

MTEXによる

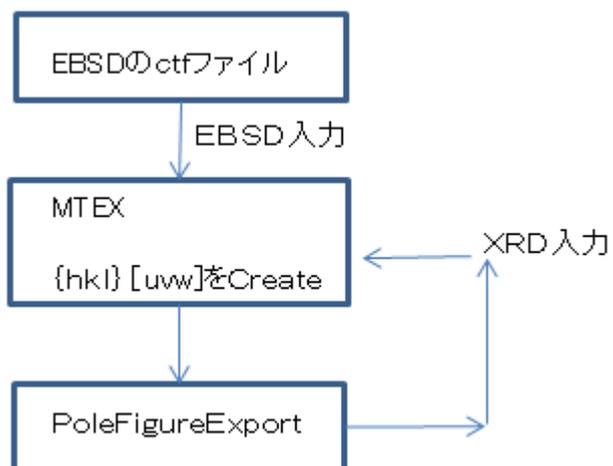
EBS Dの結晶方位をE x p o r t し、XRDデータとして入力し比較  
CaMg(Co<sub>3</sub>)<sub>2</sub>-D o l o m i t eはH e x a g o n a l - C 6である。

2020年10月30日

*HelperTex Office*

## 概要

MTEXのHexagonalを評価するため、付属データの `olivineopticalmap.ang` から `Dolomite`のパラメータを抽出し、そのパラメータに結晶方位を与え、ODFから極点図を計算し極点図のExportからXRDとして極点図を読み込み、与えた結晶方位と比較してみます。



## MTEXによるパラメータ作成

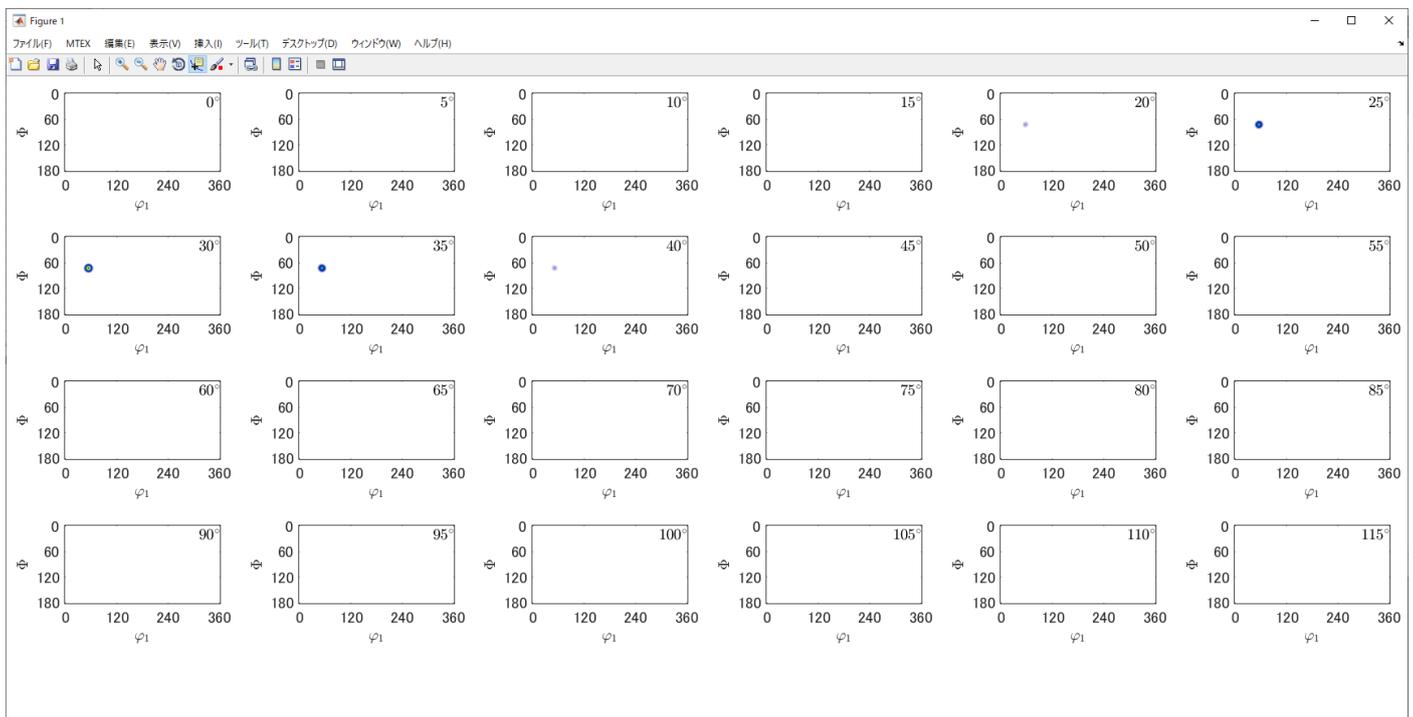
```
% crystal symmetry
CS = {...
    'notIndexed',...
    crystalSymmetry('222', [4.8 10 6], 'mineral', 'olivine', 'color', [0.53 0.81 0.98]),...
    crystalSymmetry('3', [4.8 4.8 16], 'X||a', 'Y||b*', 'Z||c', 'mineral', 'Dolomite', 'color', [0.56 0.74 0.56]),...
    crystalSymmetry('222', [18 8.8 5.2], 'mineral', 'Enstatite', 'color', [0.85 0.65 0.13]),...
    crystalSymmetry('422', [5.2 5.2 10], 'mineral', 'Chalcopyrite', 'color', [0.94 0.5 0.5])};
```

## Dolomite の抽出

```
ans=ebsd('Dolomite')
cs=ebsd('Dolomite').CS
```

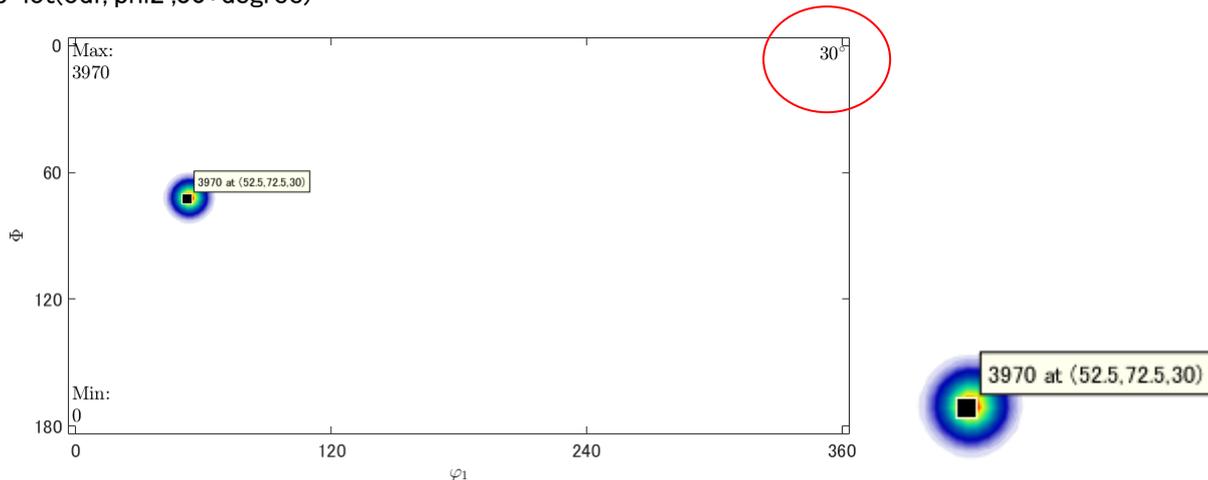
## 結晶方位作成

```
ori = orientation.byMiller([6 6 13],[5 -31 12],cs)
psi = vonMisesFisherKernel('HALFWIDTH',5*degree)
odf= unimodalODF(ori,psi)
plot(odf,'sections',24)
```



## Atype で描画される

```
p=lot(odf,'phi2',30*degree)
```

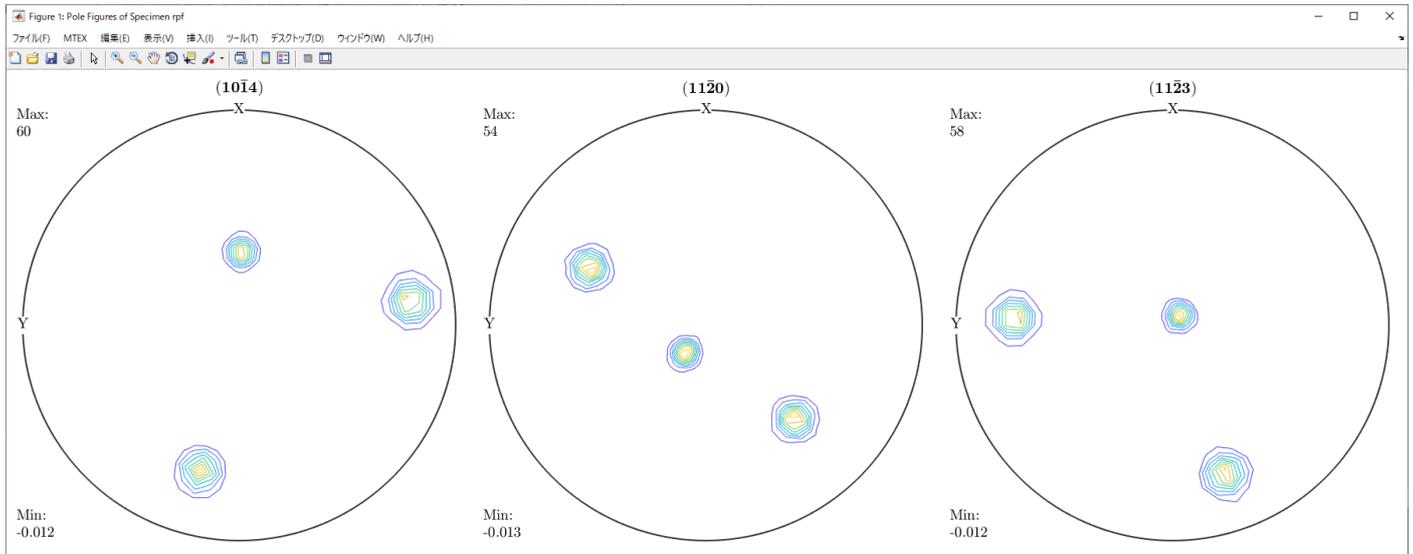


極点図作成

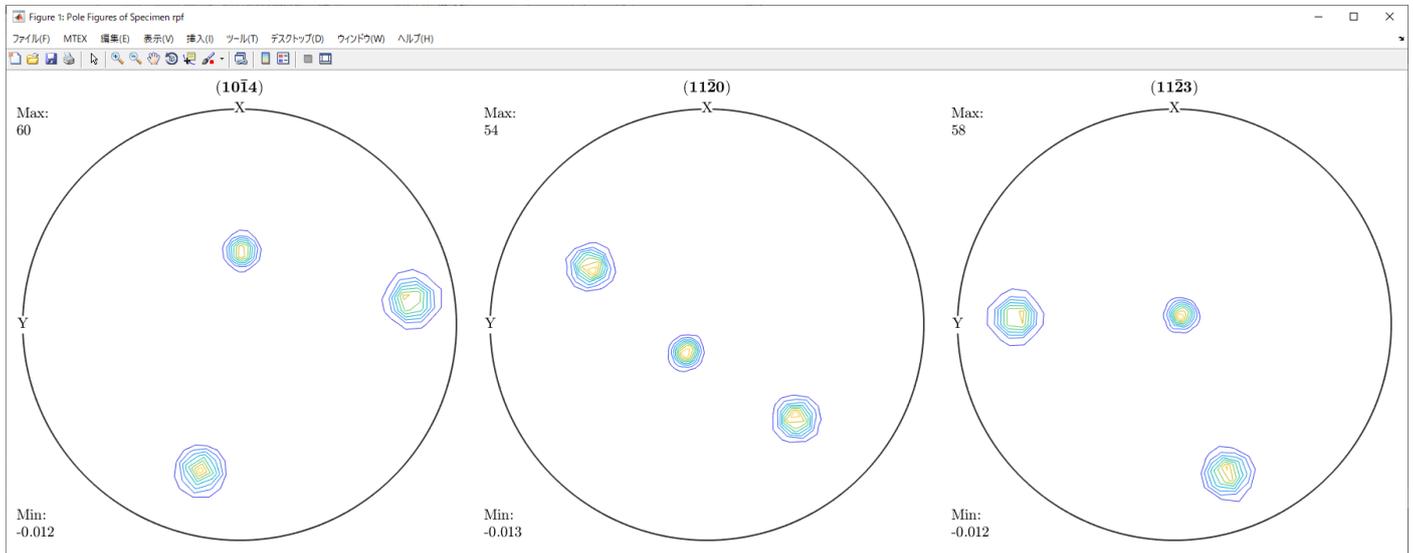
```
h = [Miller(1,0,4,cs),Miller(1,1,0,cs),Miller(1,1,3,cs)]
```

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

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

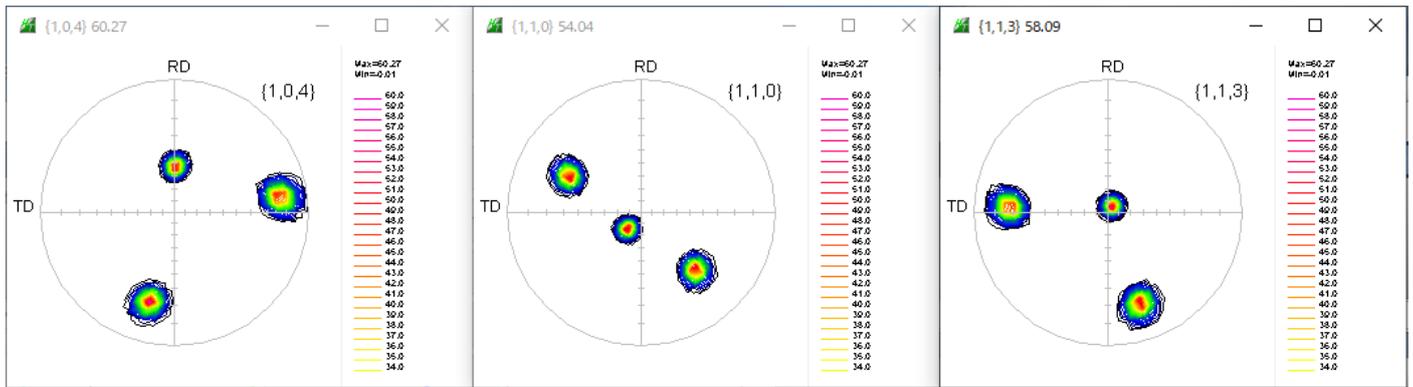


```
plot(rpf,'contour','projection','stereo')
```



Rpf を Export し XRD で読み込む

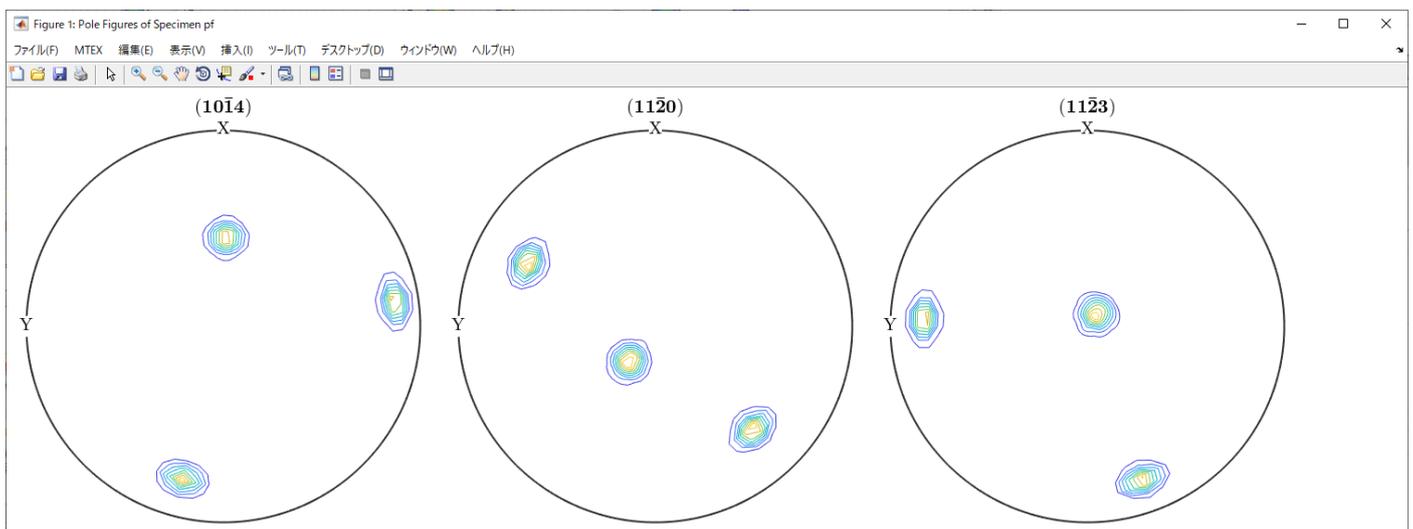
## Exportした極点図



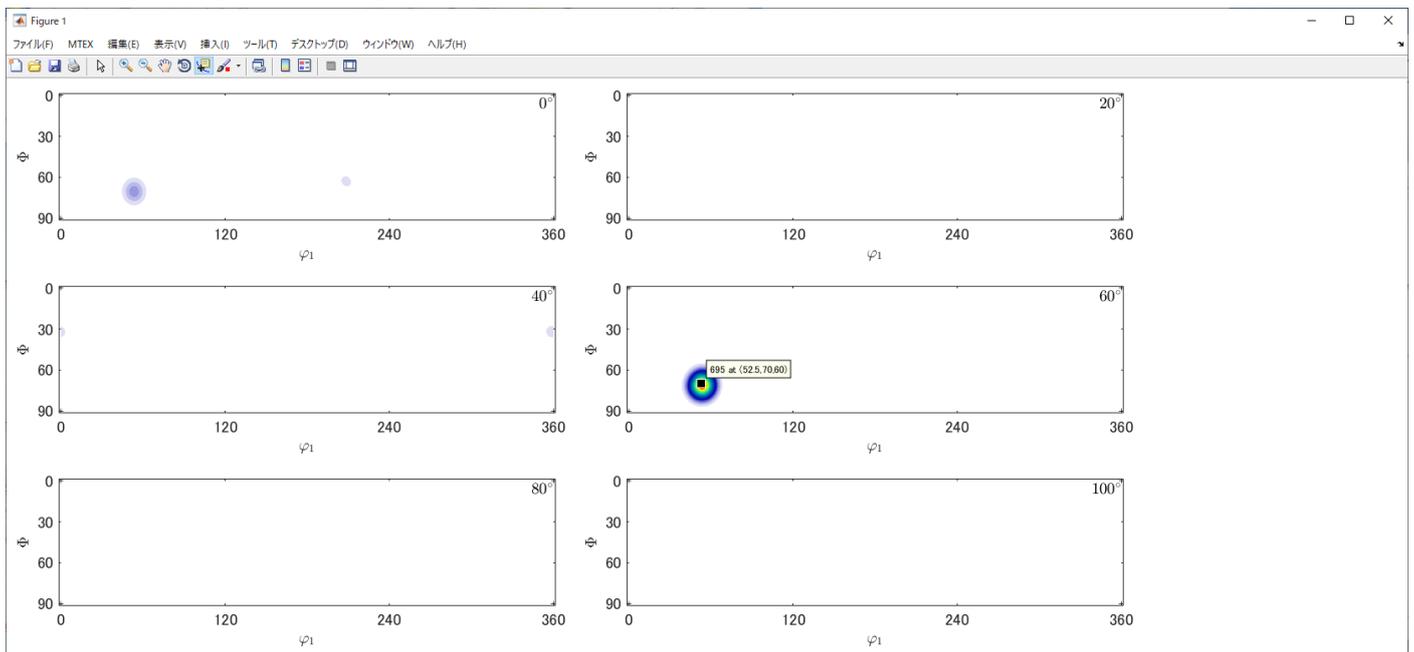
## XRDとしてMTEXに読み込む

Import Wizard dialog box for Dolomite. The Crystal Reference Frame section is set to Indexed. The mineral name is Dolomite. The Crystal Coordinate System section is set to Point Group  $-3m1$ , with Axis Length  $a = 4.9382$ ,  $b = 4.9382$ , and  $c = 16.832$ . The Axis Angle is set to  $\alpha = 90$ ,  $\beta = 90$ , and  $\gamma = 120$ .

## 読み込まれた極点図

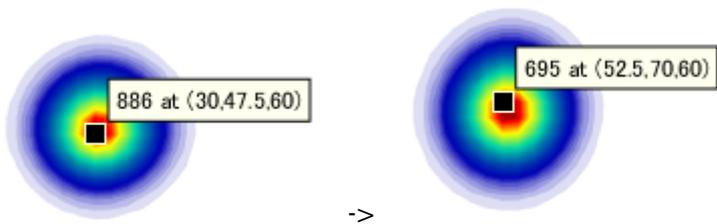
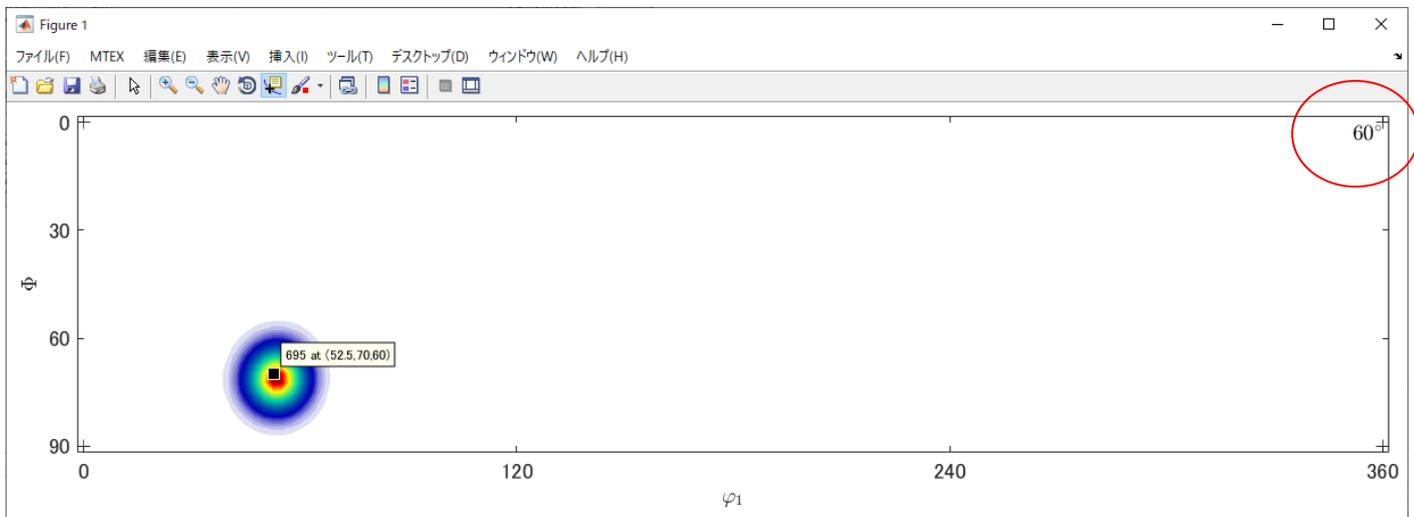


# ODF 図



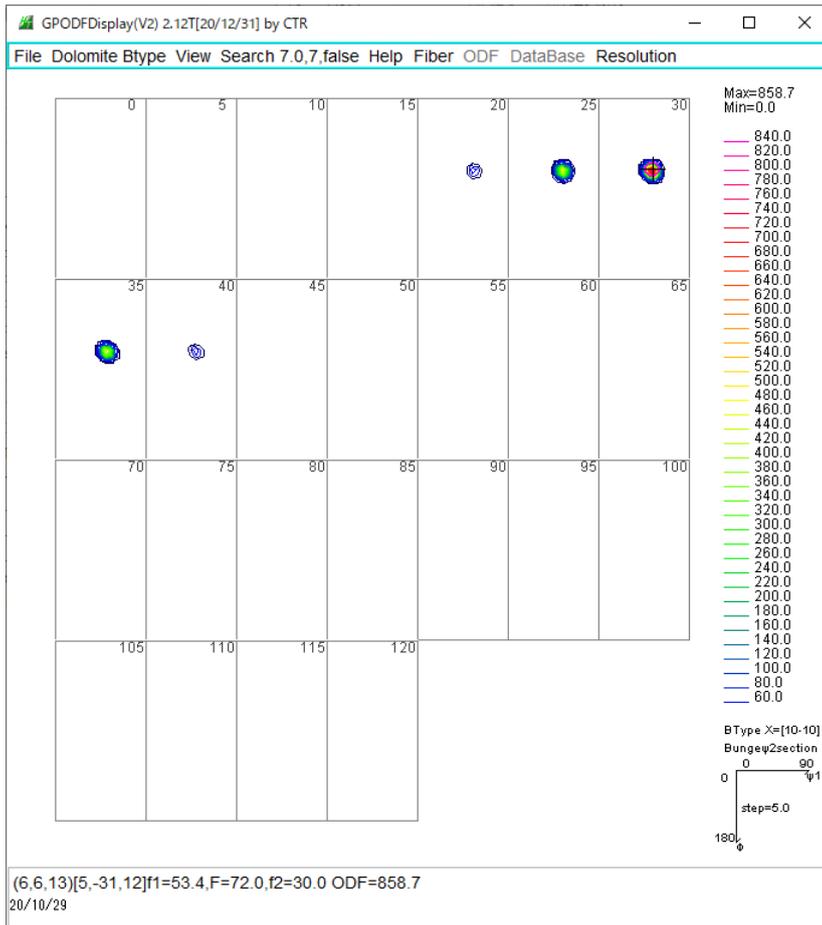
Btype で描画される。

`plot(odf,'phi2',60*degree)`

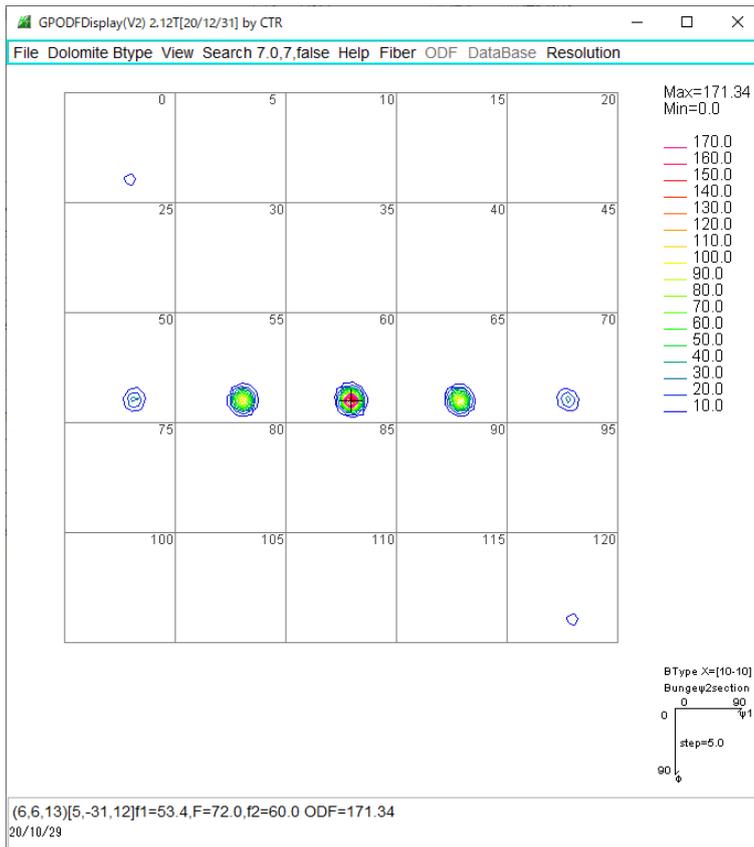


## ODF図比較

### EBS DODF (A-typeでfit)



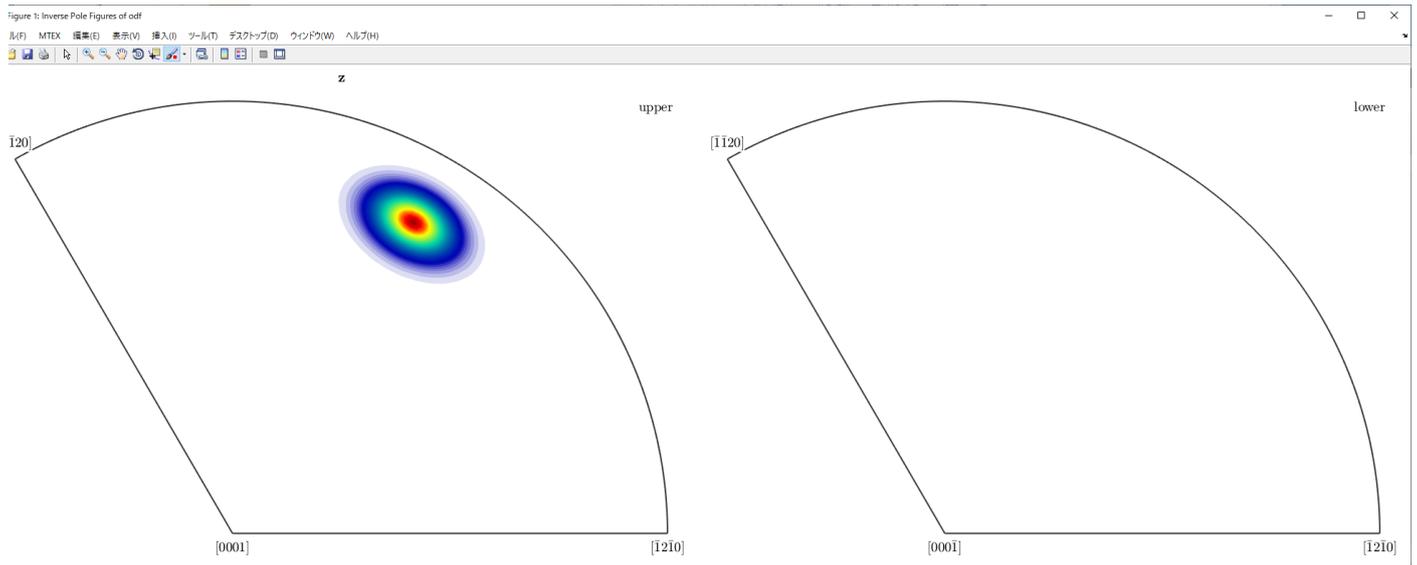
### XRD-MTEX (B-typeでFit)



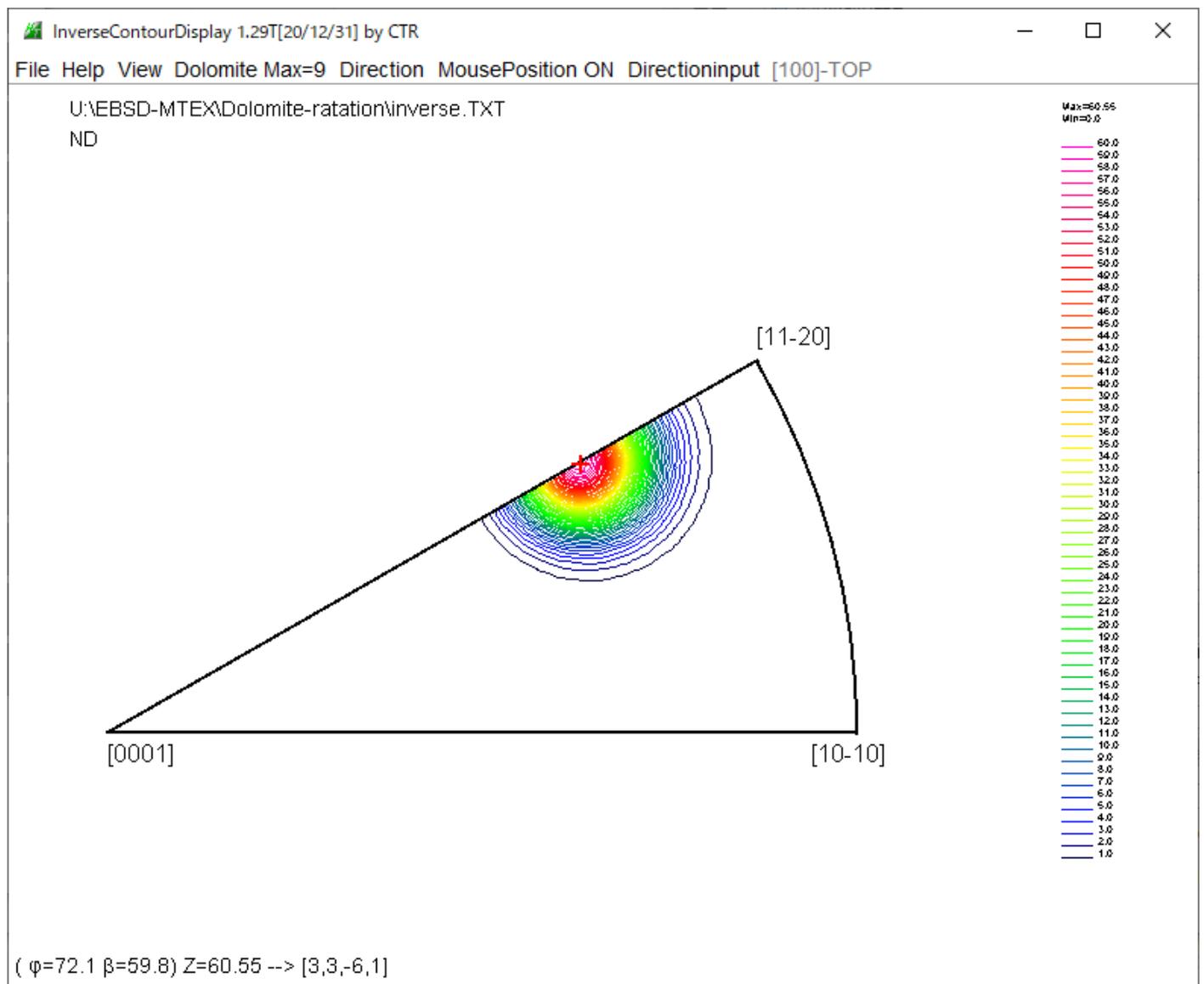
GPODFDisplay では、MTEX は Btype として扱っていたが、選択が必要である。

# 逆極点図

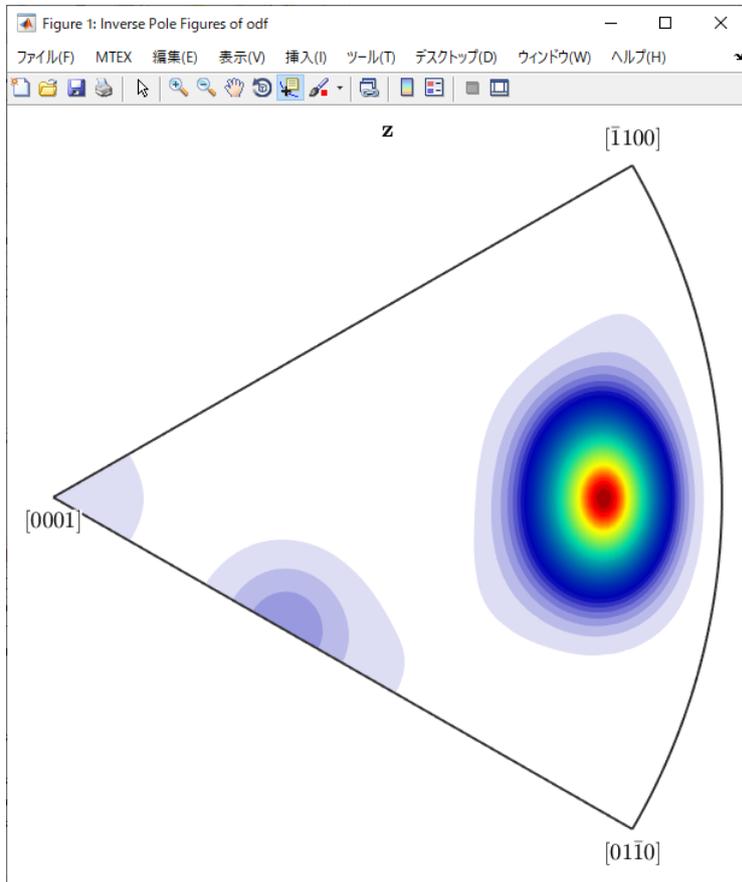
## EBSDの逆極点図



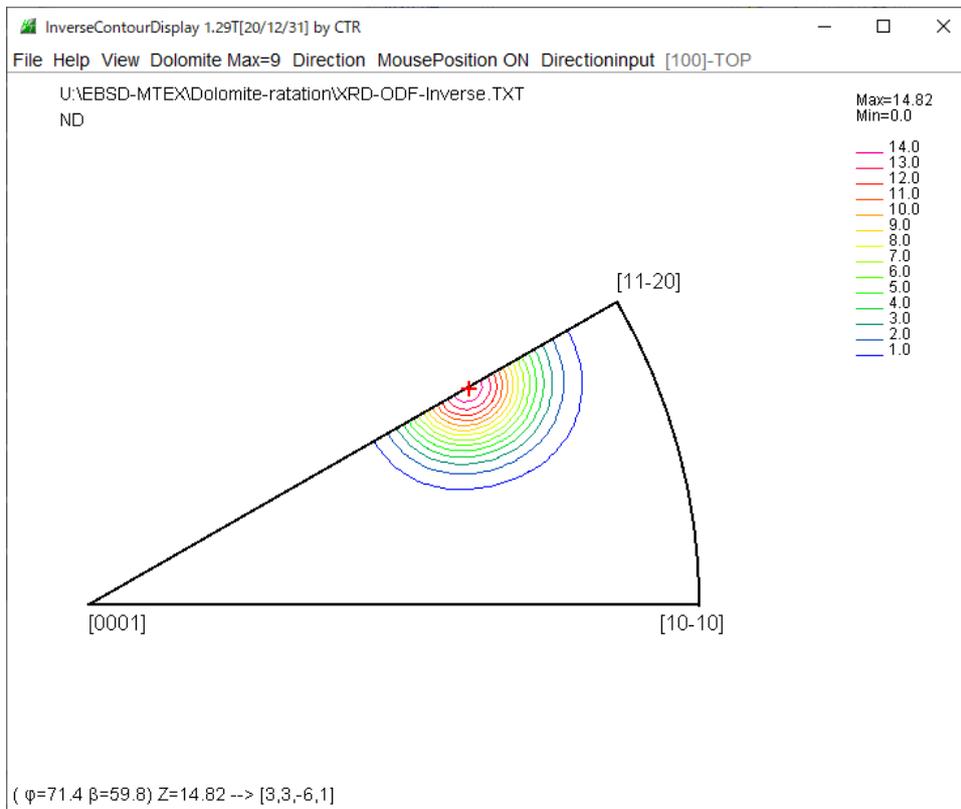
上下を平均化



XRD から入力し、MTEX 計算した逆極点図



#### 4 分割の平均化



一致している。

# GPODFDisplay(Ver2.13)によるODF図表示

A T y p e

HexaConvert 1.11ST[20/12/31] by CTR

File Step Help

A  X-Axis[100] ([2-1-10]) B  X-Axis[210] ([10-10])

Miller Notation (3Axis Notation)  
 6 6 13 5 -31 12 hkl uvw

Miller Bravais Notation(4 Axis Notation)  
 6 6 -12 13 41 -67 26 36 hkil uvxw

Euler(p1Fp2)  
 53.42 71.974 30.0

Material select  
Dolomite.TXT

c/a 3.329 Input  $\psi$ 2 Angles 30.0 Calc

DISP  
Position 10 Disp size 200 DISP  
BG Corr Black Line size 1.0 MINUS

OK Return Structure

B T Y p e

HexaConvert 1.11ST[20/12/31] by CTR

File Step Help

A  X-Axis[100] ([2-1-10]) B  X-Axis[210] ([10-10])

Miller Notation (3Axis Notation)  
 6 6 13 5 -31 12 hkl uvw

Miller Bravais Notation(4 Axis Notation)  
 6 6 -12 13 41 -67 26 36 hkil uvxw

Euler(p1Fp2)  
 53.42 71.974 60.0

Material select  
Dolomite.TXT

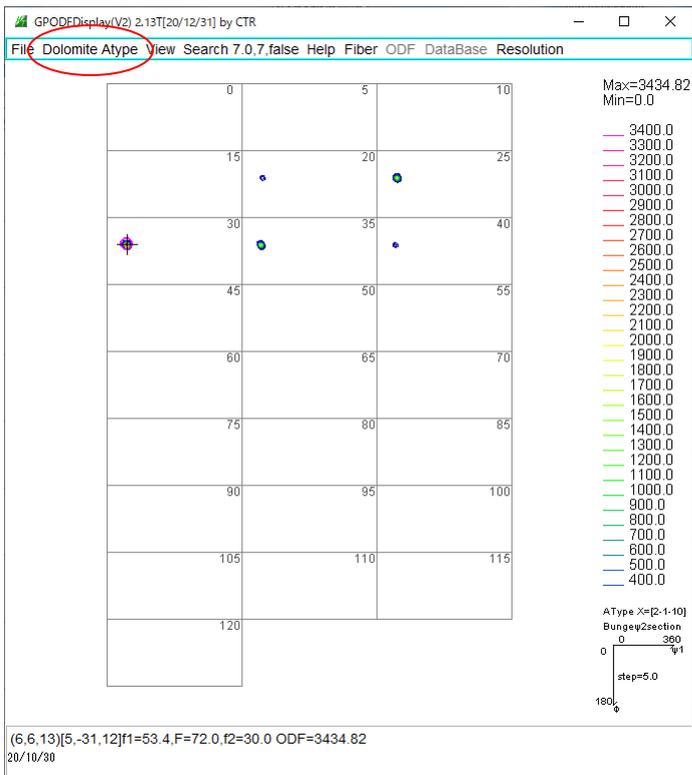
c/a 3.329 Input  $\psi$ 2 Angles 30.0 Calc

DISP  
Position 10 Disp size 200 DISP  
BG Corr Black Line size 1.0 MINUS

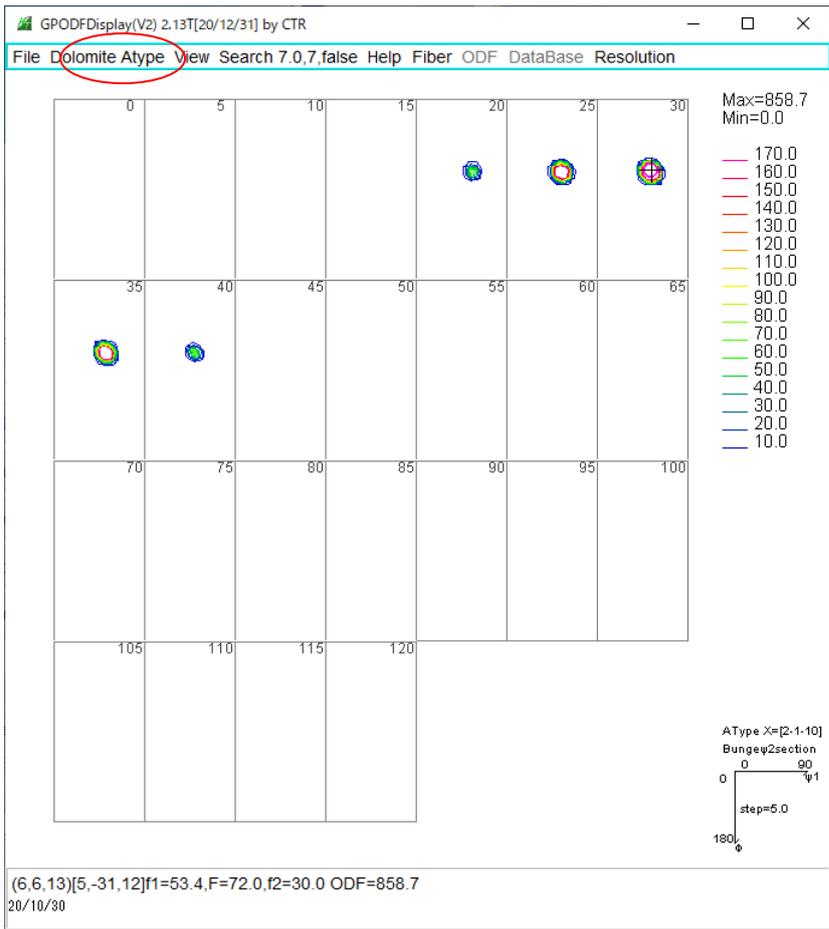
OK Return Structure

EBSDExp ortODF

MTEX(Triclinic to Orthorhombic(Average))	(Hexa BType) or Other
EBSD-OIM(f1 F2 Value)	Hexa AType(EBSDExp ort)

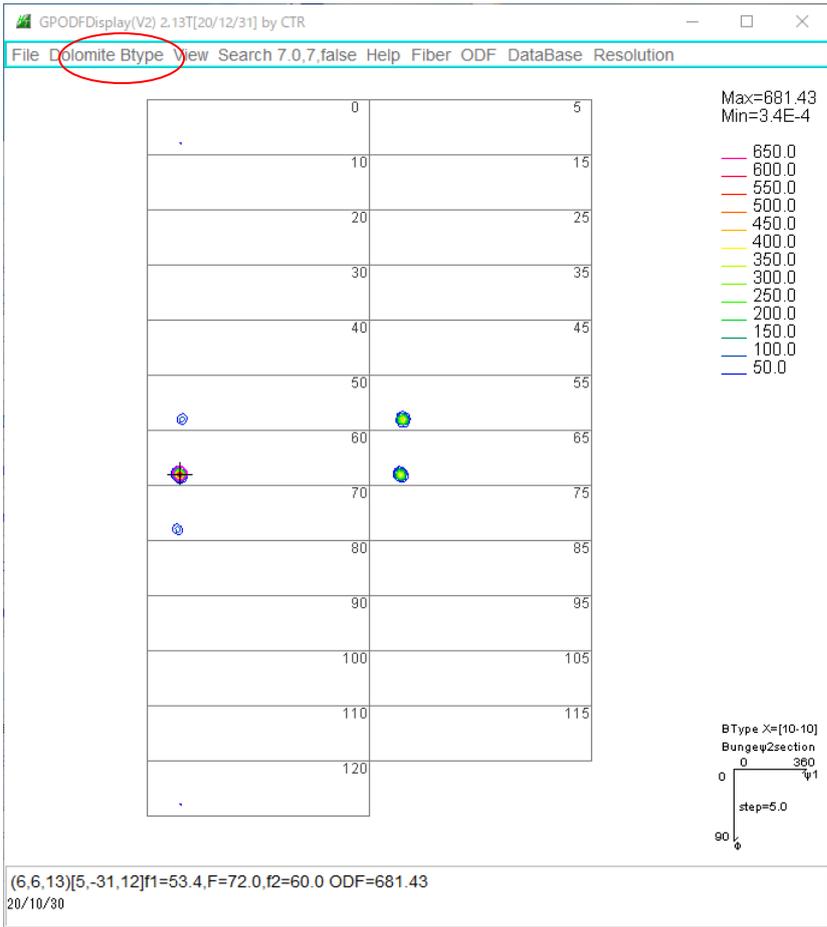


1 / 4 平均



XR D O D F E x p o r t

MTEX(f1 F2 Value)	>	(Hexa BType) or Other
MTEX(Triclinic(1/4cut) to Orthorhombic)	>	Hexa AType(EBSDExport)



1 / 4 平均

