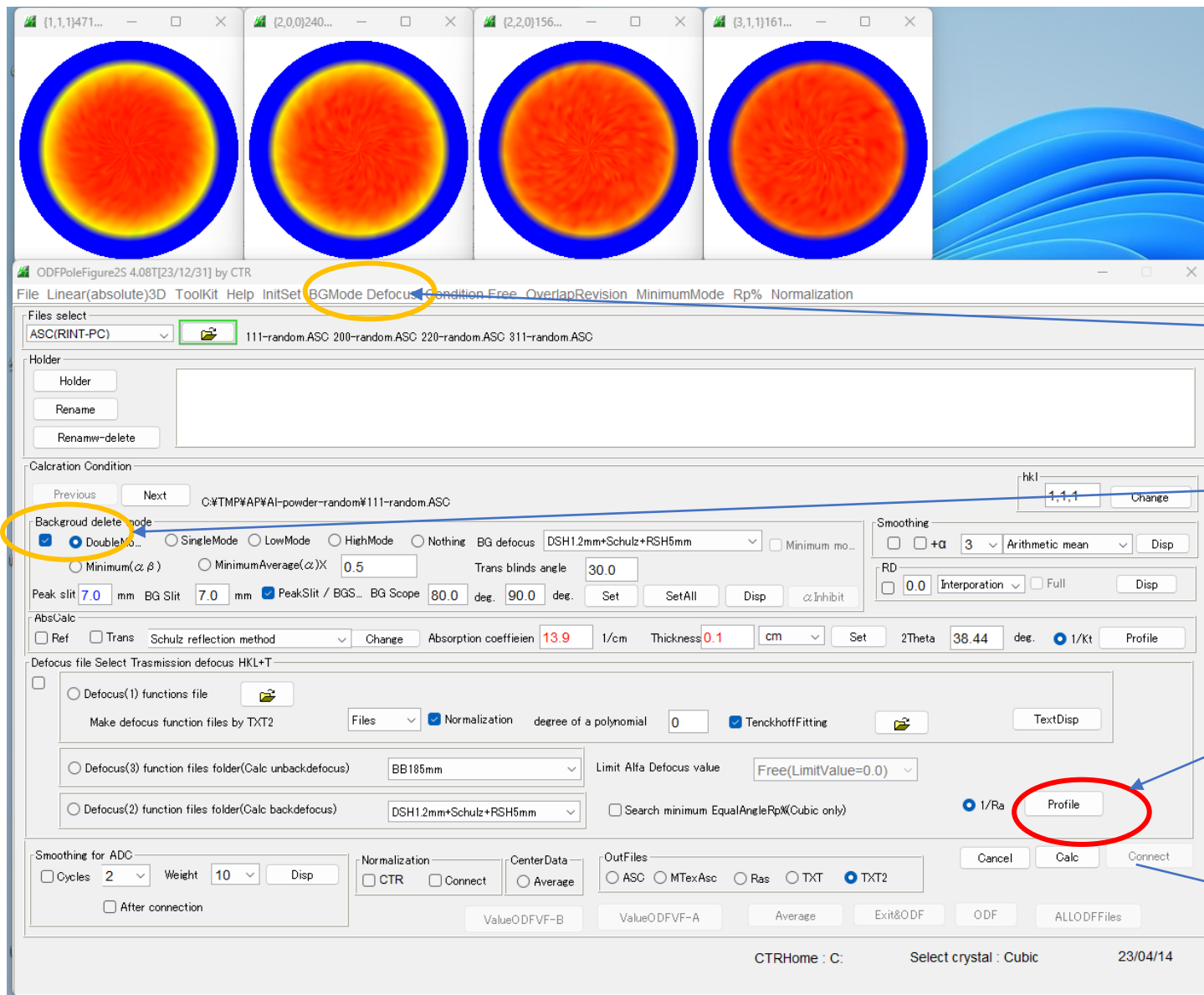
VolumeFraction評価

1番、5番、10番比較

データ

- 圧延版からTD方向に20個切り出し1から20の番号に割付
- 番号1, 5解析
- 番号1, 5, 10比較
- 試料の表面加工は行っていない
- Random試料は粉末

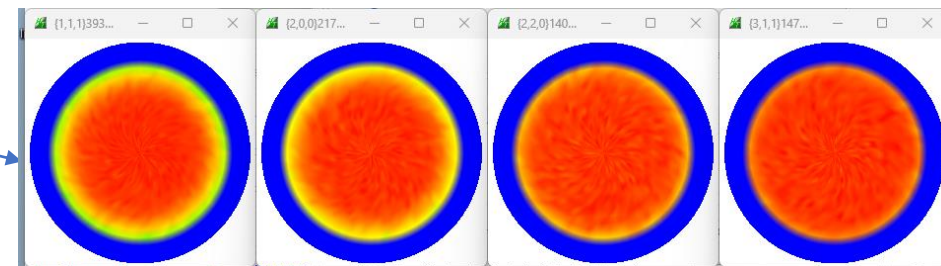
粉末試料によるdefocus補正データ作成



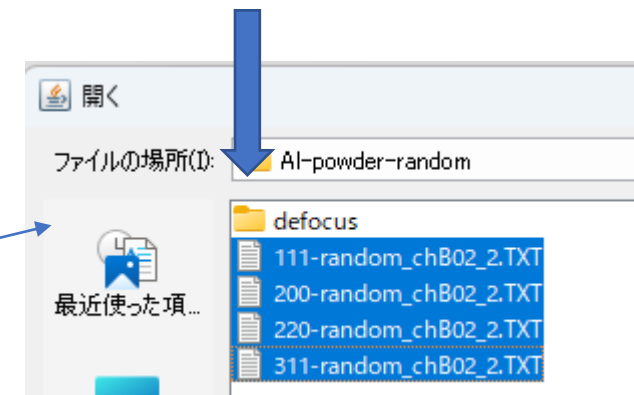
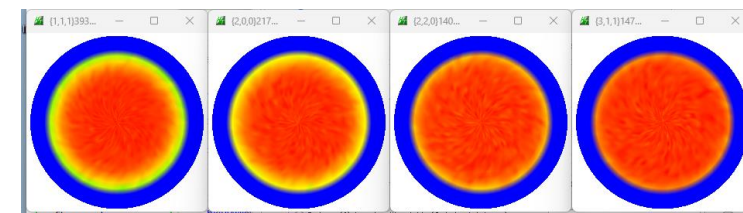
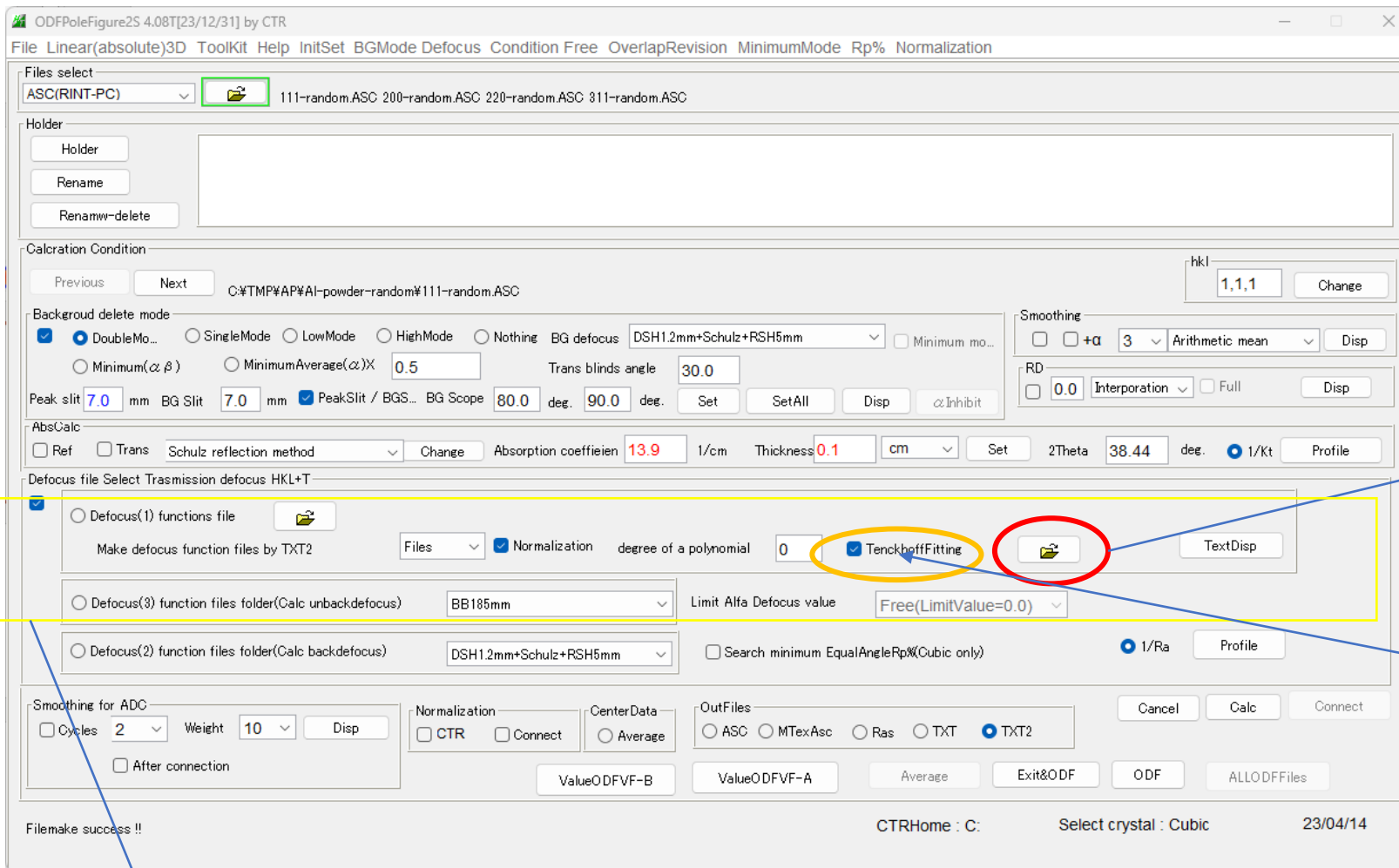
Background-defocusモード補正指定

Background削除指定

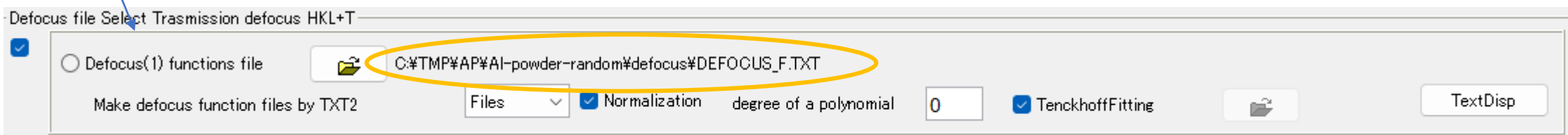
Background削除処理



Defocusファイル登録



Backgroundを削除したファイルを TenckhoffFittingで登録



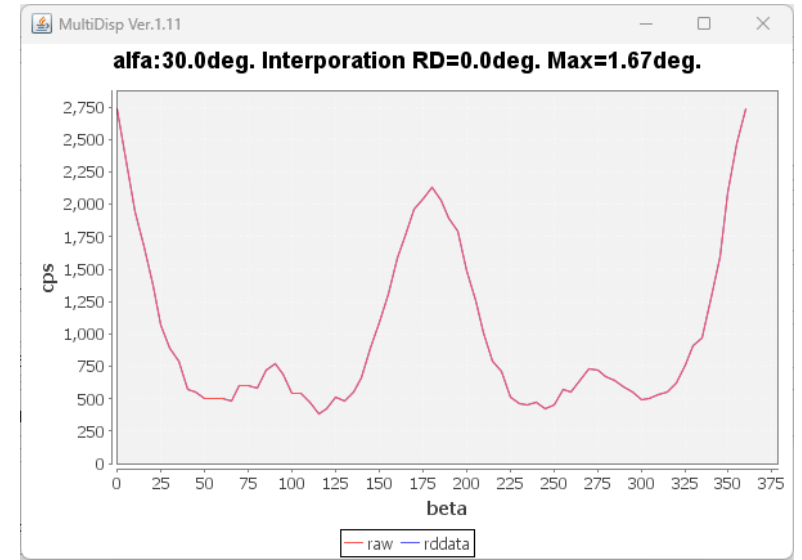
A社P材-1の極点処理1

The screenshot displays the ODF software interface. At the top, four circular ODF patterns are shown, representing different crystallographic orientations. Below them is the main settings window, titled "ODFPoleFigure2S 4.08T[23/12/31] by CTR". The interface includes a menu bar, a file selection area, and various calculation and defocus parameters. Key settings are highlighted with blue circles:

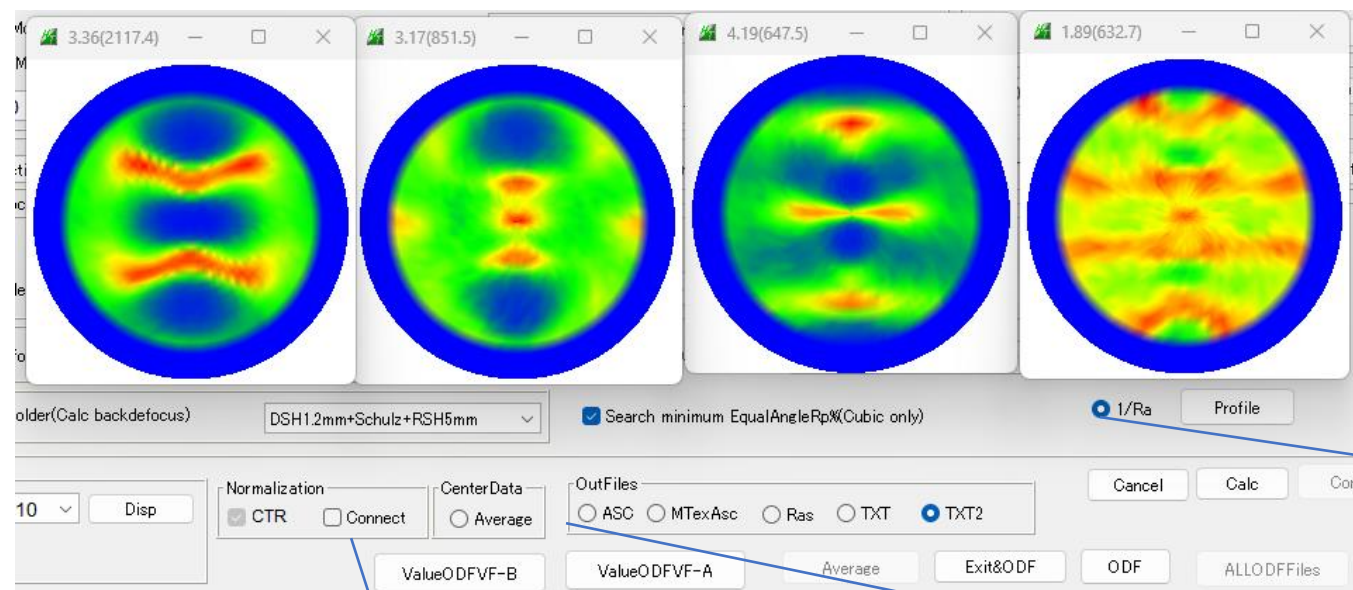
- Background detection mode:** DoubleMode
- Defocus functions file:** Defocus functions file
- Search minimum:** Search minimum (EqualAngleRp/Cubic only)

Other visible settings include: $\alpha = 30.0$ deg, $RD = 0.0$, Peak slit 7.0 mm, BG Slit 7.0 mm, Peak Slit / BGS... 80.0 deg, 90.0 deg, Absorption coefficient 13.9 1/cm, Thickness 0.1 cm, 2Theta 38.36 deg, and 1/Ra selected. The bottom status bar shows "CTRHome : C:", "Select crystal : Cubic", and "23/04/14".

RD確認



A社P材-1の極点処理確認

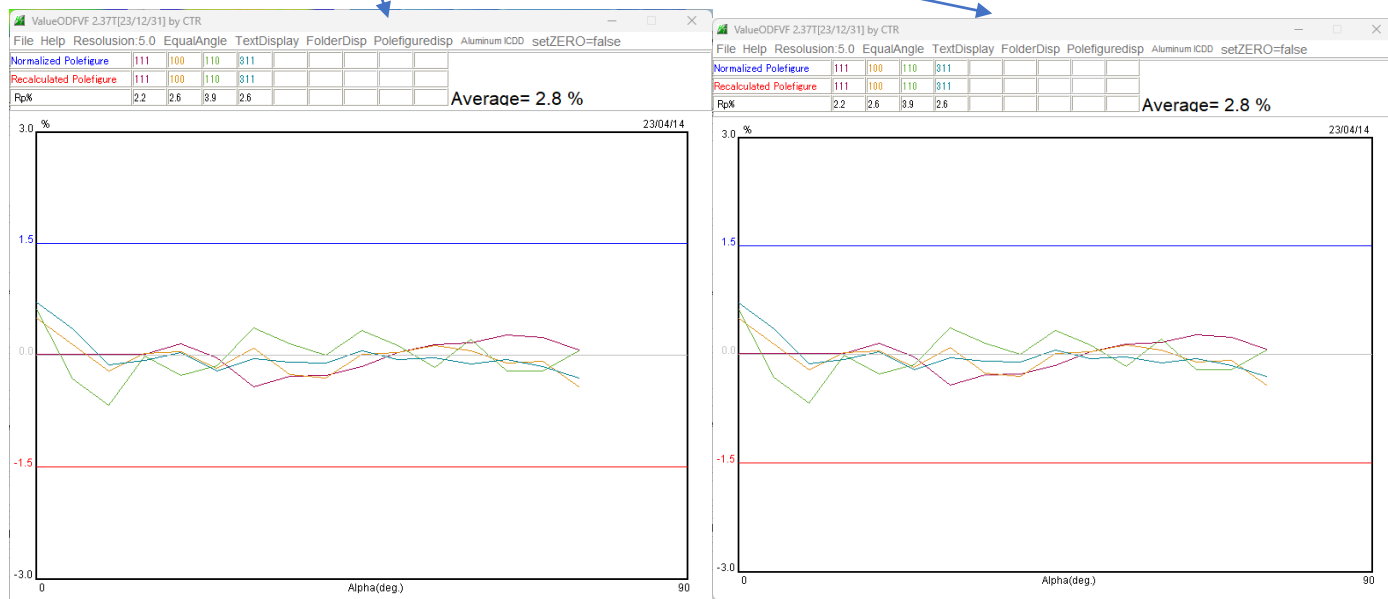


$$RP_{\{hkl\}} = \frac{1}{N} \sum_{i=1}^N \left| \frac{\{PF_{exp.}\}_i - \{PF_{calc.}\}_i}{\{PF_{exp.}\}_i} \right| \cdot 100\%$$

ODF解析前後による入力データ評価
 ValueODFVF-B (最適化Rp%前)
 ValueODFVF-A (最適化Rp%後)

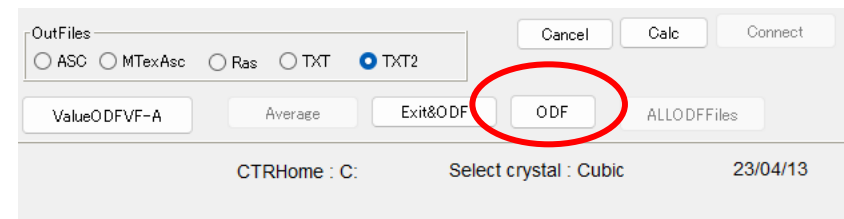
結果

粉末random補正曲線が最適な為
 最適化Rp%前後で同一データ

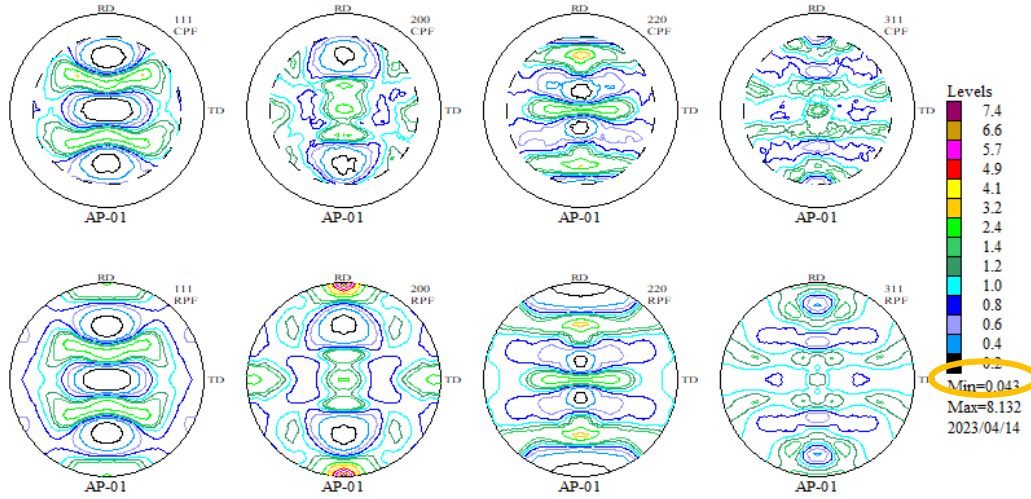


最適化Rp%でも同様

ODF向けファイル作成



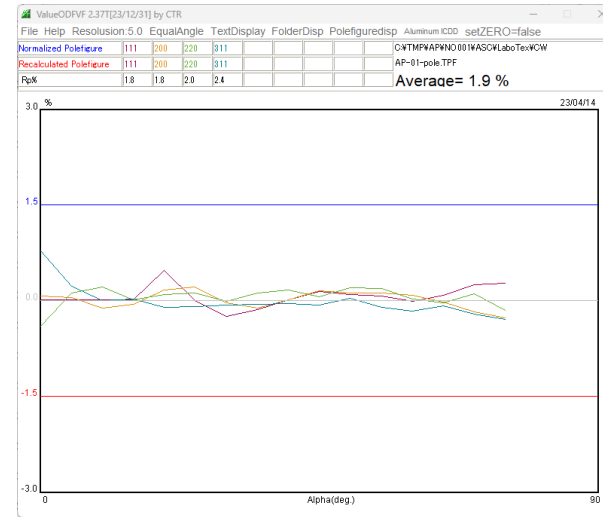
LaboTexによるODF解析



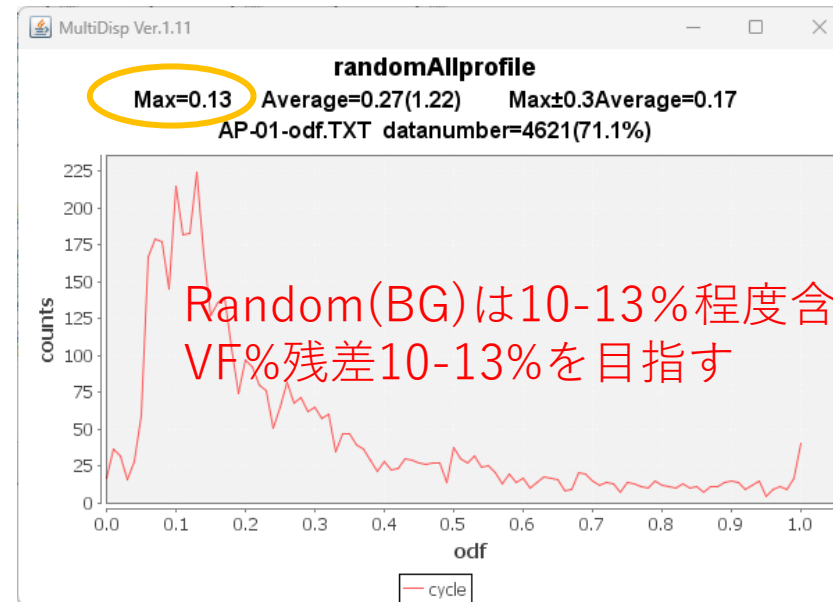
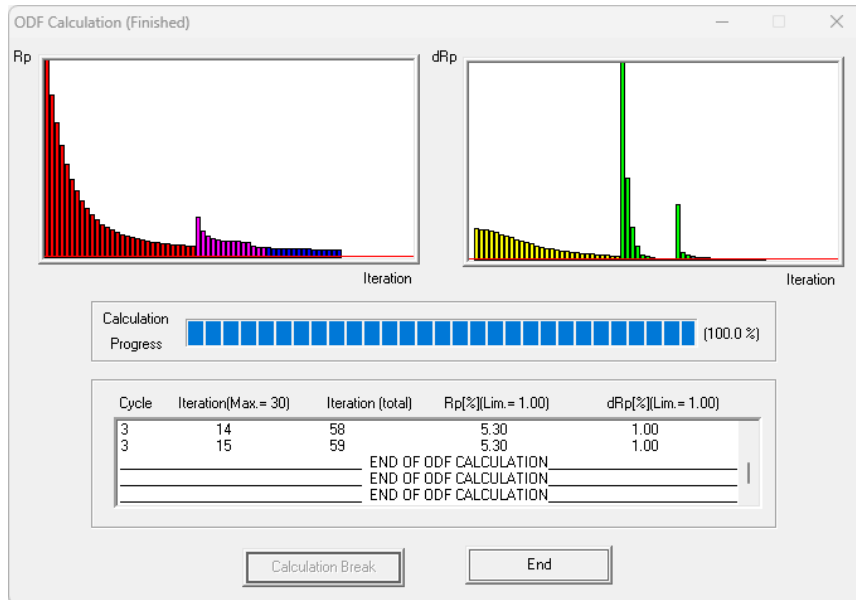
Min=0.043->random(BG)が含まれている可能性小

ODF図をExportし、Random(BG)定量を行う

Rp%は測定時より下がる

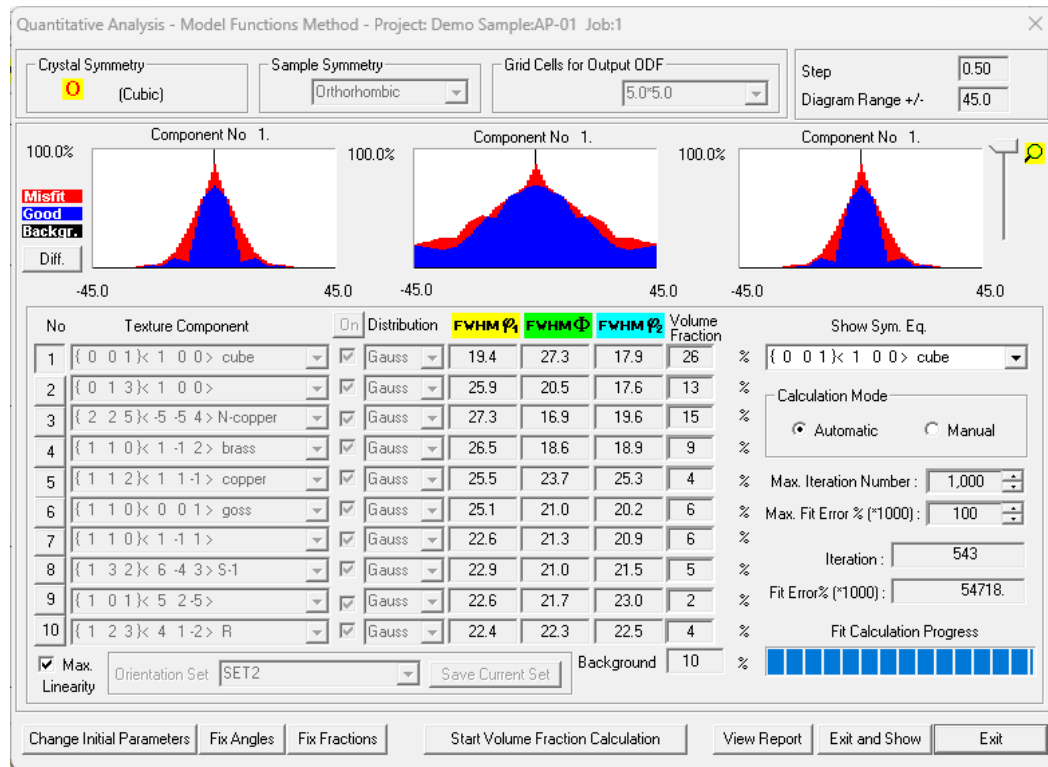


Random(BG)が含まれるとRp%は低下する傾向あり



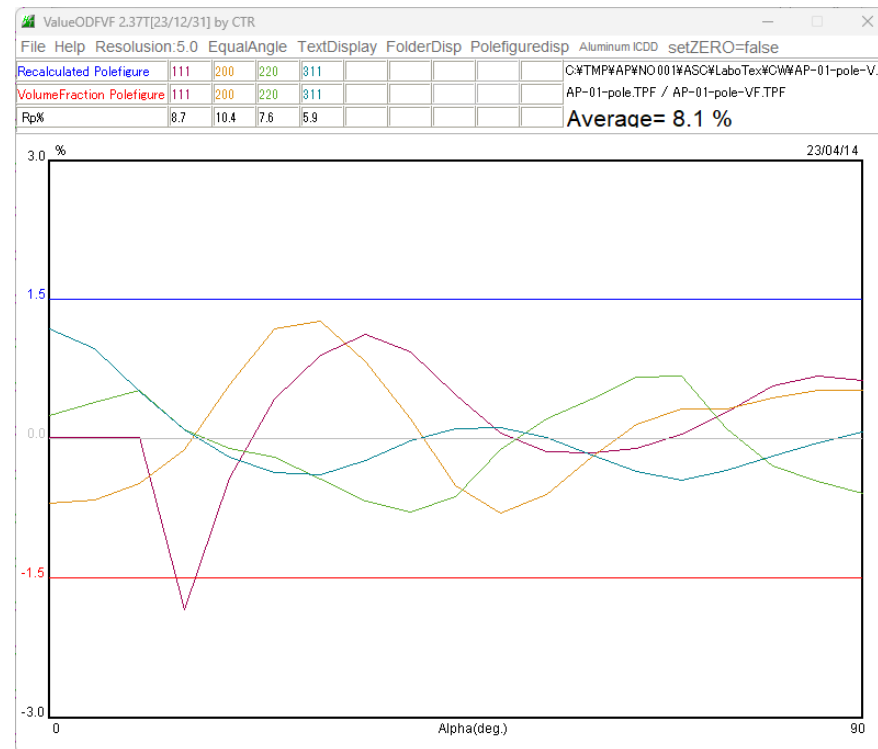
Random(BG)は10-13%程度含まれている可能性
VF%残差10-13%を目指す

VolumeFraction

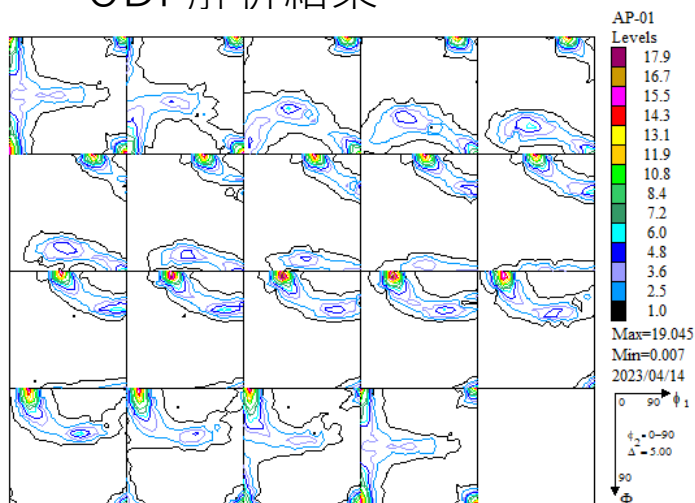


No.	VF (%)	Phi1 (FWHM)	Phi (FWHM)	Phi2 (FWHM)	Orientation
1:	26.28	19.4	27.3	17.9	{ 0 0 1 } < 1 0 0 > cube
2:	12.76	25.9	20.5	17.6	{ 0 1 3 } < 1 0 0 >
3:	15.27	27.3	16.9	19.6	{ 2 2 5 } < -5 -5 4 > N-cop
4:	9.04	26.5	18.6	18.9	{ 1 1 0 } < 1 -1 2 > bras
5:	3.80	25.5	23.7	25.3	{ 1 1 2 } < 1 1 -1 > copp
6:	5.65	25.1	21.0	20.2	{ 1 1 0 } < 0 0 1 > goss
7:	5.93	22.6	21.3	20.9	{ 1 1 0 } < 1 -1 1 >
8:	5.25	22.9	21.0	21.5	{ 1 3 2 } < 6 -4 3 > S-1
9:	1.89	22.6	21.7	23.0	{ 1 0 1 } < 5 2 -5 >
10:	4.44	22.4	22.3	22.5	{ 1 2 3 } < 4 1 -2 > R
11:	9.68	Background Volume Fraction			

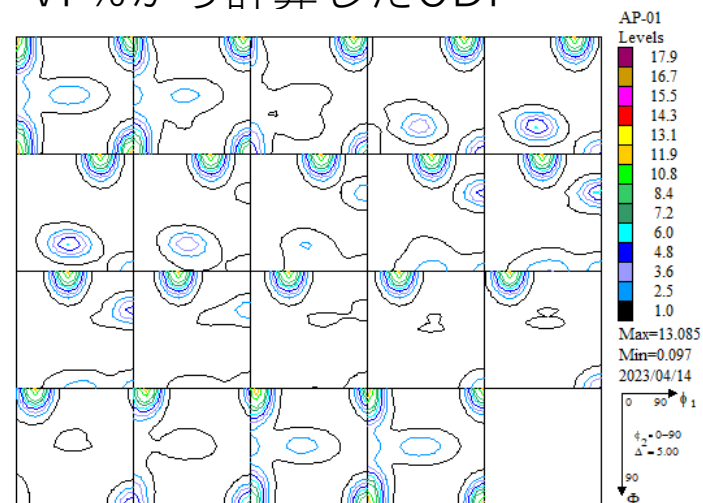
Background=random (BG)+other=13+Other=9.68
 VolumeFractionが決定されているが乱れがある。



ODF解析結果



VF%から計算したODF

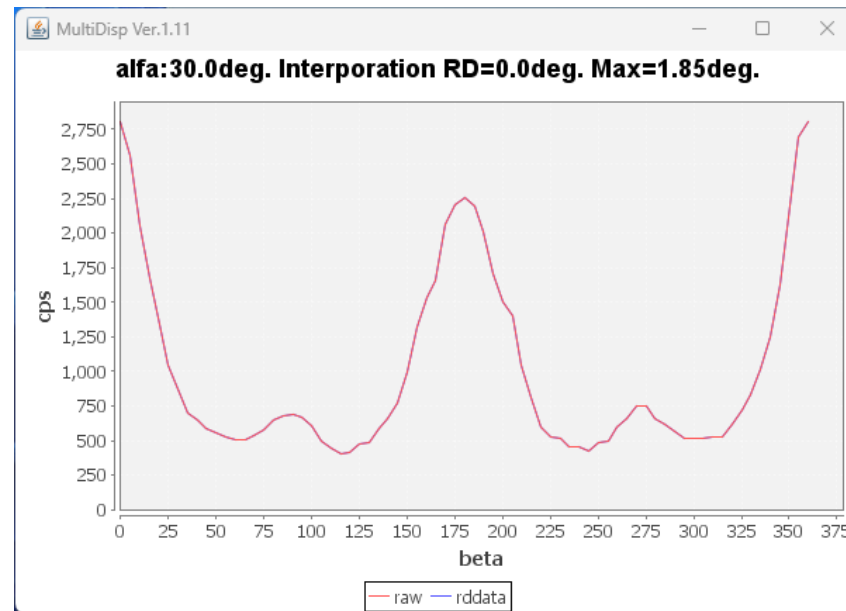


A社P材-5の極点処理1

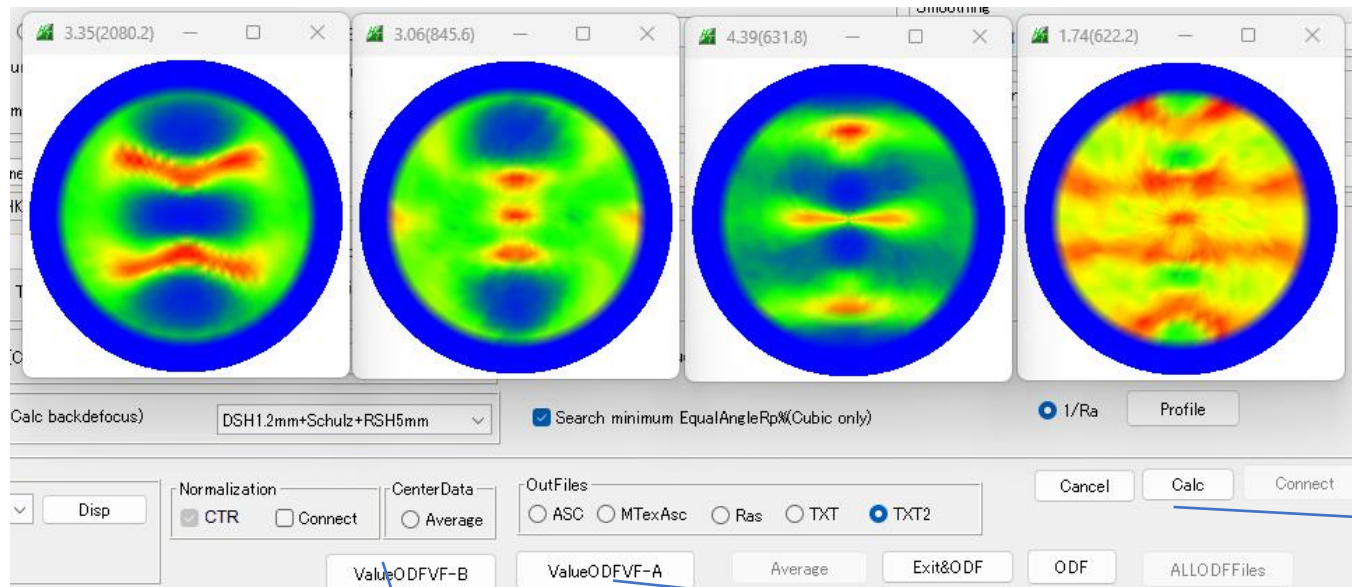
The screenshot displays the ODFPoleFigure2S software interface. At the top, four circular pole figures are shown, each representing a different crystallographic orientation. The control panel below contains several sections:

- Files select:** Shows a list of files including 111-NO.005.ASC, 200-NO.005.ASC, 220-NO.005.ASC, and 311-NO.005.ASC.
- Holder:** Includes buttons for Holder, Rename, and Renamw-delete.
- Calculation Condition:** Features buttons for Previous and Next, and a field for hkl set to 2,2,0.
- Background delete mode:** Includes radio buttons for DoubleMode, SingleMode, LowMode, HighMode, and Nothing. The DoubleMode option is selected.
- Peak slit:** Set to 7.0 mm.
- AbsCalc:** Includes checkboxes for Ref and Trans, and a field for 2Theta set to 64.86 deg.
- Defocus file:** Includes a checkbox for Defocus(1) functions file and a field for Defocus(2) function files folder set to DSH1.2mm+Schulz+RSH5mm.
- Smoothing for ADC:** Includes a field for Cycles set to 2 and a field for Weight set to 10.

At the bottom of the interface, the status bar shows: CTRHome : C: Select crystal : Cubic 23/04/14



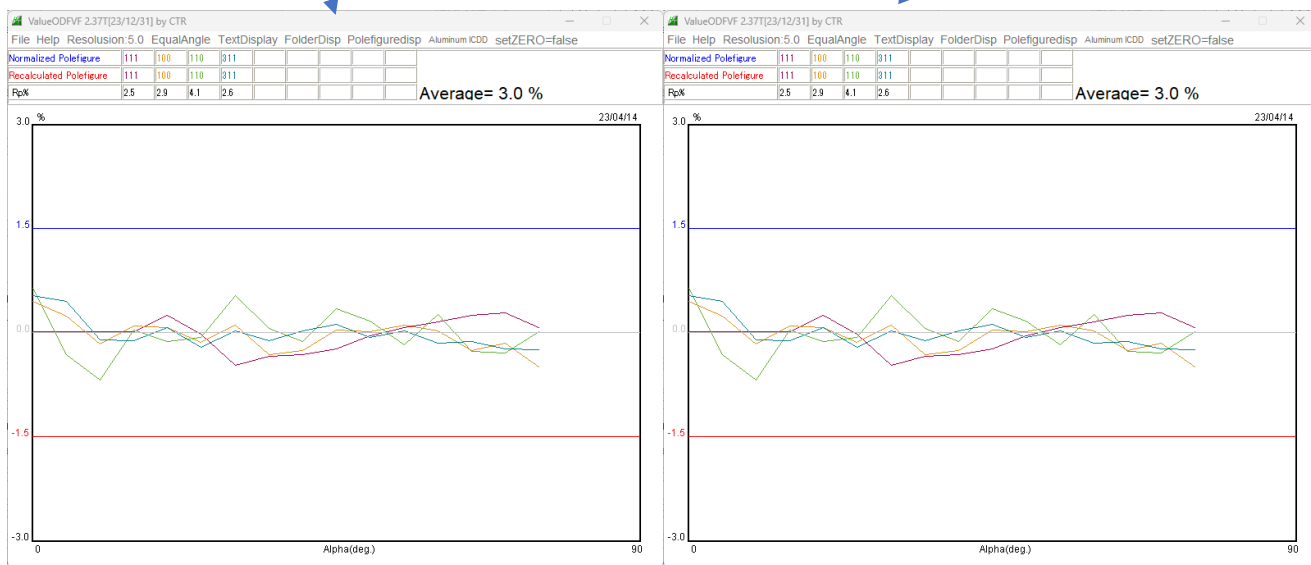
A社P材-5の極点処理確認



$$RP_{\{hkl\}} = \frac{1}{N} \sum_{i=1}^N \left| \frac{\{PF_{exp.}\}_i - \{PF_{calc.}\}_i}{\{PF_{exp.}\}_i} \right| \cdot 100\%$$

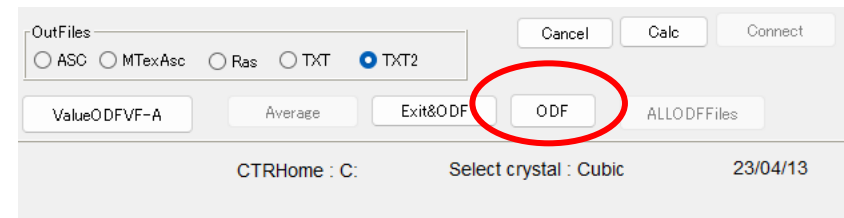
ODF解析前後による入力データ評価
 ValueODFVF-B (最適化Rp%前)
 ValueODFVF-A (最適化Rp%後)

結果
 粉末random補正曲線が最適な為
 最適化Rp%前後で同一データ

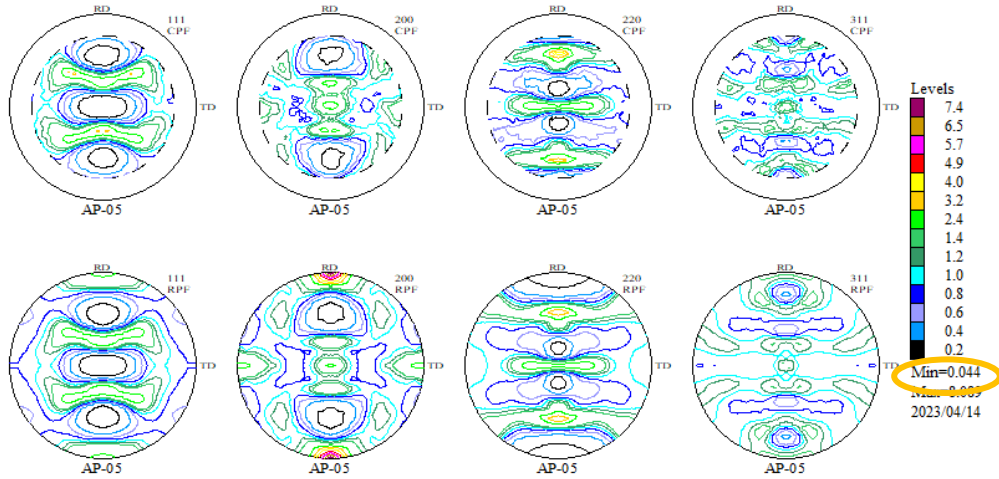


最適化Rp%でも同様

ODF向けファイル作成



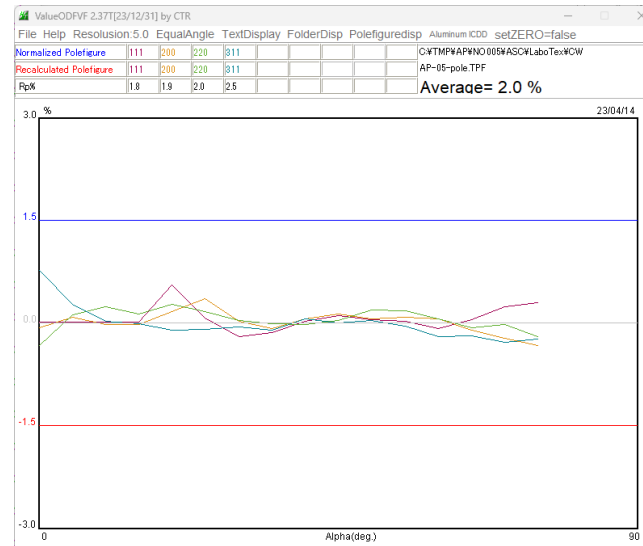
LaboTexによるODF解析



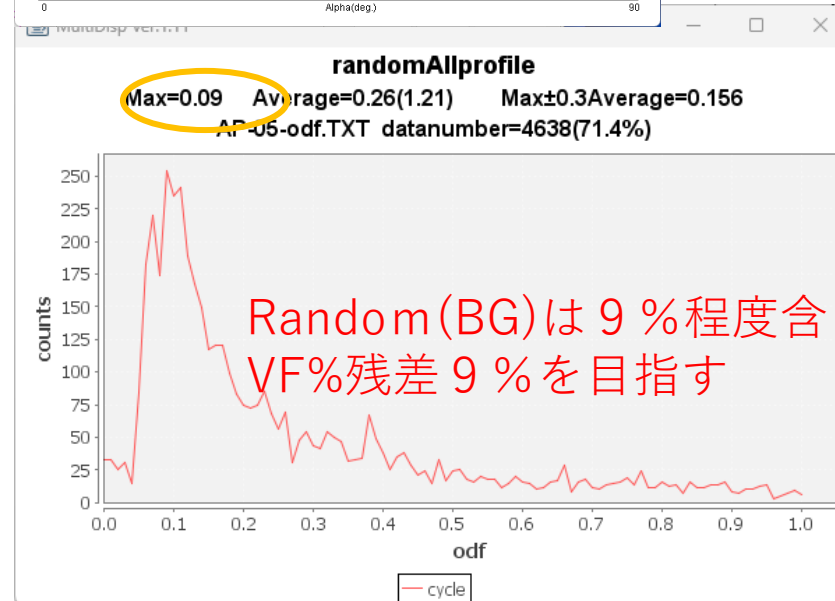
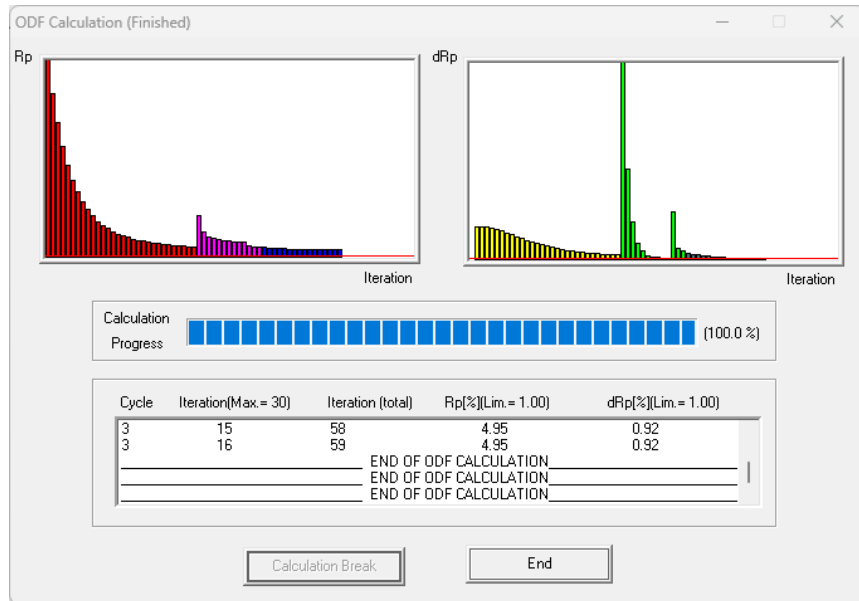
Min=0.044>random(BG)が含まれている可能性小

ODF図をExportし、Random (BG)定量を行う

Rp%は測定時より下がる

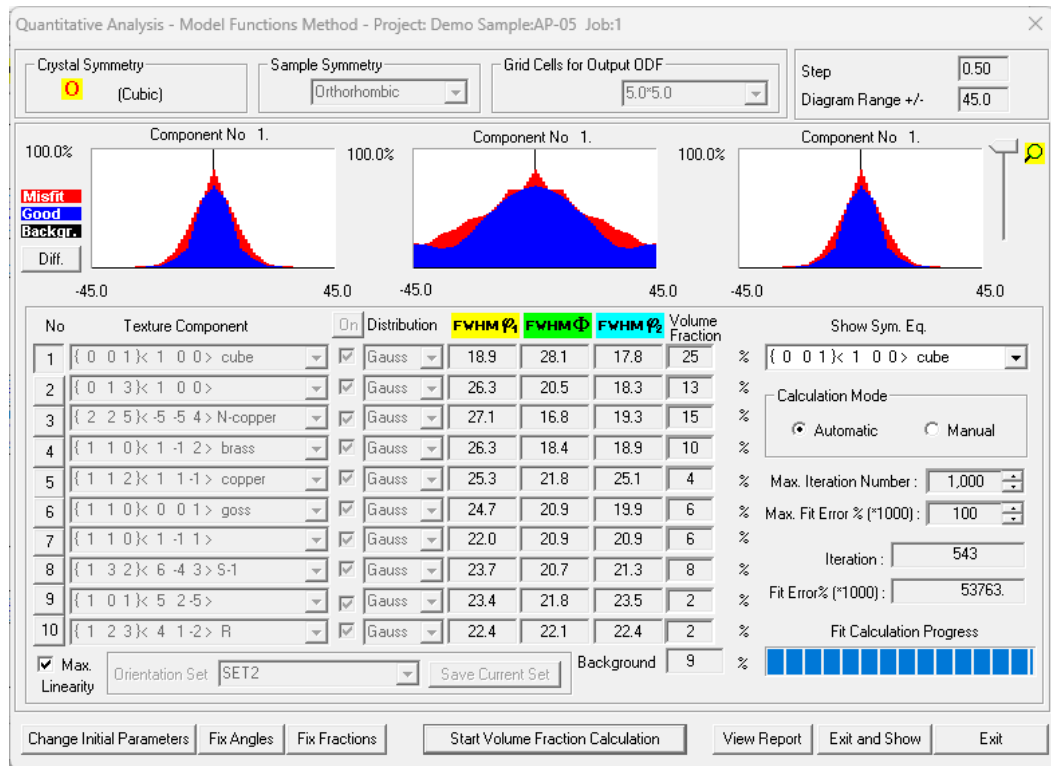


Random (BG)が含まれるとRp%は低下する傾向あり



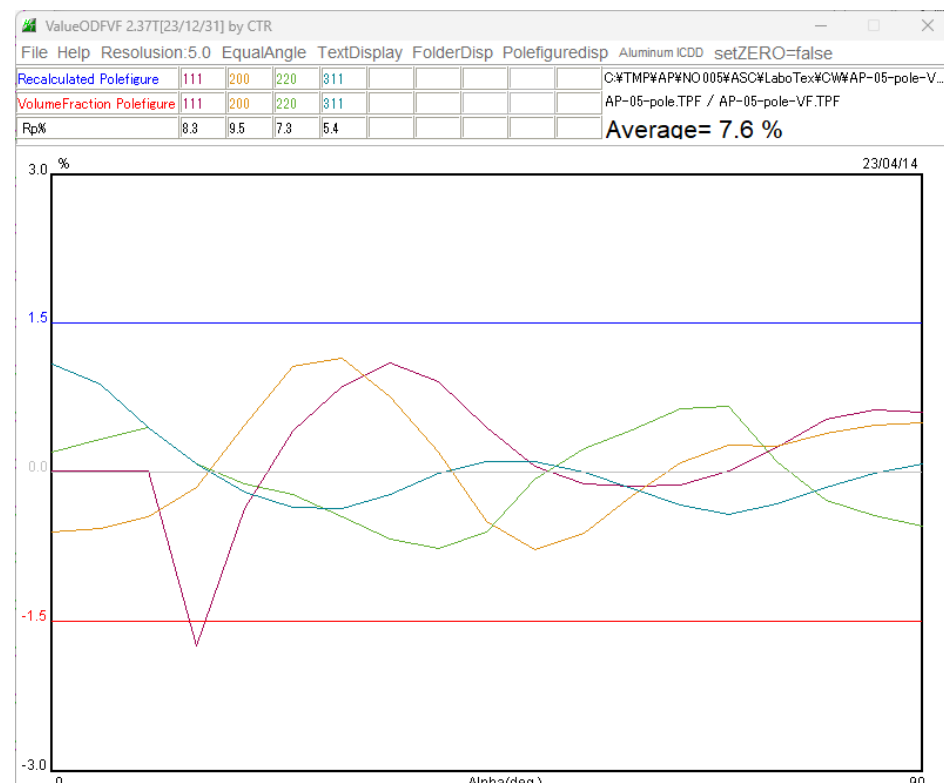
Random(BG)は9%程度含まれている可能性
VF%残差9%を目指す

VolumeFraction

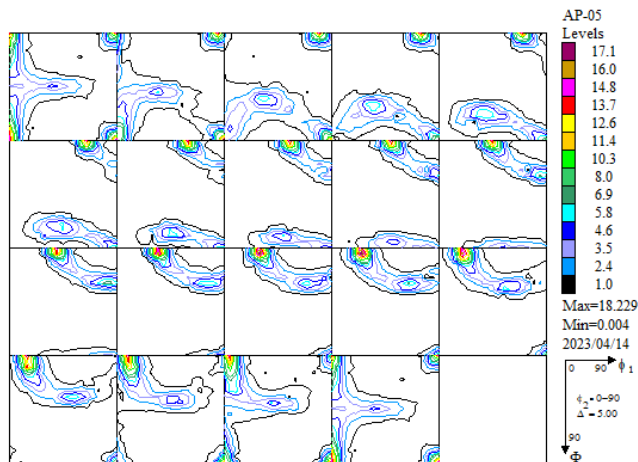


No.	VF (%)	Phi1 (FWHM)	Phi (FWHM)	Phi2 (FWHM)	Orientation
1:	25.18	18.9	28.1	17.8	{ 0 0 1 } < 1 0 0 > cube
2:	12.70	26.3	20.5	18.3	{ 0 1 3 } < 1 0 0 >
3:	15.45	27.1	16.8	19.3	{ 2 2 5 } < -5 -5 4 > N-cop
4:	10.33	26.3	18.4	18.9	{ 1 1 0 } < 1 -1 2 > bras
5:	3.66	25.3	21.8	25.1	{ 1 1 2 } < 1 1 -1 > copp
6:	5.80	24.7	20.9	19.9	{ 1 1 0 } < 0 0 1 > goss
7:	5.81	22.0	20.9	20.9	{ 1 1 0 } < 1 -1 1 >
8:	7.68	23.7	20.7	21.3	{ 1 3 2 } < 6 -4 3 > S-1
9:	1.75	23.4	21.8	23.5	{ 1 0 1 } < 5 2 -5 >
10:	2.43	22.4	22.1	22.4	{ 1 2 3 } < 4 1 -2 > R
11:	9.22	Background Volume Fraction			

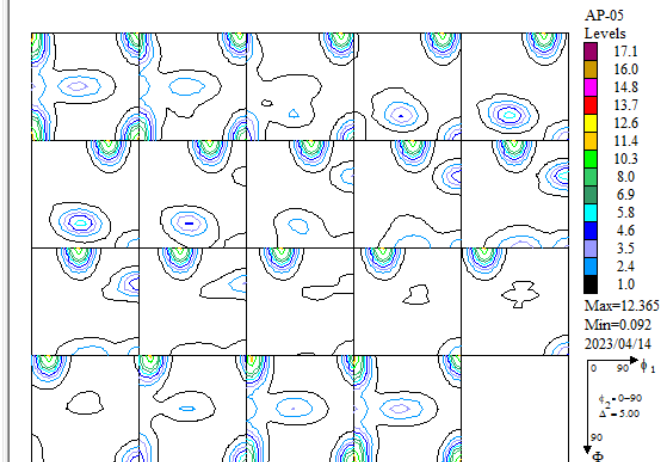
Background=random(BG)+other=9+Other=9.22
 VolumeFractionが決定されているが乱れがある。



ODF解析結果



VF%から計算したODF



P-1,5,10比較

