

E B S DデータをM T E Xで解析し極点図を得る

2 0 2 2年0 6月2 2日

*He l p e r T e x   O f f i c e*

## 概要

E B S Dデータから極点図を作成する場面は頻繁に発生している。

今回、テンプレートを作成しておく

対象E B S Dデータ

) > mtex-5.1.1 > data > EBSD > DC06\_2uniax

名前	更新日時	種類	サイズ
DC06_2uniax.ang	2020/10/15 5:49	ANG ファイル	805 KB

```
# TEM_PIXperUM 1.000000↓
# x-star 0.521621↓
# y-star 0.845559↓
# z-star 0.690009↓
# WorkingDistance 14.000000↓
# ↓
# Phase 1↓
# MaterialName Iron (Alpha)↓
# Formula Fe↓
# Info ↓
# Symmetry 43↓
# LatticeConstants 2.870 2.870 2.870 90.000 90.000 90.000↓
# NumberFamilies 100↓
# hklFamilies 0 -1 1 1 5.936393 1↓
# hklFamilies 0 -2 0 1 4.228070 1↓
# hklFamilies 1 -2 -1 1 3.376662 1↓
# hklFamilies 0 -2 2 0 2.829595 0↓
# hklFamilies 0 -3 1 1 2.438777 1↓
```

A n gデータをc t fファイルに変換

EBSDtoODF 1.02GaussT[23/06/19] by CTR

File Help

InputData

InputFile C:\mtex-5.1.1\data\EBSD\DC06\_2uniax\DC06\_2uniax.ang Iron(Alpha)

MaterialData

Material cif TXT .cif file

Group P1 Symmetry(OIM) 43 HKLCode 11 LaboTexCode 7 - O (cubic)

Aaxis 2.87 Baxis 2.87 Caxis 2.87 alpha 90.0 beta 90.0 gamma 90.0

183 :	0	24.0000	3.0000	1	0	302.49765	60.01618	54.28661	1.0	1	1
184 :	0	25.0000	3.0000	1	0	302.50739	60.00816	54.16457	1.0	1	1
185 :	0	26.0000	3.0000	1	0	302.2868	59.94857	54.33359	1.0	1	1
186 :	0	27.0000	3.0000	1	0	302.2868	59.94857	54.33359	1.0	1	1
187 :	0	28.0000	3.0000	1	0	302.2868	59.94857	54.33416	1.0	1	1
188 :	0	29.0000	3.0000	1	0	302.2868	59.94857	54.33416	1.0	1	1
189 :	0	30.0000	3.0000	1	0	302.2868	59.94857	54.33416	1.0	1	1
190 :	0	31.0000	3.0000	1	0	302.28795	59.94456	54.3376	1.0	1	1
191 :	0	32.0000	3.0000	1	0	12.98781	120.58126	234.51678	1.0	1	1
192 :	0	33.0000	3.0000	1	0	201.68057	70.2876	302.43463	1.0	1	1
193 :	0	34.0000	3.0000	1	0	201.89944	70.14894	302.30227	1.0	1	1
194 :	0	35.0000	3.0000	1	0	201.89944	70.14894	302.30227	1.0	1	1
195 :	0	36.0000	3.0000	1	0	201.86392	70.11285	302.41515	1.0	1	1
196 :	0	37.0000	3.0000	1	0	21.84803	109.97581	237.54773	1.0	1	1
197 :	0	38.0000	3.0000	1	0	182.97407	49.49209	310.46119	1.0	1	1
198 :	0	39.0000	3.0000	1	0	182.94199	49.31276	310.38442	1.0	1	1
199 :	0	40.0000	3.0000	1	0	182.94199	49.31333	310.38442	1.0	1	1
200 :	0	41.0000	3.0000	1	0	182.94199	49.3139	310.38499	1.0	1	1

outfiledisp

Makefile

DataStartline 135 PhasePotision 8 Selectphase 1 f1 1 F 2 f2 3 X 4 Y 5

HKL-ctf Holder C:\mtex-5.1.1\data\EBSD\DC06\_2uniax\DC06\_2uniaxEtoO.ctf

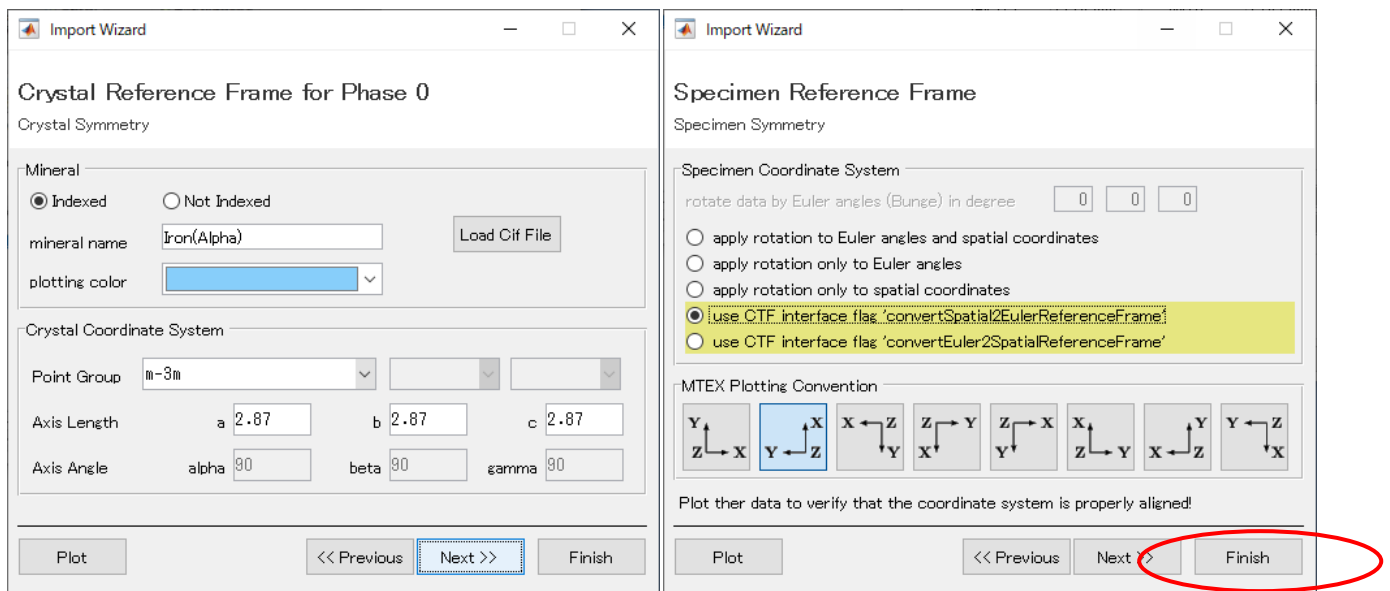
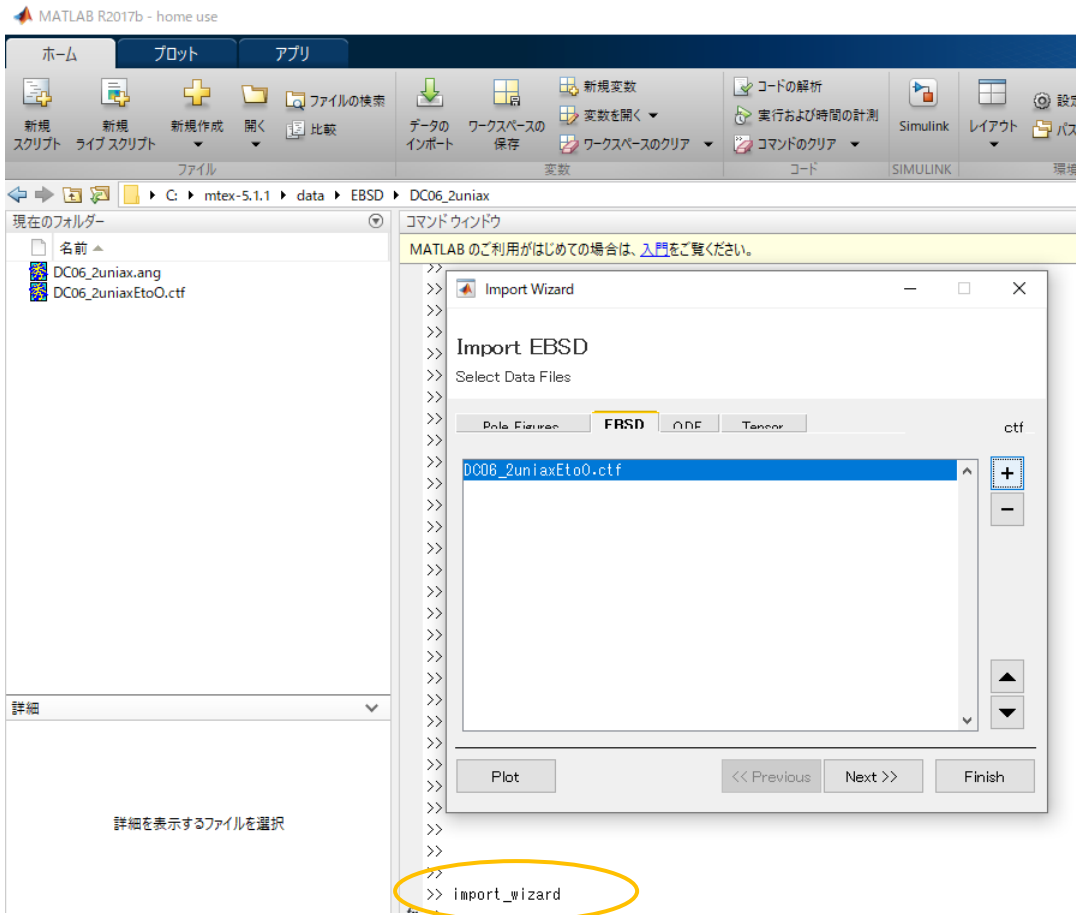
SOR Variance ☒ 15 deg >= Step 5.0

Filemake C:\mtex-5.1.1\data\EBSD\DC06\_2uniax\DC06\_2uniaxEtoO.ctf make complete !!

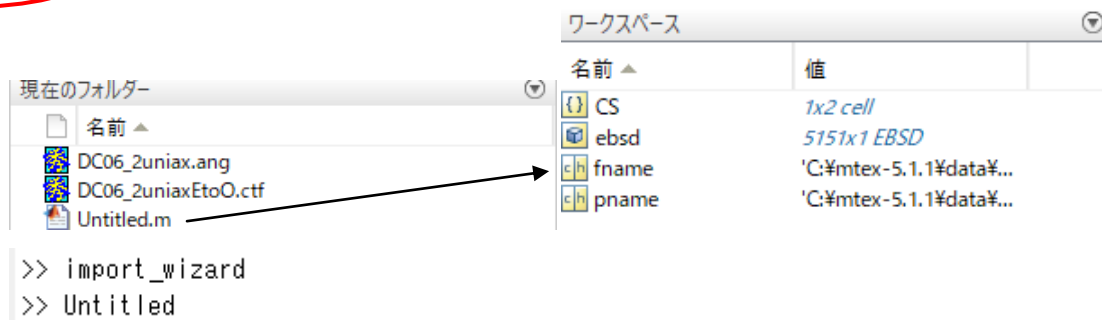
a n gデータを直接M T E Xで読み込む場合、以下を参考にしてください。

<https://helpertex.sakura.ne.jp/Soft/DOC3-MTEX/MTEX570-Angdataread.pdf>

## MT E Xに読み込む



実行で



```
CS = {...
'notIndexed',...
crystalSymmetry('m-3m', [2.9 2.9 2.9], 'mineral', 'Iron(Alpha)',
```

‘Iron(Alpha)’ の抽出

```
>> ans=ebds('Iron(Alpha)')
```

ODF 計算

```
>> odf=calcDensity(ans.orientations)           // FWHM=25deg
FWHM=10deg に変更は
Odf=CalcDensity(ans.orientations,"halfwidth",10.0degree)
```

Iron(Alpha) の cs を計算

```
>> cs=ans.orientations.CS
```

極点図指定

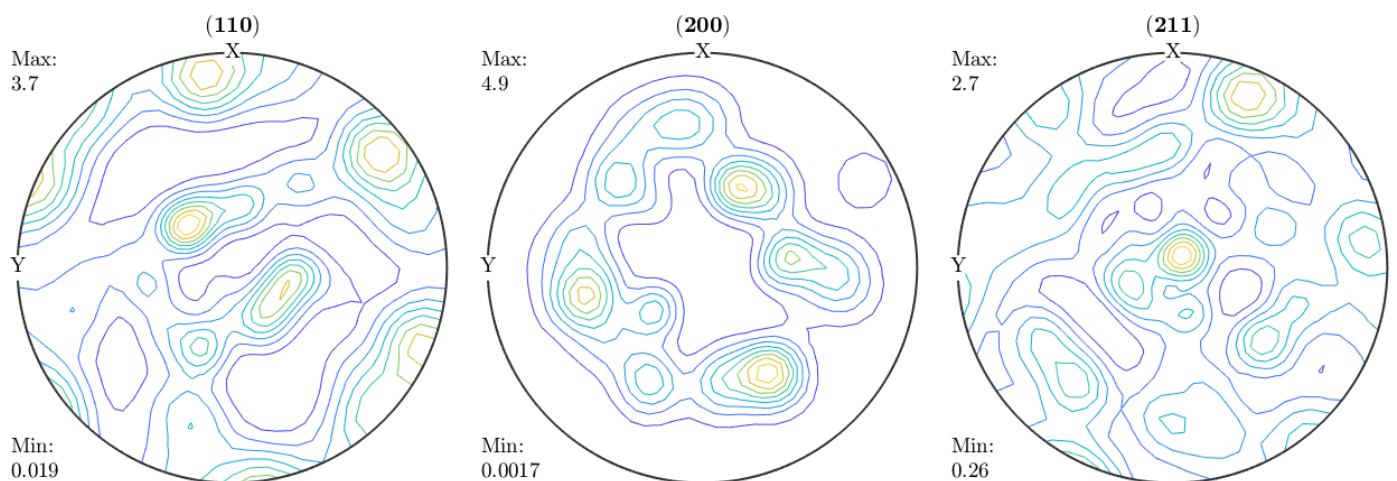
```
>> h = {Miller(1,1,0,cs),Miller(2,0,0,cs),Miller(2,1,1,cs)}
```

極点図作成

```
>> rpf=calcPoleFigure(odf,h)
```

極点図表示

```
>> plot(rpf,'contour','projection','eangle')
```

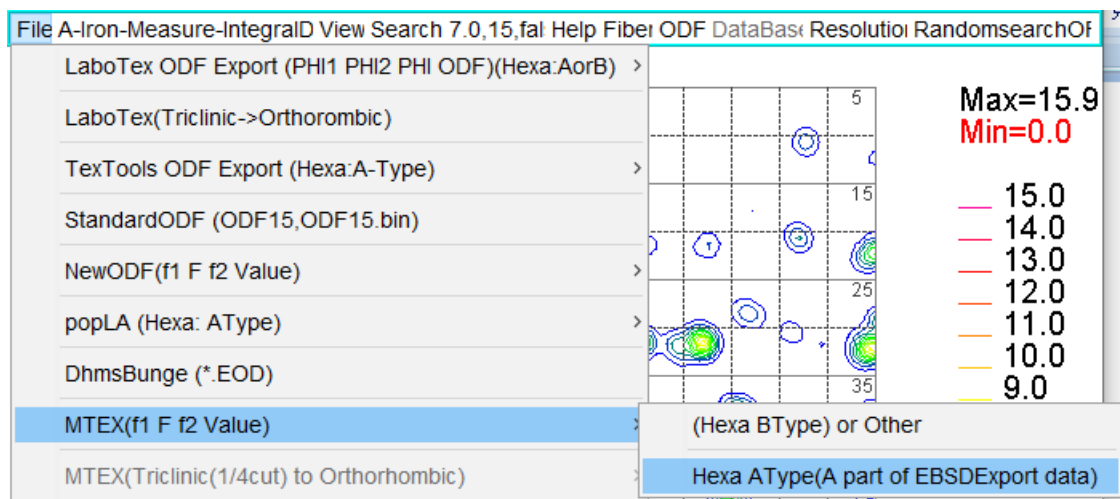


対称操作 (Triclinic→Orthorhombic)

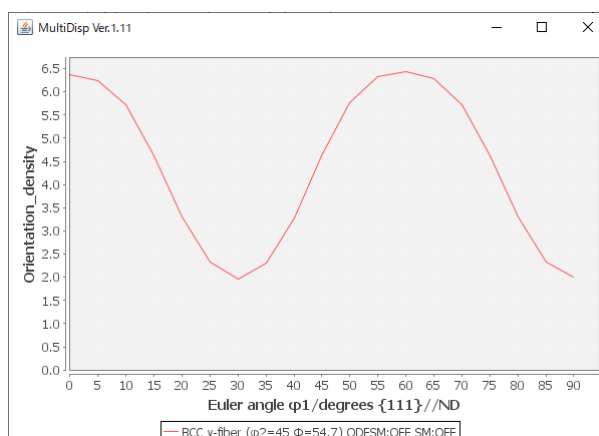
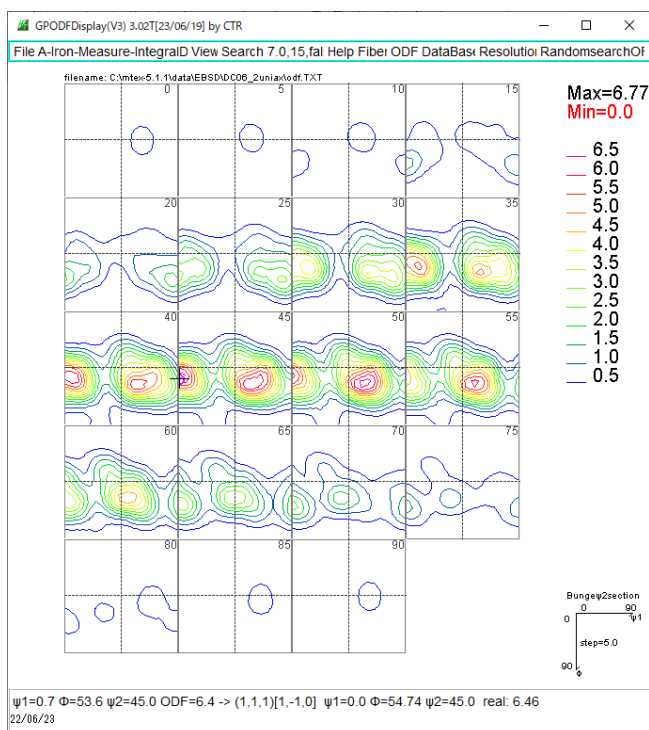
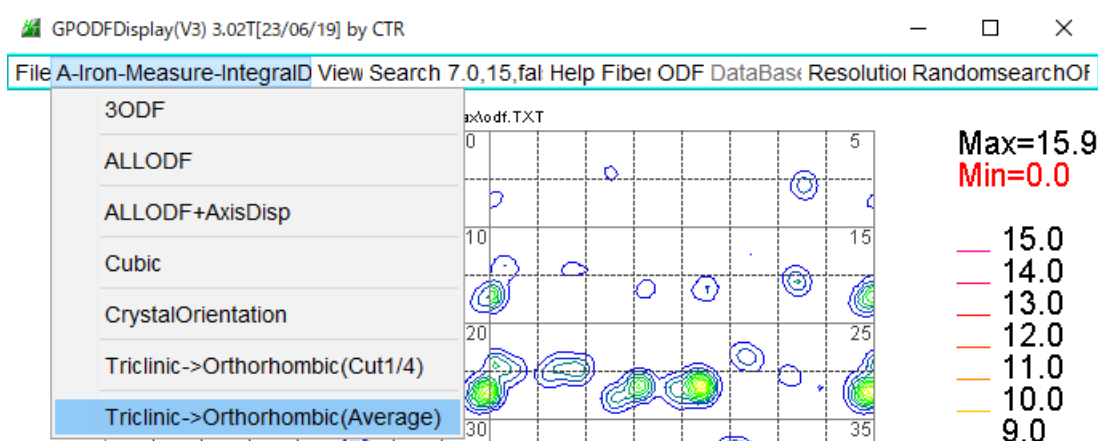
Exportし、Orthorhombic化

```
>> export(odf,'odf.TXT')
```

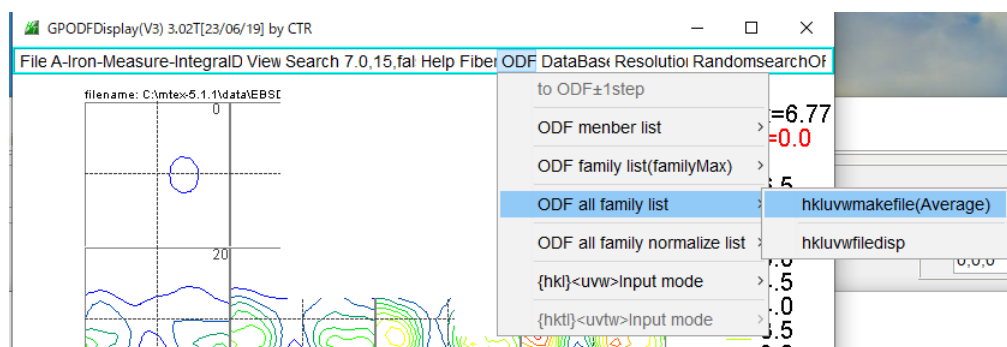
データ読み込み



Triclinic→Orthorhombic



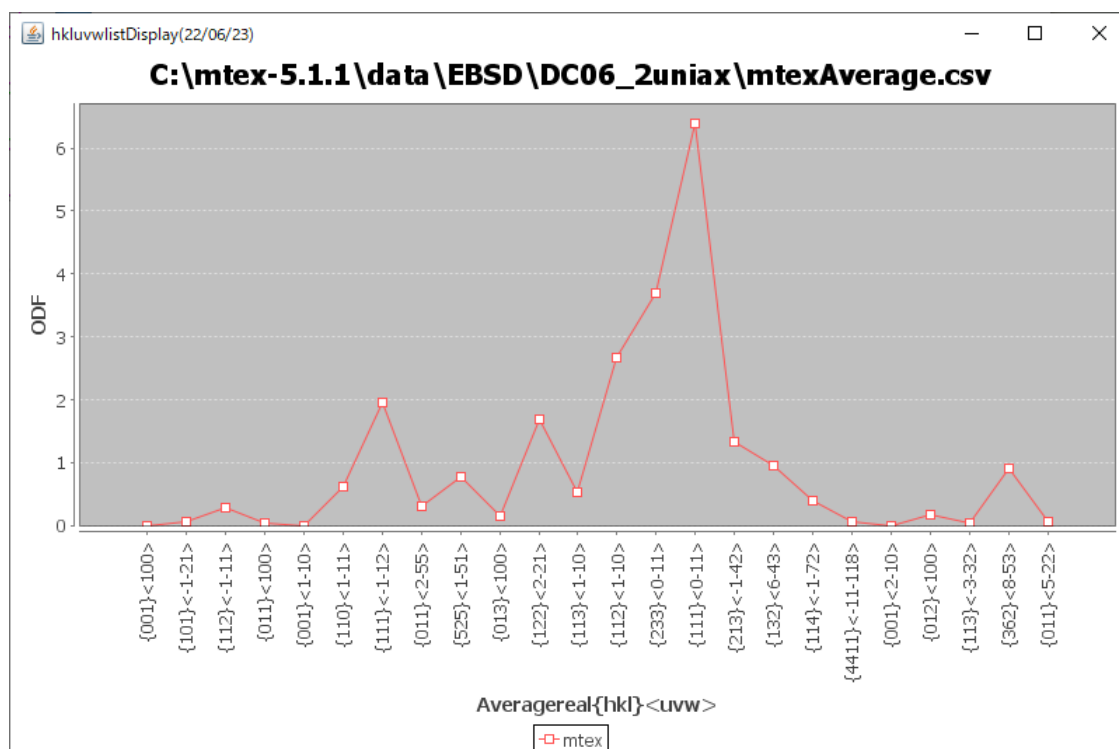
## 方位計算



mtexAverage.csv - メモ帳

ファイル(F) 編集(E) 書式(O) 表示(V) ヘルプ(H)

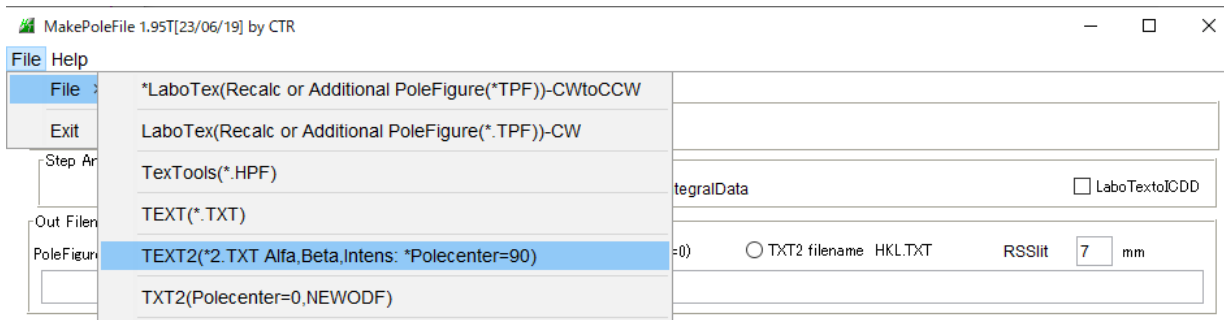
```
Averagereal{hkl}<uvw>,mtex
{001}<100>,0.01
{101}<-1-21>,0.06
{112}<-1-11>,0.3
{011}<100>,0.05
{001}<1-10>,0.0
{110}<1-11>,0.62
{111}<-1-12>,1.97
{011}<2-55>,0.31
{525}<1-51>,0.79
{013}<100>,0.15
{122}<2-21>,1.7
{113}<1-10>,0.53
{112}<1-10>,2.67
{233}<0-11>,3.69
{111}<0-11>,6.39
{213}<-1-42>,1.33
{132}<6-43>,0.96
{114}<-1-72>,0.4
{4411}<-11-118>,0.07
{001}<2-10>,0.0
{012}<100>,0.19
{113}<-3-32>,0.05
{362}<8-53>,0.91
{011}<5-22>,0.08
```



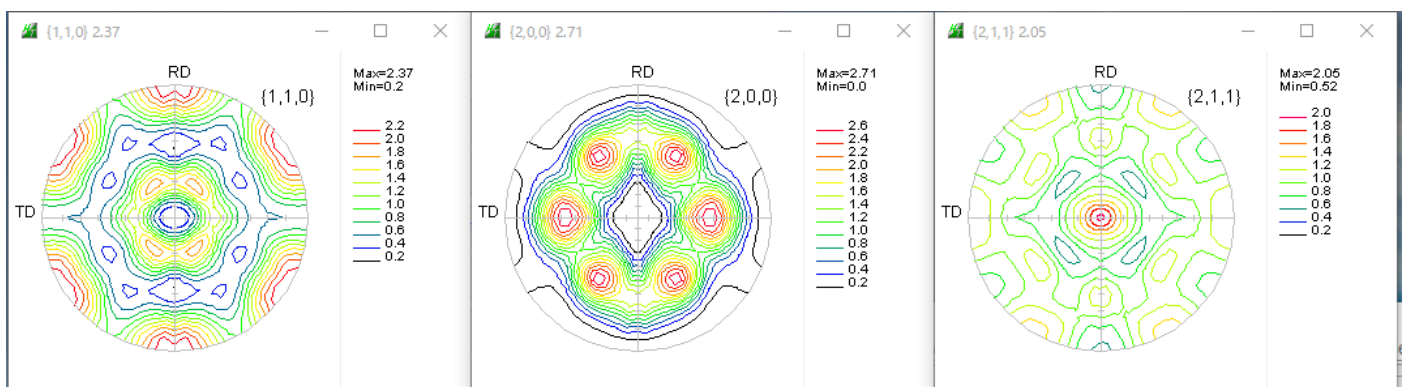
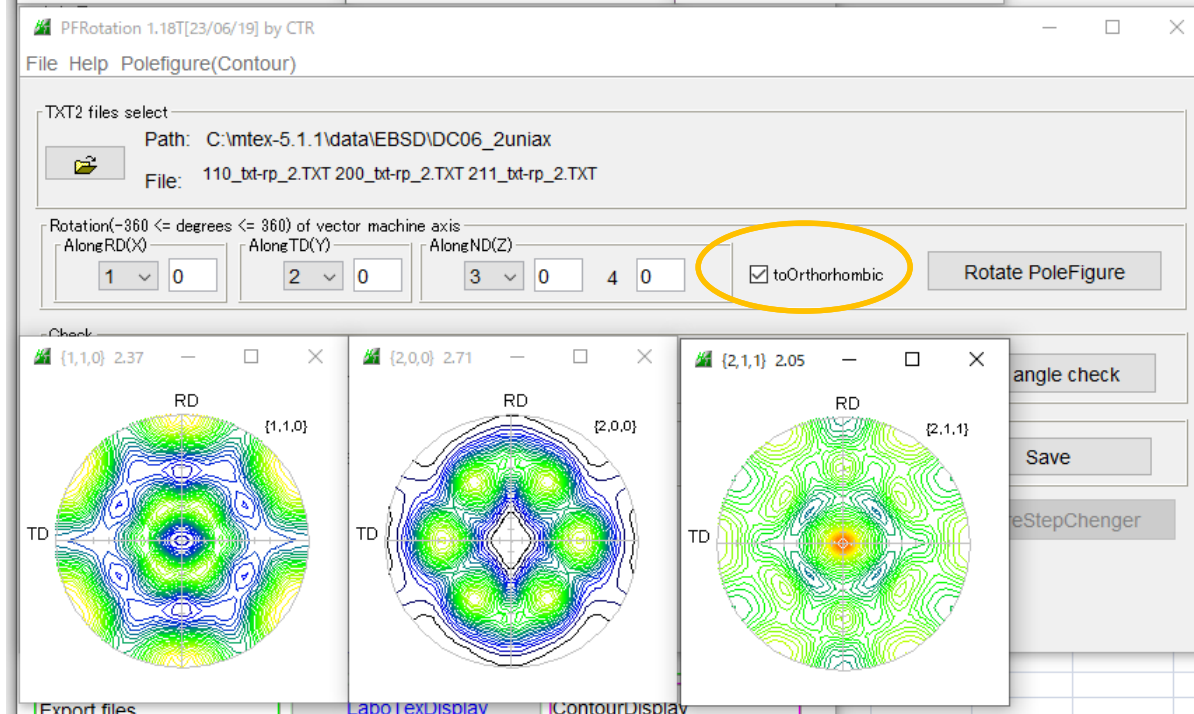
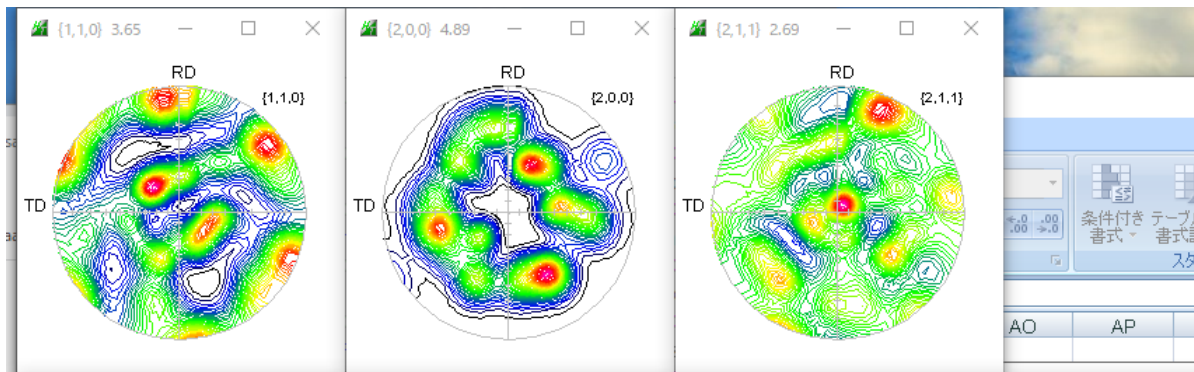
極点図

```
>> export(rpf,'pole')
```

MTEX->TXT2

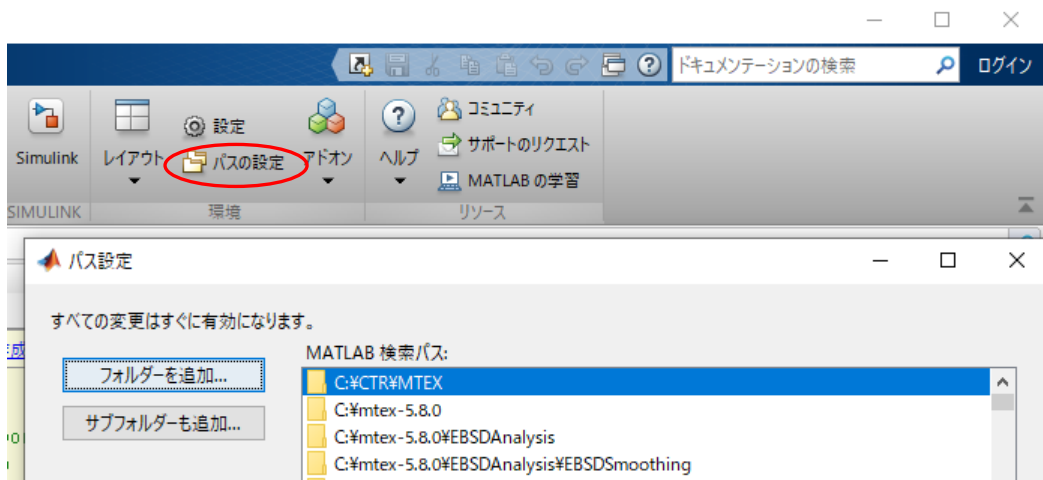


PFRotation(TXT2を表示)でOrthorhombic化





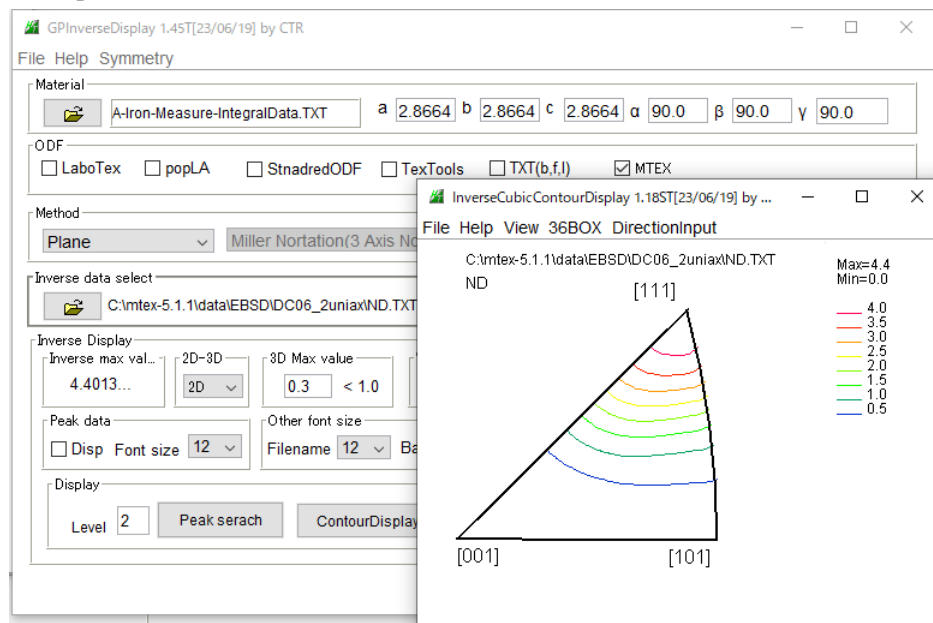
MATLABのパスに CTR¥MTEX を設定で逆極点図 E x p o r t 可能



```
>> exportIPDF(odf,xvector,'RD.TXT')
```

```
>> exportIPDF(odf,yvector,'TD.TXT')
```

```
>> exportIPDF(odf,zvector,'ND.TXT')
```



3 6 B o x から計算

