

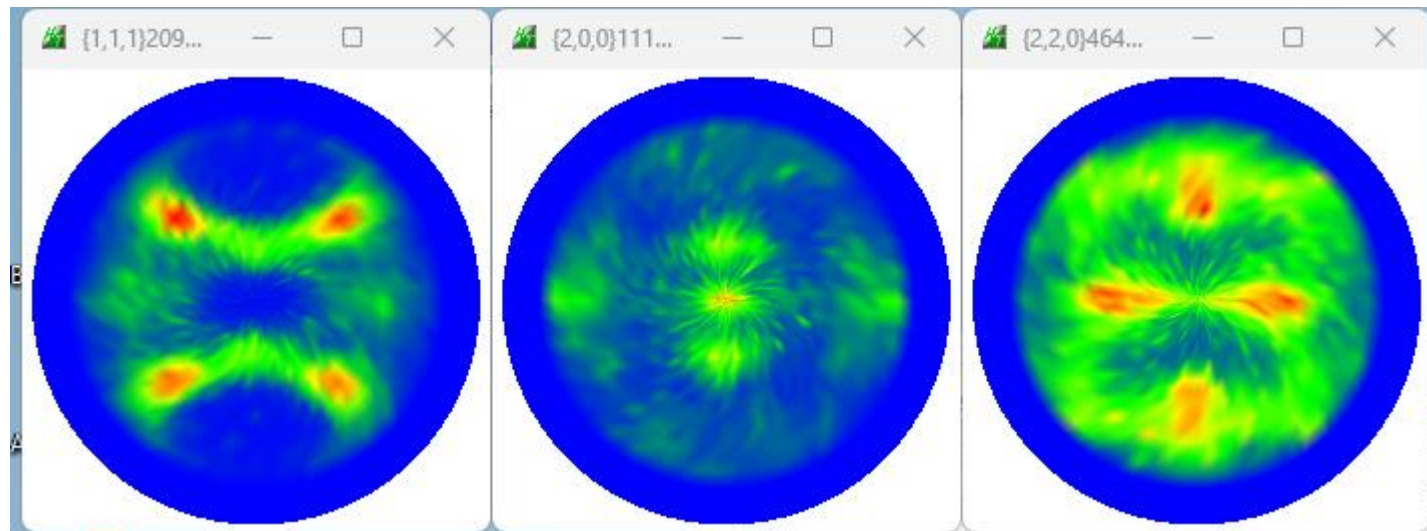
アルミニウムA社O材の解析例

粉末random試料によるdefocus補正

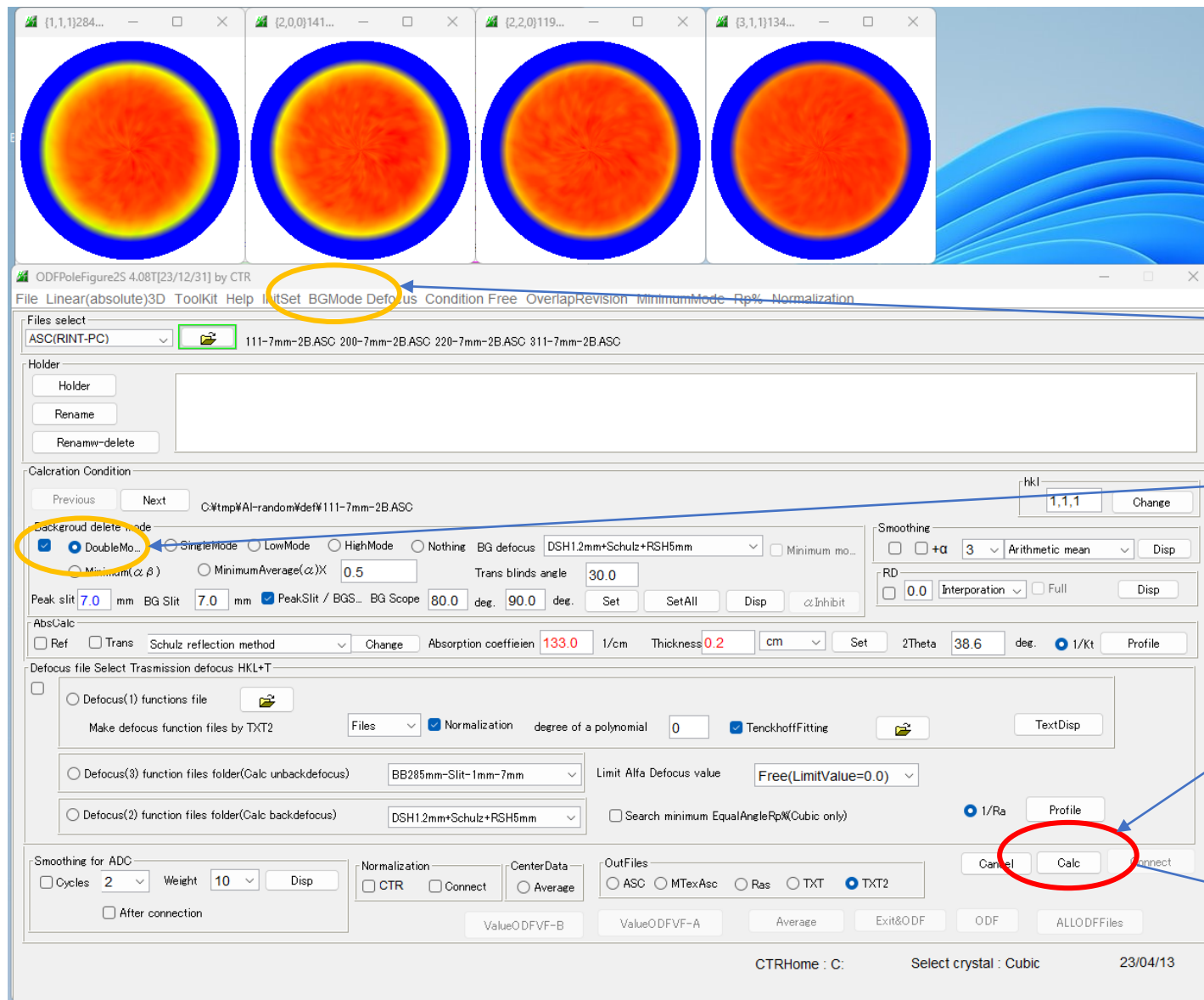
Rp%評価

Random(BG)%評価

VolumeFraction評価



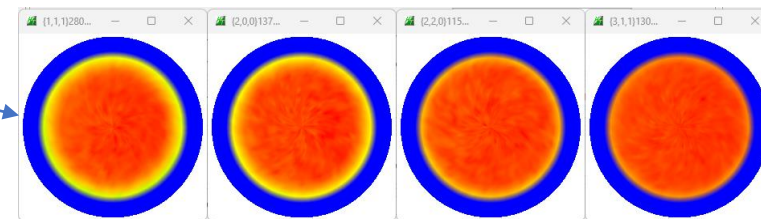
粉末試料によるdefocus補正データ作成



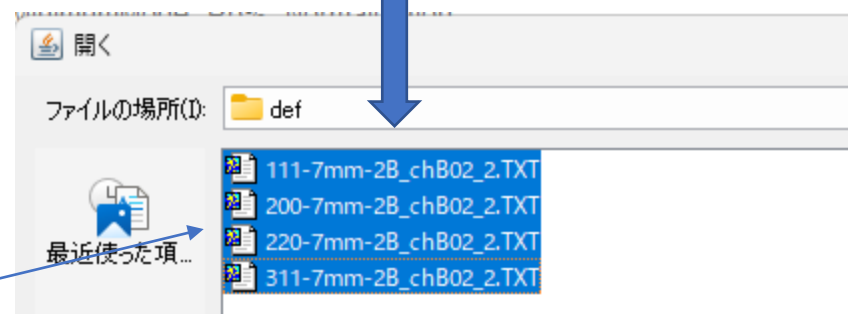
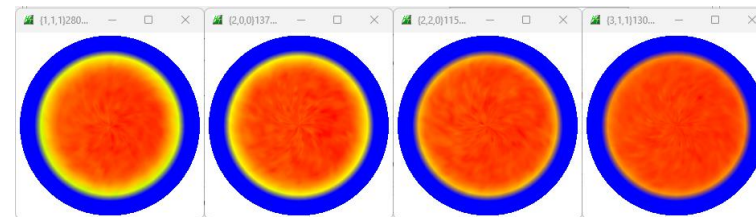
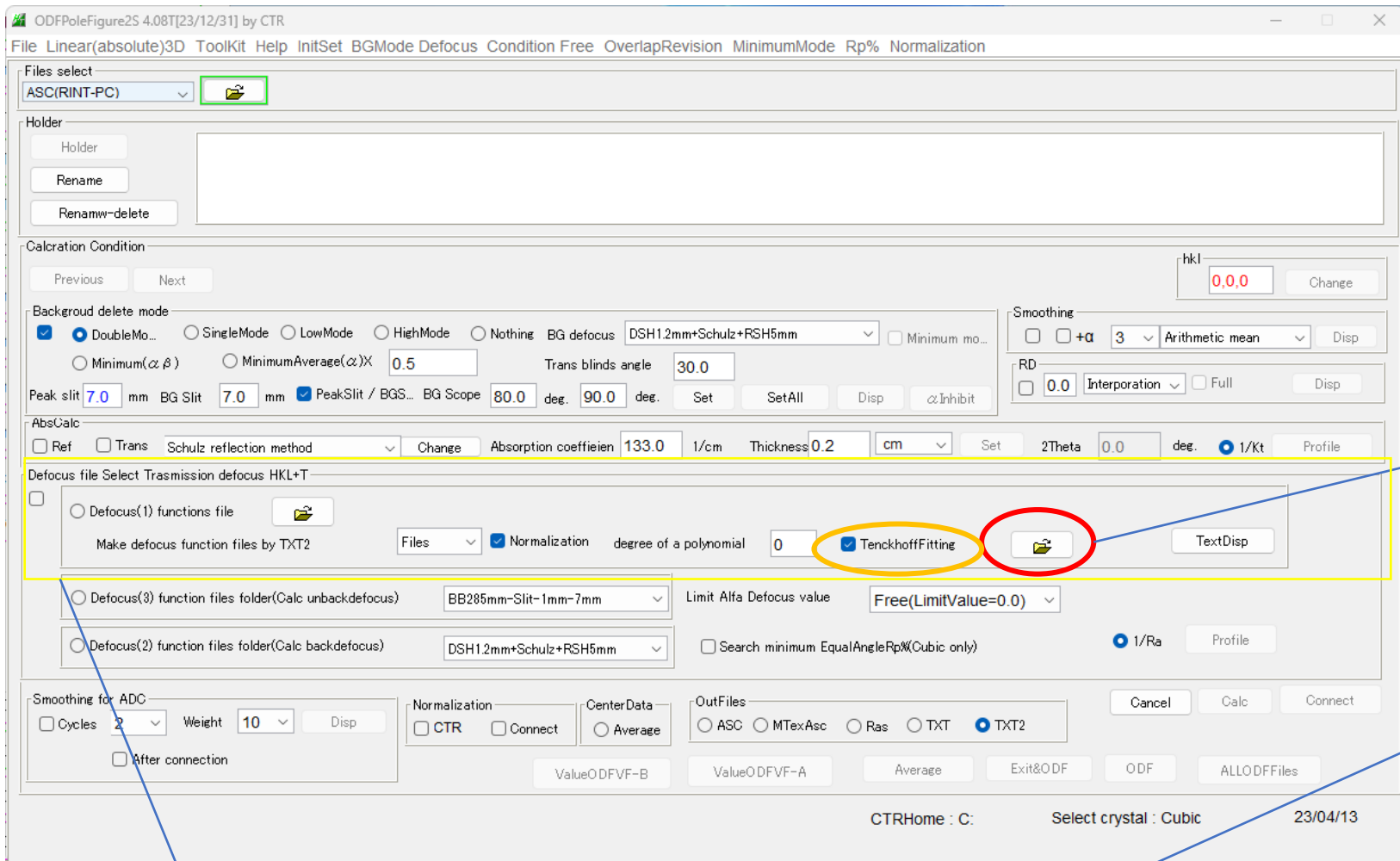
Background-defocusモード補正指定

Background削除指定

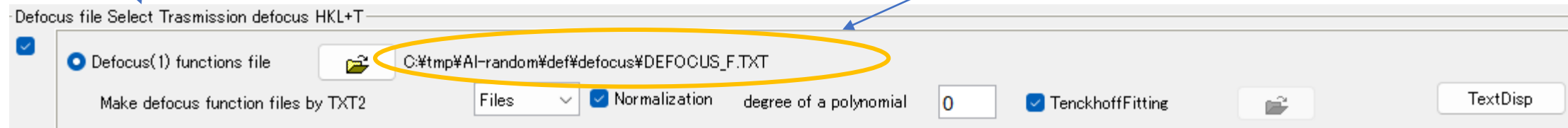
Background削除処理



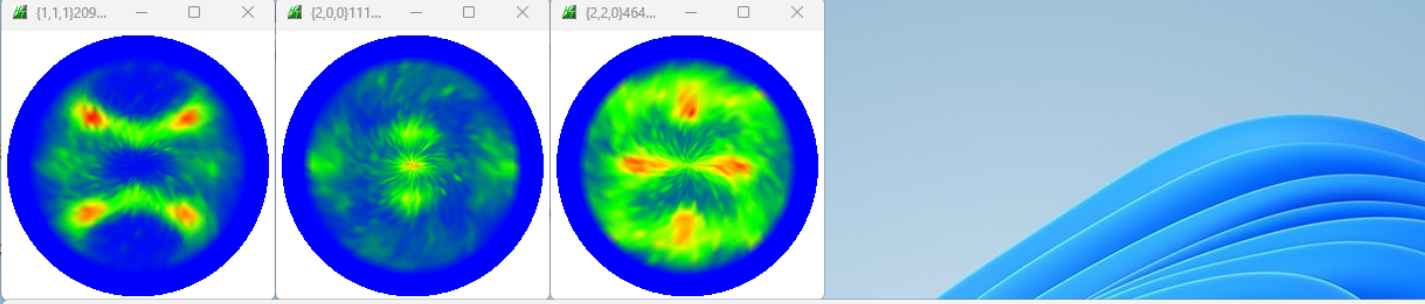
Defocusファイル登録



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



A社O材の極点処理 1



ODFPoleFigure2S 4.08T[23/12/31] by CTR

File Linear(absolute)3D Toolkit Help InitSet BGMode Defocus Condition Free OverlapRevision MinimumMode Rp% Normalization

Files select
ASC(RINT-PC) 111.ASC 200.ASC 220.ASC

Holder
Holder
Rename
Renamw-delete

Calculation Condition
Previous Next C:\CTR\DATA\Aluminum-H-O\Aluminum-O\111.ASC hkl 1,1,1 Change

Background delete mode
 DoubleMo... SingleMode LowMode HighMode Nothing BG defocus DSH1.2mm+Schulz+RSH5mm Minimum mo...
 Minimum($\alpha\beta$) MinimumAverage(α)X 0.5 Trans blinds angle 30.0
Peak slit 7.0 mm BG Slit 7.0 mm PeakSlit / BGS... BG Scope 80.0 deg. 90.0 deg. Set SetAll Disp α Inhibit

Smoothing
 + α 3 Arithmetic mean Disp
RD 0.0 Interpolation Full **Disp**

AbsCalc
 Ref Trans Schulz reflection method Change Absorption coefficient 133.0 1/cm Thickness 0.2 cm Set 2Theta 38.59 deg. 1/Kt Profile

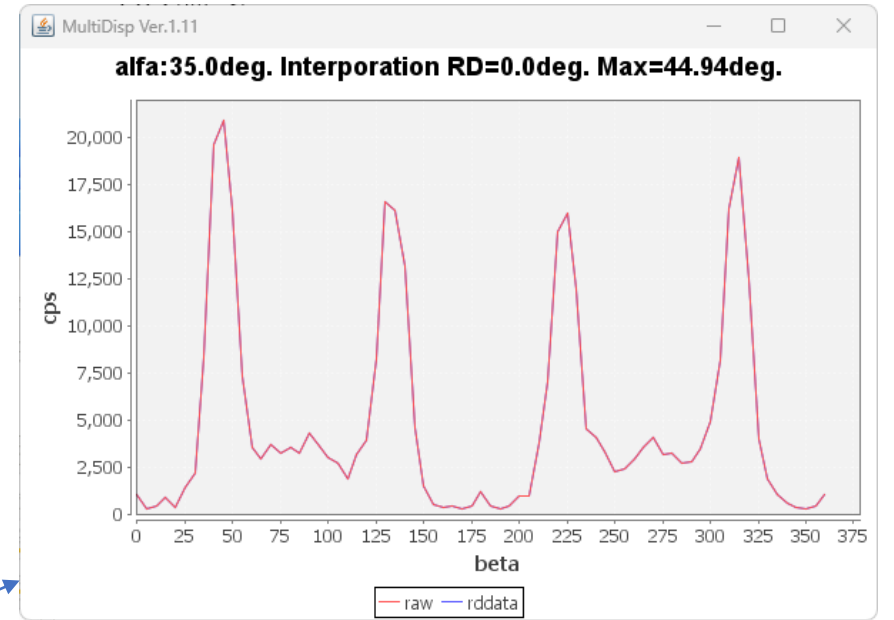
Defocus file Select Transmission defocus HKL+T
 Defocus(1) functions file C:\tmp\Al-random\def\defocus\DEFOCUS_F.TXT
Make defocus function files by TXT2 Files Normalization degree of a polynomial 0 TenckhoffFitting TextDisp
 Defocus(3) function files folder(Calc unbackdefocus) BB285mm-Slit-1mm-7mm Limit Alfa Defocus value Free(LimitValue=0.0)
 Defocus(2) function files folder(Calc backdefocus) DSH1.2mm+Schulz+RSH5mm Search minimum EqualAngleRp%(Cubic only) 1/Ra Profile

Smoothing for ADC
 Cycles 2 Weight 10 Disp
 After connection

Normalization CenterData OutFiles
 CTR Connect Average ASC MTextAsc Ras TXT TXT2
Cancel Calc Connect
ValueODFVF-B ValueODFVF-A Average Exit&ODF ODF ALLODFFiles

CTRHome : C: Select crystal : Cubic 23/04/13

RD確認



A社O材の極点処理2

The screenshot displays the ODFPoleFigure2S software interface. At the top, three circular pole figures are shown, followed by a 3D surface plot. The main window contains several panels and controls:

- File select:** Shows the current file path and holder information.
- Holder:** Includes buttons for Holder, Rename, and Renamw-delete.
- Calculation Condition:** Contains settings for Background delete mode (DoubleMo... selected), BG defocus (DSH1.2mm+Schulz+RSH5mm), and Smoothing (Arithmetic mean, Disp).
- AbsCalc:** Includes settings for Ref, Trans, Schulz reflection method, Absorption coefficient (133.0), Thickness (0.2), and 2Theta (38.59).
- Defocus file:** Includes settings for Defocus(1) functions file, Make defocus function files by TXT2, and Normalization (checked).
- Defocus(3) function files folder:** Includes settings for folder selection and Limit Alfa Defocus value.
- Defocus(2) function files folder:** Includes settings for folder selection and Search minimum EqualAngleRp% (checked).
- Smoothing for ADC:** Includes settings for Cycles (2), Weight (10), and Disp.
- Normalization:** Includes settings for CenterData (Average) and OutFiles (TXT2 selected).
- Buttons:** Includes Calc, Connect, and other control buttons.

Annotations in blue text point to specific settings:

- Background削除** points to the Background delete mode section.
- BG-defocus mde** points to the BG defocus dropdown menu.
- RD補正** points to the RD (0.0) field.
- Defocus補正** points to the Defocus(1) functions file section.
- 最適化Rp%** points to the Search minimum EqualAngleRp% checkbox.

The **Calc** button is circled in red.

処理

RD補正

BG-defocusモードによる
background削除

defocus補正

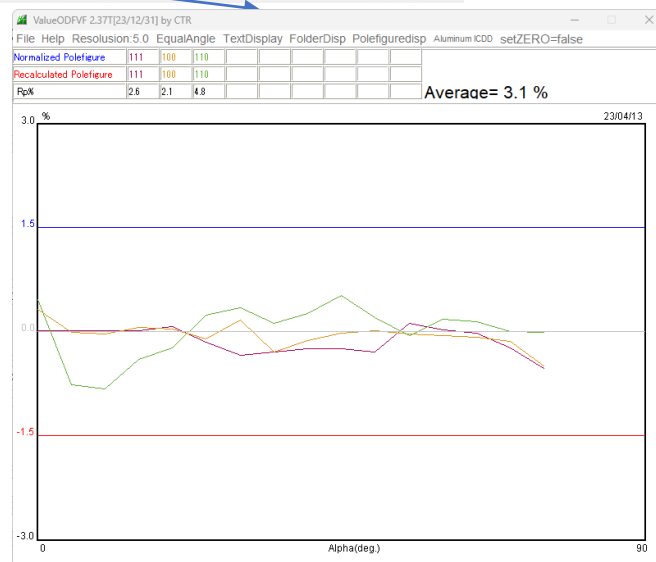
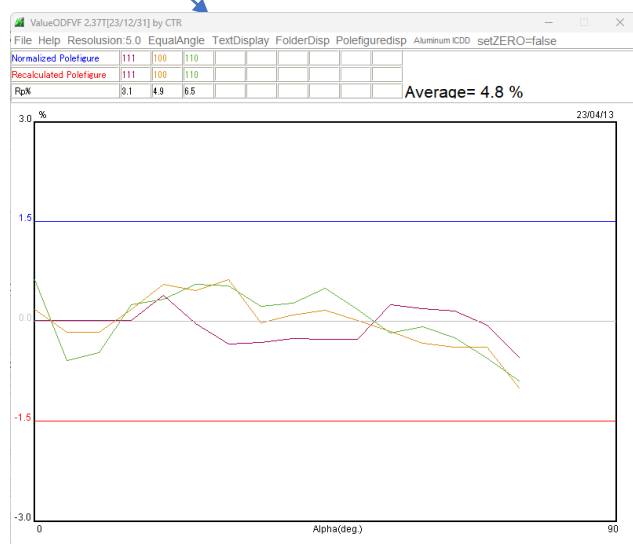
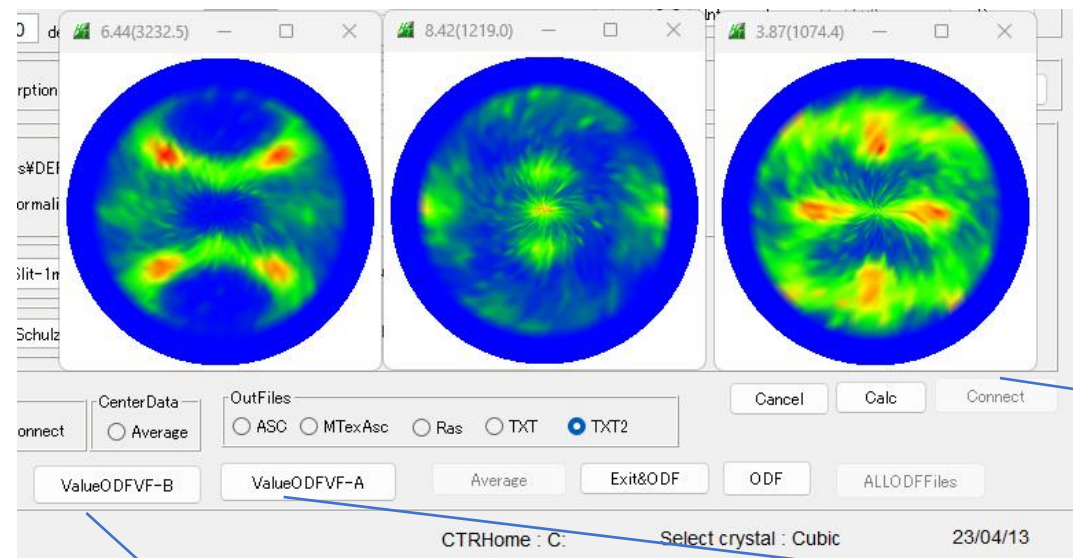
最適化Rp%

A社H材の極点処理確認

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

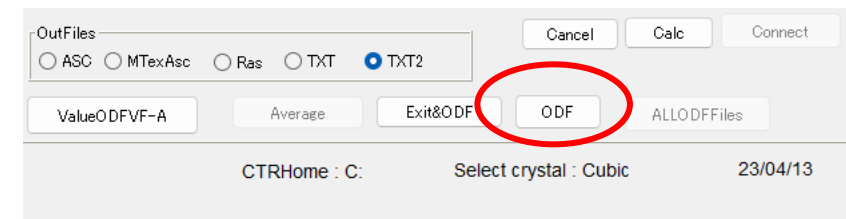
ODF解析前後による入力データ評価
 ValueODFVF-B (最適化Rp%前)
 ValueODFVF-A (最適化Rp%後)

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

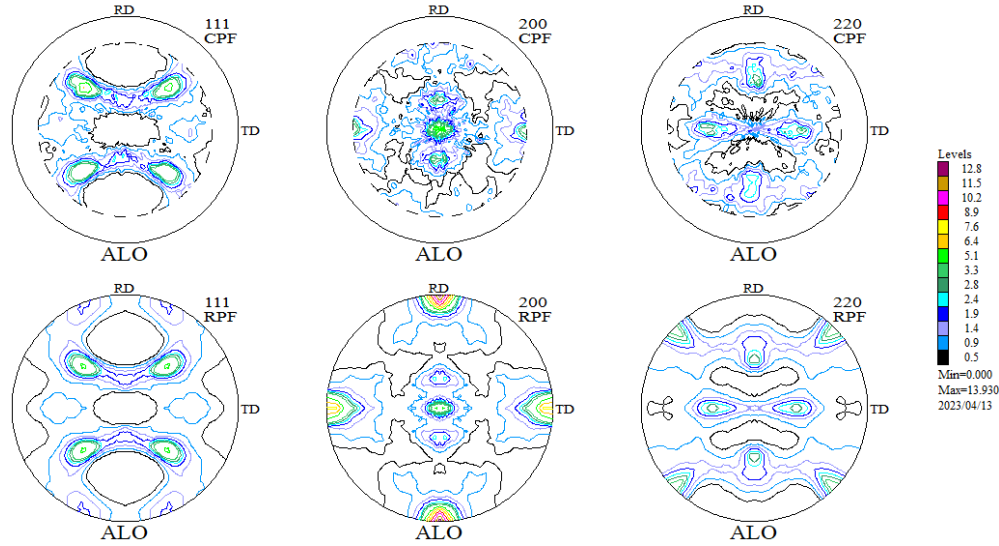


最適化Rp%で改善される

ODF向けファイル作成



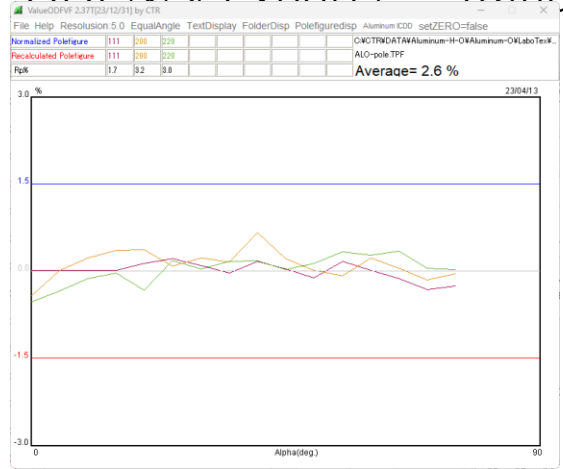
LaboTexによるODF解析



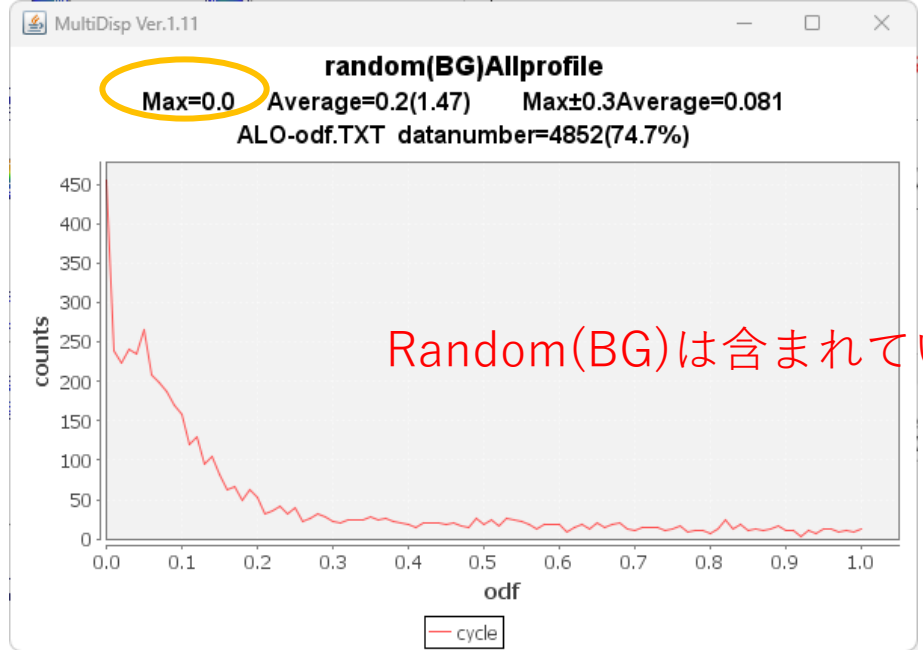
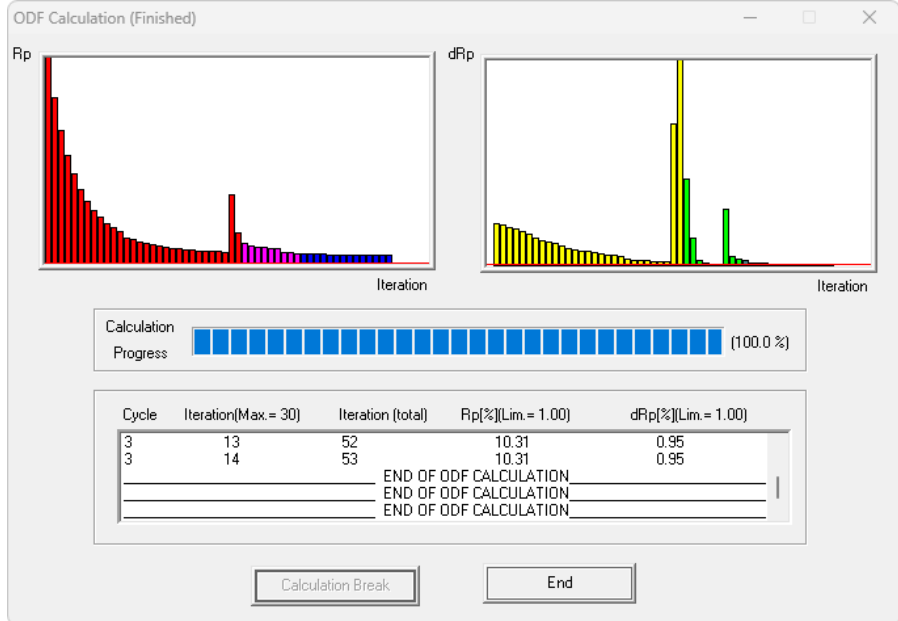
Min=0.000->random(BG)が含まれている可能性小

ODF図をExportし Random(BG)定量を行う

Rp%は測定時より下がる

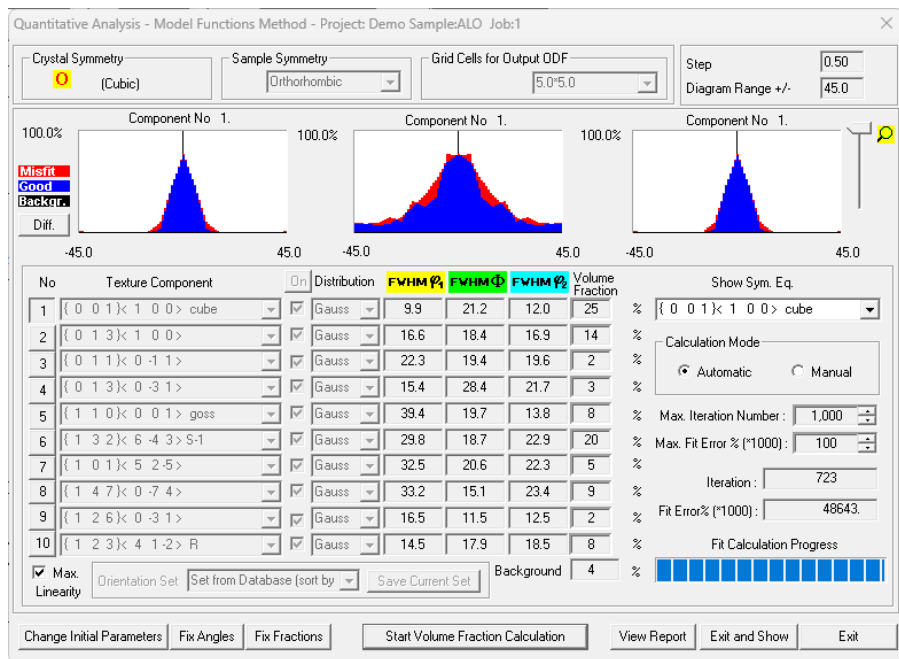


Random(BG)が含まれるとRp%は低下する傾向あり



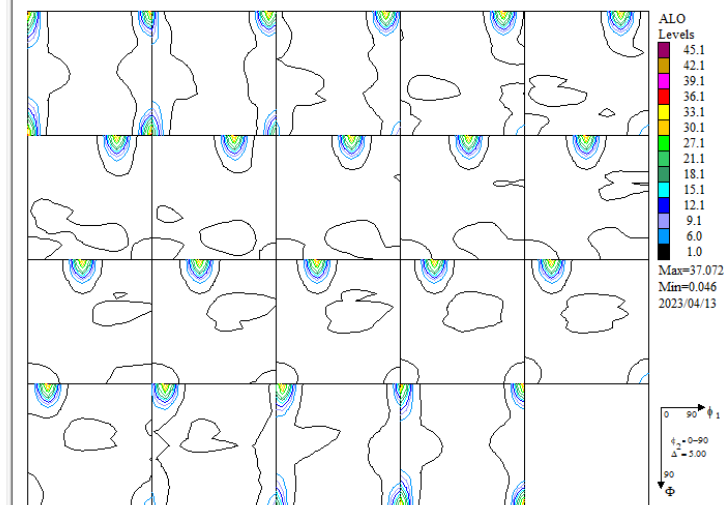
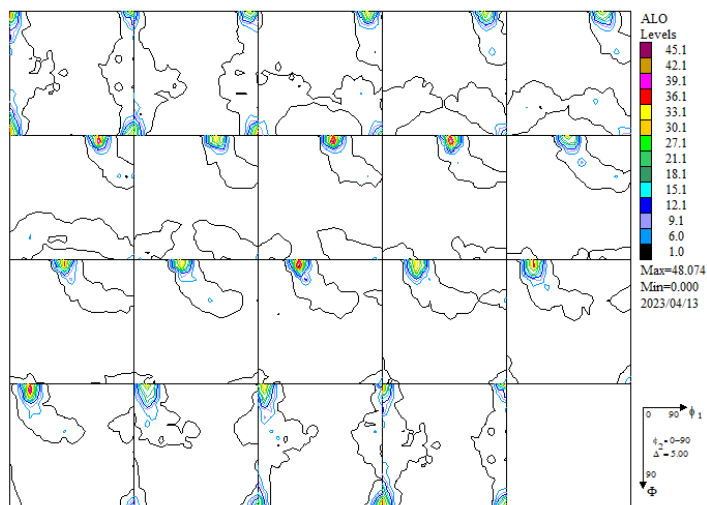
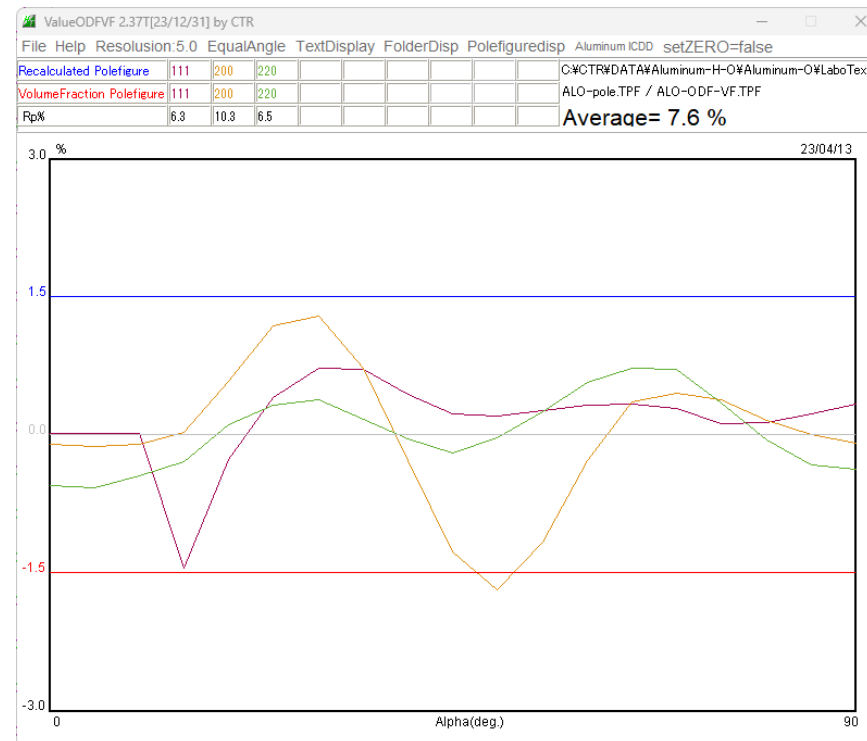
Random(BG)は含まれていない

VolumeFraction



| No. | VF (%) | Phi1 (FWHM) | Phi (FWHM) | Phi2 (FWHM) | Orientation |
|-----|--------|----------------------------|------------|-------------|--------------------------|
| 1: | 25.17 | 9.9 | 21.2 | 12.0 | { 0 0 1 } < 1 0 0 > cube |
| 2: | 13.79 | 16.6 | 18.4 | 16.9 | { 0 1 3 } < 1 0 0 > |
| 3: | 2.03 | 22.3 | 19.4 | 19.6 | { 0 1 1 } < 0 -1 1 > |
| 4: | 3.33 | 15.4 | 28.4 | 21.7 | { 0 1 3 } < 0 -3 1 > |
| 5: | 8.03 | 39.4 | 19.7 | 13.8 | { 1 1 0 } < 0 0 1 > goss |
| 6: | 19.51 | 29.8 | 18.7 | 22.9 | { 1 3 2 } < 6 -4 3 > S-1 |
| 7: | 4.64 | 32.5 | 20.6 | 22.3 | { 1 0 1 } < 5 2 -5 > |
| 8: | 8.56 | 33.2 | 15.1 | 23.4 | { 1 4 7 } < 0 -7 4 > |
| 9: | 2.18 | 16.5 | 11.5 | 12.5 | { 1 2 6 } < 0 -3 1 > |
| 10: | 8.20 | 14.5 | 17.9 | 18.5 | { 1 2 3 } < 4 1 -2 > R |
| 11: | 4.57 | Background Volume Fraction | | | |

Background=random(BG)+other=0+Other=1.0
 VolumeFractionが決定されている



H材O材比較

