

Data of 3D cathodoluminescence patterns, U-Pb ages, titanium concentration and Th/U with zircon growth in the Okueyama granite, Kyushu, Japan.

Authors

Takashi Yuguchi^{1*}, Daichi Itoh¹, Tatsunori Yokoyama², Shuhei Sakata³, Satoshi Suzuki¹, Yasuhiro Ogita², Koshi Yagi⁴, Takumi Imura¹, Satoko Motai¹, and Takeshi Ohno⁵

Affiliations

1. Faculty of Science, Yamagata University, 1-4-12 Kojirakawa, Yamagata 990-8560, Japan.
2. Japan Atomic Energy Agency, 959-31, Jorinji, Izumi-cho, Toki, Gifu 509-5102, Japan.
3. Earthquake Research Institute, University of Tokyo, 1-1-1 Yayoi, Bunkyo-ku, Tokyo 113-0032, Japan.
4. Hiruzen Institute for Geology and Chronology Co., Ltd., 2-5, Nakashima, Naka-ku, Okayama 703-8252, Japan.
5. Faculty of Science, Gakushuin University, 1-5-1 Mejiro, Toshima-ku, Tokyo, 171-8588 Japan]

Corresponding author(s)

Takashi Yuguchi (takashi_yuguchi@sci.kj.yamagata-u.ac.jp)

Keywords

3D cathodoluminescence pattern; Zircon U–Pb age; Titanium concentration; Th/U; Morphology; Okueyama granite

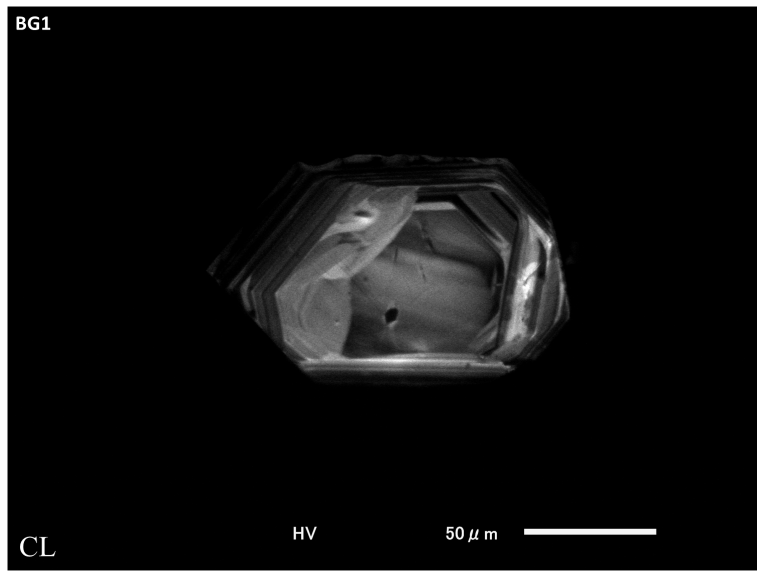
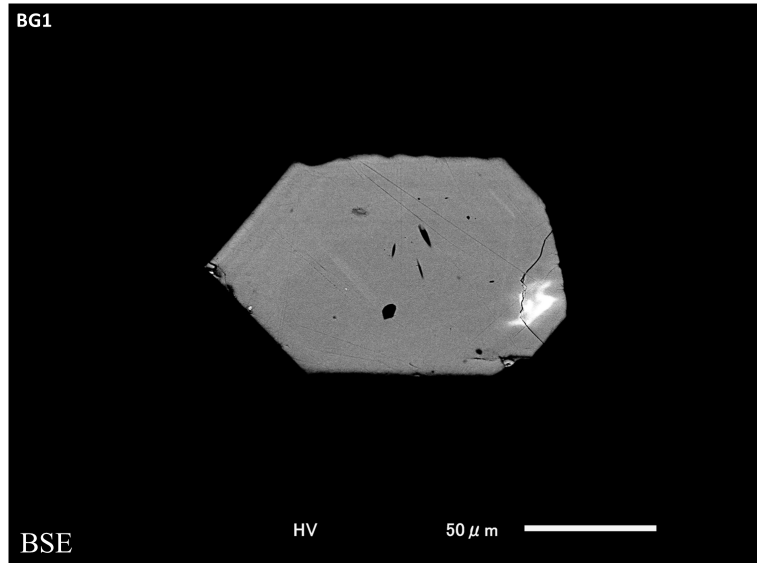
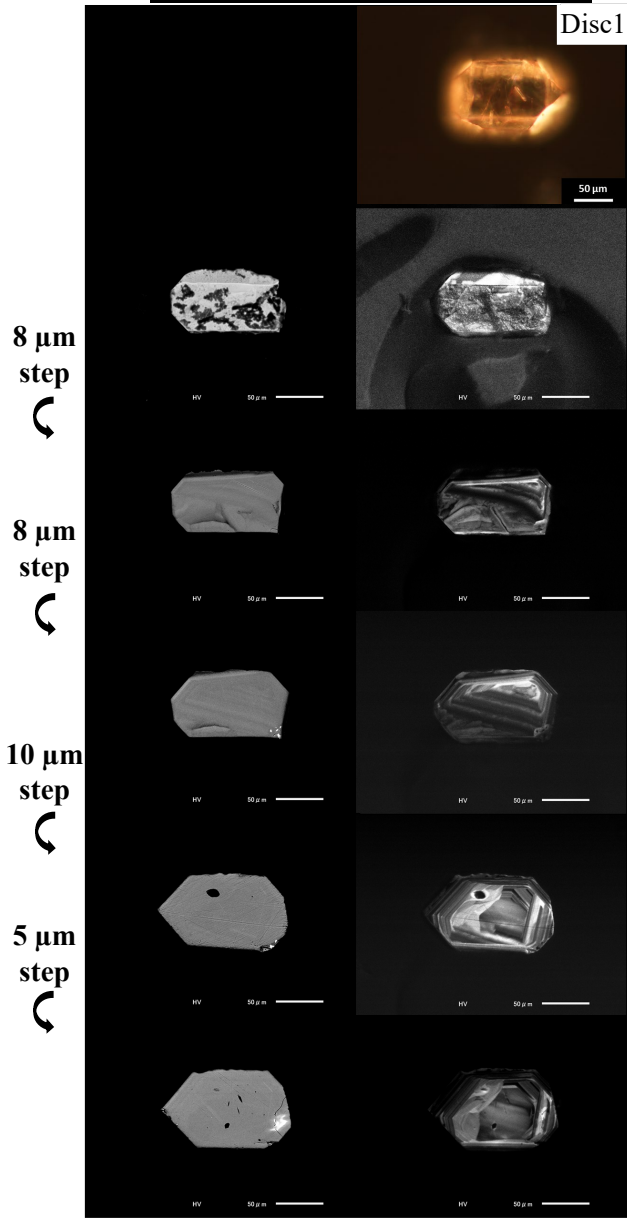
This dataset consists of three-dimensional (3D) cathodoluminescence (CL) patterns, U-Pb ages, titanium concentration and Th/U for elucidating zircon growth processes in a granitic pluton. We focused on the zircon growth processes in the Okueyama granite (OKG), central Kyushu, Japan, to obtain the interpretations of magma chamber processes. The OKG consists of three lithofacies including biotite granite (BG), hornblende granite (HG), and hornblende granodiorite (HGD). Three rock samples were collected from three lithofacies, respectively. The morphological descriptions, 3D cathodoluminescence patterns, U-Pb ages, titanium concentration and Th/U were compiled for all zircon crystals (N = 108) of three samples (Figs. 1-108). In order to achieve 3D internal structure and growth pattern in a zircon crystal, CL observations for the multi sections

with depth intervals of 5–10 μm within a zircon were performed. The 3D distribution of the internal structure of zircon crystals comprises the following five textures: 1) oscillatory zoned (OZ), 2) porous, 3) chaotic, 4) locally disturbed, and 5) crystals with inherited cores. The 3D distribution of the OZ can be used to approximate the location of zircon nucleation. Simultaneous determination of zircon U-Pb age and titanium concentration were carried out for the center section of the zircon. The simultaneous determination also enables us to associate Th/U with temperature.

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

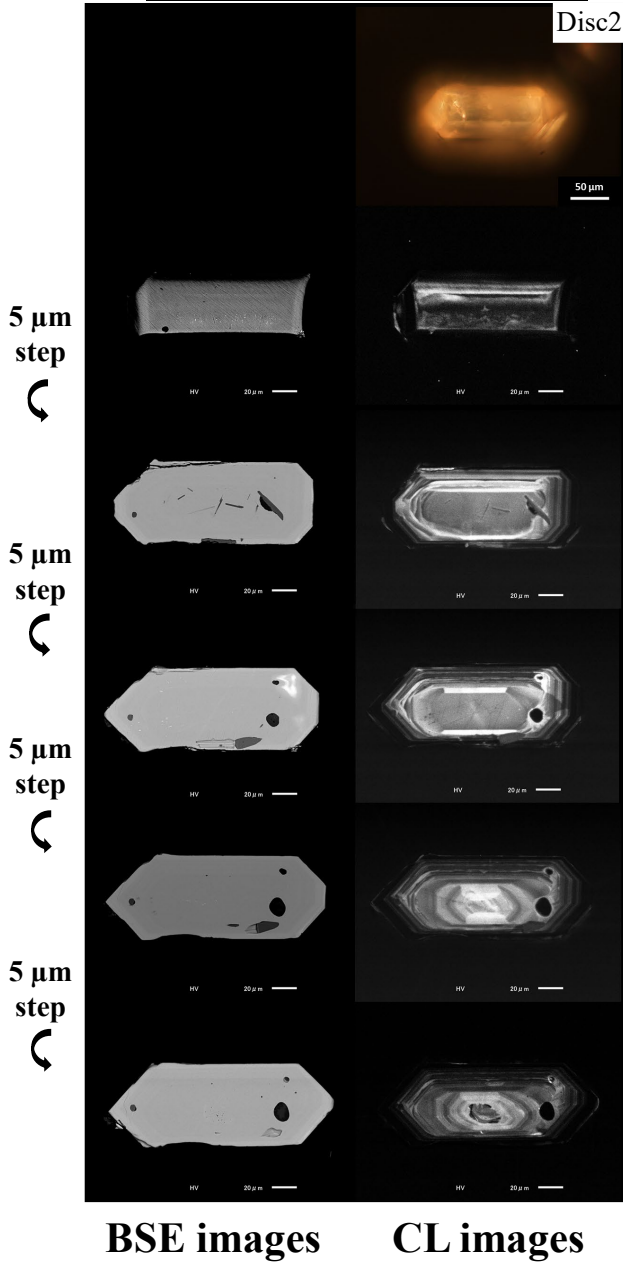
- Type {100}
- Major axis: 142 μm
- Minor axis: 90 μm
- Major axis/Minor axis: 1.6

Observed internal texture

- OZ
- LDT

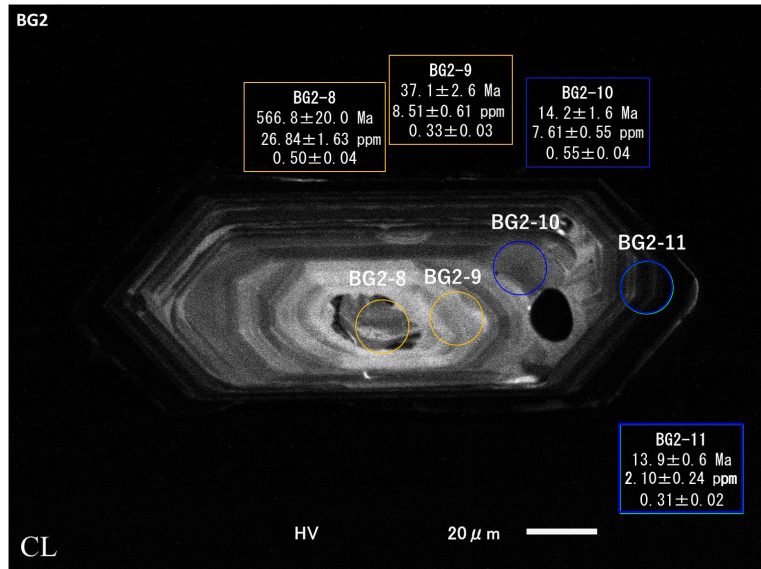
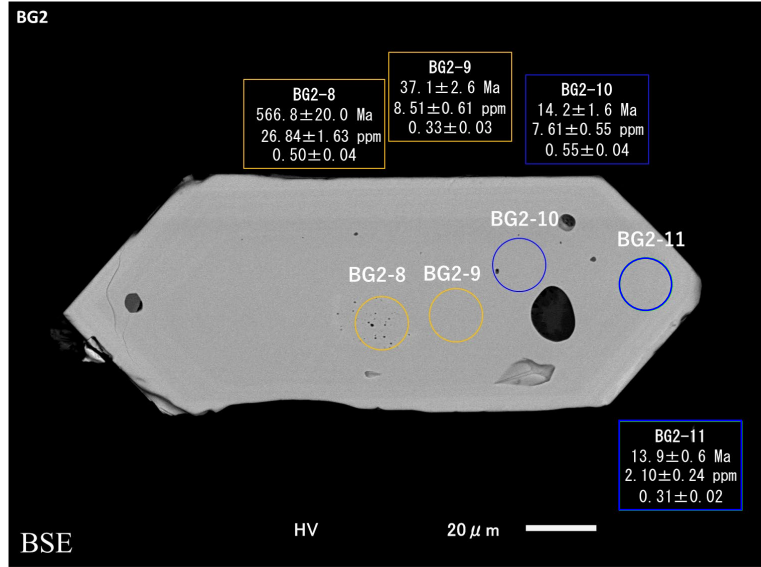
Fig. 1 Zircon data of grain No. BG1

Morphological observation and CL observation for multi-layers



Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 181 μ m
- Minor axis: 69 μ m
- Major axis/Minor axis: 2.6

Observed internal texture

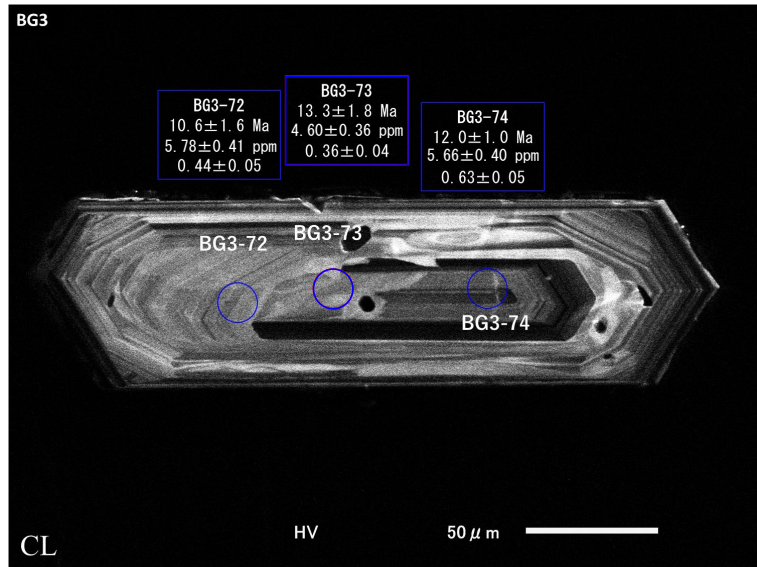
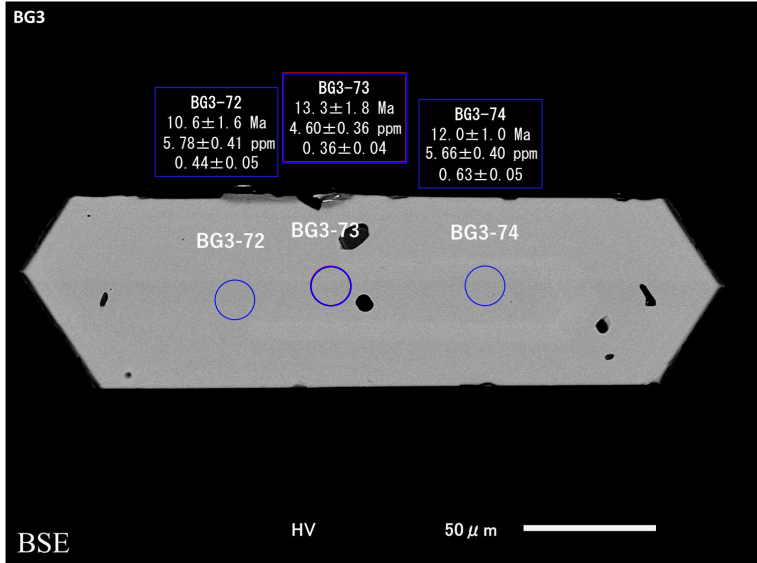
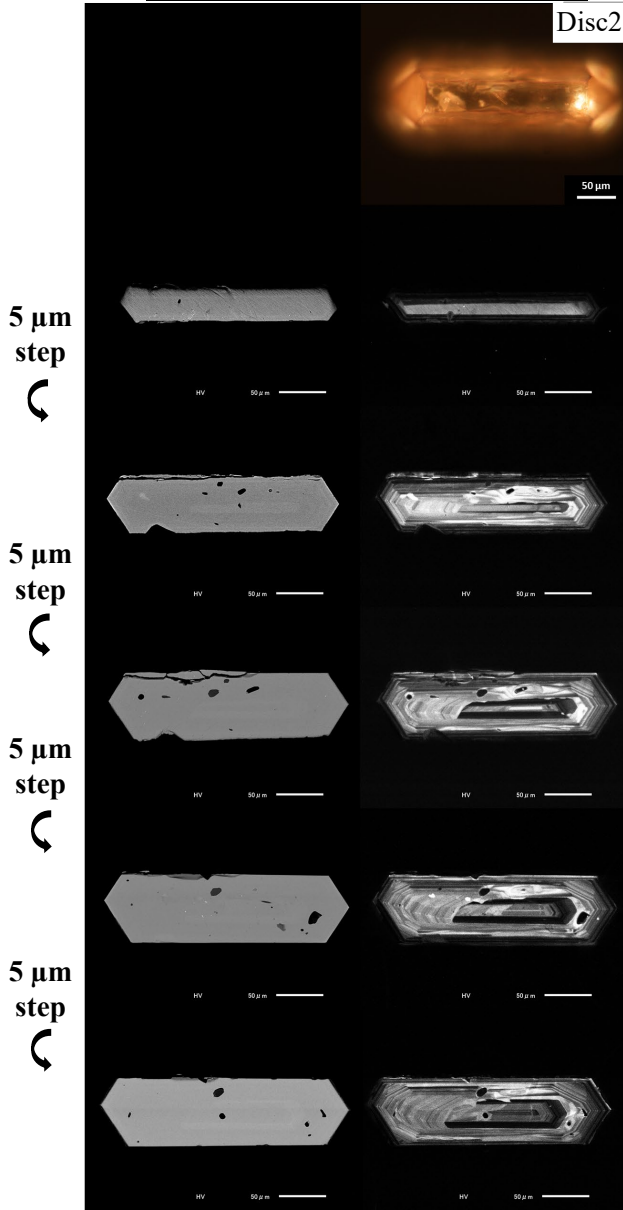
- OZ
- IHC
- LDT

Fig. 2 Zircon data of grain No. BG2

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 295 μm
- Minor axis: 75 μm
- Major axis/Minor axis: 4.0

Observed internal texture

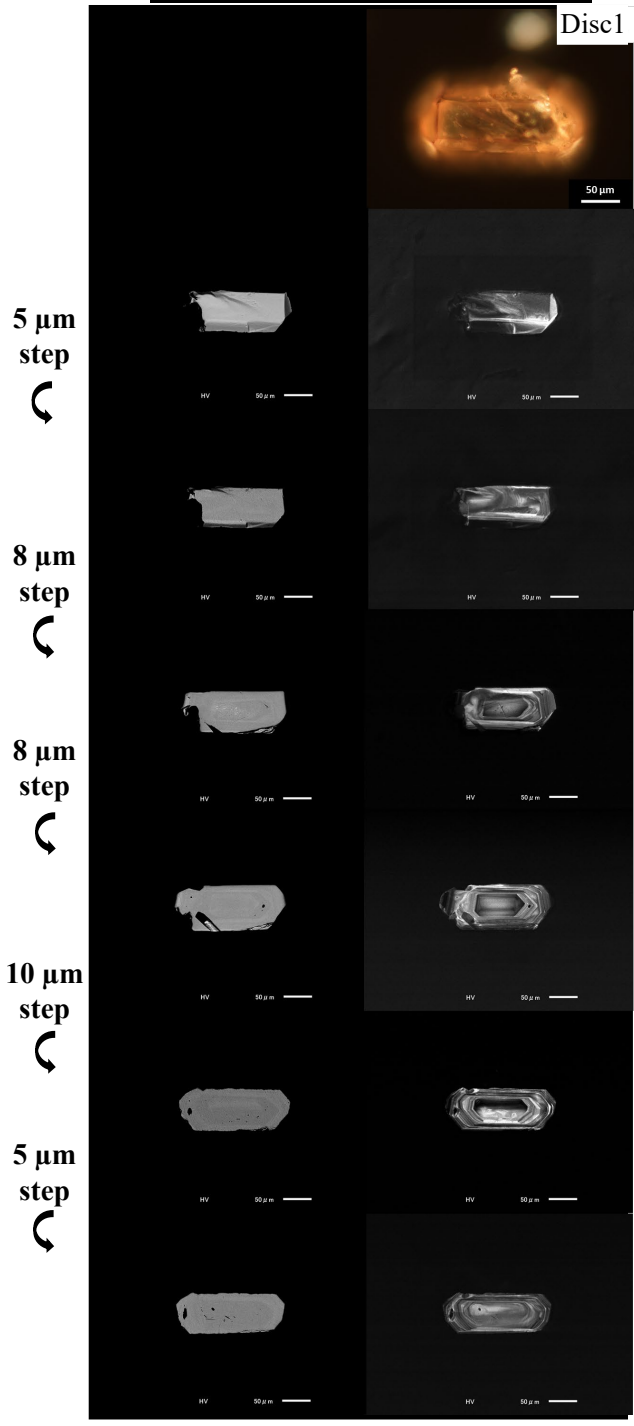
- OZ
- LDT

Fig. 3 Zircon data of grain No. BG3

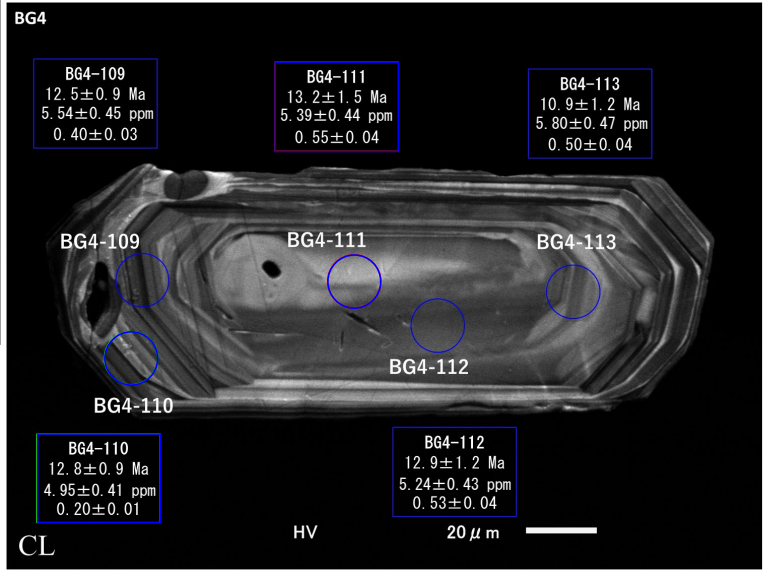
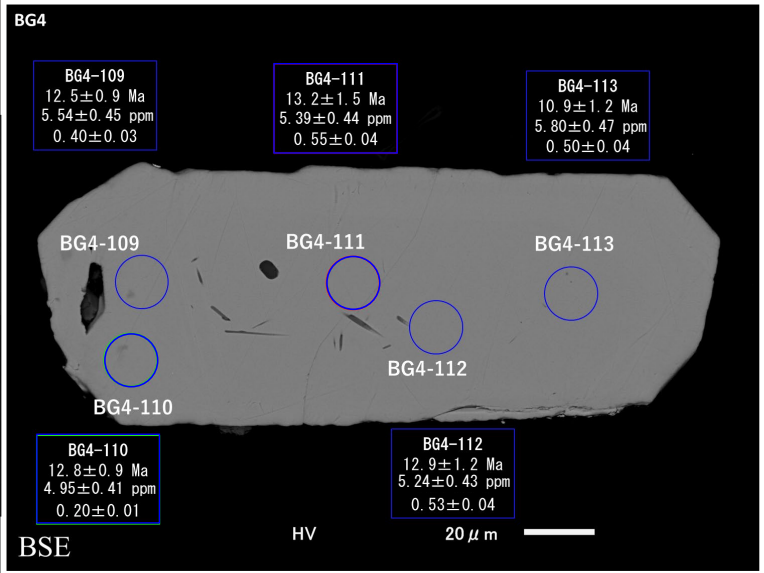
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images



Morphological description

- Type {100}
- Major axis: 209 μm
- Minor axis: 83 μm
- Major axis/Minor axis: 2.5

Observed internal texture

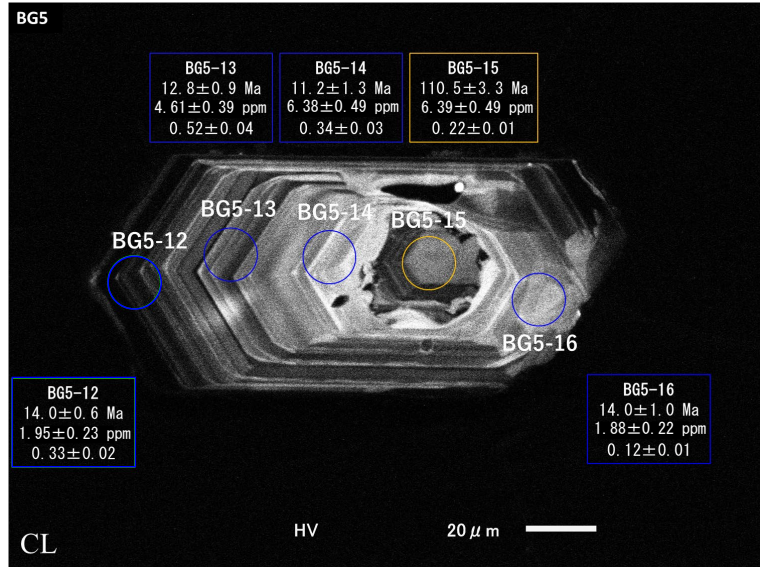
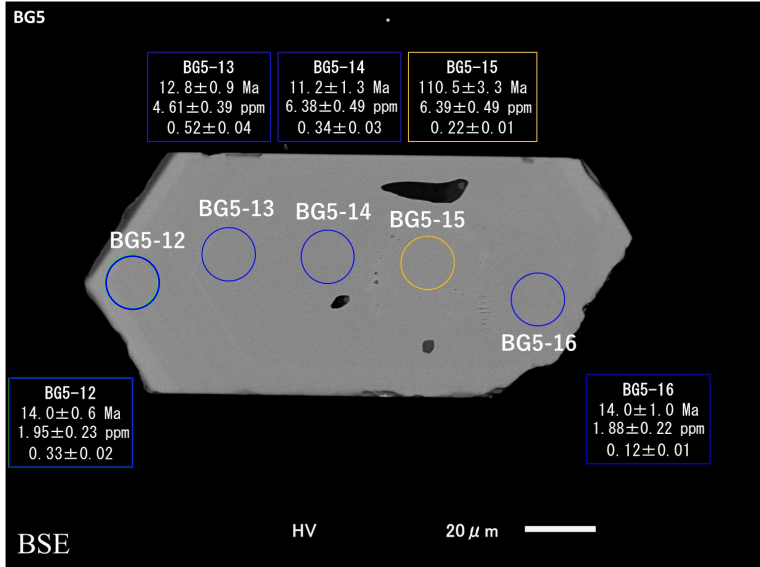
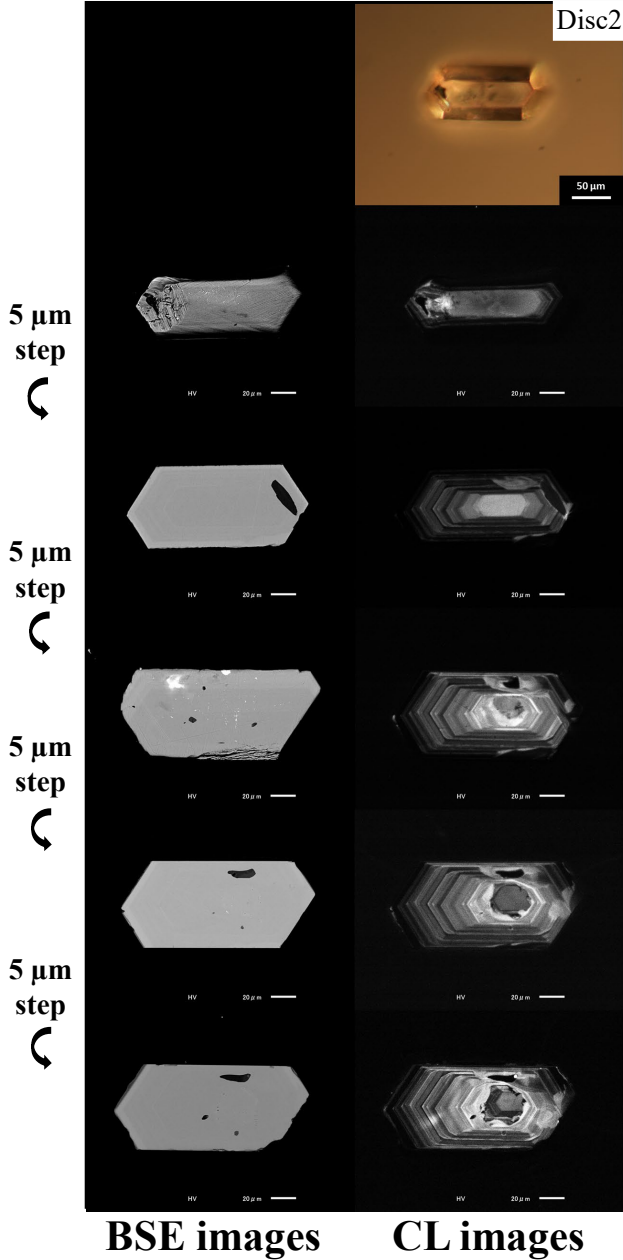
- OZ
- LDT

Fig. 4 Zircon data of grain No. BG4

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



<Legend>

- OZ: Oscillatory zoning
- PT: Porous texture
- CT: Chaotic texture
- LDT: Local disturbance texture
- IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 164 μm
- Minor axis: 70 μm
- Major axis/Minor axis: 2.4

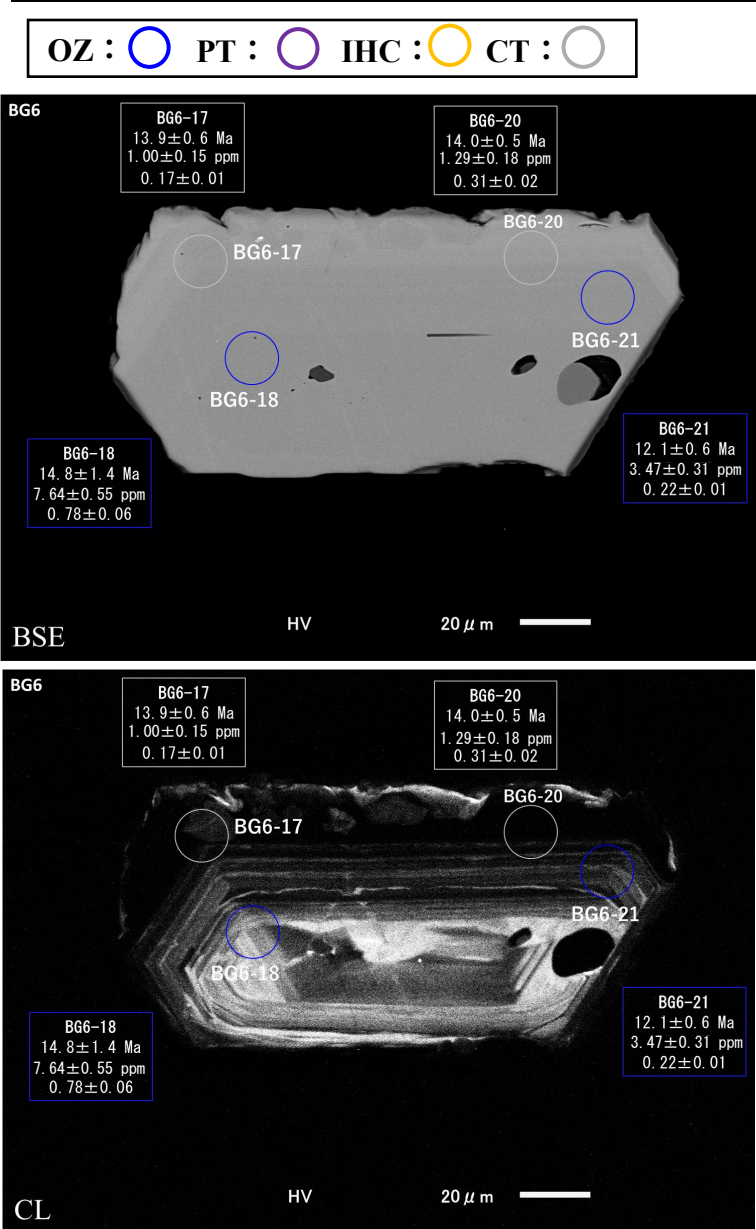
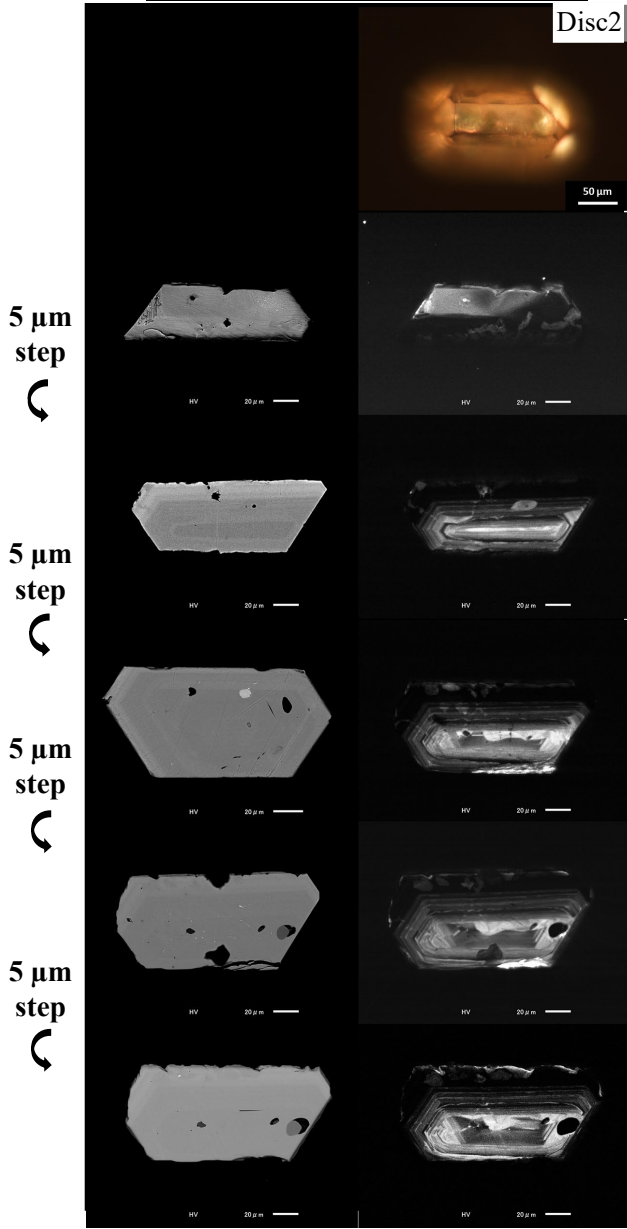
Observed internal texture

- OZ
- LDT
- IHC

Fig. 5 Zircon data of grain No. BG5

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 167 μm
- Minor axis: 67 μm
- Major axis/Minor axis: 2.5

Observed internal texture

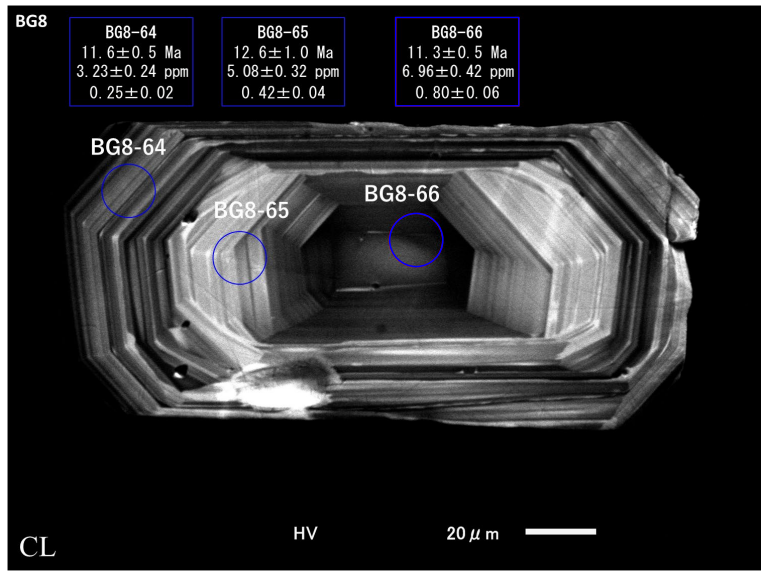
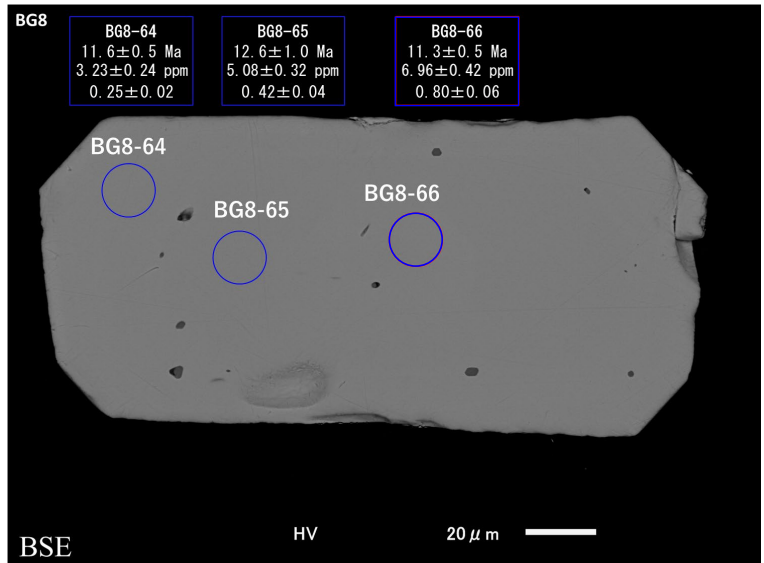
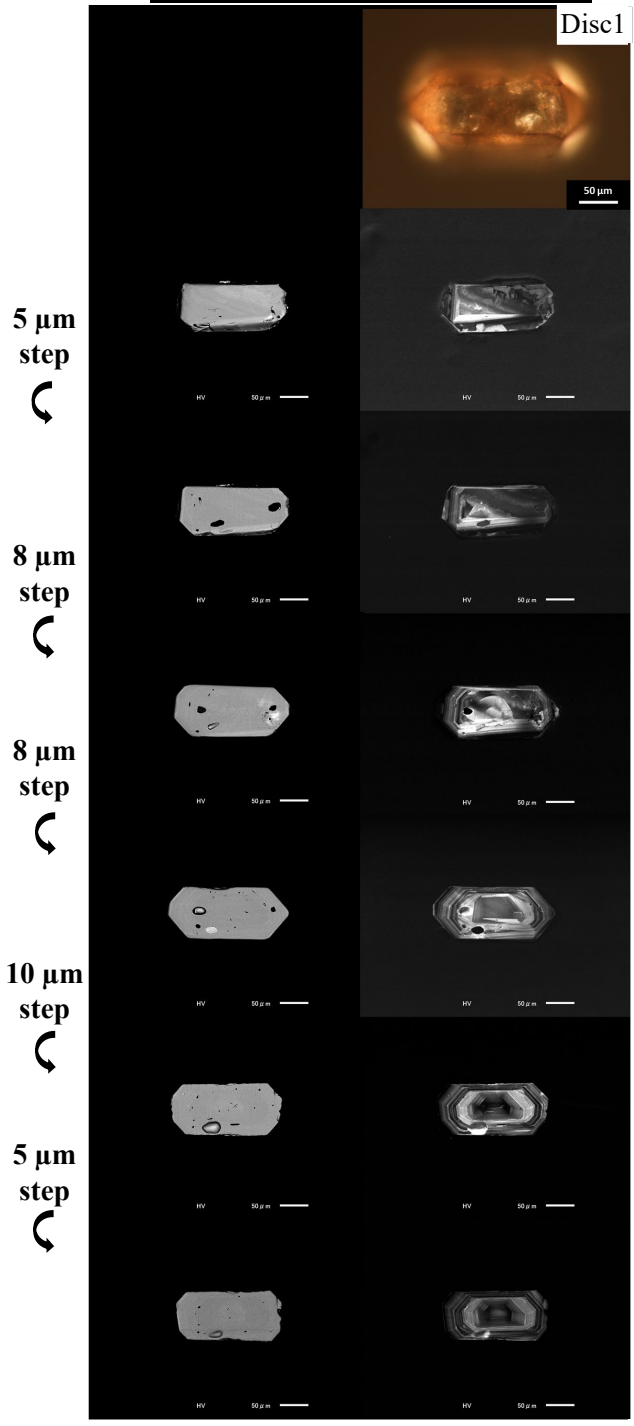
- OZ
- LDT
- CT
- PT

Fig. 6 Zircon data of grain No. BG6

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 237 μm
- Minor axis: 101 μm
- Major axis/Minor axis: 2.3

Observed internal texture

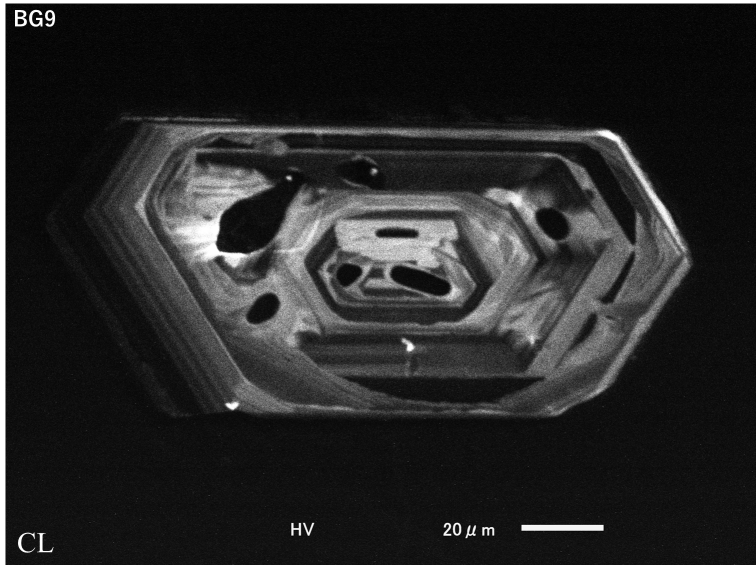
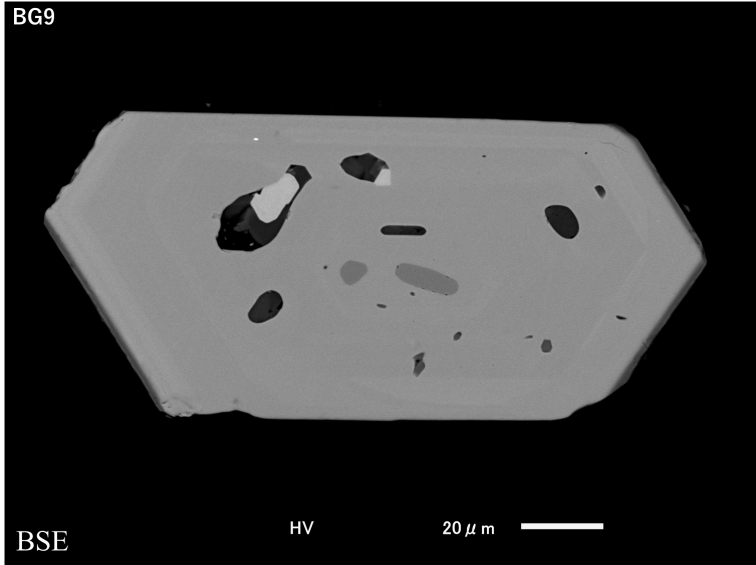
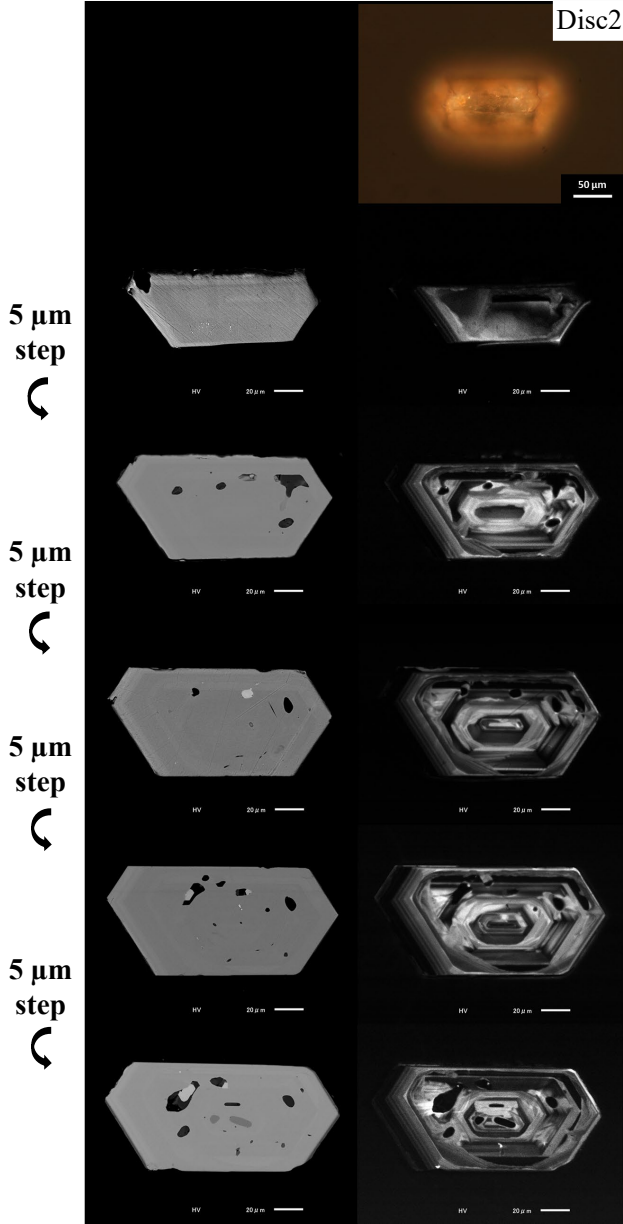
- OZ
- LDT

Fig. 7 Zircon data of grain No. BG8

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

<Legend>

OZ: Oscillatory zoning

PT: Porous texture

CT: Chaotic texture

LDT: Local disturbance texture

IHC: Inherited core

Morphological description

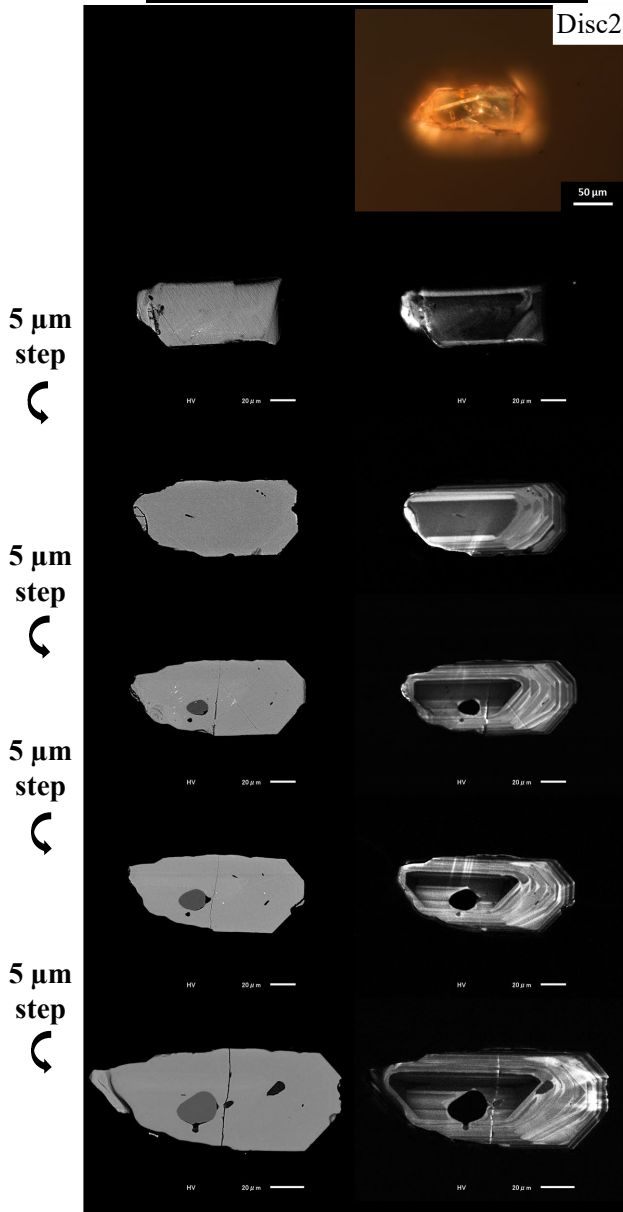
- Type {100}
- Major axis: 161 μm
- Minor axis: 71 μm
- Major axis/Minor axis: 2.3

Observed internal texture

- OZ
- LDT
- CT

Fig. 8 Zircon data of grain No. BG9

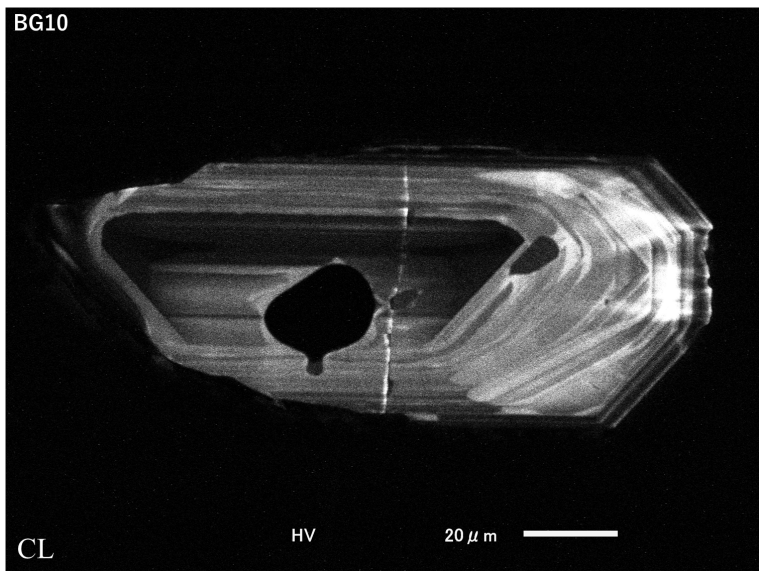
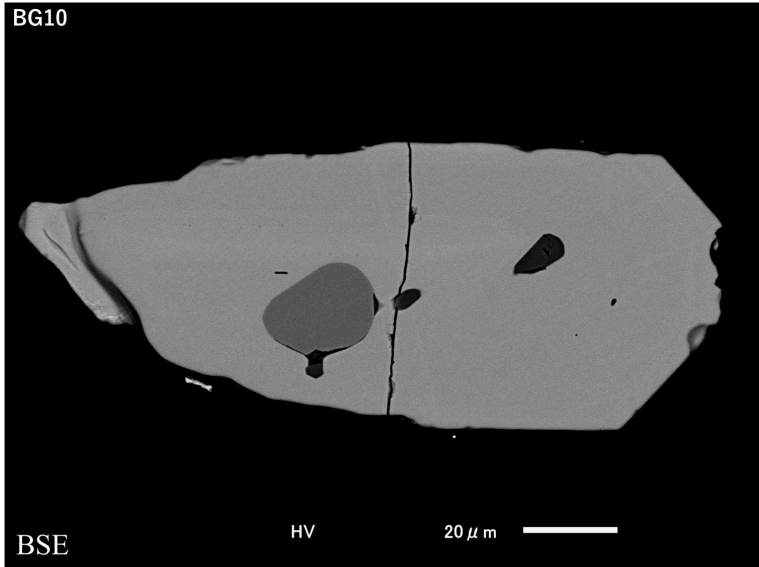
Morphological observation and CL observation for multi-layers



BSE images CL images

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 179 μm
- Minor axis: 68 μm
- Major axis/Minor axis: 2.6

Observed internal texture

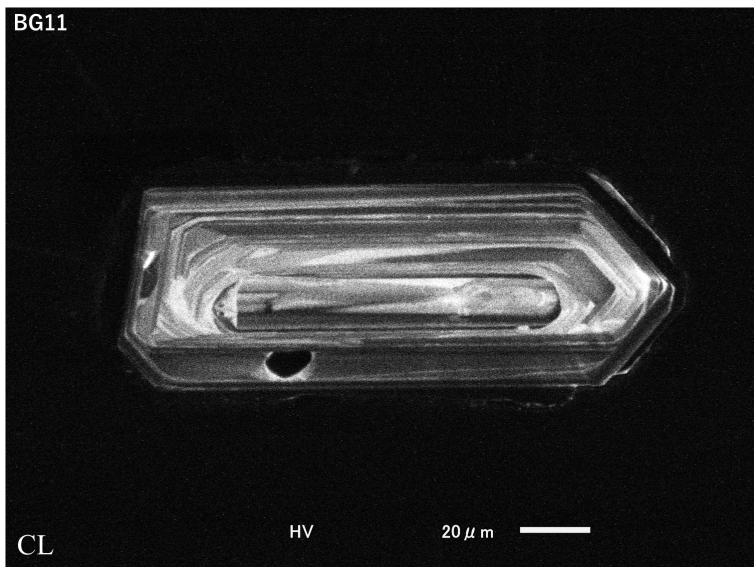
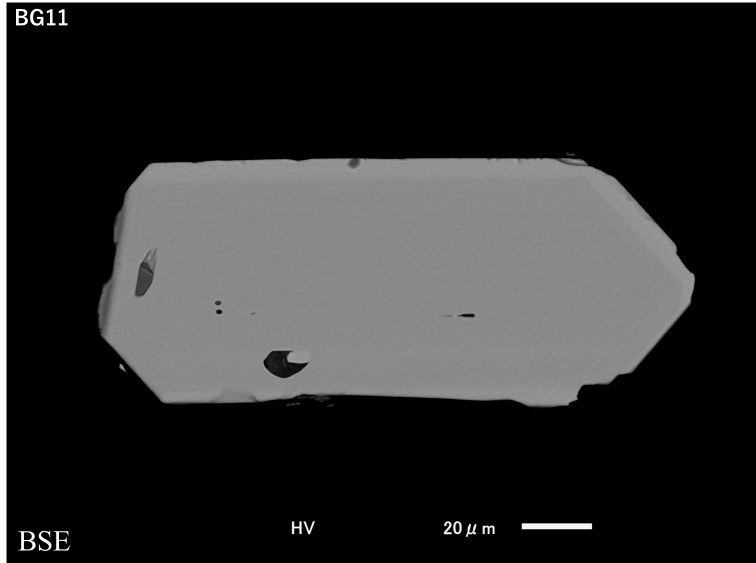
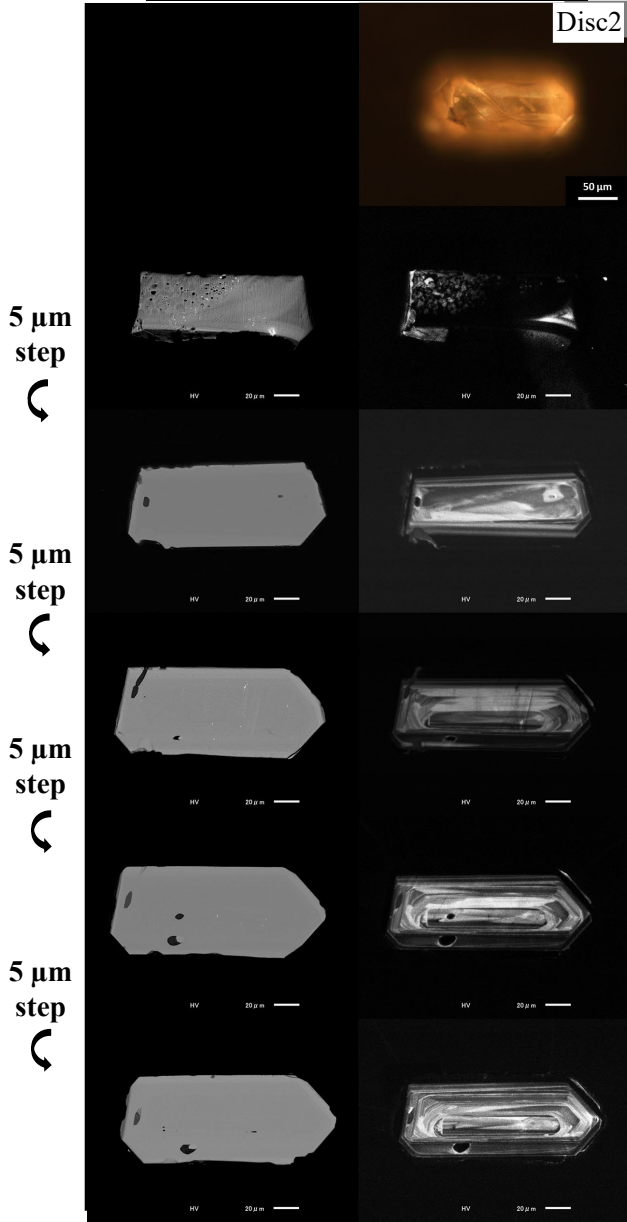
- OZ

Fig. 9 Zircon data of grain No. BG10

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 179 μm
- Minor axis: 68 μm
- Major axis/Minor axis: 2.6

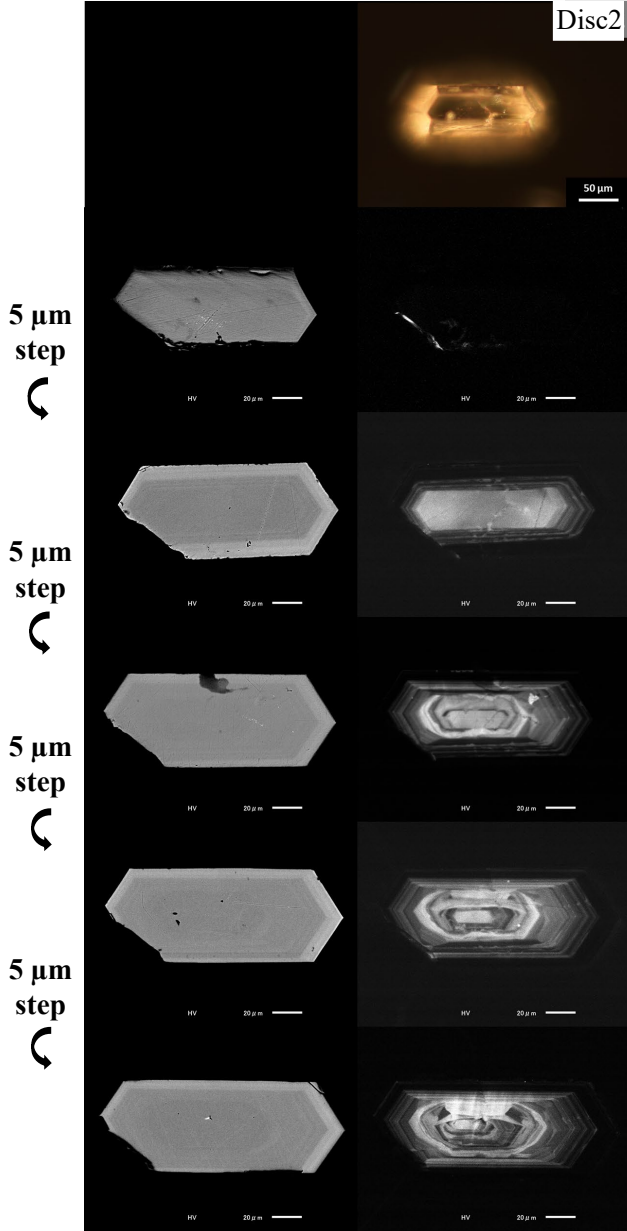
Observed internal texture

- OZ
- LDT

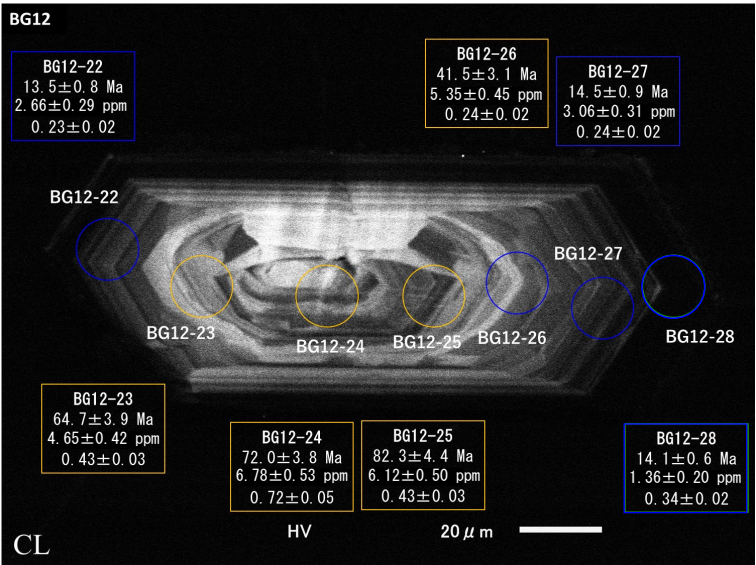
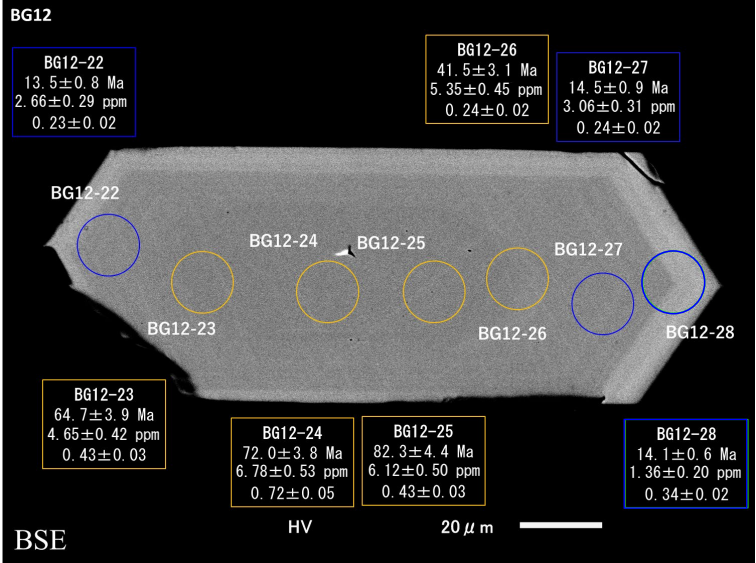
Fig. 10 Zircon data of grain No. BG11

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio



OZ : ○ PT : ○ IHC : ○ CT : ○



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 180 μm
- Minor axis: 66 μm
- Major axis/Minor axis: 2.8

Observed internal texture

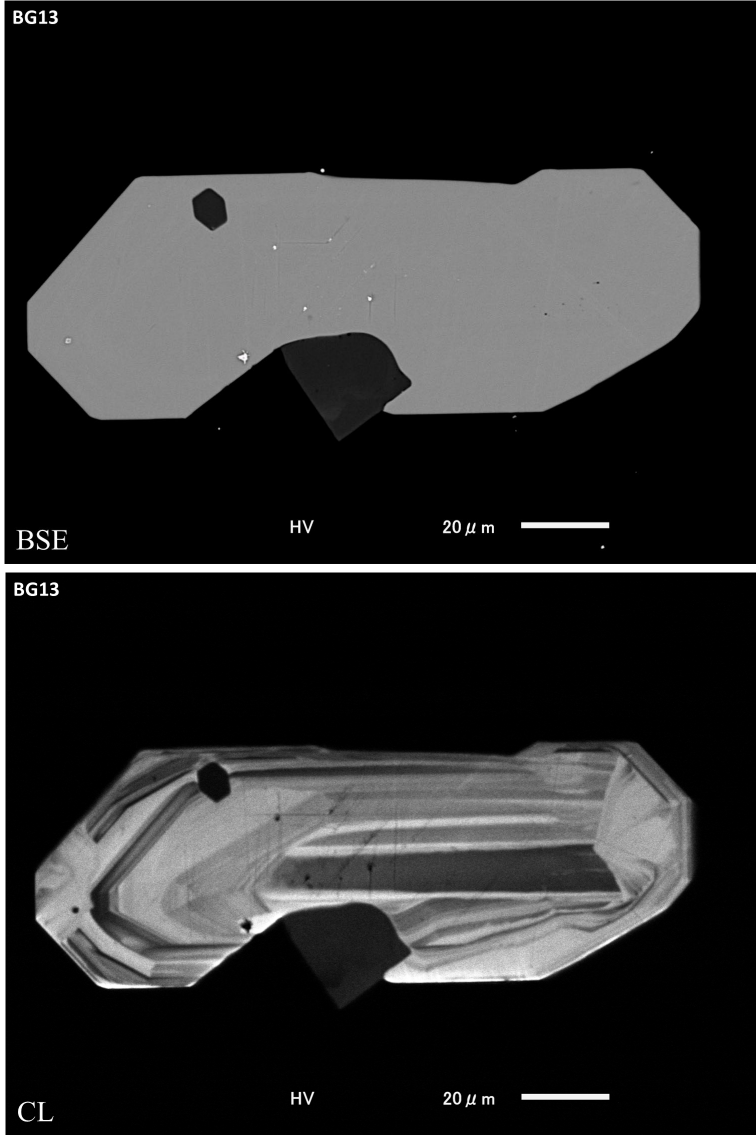
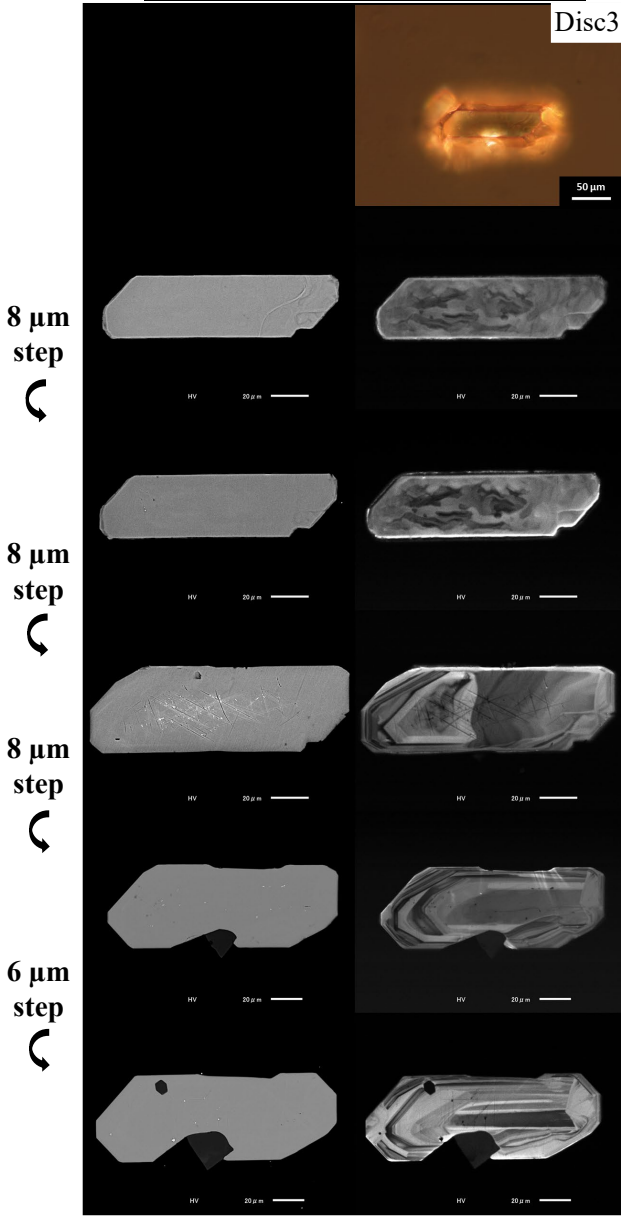
- OZ
- IHC

Fig. 11 Zircon data of grain No. BG12

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

Morphological description

- Type {100}
- Major axis: 162 μm
- Minor axis: 56 μm
- Major axis/Minor axis: 2.9

Observed internal texture

- OZ
- CT

<Legend>

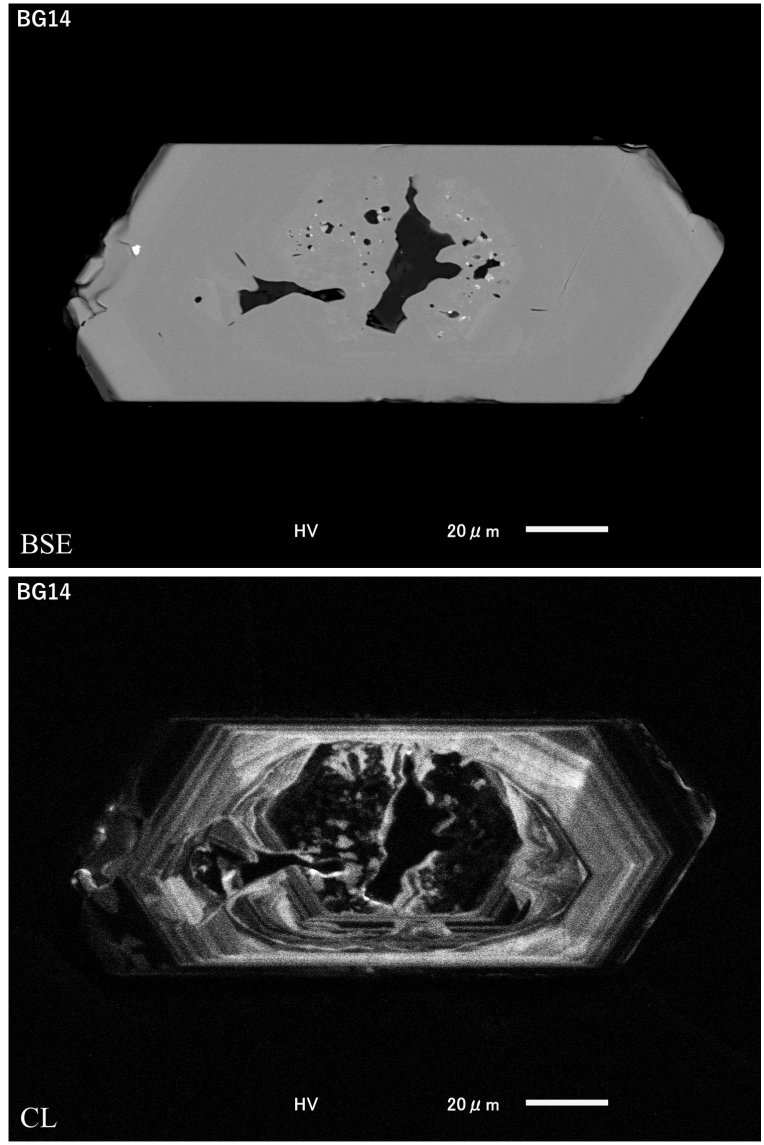
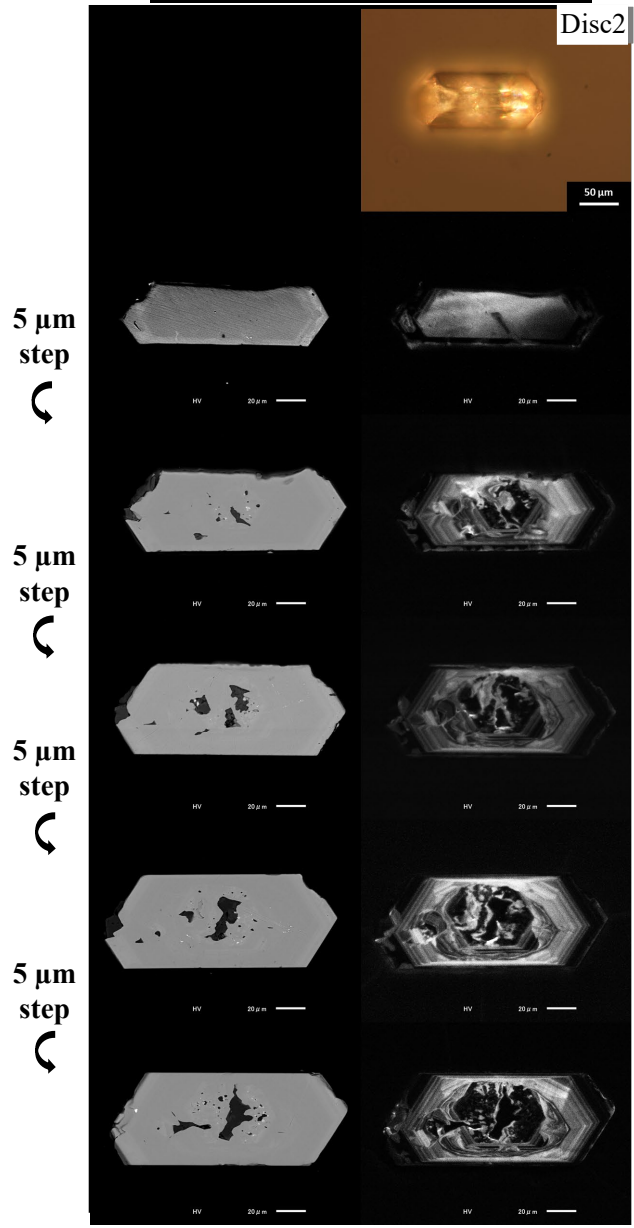
OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Fig. 12 Zircon data of grain No. BG13

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 157 μm
- Minor axis: 69 μm
- Major axis/Minor axis: 2.3

Observed internal texture

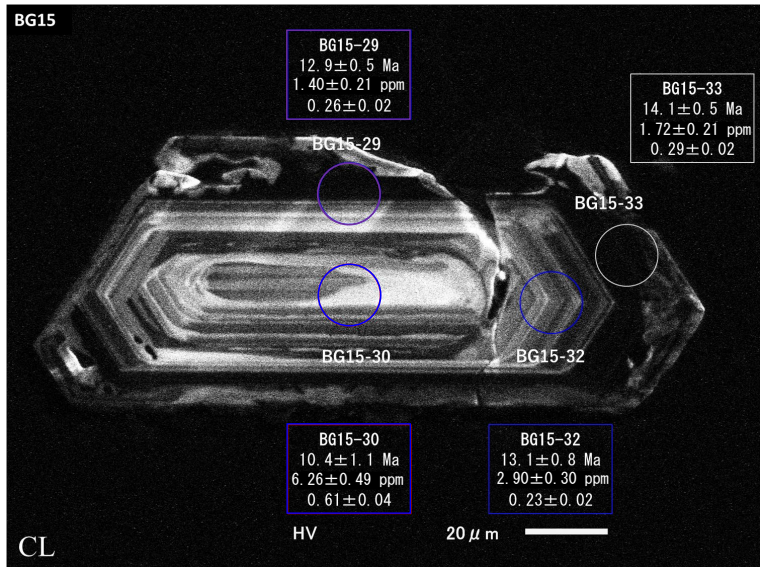
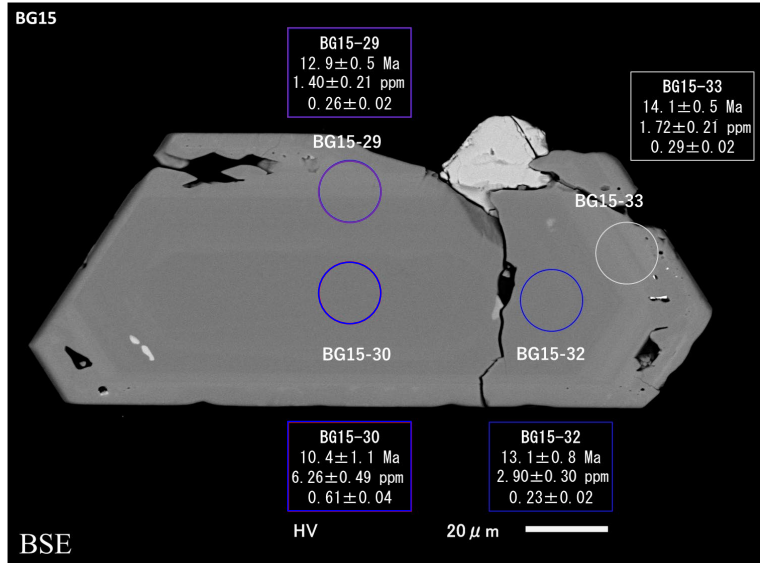
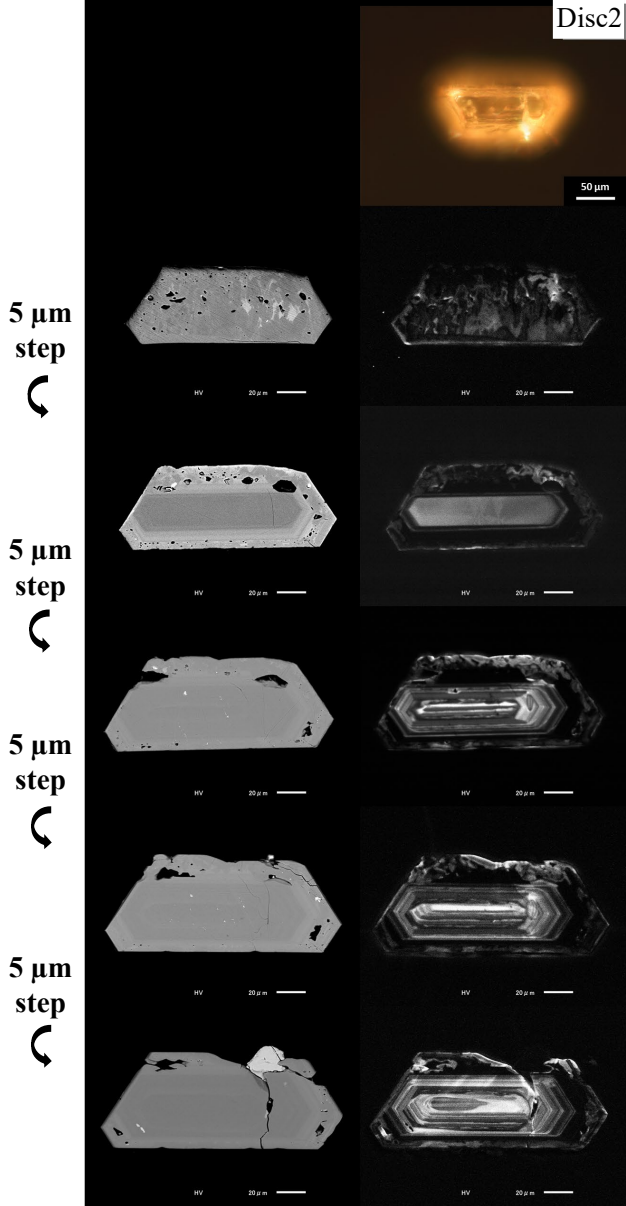
- OZ
- PT
- CT

Fig. 13 Zircon data of grain No. BG14

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 171 μm
- Minor axis: 70 μm
- Major axis/Minor axis: 2.4

Observed internal texture

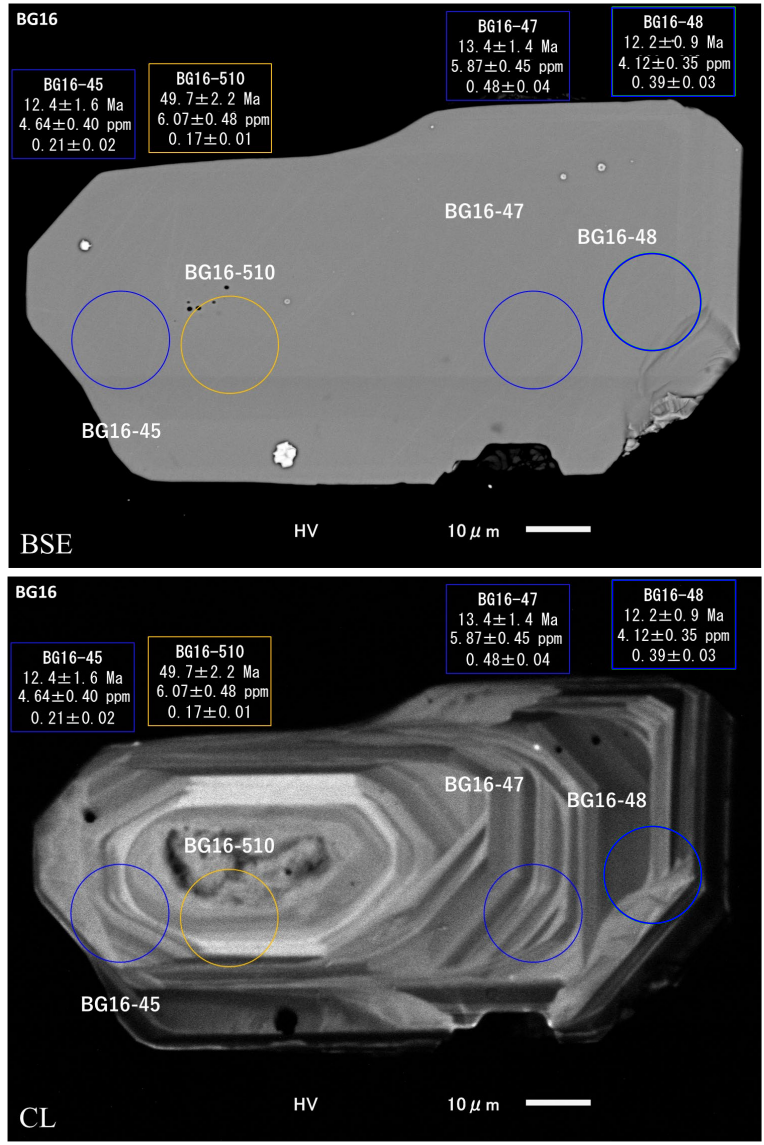
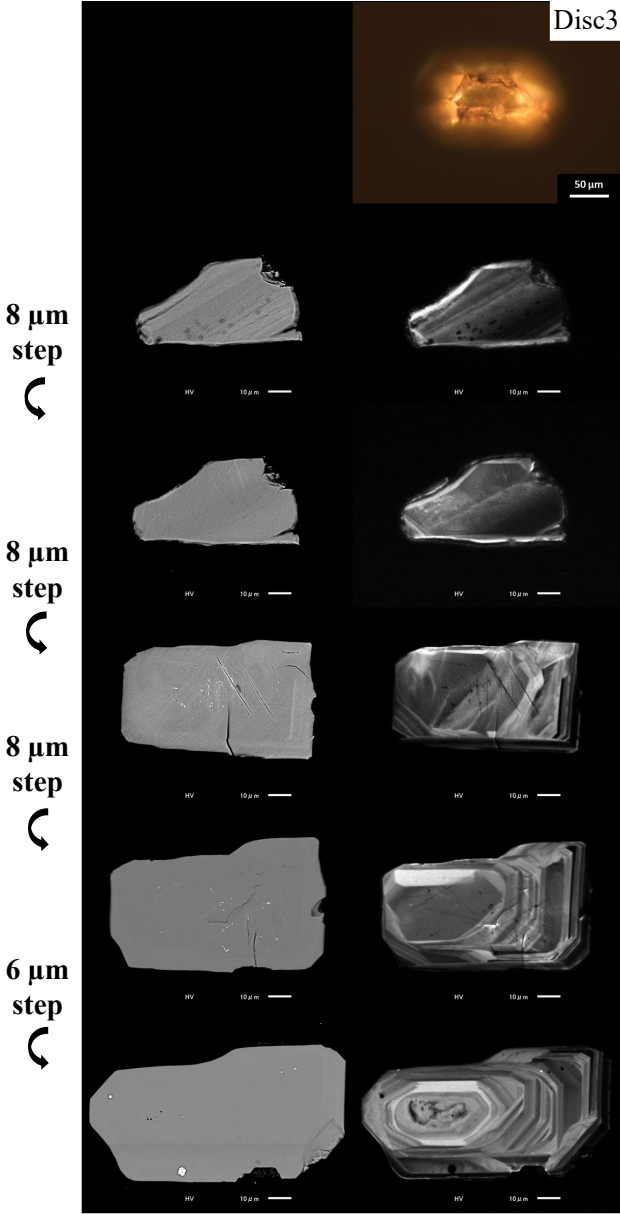
- OZ
- PT
- CT

Fig. 14 Zircon data of grain No. BG15

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

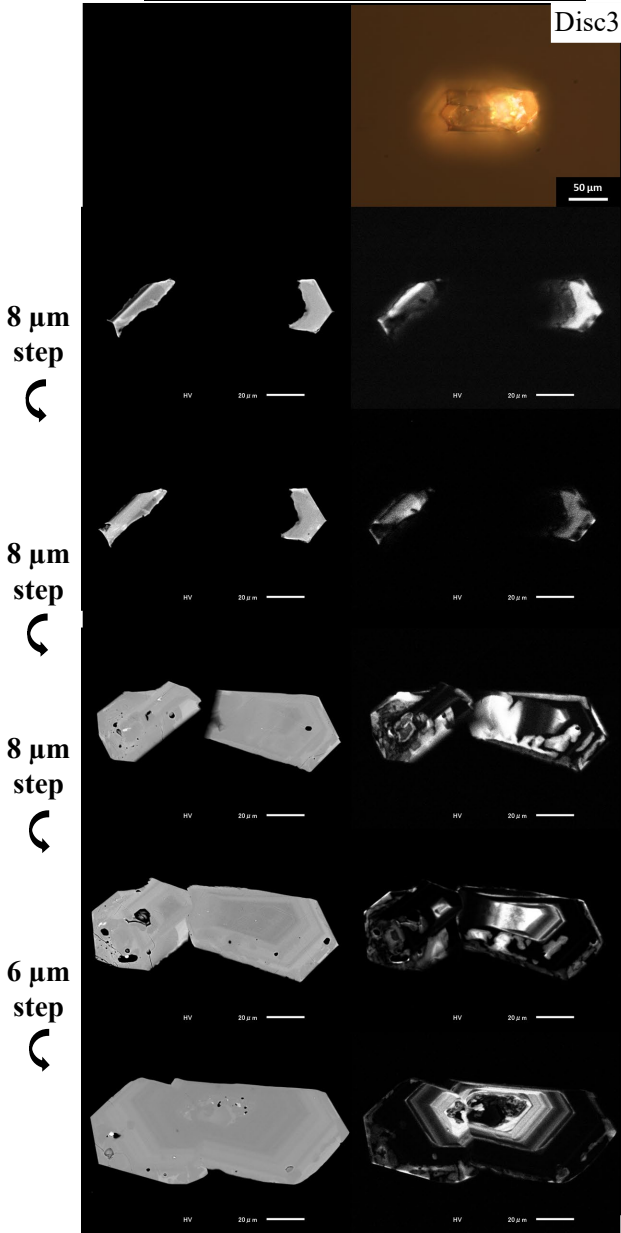
- Type {110}
- Major axis: 127 μm
- Minor axis: 53 μm
- Major axis/Minor axis: 2.4

Observed internal texture

- OZ
- IHC

Fig. 15 Zircon data of grain No. BG16

Morphological observation and CL observation for multi-layers



BSE images

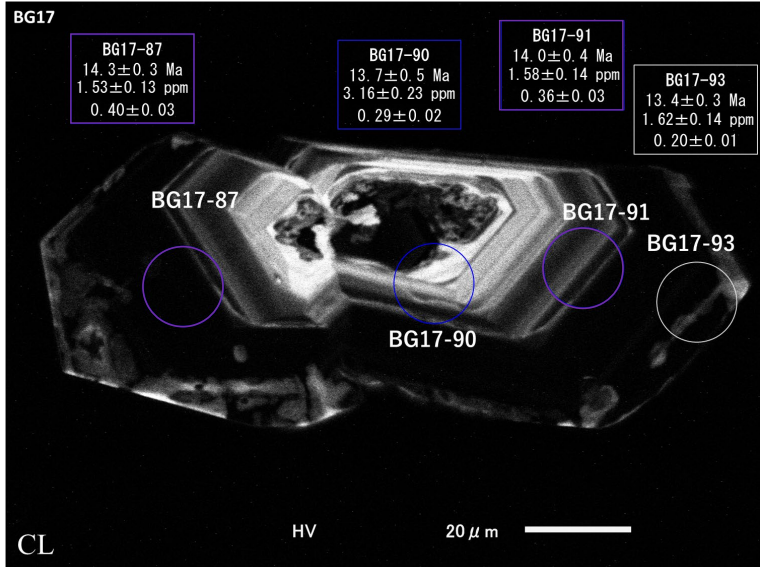
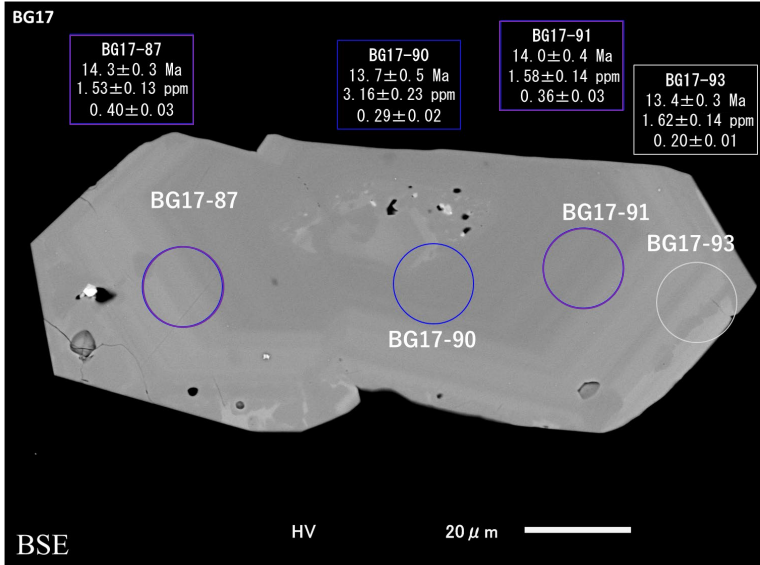
CL images

<Legend>

OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {110}
- Major axis: 141 μm
- Minor axis: 53 μm
- Major axis/Minor axis: 2.6

Observed internal texture

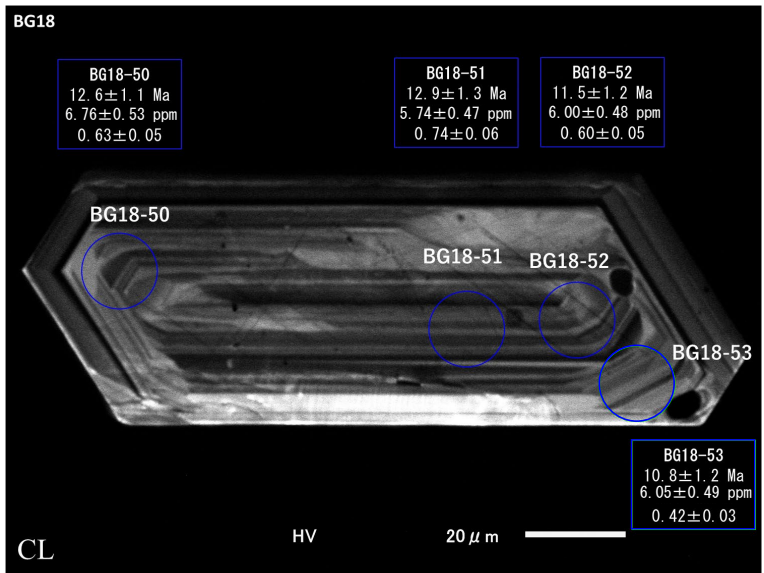
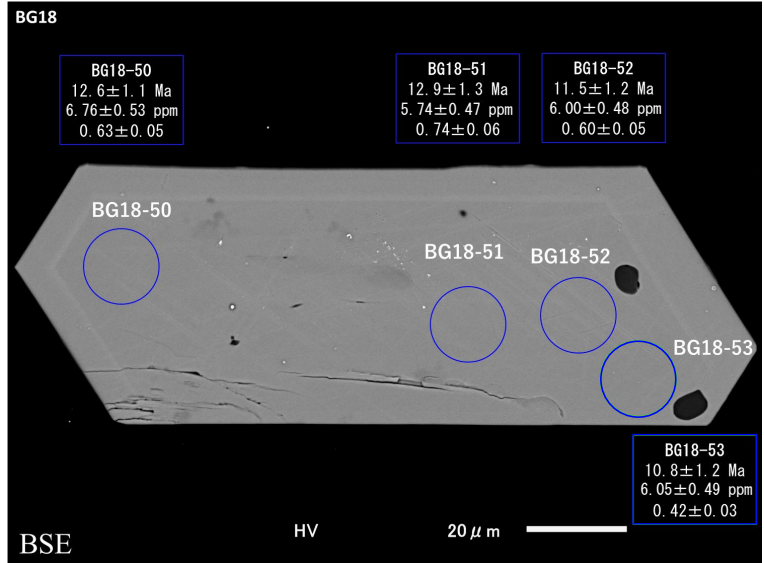
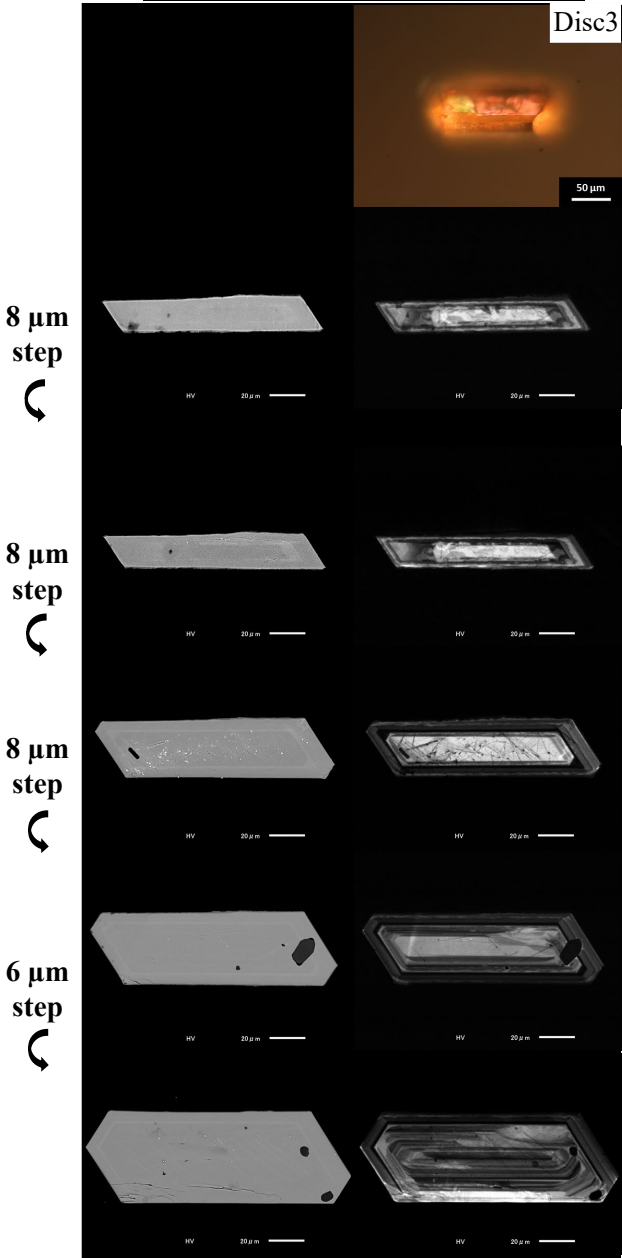
- OZ
- PT
- CT

Fig. 16 Zircon data of grain No. BG17

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

<Legend>

OZ: Oscillatory zoning

PT: Porous texture

CT: Chaotic texture

LDT: Local disturbance texture

IHC: Inherited core

- Type {100}
- Major axis: 154 μm
- Minor axis: 52 μm
- Major axis/Minor axis: 2.9

Observed internal texture

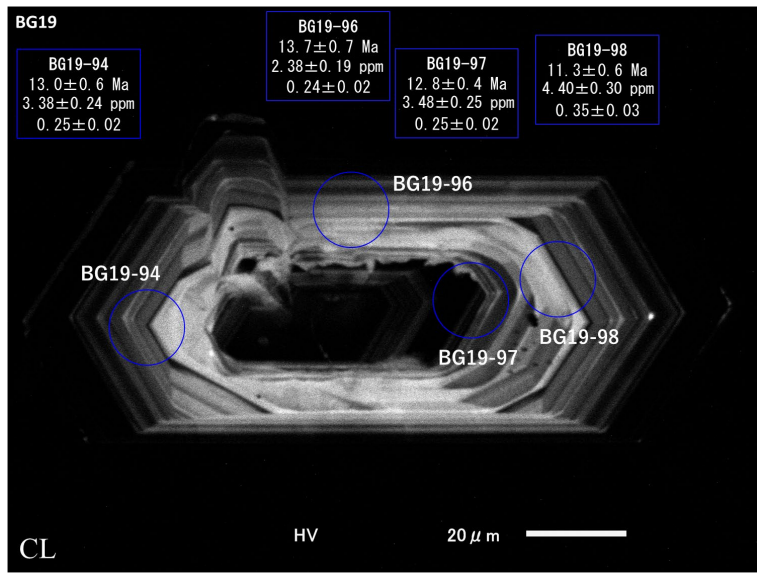
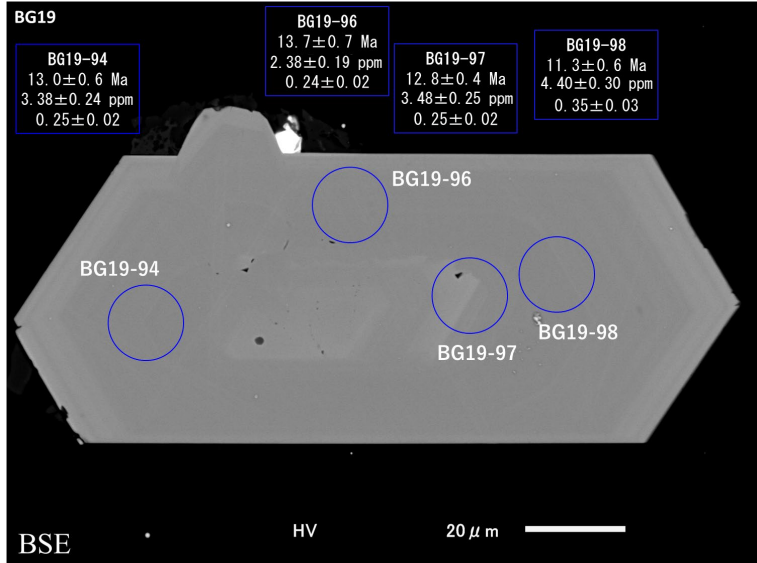
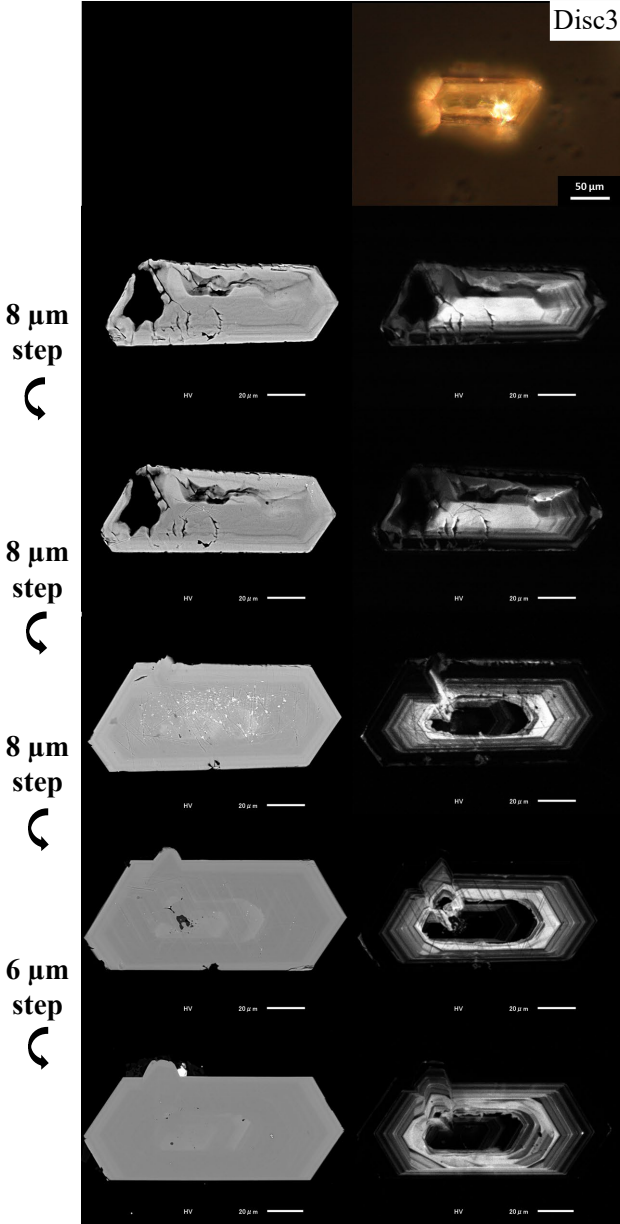
- OZ
- CH

Fig. 17 Zircon data of grain No. BG18

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images

Morphological description

- Type {110}
- Major axis: 153 μm
- Minor axis: 59 μm
- Major axis/Minor axis: 2.6

Observed internal texture

- OZ

<Legend>

OZ: Oscillatory zoning

PT: Porous texture

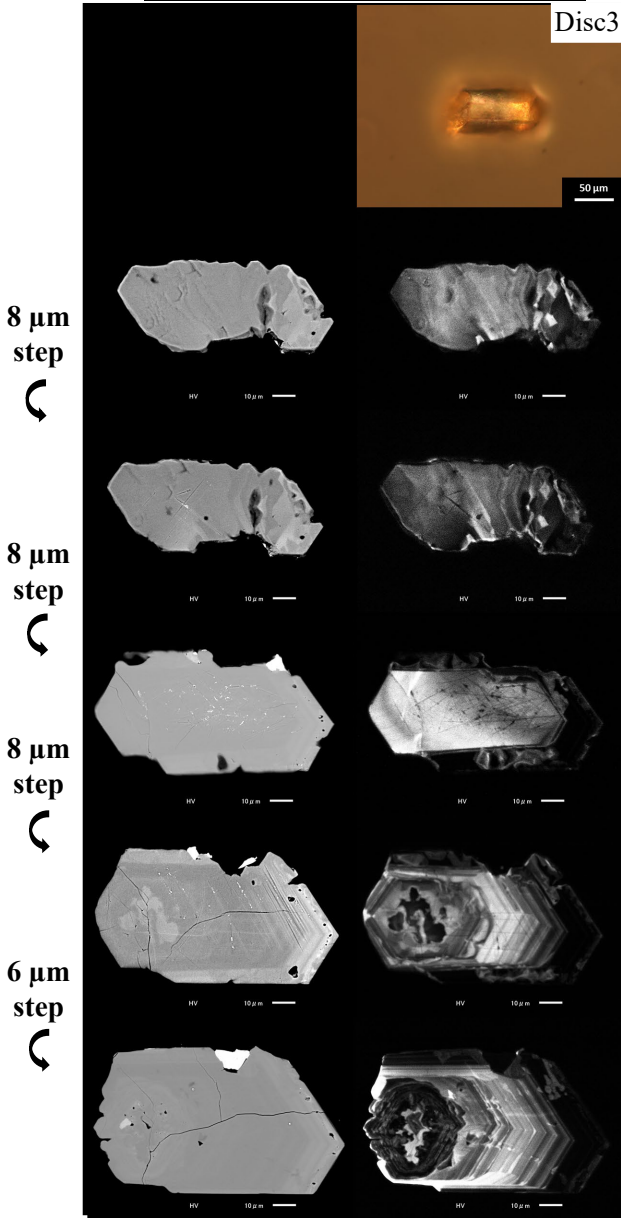
CT: Chaotic texture

LDT: Local disturbance texture

IHC: Inherited core

Fig. 18 Zircon data of grain No. BG19

Morphological observation and CL observation for multi-layers



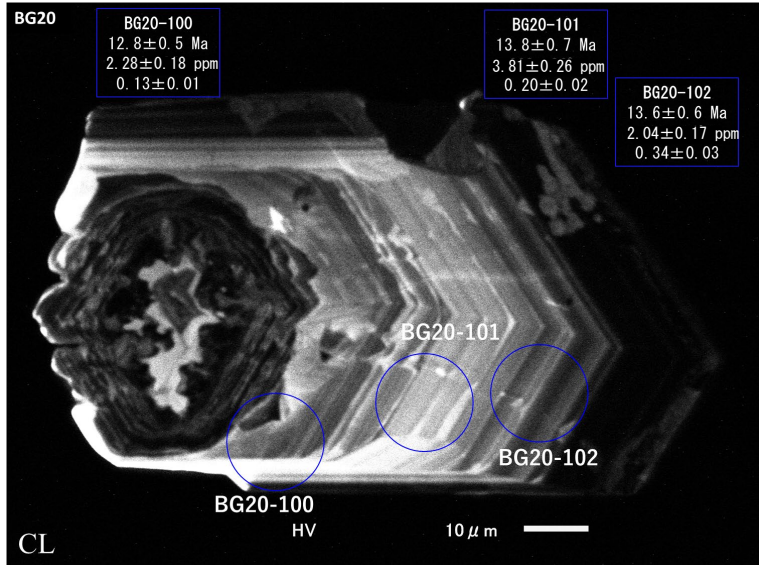
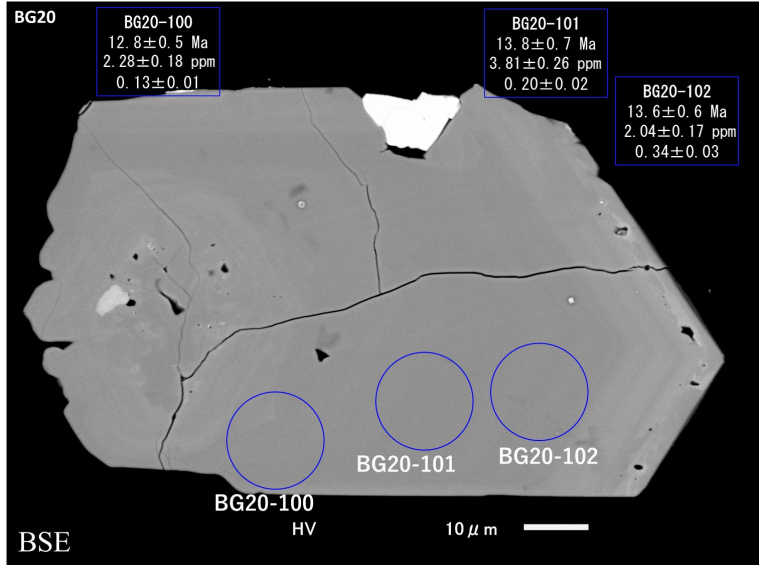
BSE images CL images

<Legend>

OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : ○ PT : ○ IHC : ○ CT : ○



Morphological description

- Type {100}
- Major axis: 122 μm
- Minor axis: 54 μm
- Major axis/Minor axis: 2.2

Observed internal texture

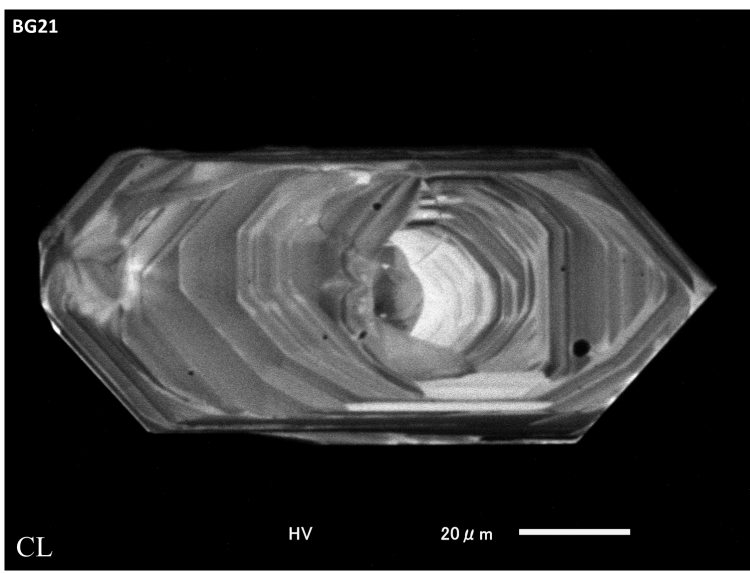
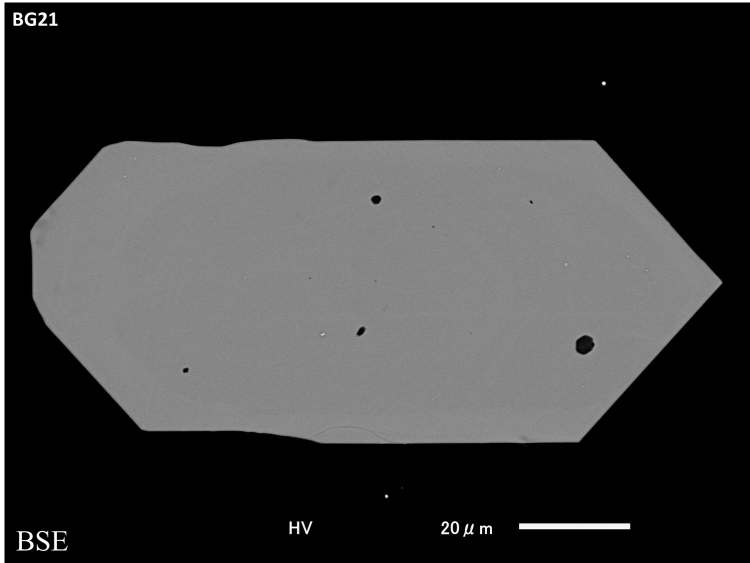
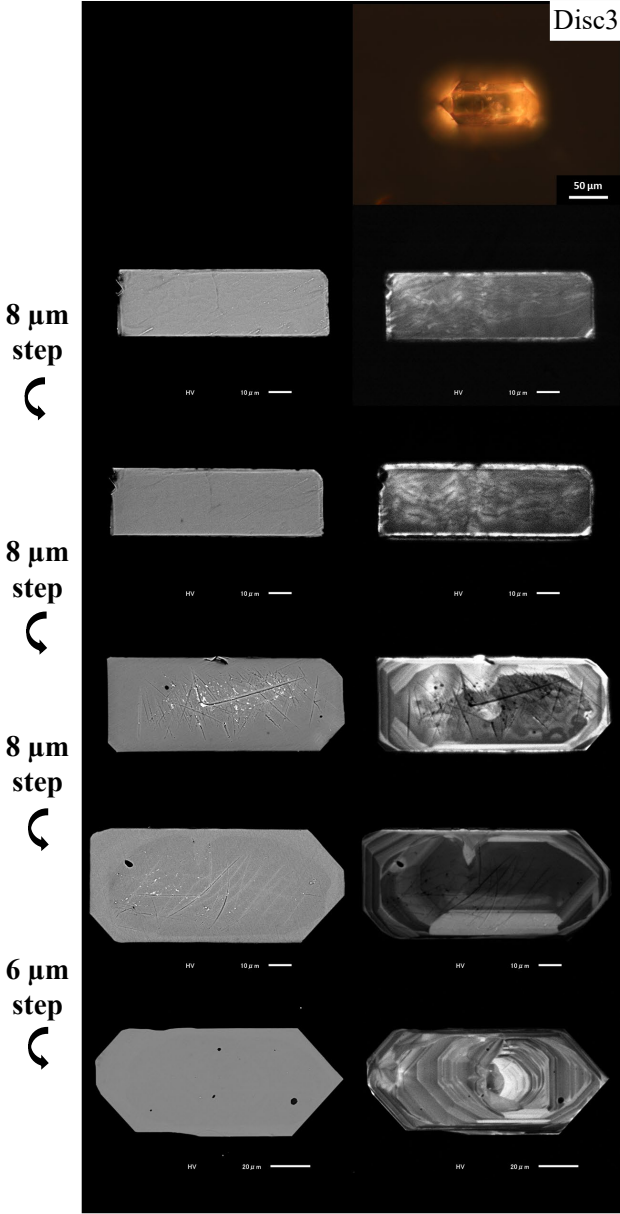
- OZ
- PT
- CT

Fig. 19 Zircon data of grain No. BG20

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 130 μm
- Minor axis: 57 μm
- Major axis/Minor axis: 2.3

Observed internal texture

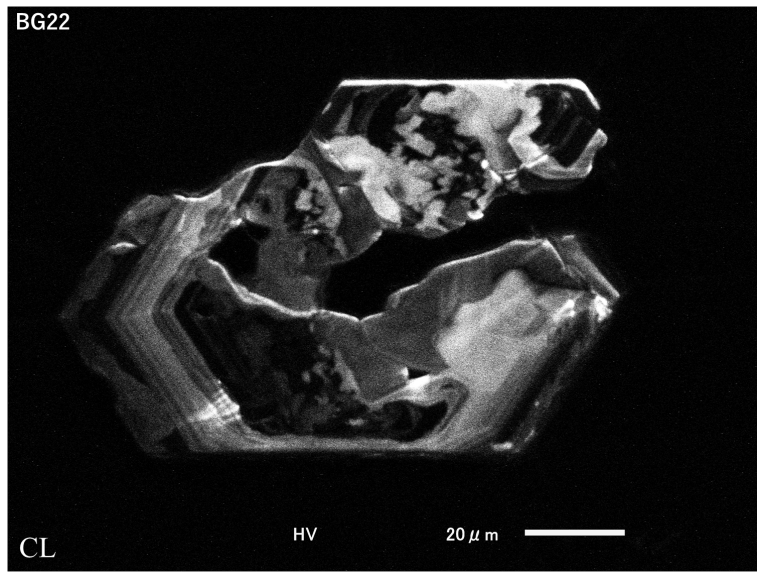
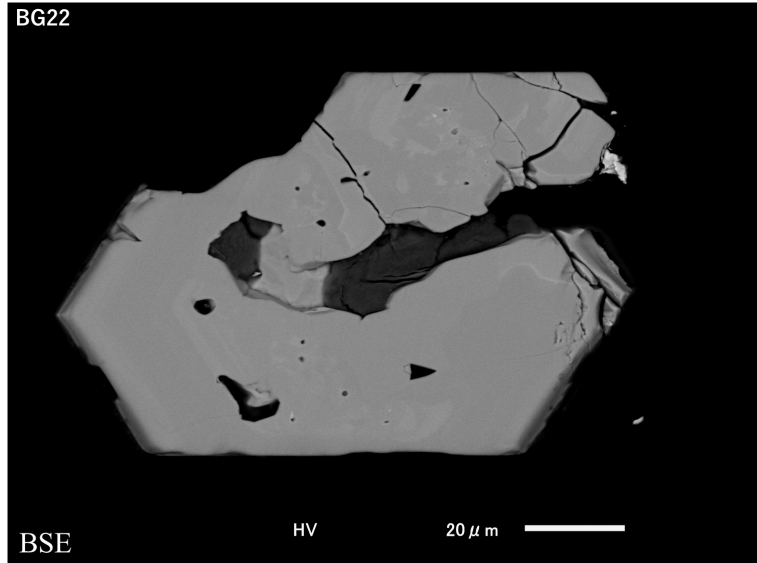
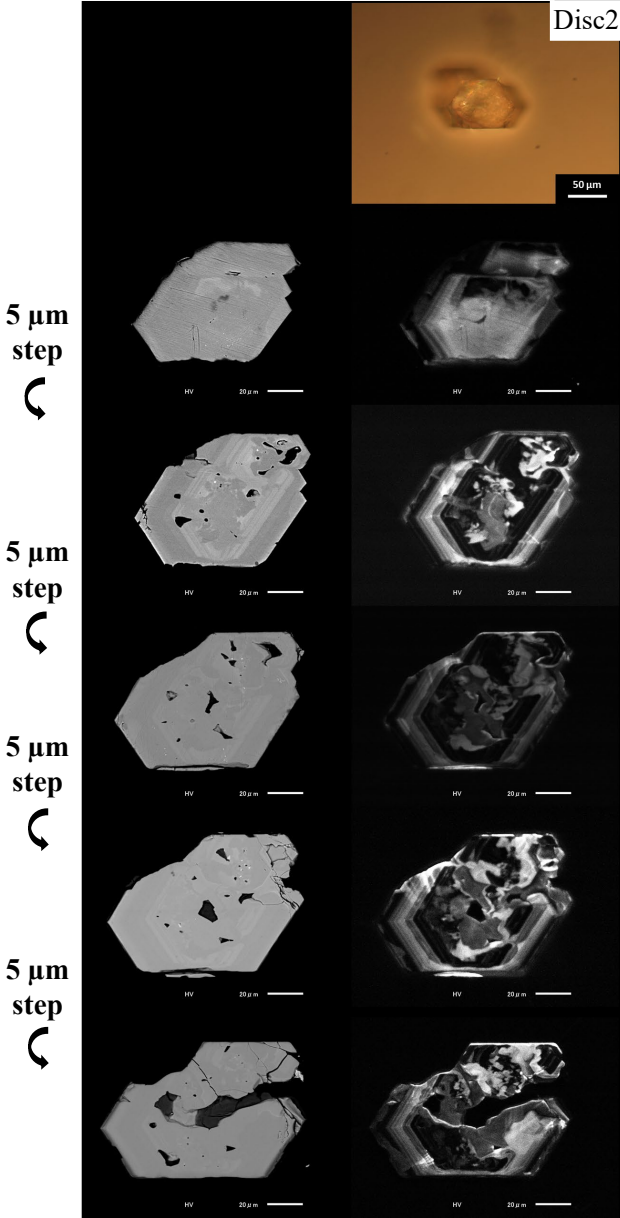
- OZ
- CT

Fig. 20 Zircon data of grain No. BG21

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

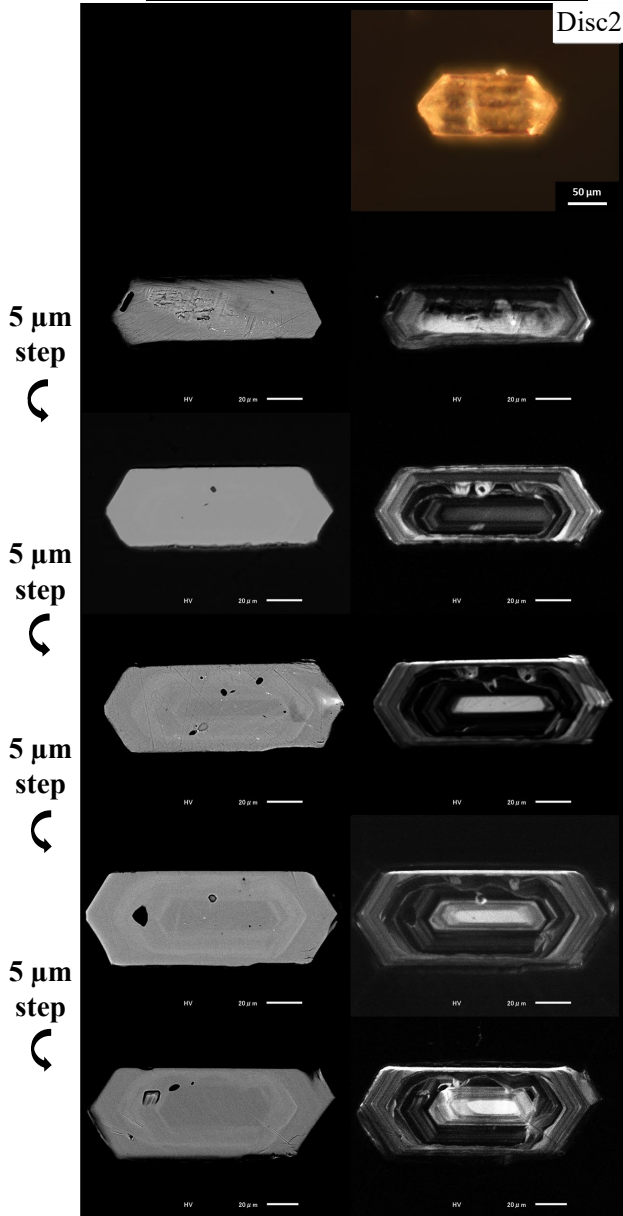
- Type {110}
- Major axis: 116 μm
- Minor axis: 64 μm
- Major axis/Minor axis: 1.8

Observed internal texture

- OZ
- CT
- PT

Fig. 21 Zircon data of grain No. BG22

Morphological observation and CL observation for multi-layers



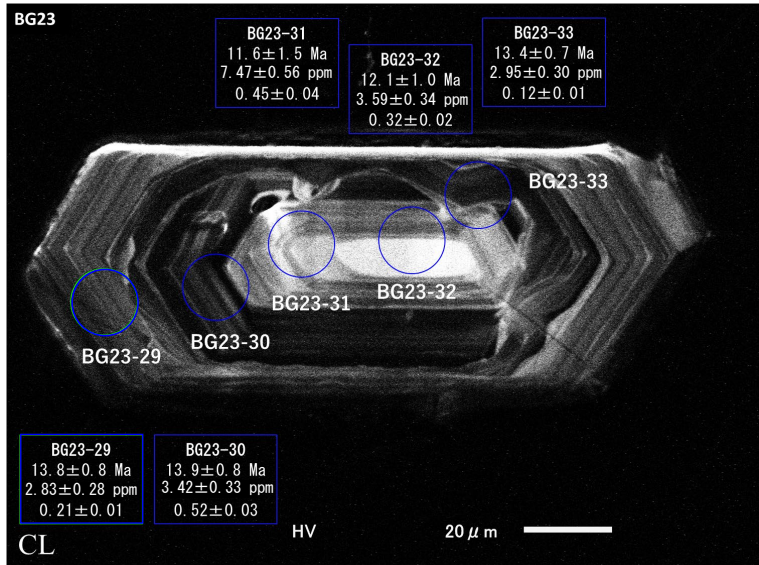
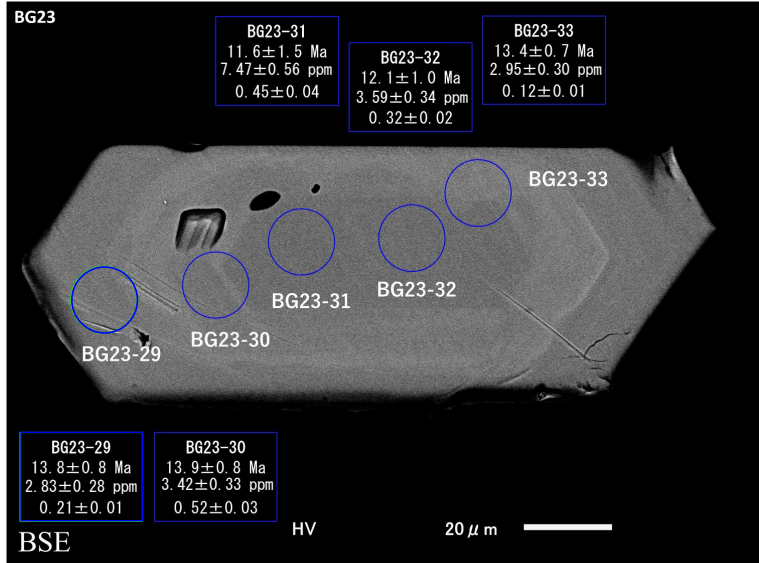
BSE images CL images

<Legend>

- OZ: Oscillatory zoning
- PT: Porous texture
- CT: Chaotic texture
- LDT: Local disturbance texture
- IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

- OZ : ○ PT : ○ IHC : ○ CT : ○



Morphological description

- Type {100}
- Major axis: 180 μm
- Minor axis: 78 μm
- Major axis/Minor axis: 2.3

Observed internal texture

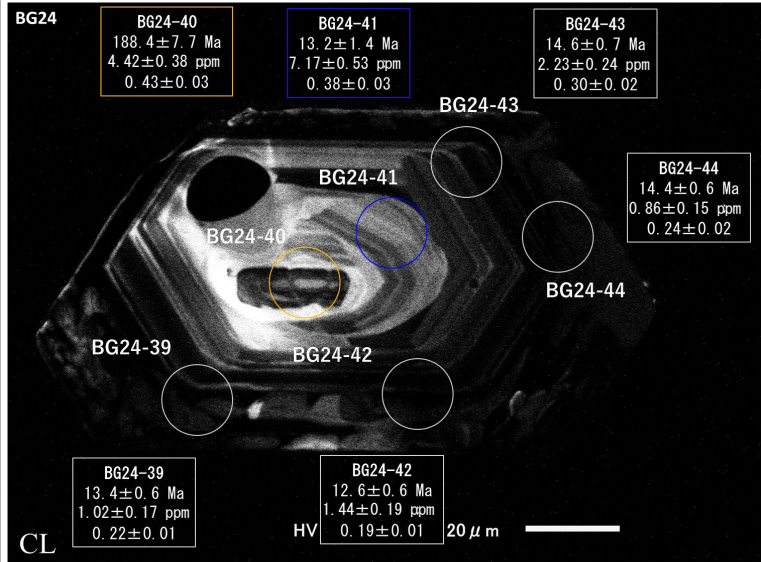
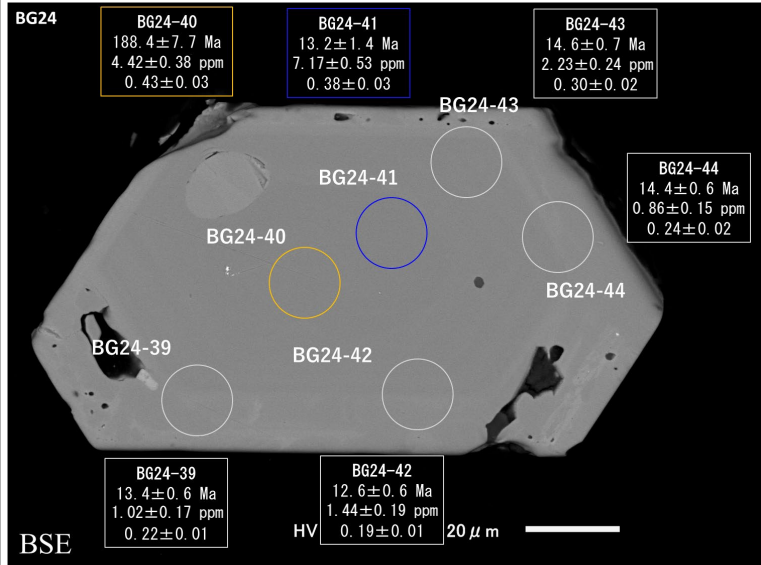
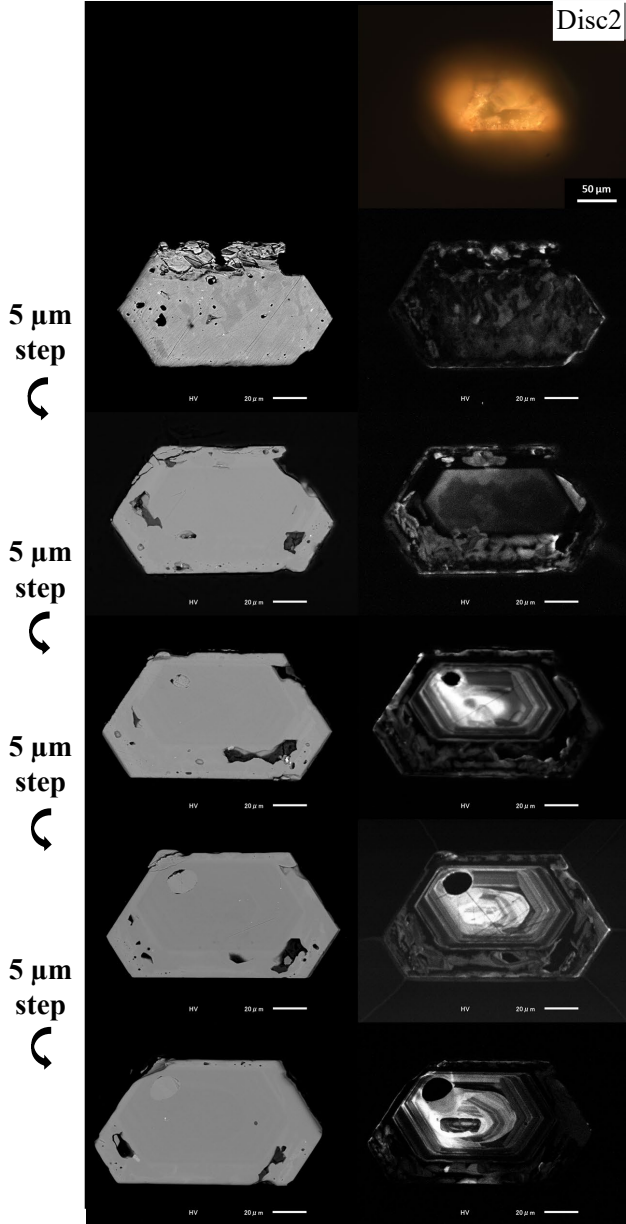
- OZ
- CT

Fig. 22 Zircon data of grain No. BG23

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 139 μm
- Minor axis: 63 μm
- Major axis/Minor axis: 2.2

Observed internal texture

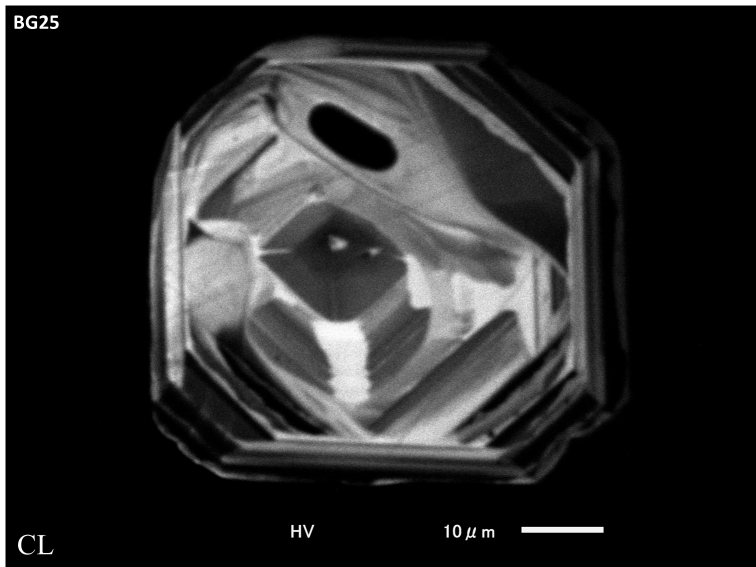
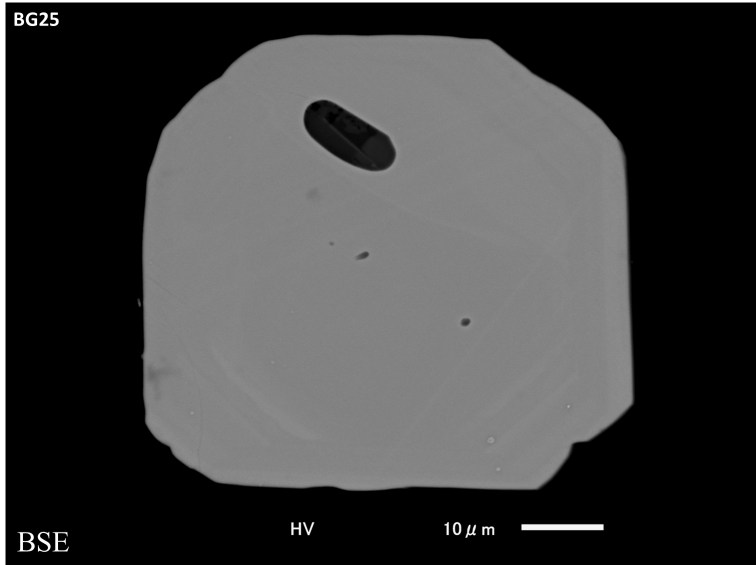
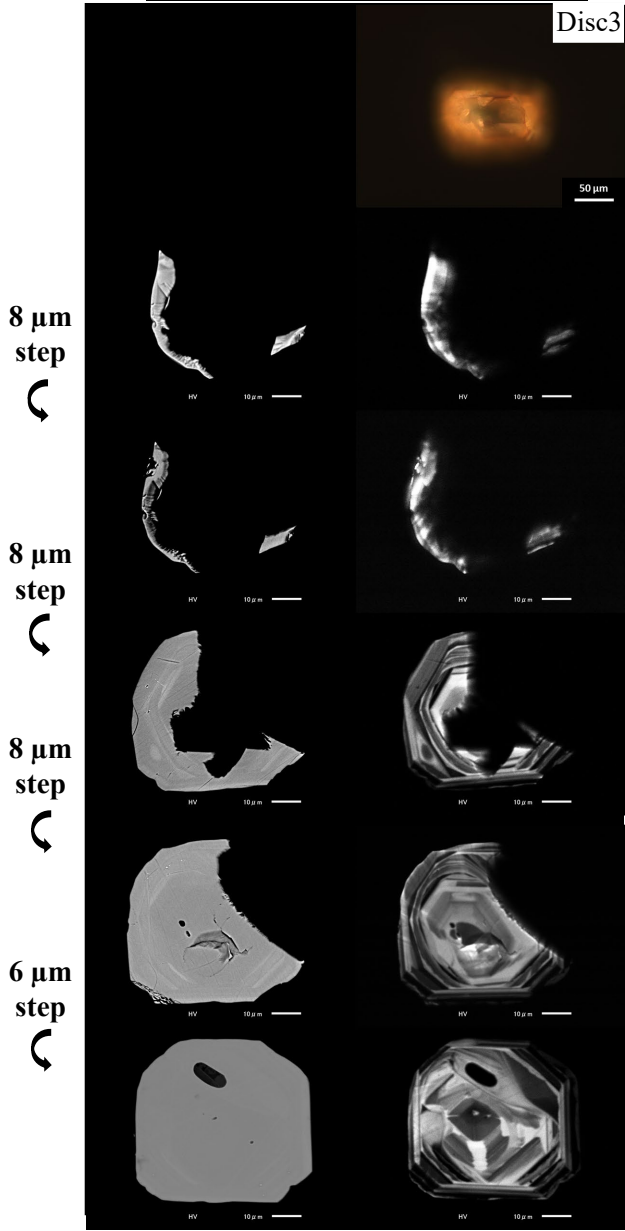
- OZ
- CT
- PT
- IHC

Fig. 23 Zircon data of grain No. BG24

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

Morphological description

<Legend>

- OZ: Oscillatory zoning
- PT: Porous texture
- CT: Chaotic texture
- LDT: Local disturbance texture
- IHC: Inherited core

- Type {100}
- Major axis: 115 μm
- Minor axis: 60 μm
- Major axis/Minor axis: 1.9

Observed internal texture

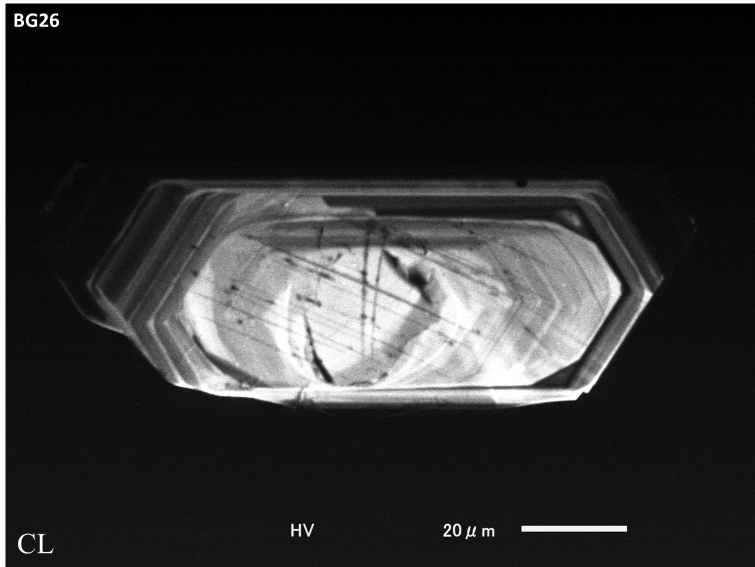
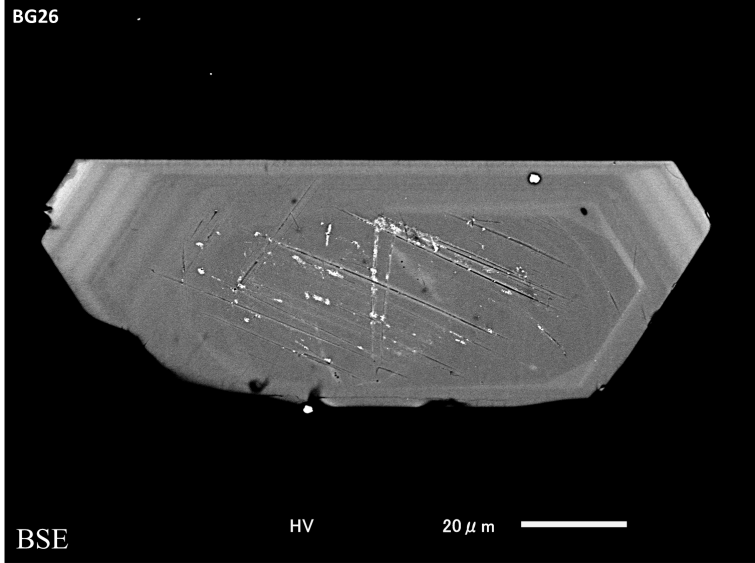
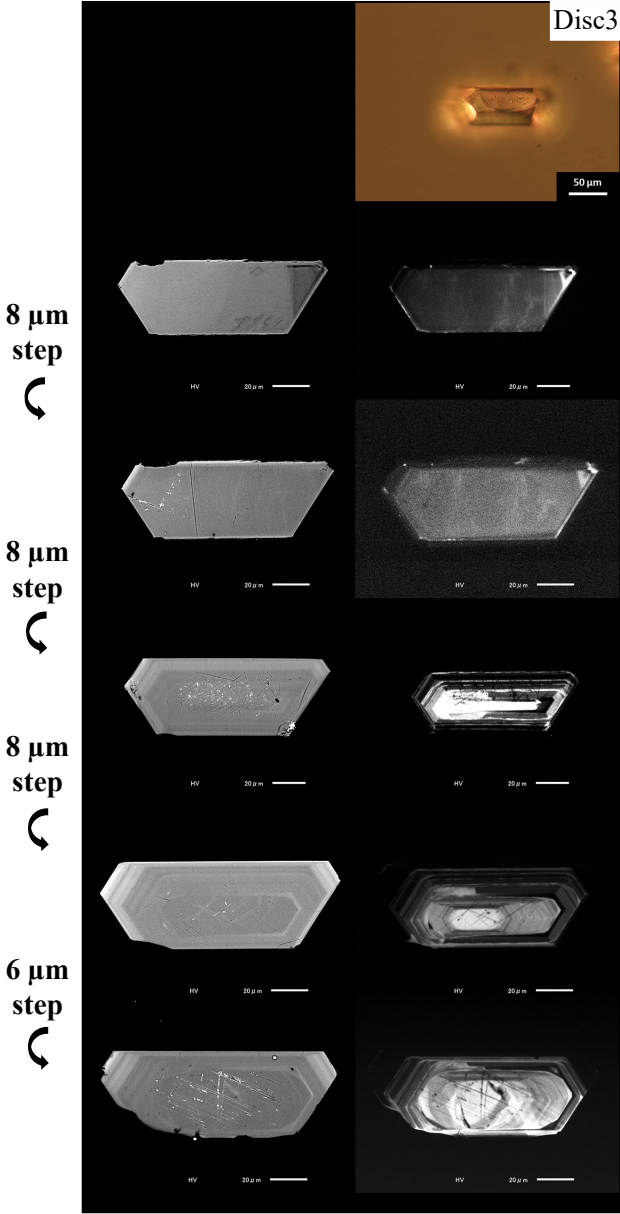
- OZ
- PT

Fig. 24 Zircon data of grain No. BG25

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

Morphological description

- Type {110}
- Major axis: 133 μm
- Minor axis: 53 μm
- Major axis/Minor axis: 2.5

Observed internal texture

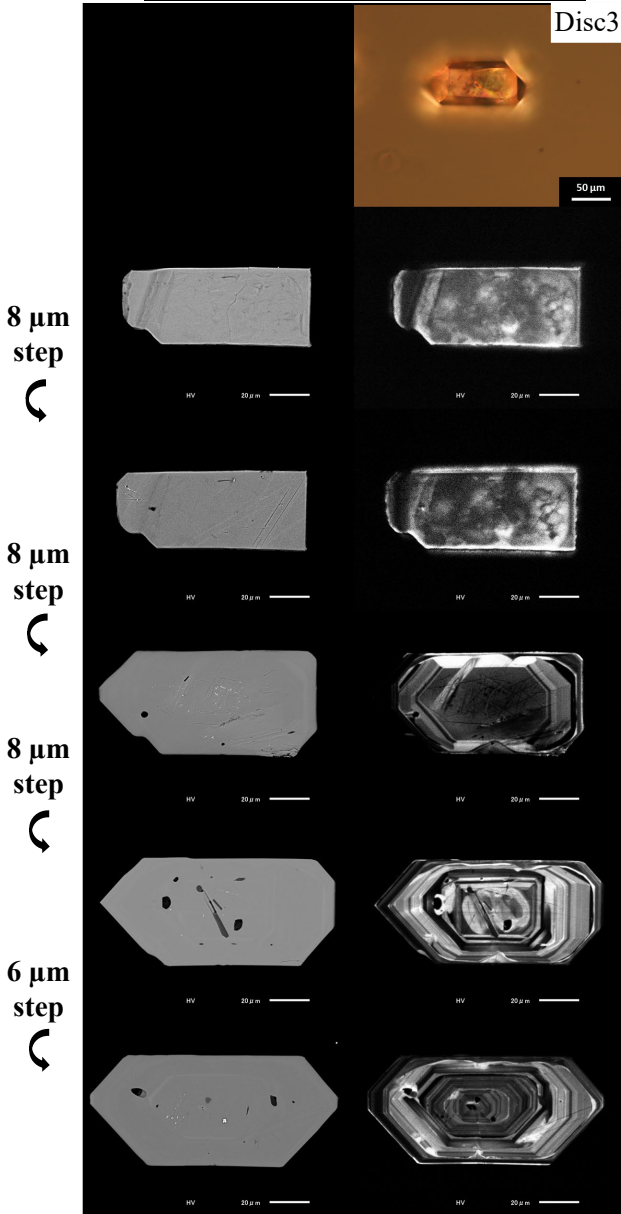
- OZ
- PT

<Legend>

OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Fig. 25 Zircon data of grain No. BG26

Morphological observation and CL observation for multi-layers



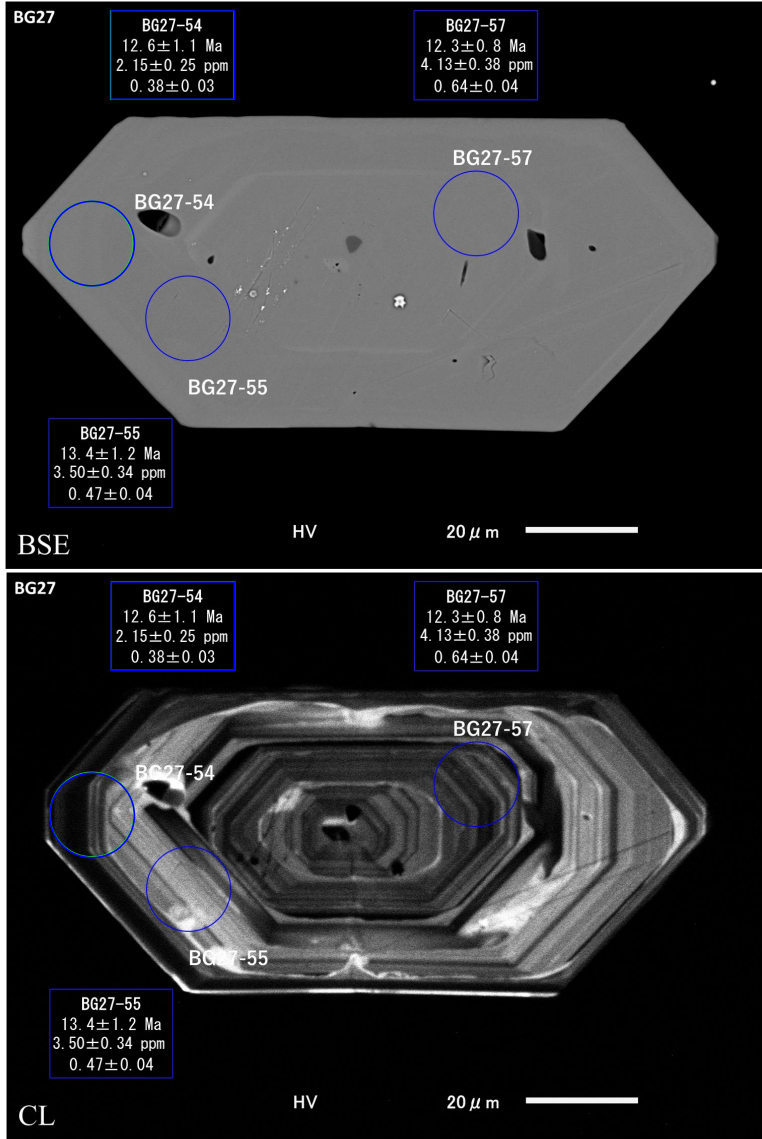
BSE images CL images

<Legend>

- OZ: Oscillatory zoning
- PT: Porous texture
- CT: Chaotic texture
- LDT: Local disturbance texture
- IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

- OZ : ○ PT : ○ IHC : ○ CT : ○



Morphological description

- Type {100}
- Major axis: 128 μm
- Minor axis: 58 μm
- Major axis/Minor axis: 2.2

Observed internal texture

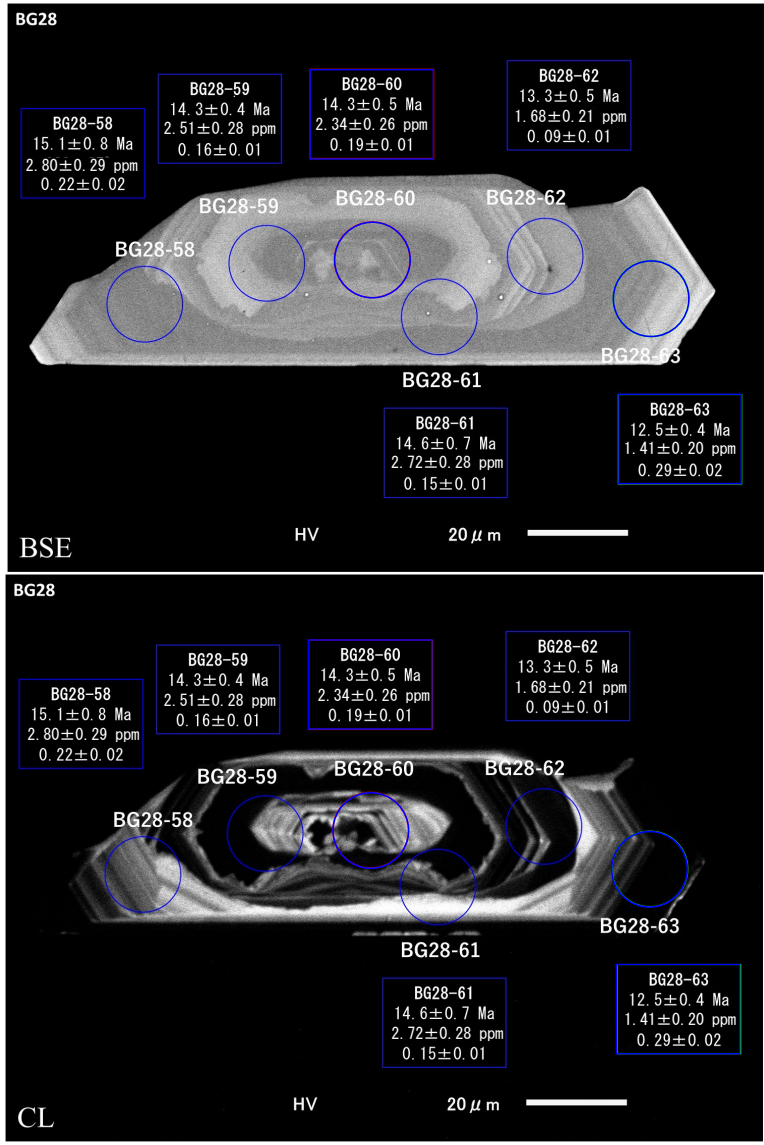
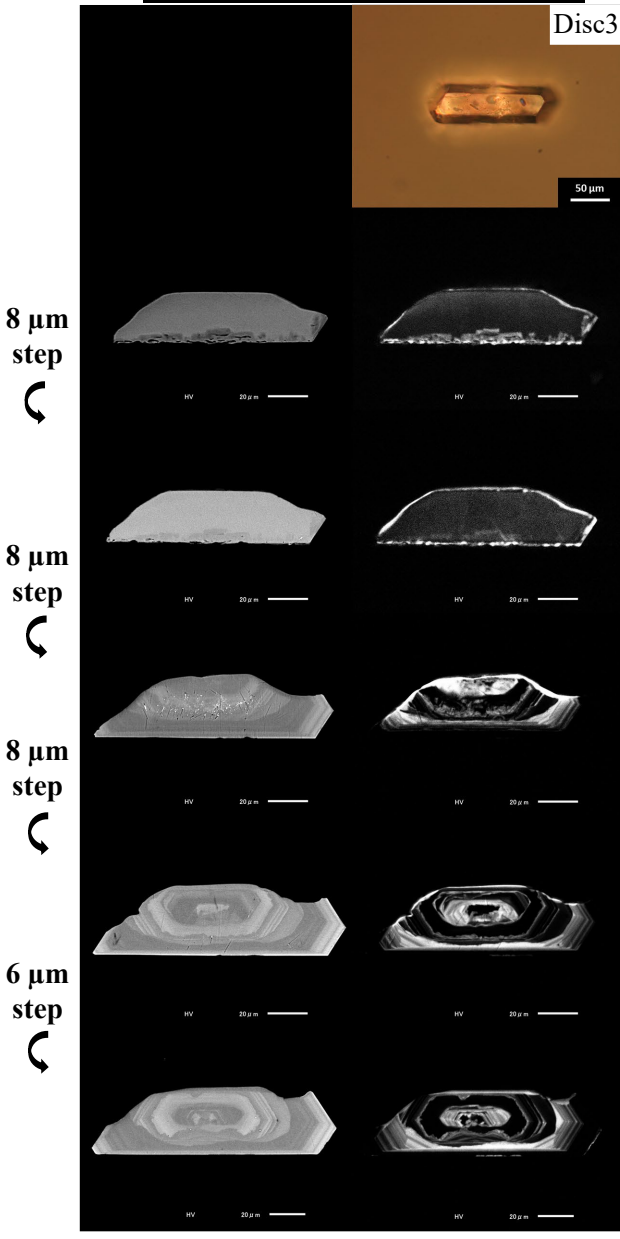
- OZ
- PT

Fig. 26 Zircon data of grain No. BG27

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 165 μm
- Minor axis: 52 μm
- Major axis/Minor axis: 3.2

Observed internal texture

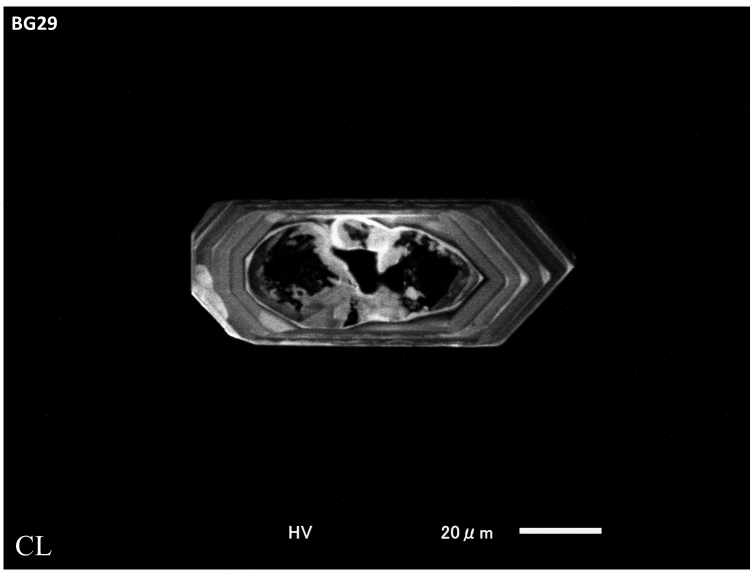
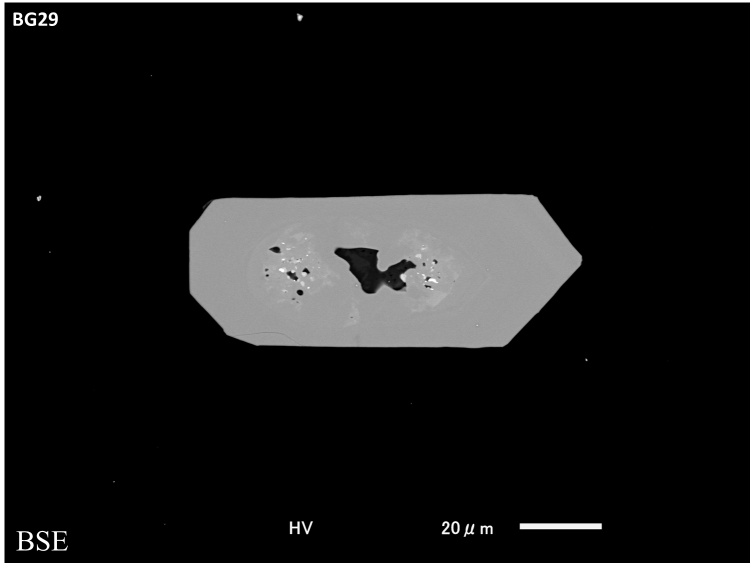
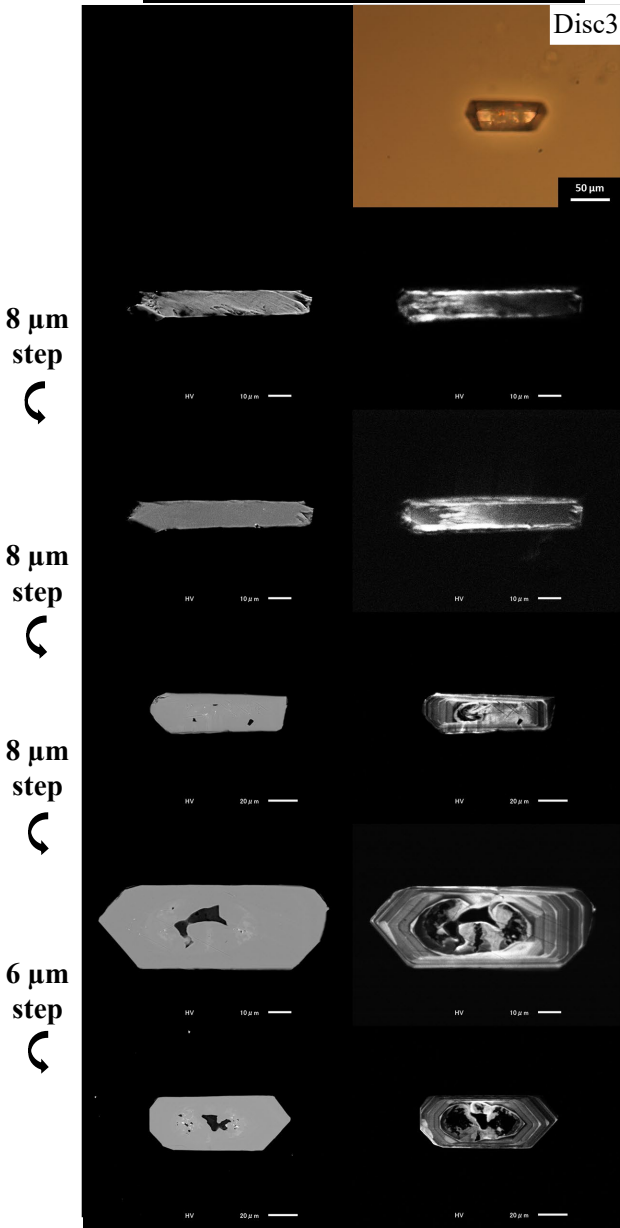
- OZ
- PT

Fig. 27 Zircon data of grain No. BG28

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

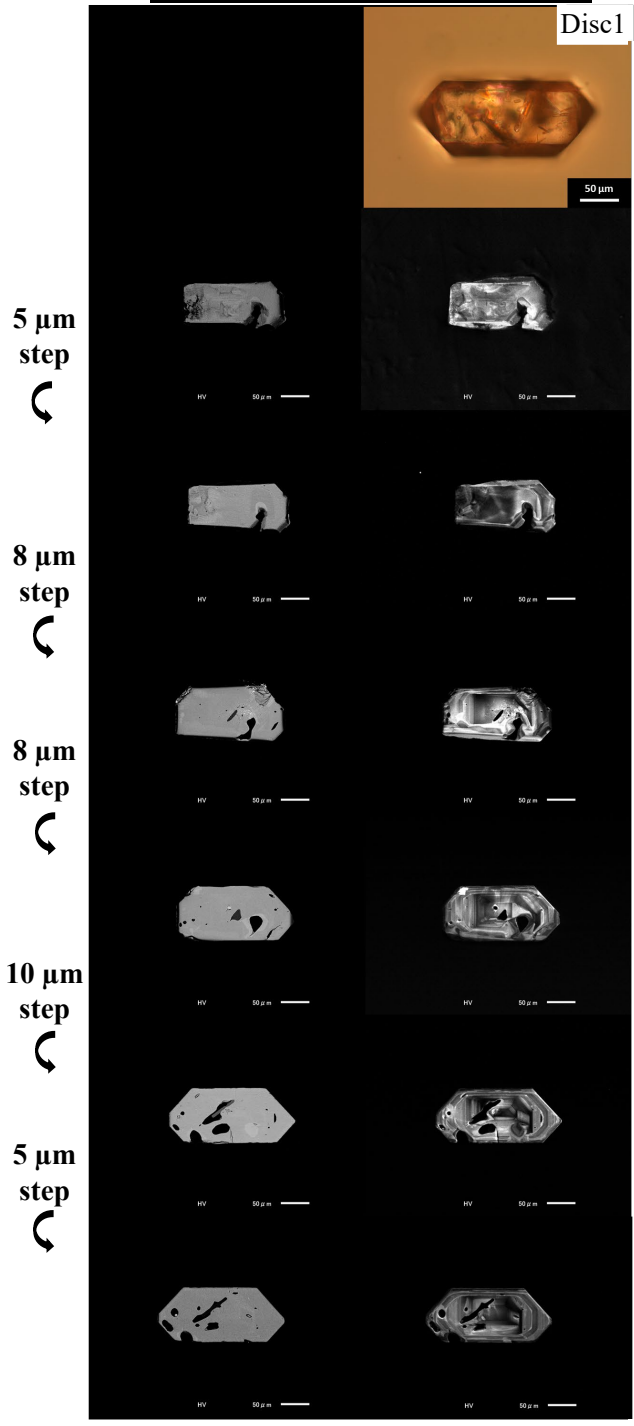
- Type {100}
- Major axis: 105 μm
- Minor axis: 39 μm
- Major axis/Minor axis: 2.7

Observed internal texture

- OZ
- PT

Fig. 28 Zircon data of grain No. BG29

Morphological observation and CL observation for multi-layers

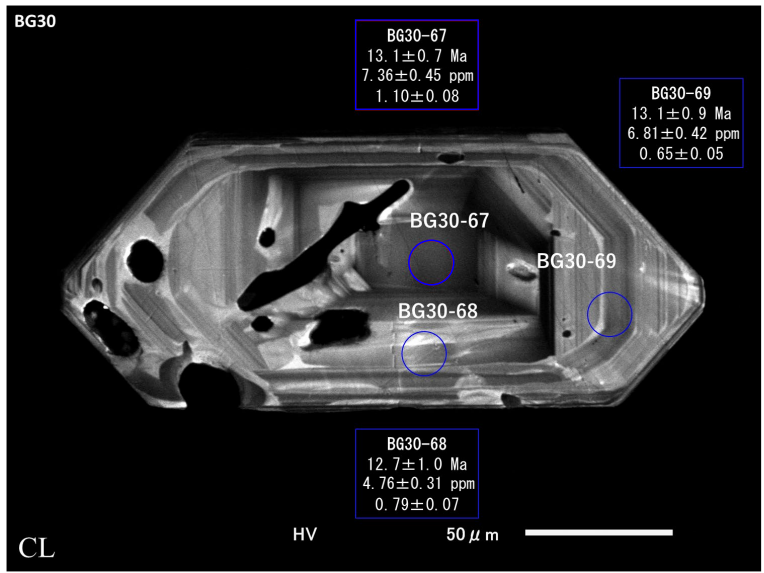
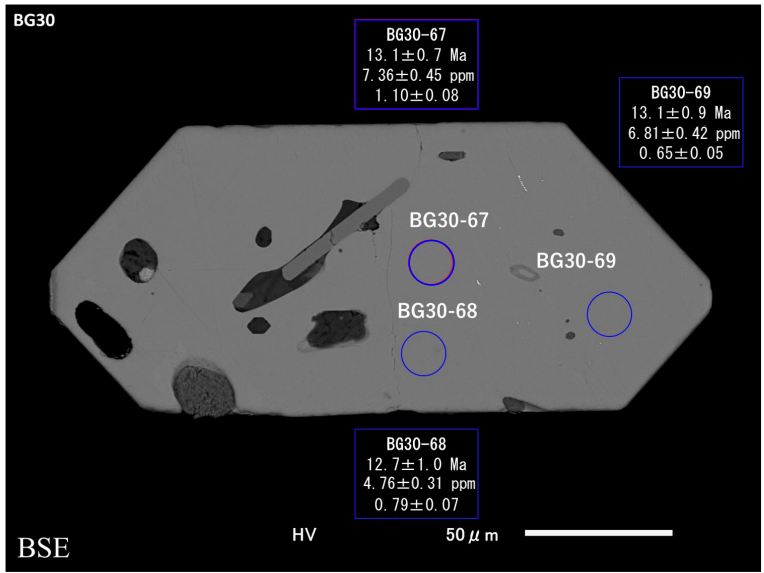


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

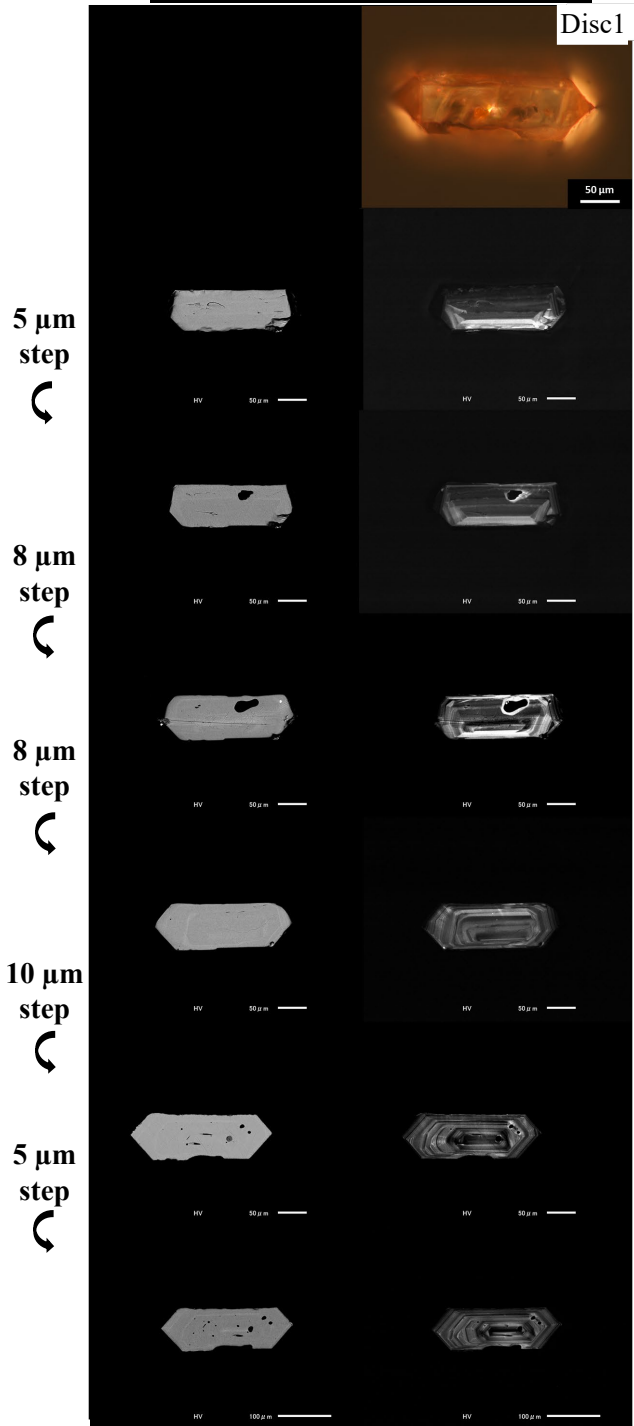
- Type {100}
- Major axis: 230 μm
- Minor axis: 100 μm
- Major axis/Minor axis: 2.3

Observed internal texture

- OZ
- PT

Fig. 29 Zircon data of grain No. BG30

Morphological observation and CL observation for multi-layers

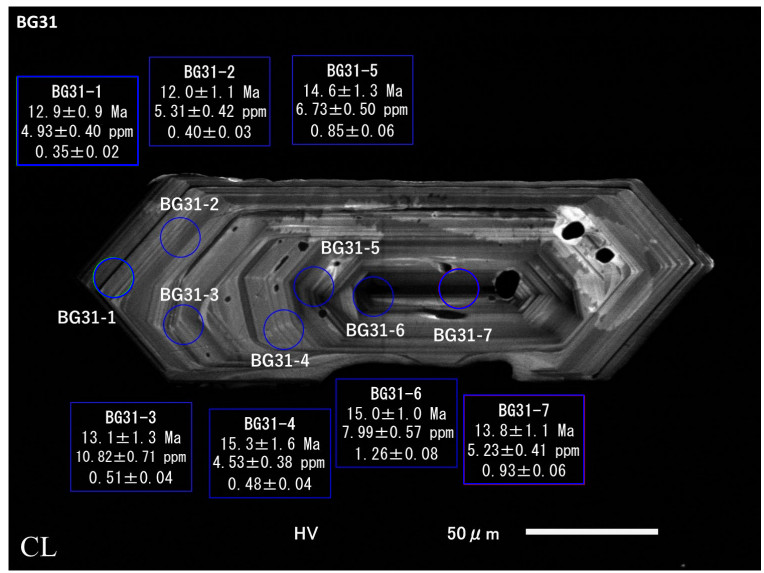
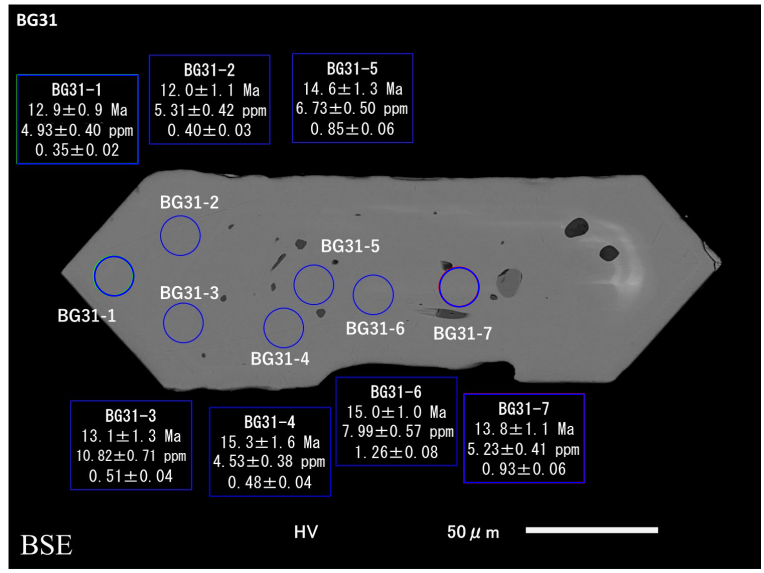


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {100}
- Major axis: 261 μm
- Minor axis: 79 μm
- Major axis/Minor axis: 3.3

Observed internal texture

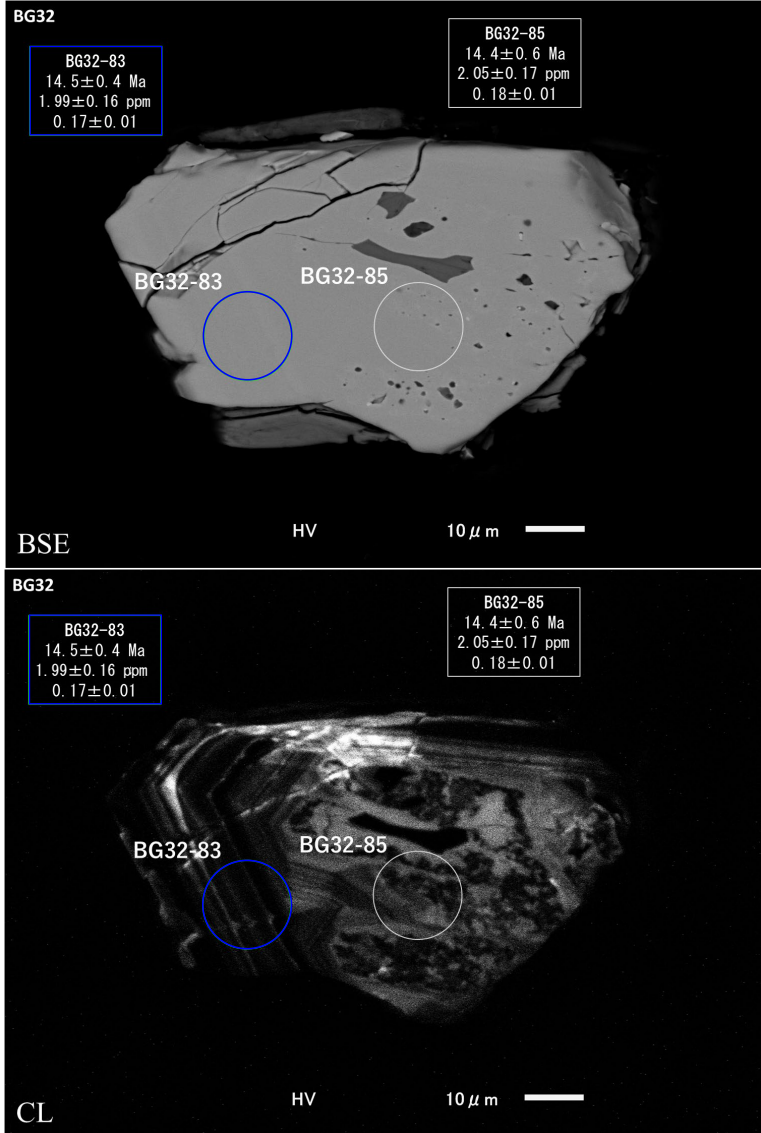
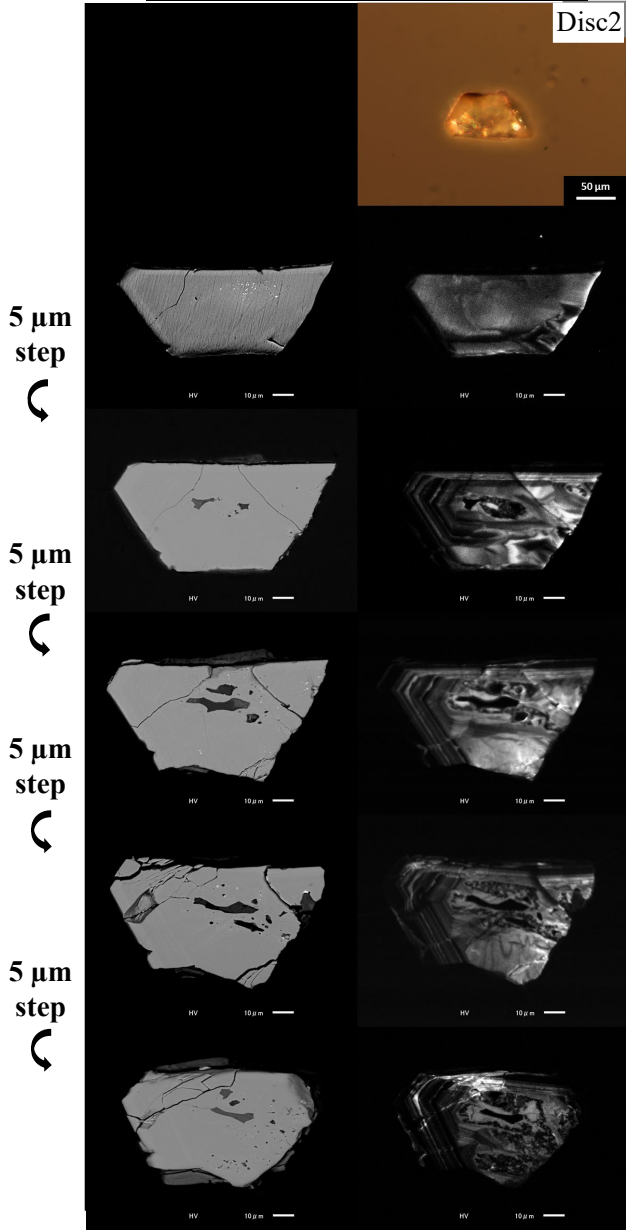
- OZ
- PT

Fig. 30 Zircon data of grain No. BG31

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 112 μm
- Minor axis: 63 μm
- Major axis/Minor axis: 1.8

Observed internal texture

- OZ
- PT

<Legend>

OZ: Oscillatory zoning

PT: Porous texture

CT: Chaotic texture

LDT: Local disturbance texture

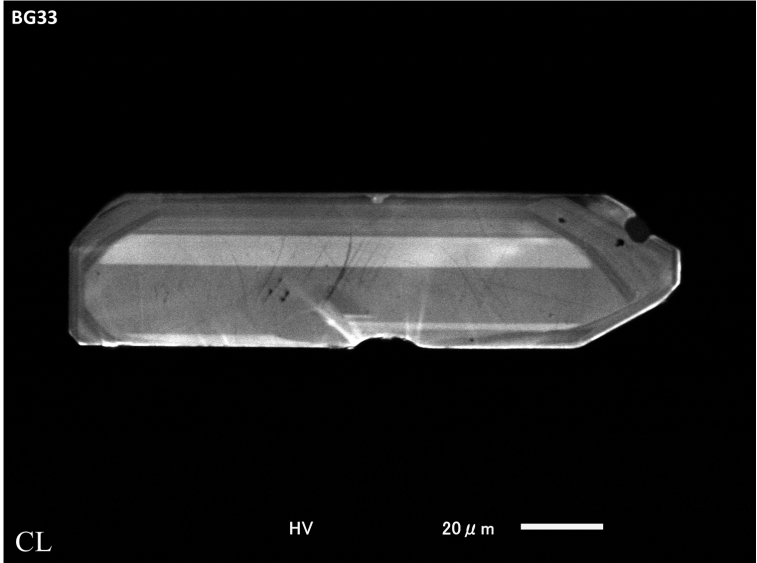
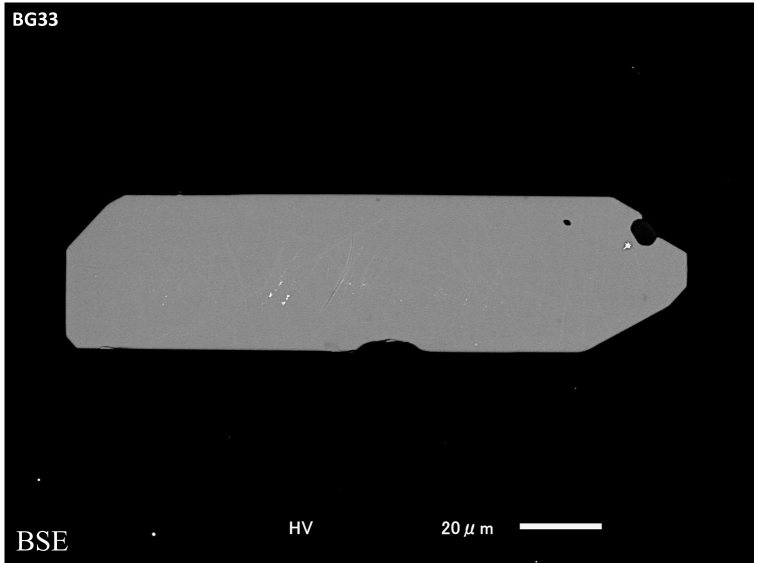
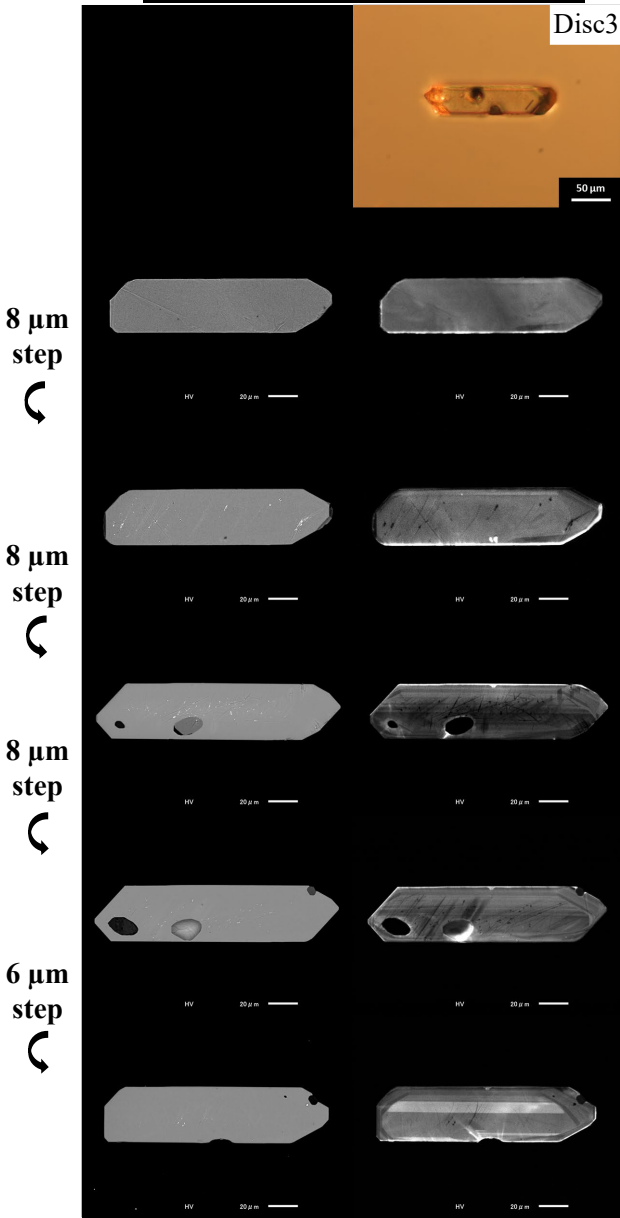
IHC: Inherited core

Fig. 31 Zircon data of grain No. BG32

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

Morphological description

- Type {110}
- Major axis: 170 μm
- Minor axis: 42 μm
- Major axis/Minor axis: 4.1

Observed internal texture

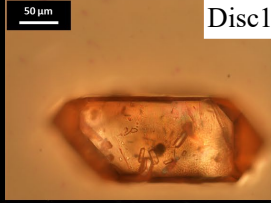
- OZ
- PT

<Legend>

OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Fig. 32 Zircon data of grain No. BG33

Morphological observation and CL observation for multi-layers



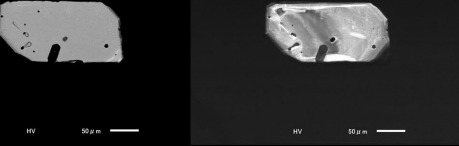
9 μm step



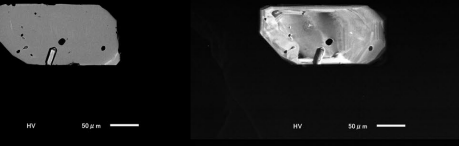
9 μm step



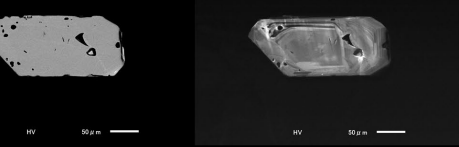
5 μm step



9 μm step



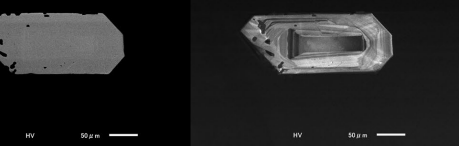
8 μm step



7 μm step



5 μm step

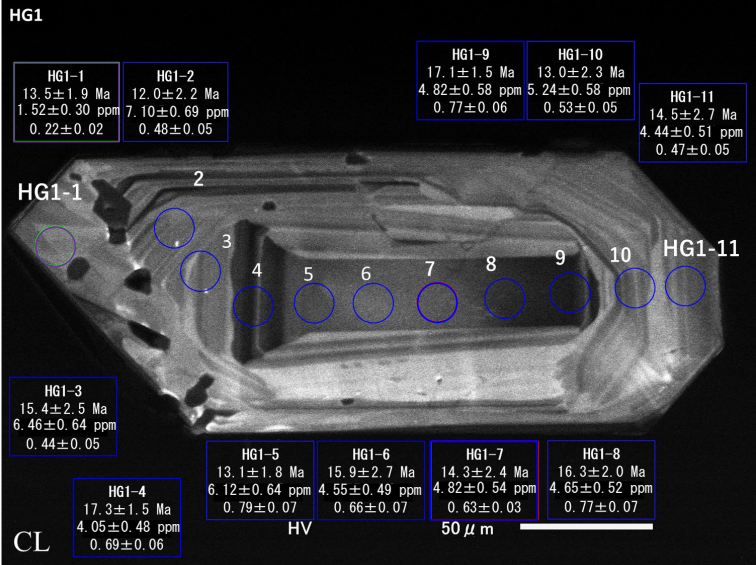
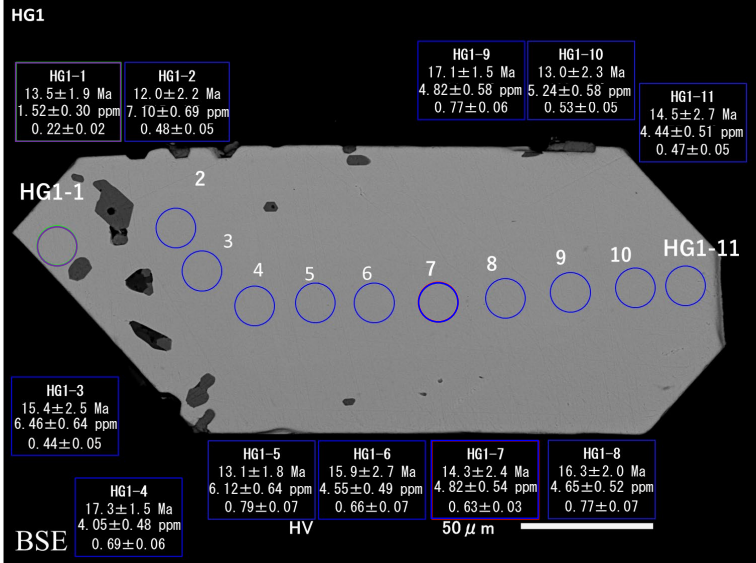


BSE images

CL images

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : ○ PT : ○ IHC : ○ CT : ○



Morphological description

- Type {100}
- Major axis: 270 μm
- Minor axis: 110 μm
- Major axis/Minor axis: 2.5

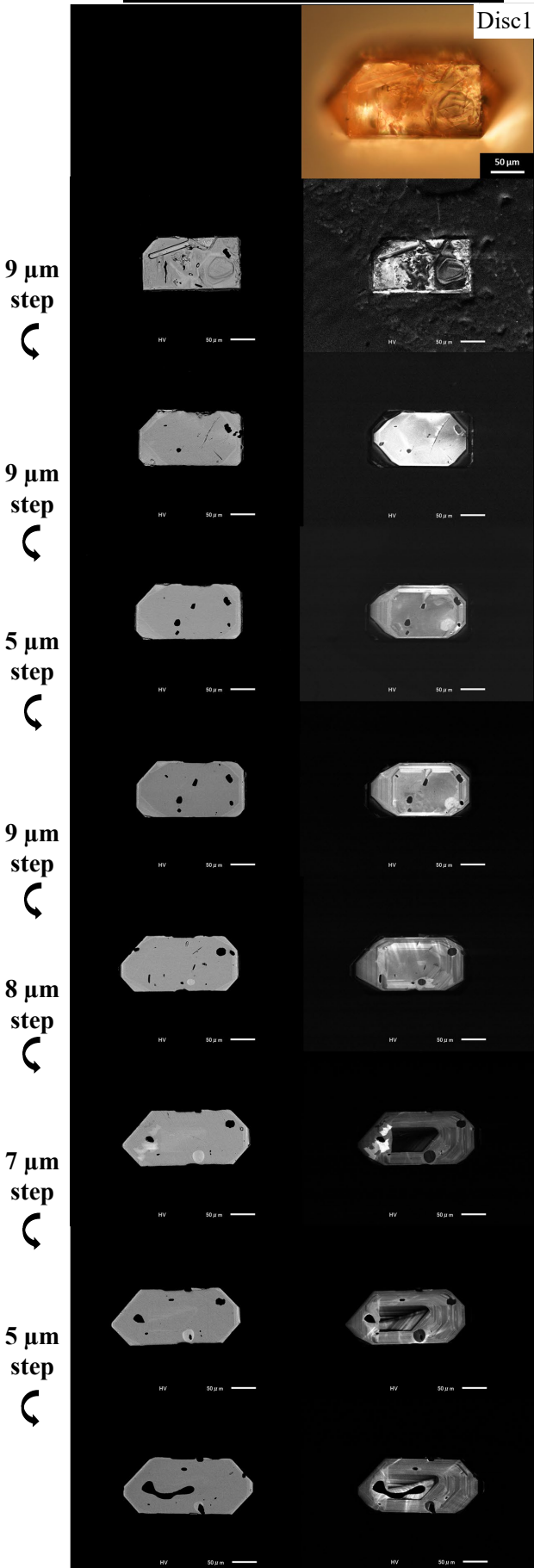
Observed internal texture

- OZ
- PT

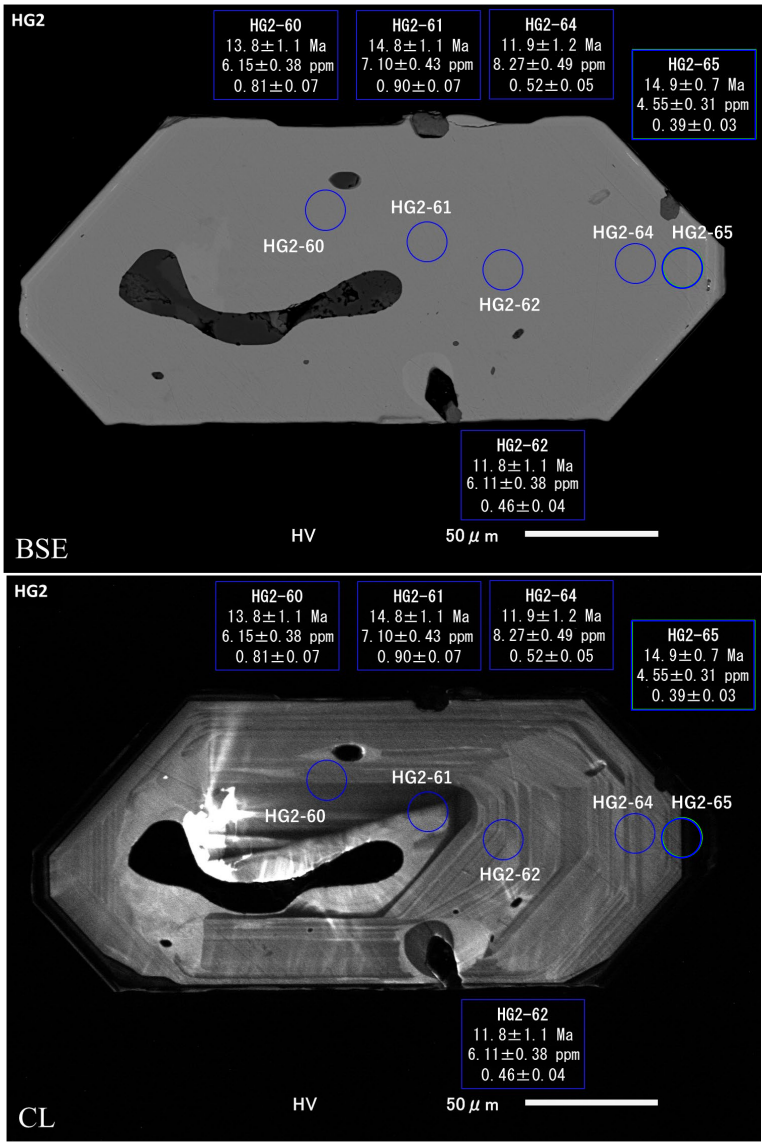
Fig. 33 Zircon data of grain No. HG1

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio



BSE images CL images



Morphological description

- Type {100}
- Major axis: 265 μm
- Minor axis: 118 μm
- Major axis/Minor axis: 2.2

Observed internal texture

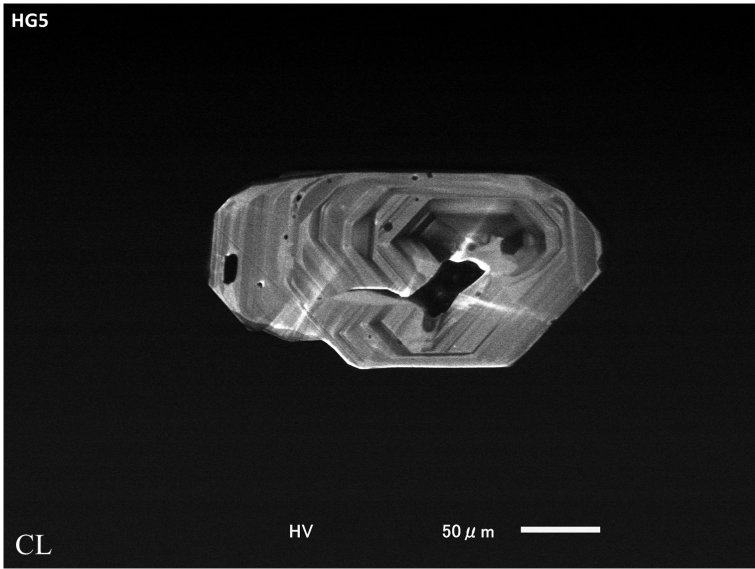
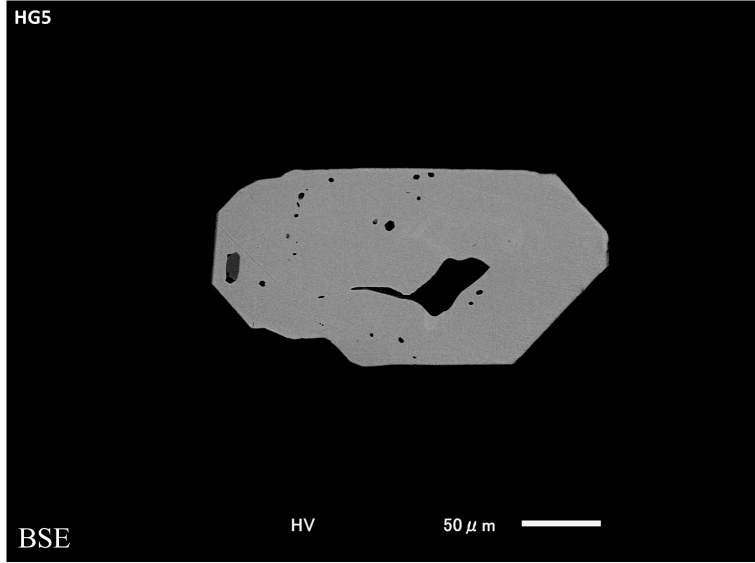
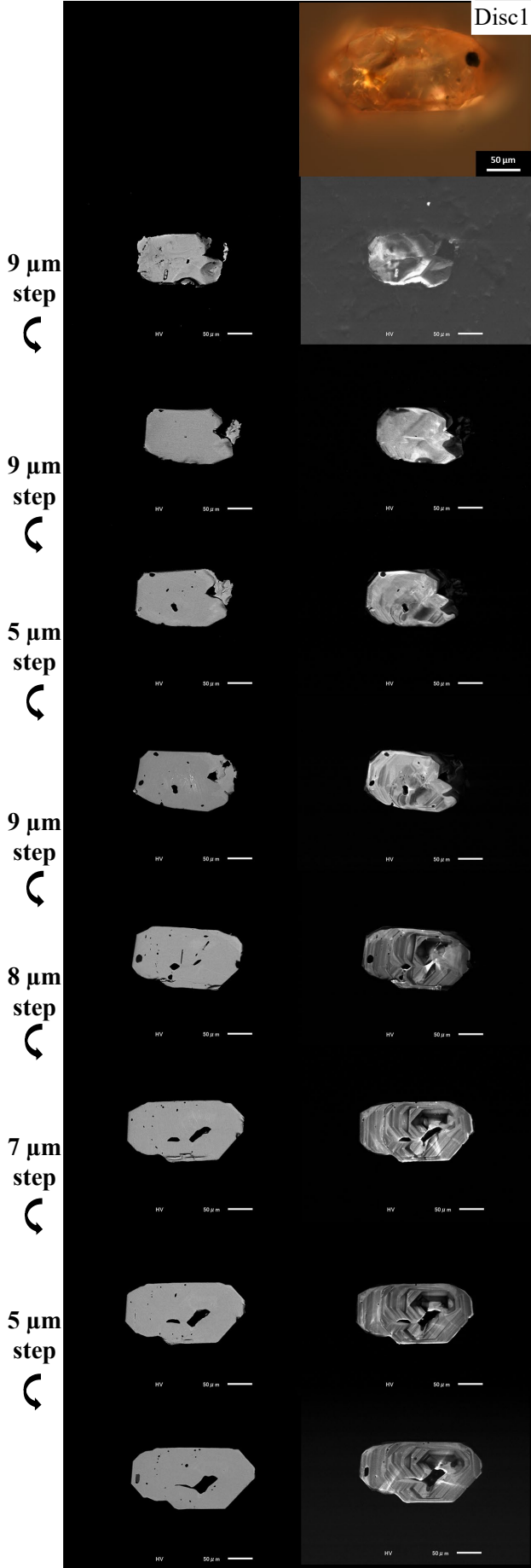
- OZ
- LDT

Fig. 34 Zircon data of grain No. HG2

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



Morphological description

- Type {100}
- Major axis: 250 μm
- Minor axis: 124 μm
- Major axis/Minor axis: 2.0

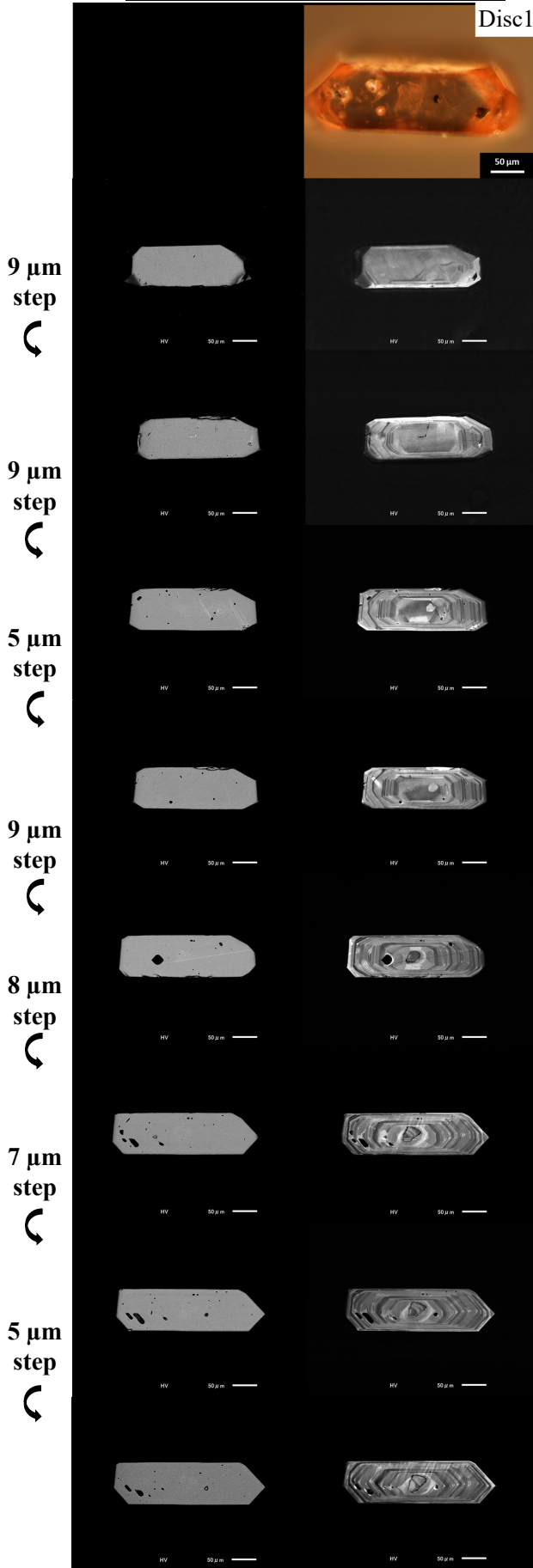
Observed internal texture

- OZ
- PT

Fig. 35 Zircon data of grain No. HG5

BSE images CL images

Morphological observation and CL observation for multi-layers

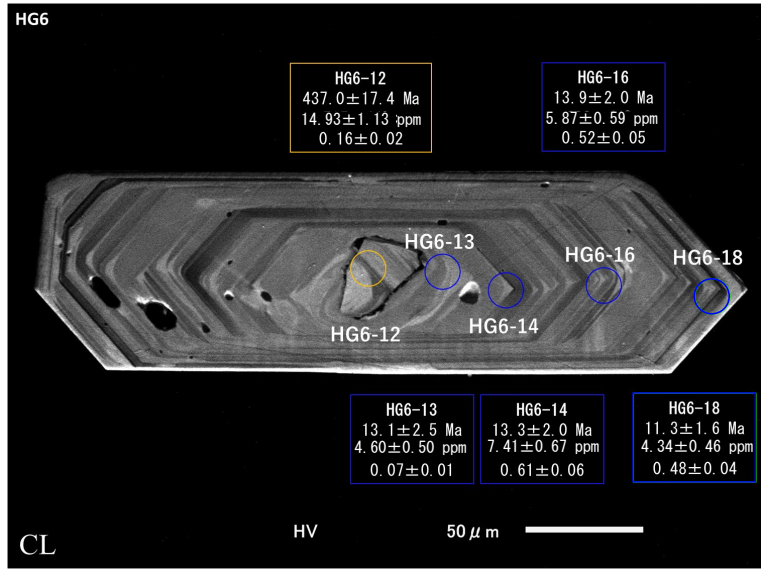
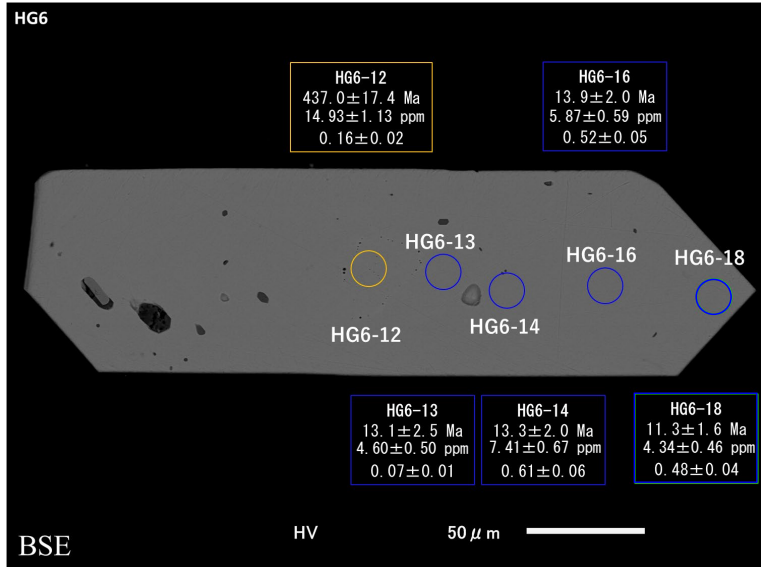


BSE images

CL images

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {100}
- Major axis: 319 μm
- Minor axis: 100 μm
- Major axis/Minor axis: 3.2

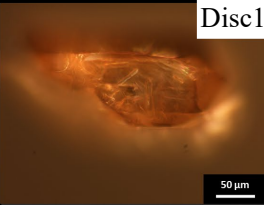
Observed internal texture

- OZ
- IHC

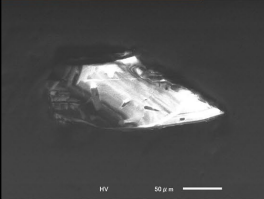
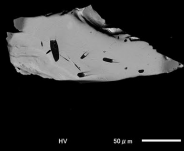
Fig. 36 Zircon data of grain No. HG6

Morphological observation and CL observation for multi-layers

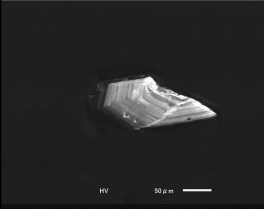
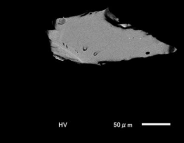
Analysis spots for U-Pb age and Ti conc., Th/U ratio



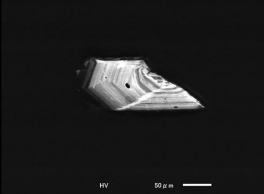
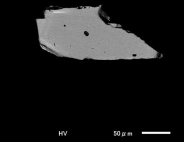
9 μm step



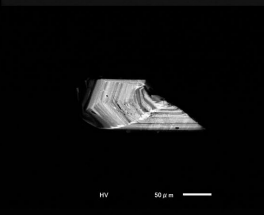
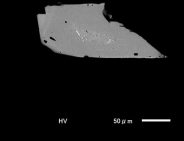
9 μm step



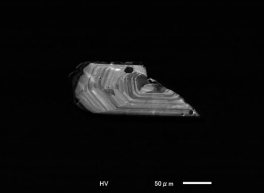
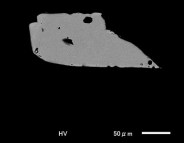
5 μm step



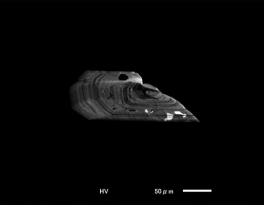
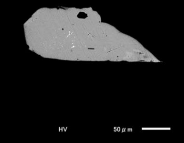
9 μm step



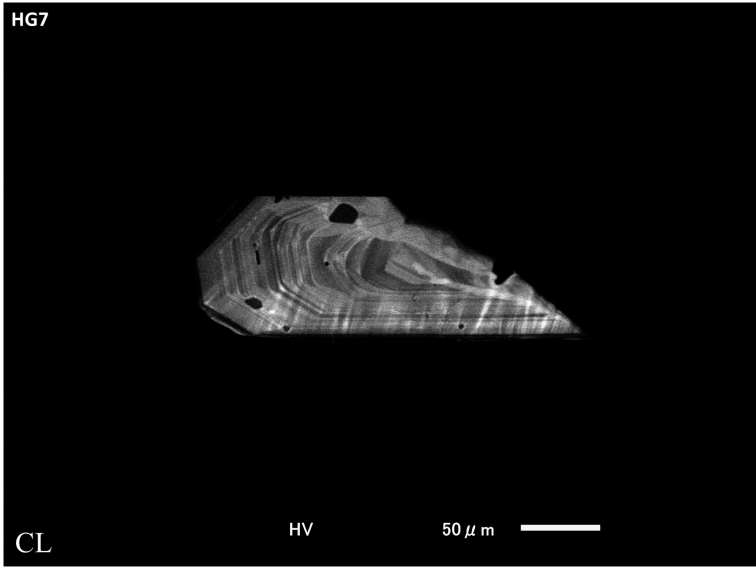
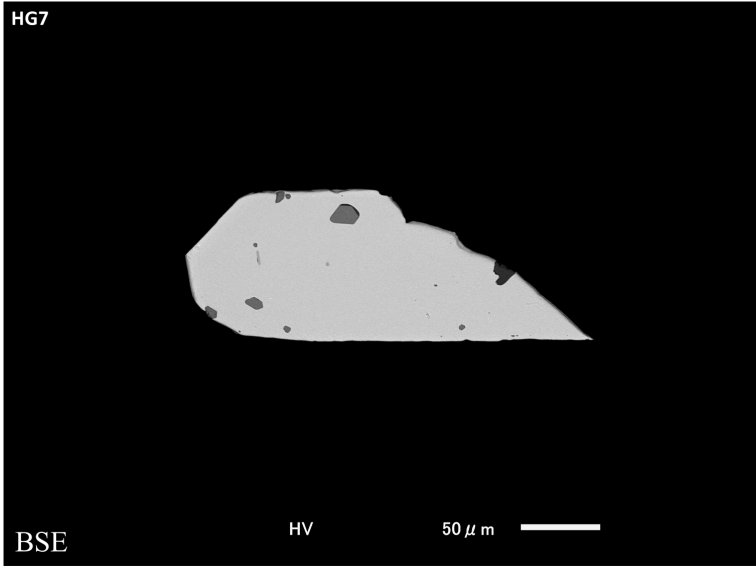
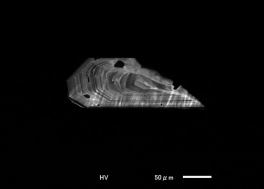
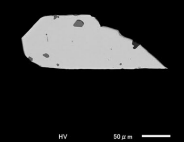
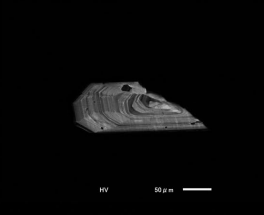
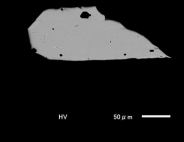
8 μm step



7 μm step



5 μm step



Morphological description

- Type {100}
- Major axis: 237 μm
- Minor axis: 94 μm
- Major axis/Minor axis: 2.5

Observed internal texture

- OZ
- PT

BSE images

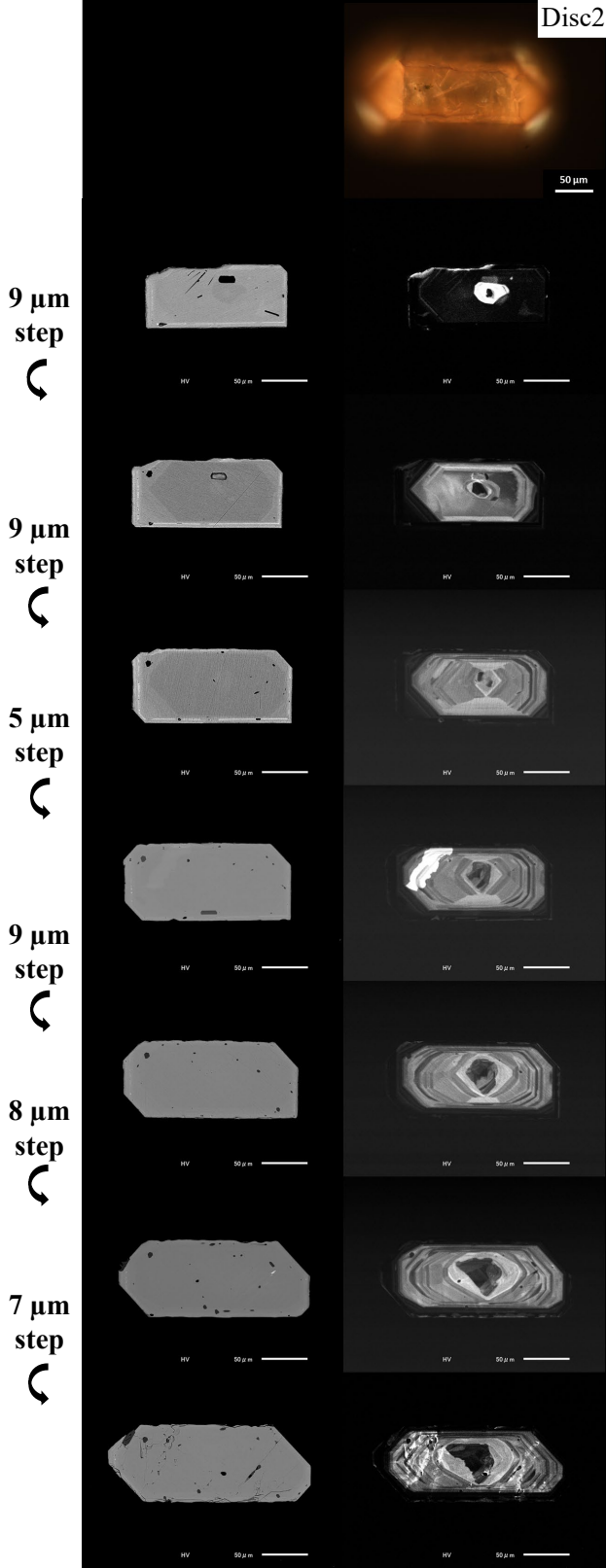
CL images

Fig. 37 Zircon data of grain No. HG7

Morphological observation and CL observation for multi-layers

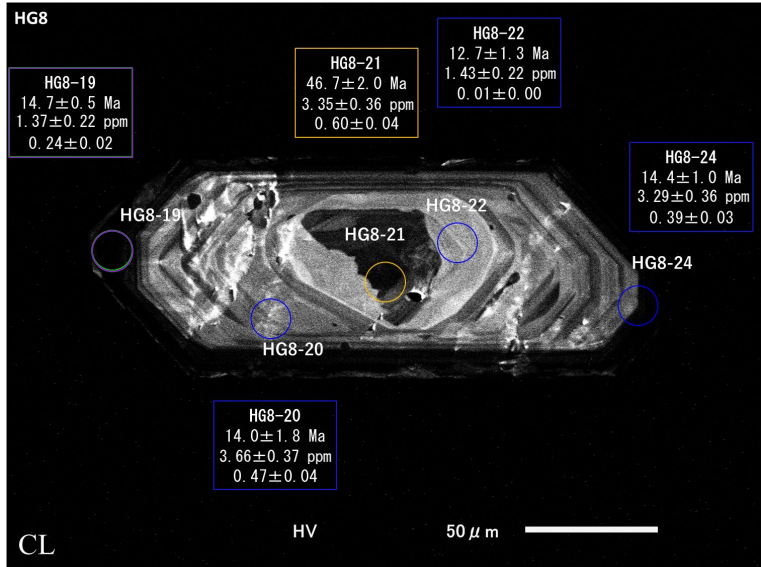
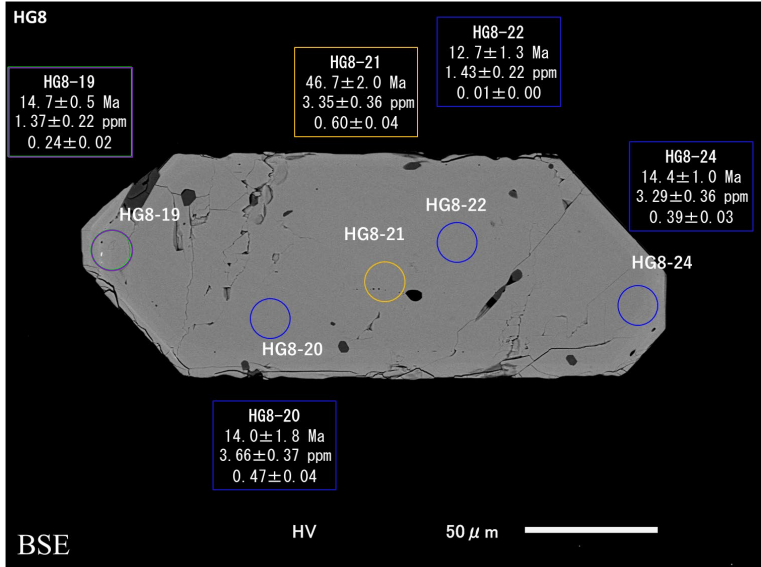
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 241 μm
- Minor axis: 80 μm
- Major axis/Minor axis: 3.0

Observed internal texture

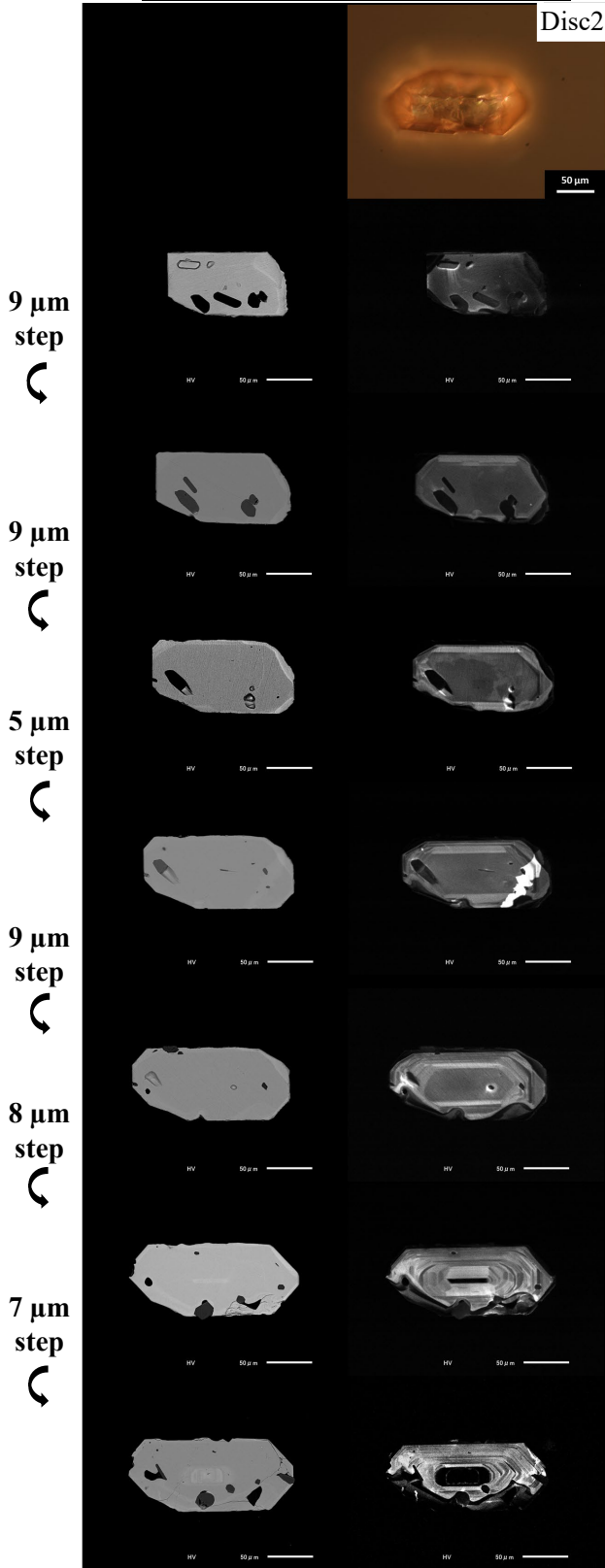
- OZ
- PT
- IHC

Fig. 38 Zircon data of grain No. HG8

Morphological observation and CL observation for multi-layers

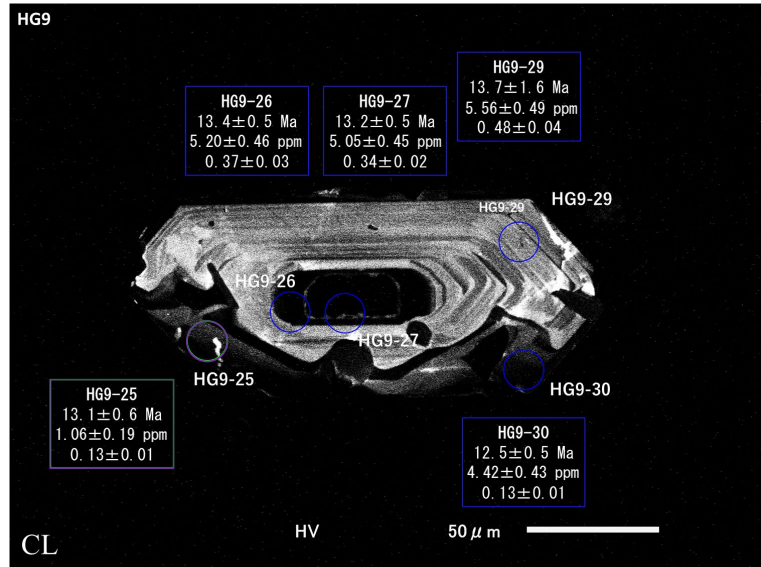
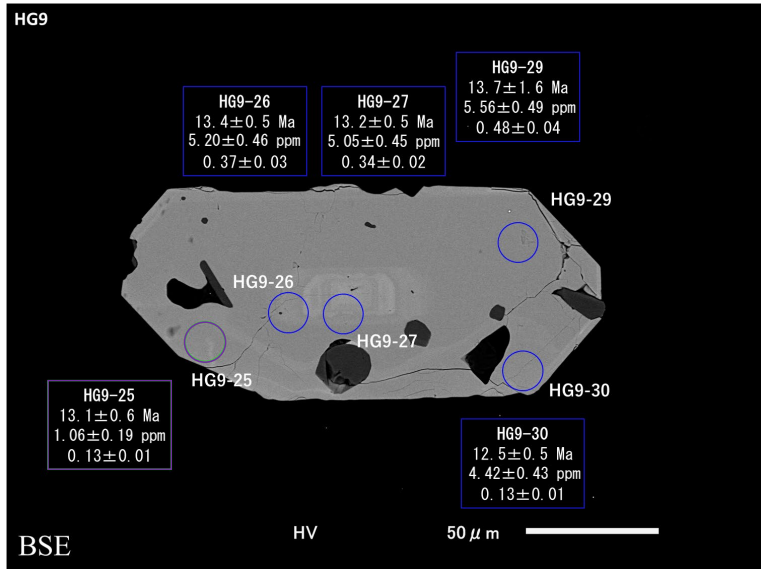
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 194 μm
- Minor axis: 84 μm
- Major axis/Minor axis: 2.3

Observed internal texture

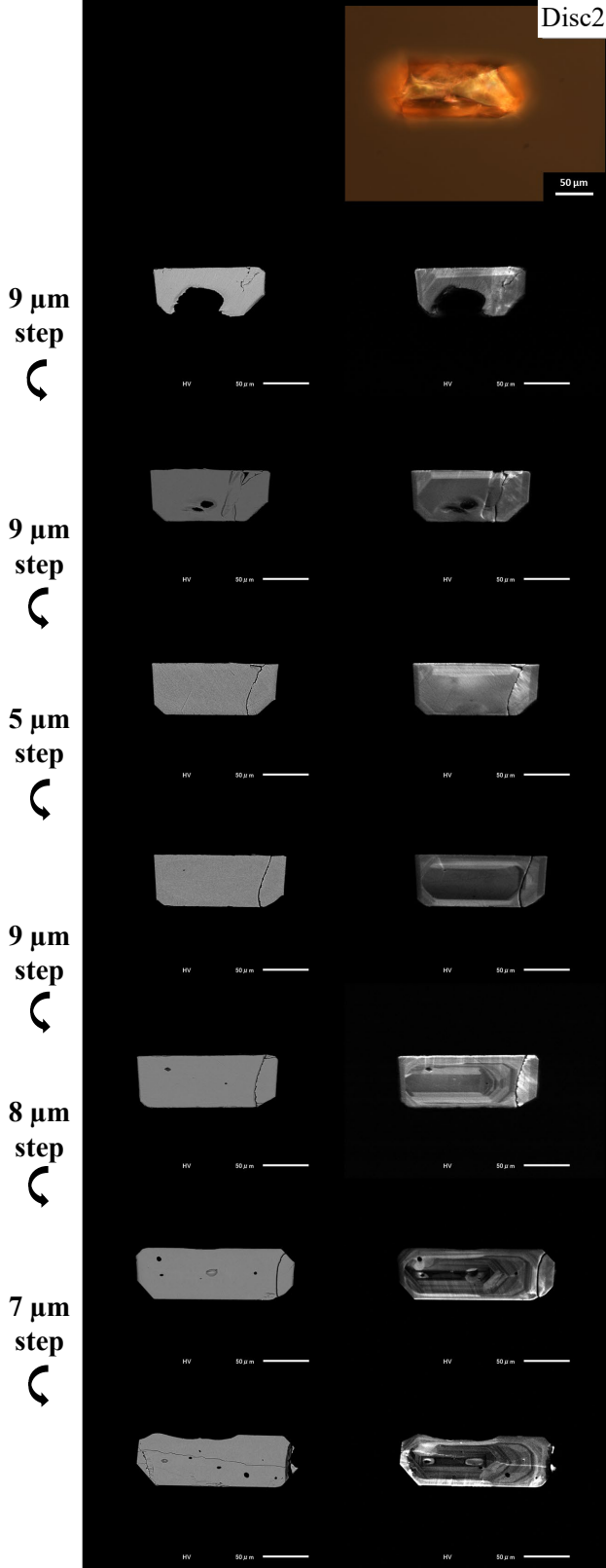
- OZ
- PT

Fig. 39 Zircon data of grain No. HG9

Morphological observation and CL observation for multi-layers

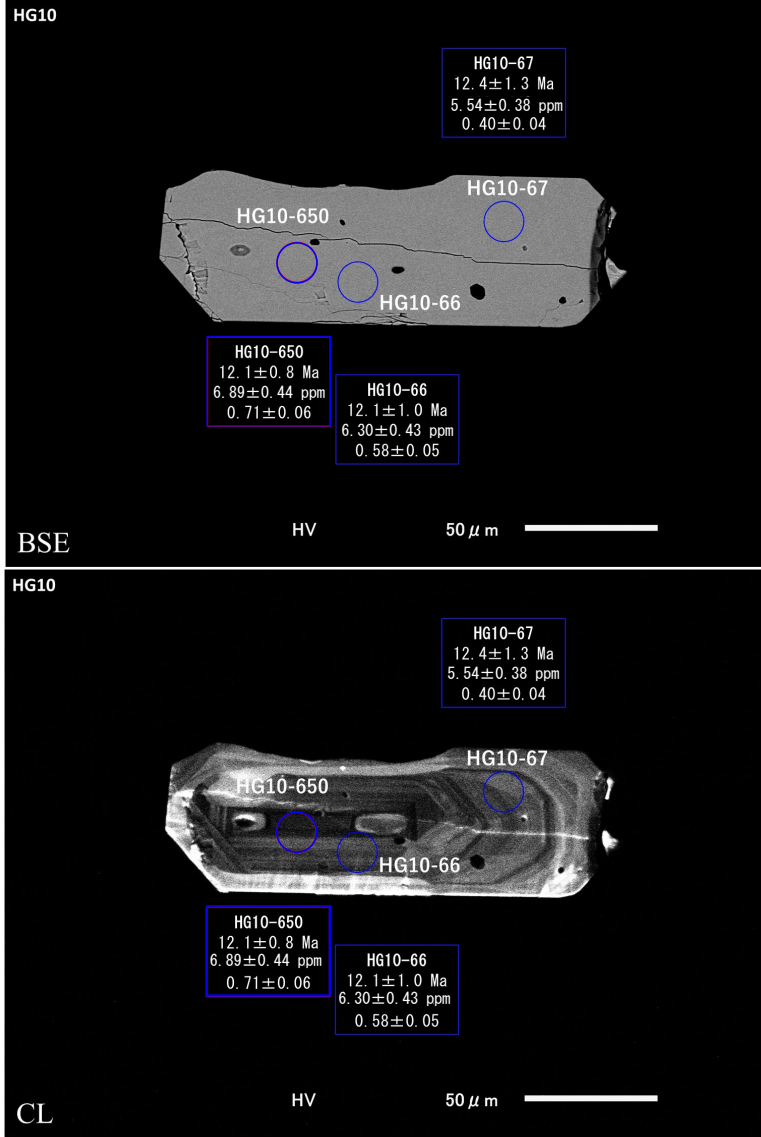
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type –not classified
- Major axis: 184 μm
- Minor axis: 79 μm
- Major axis/Minor axis: 2.3

Observed internal texture

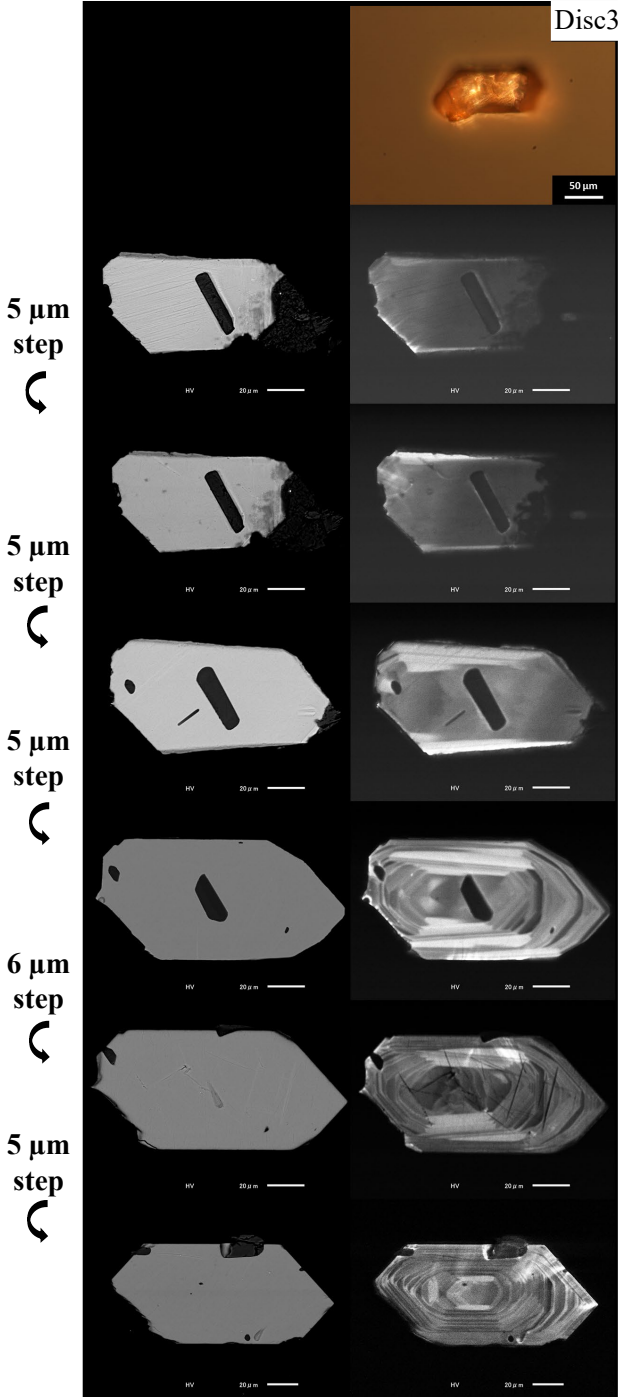
- OZ
- PT

Fig. 40 Zircon data of grain No. HG10

Morphological observation and CL observation for multi-layers

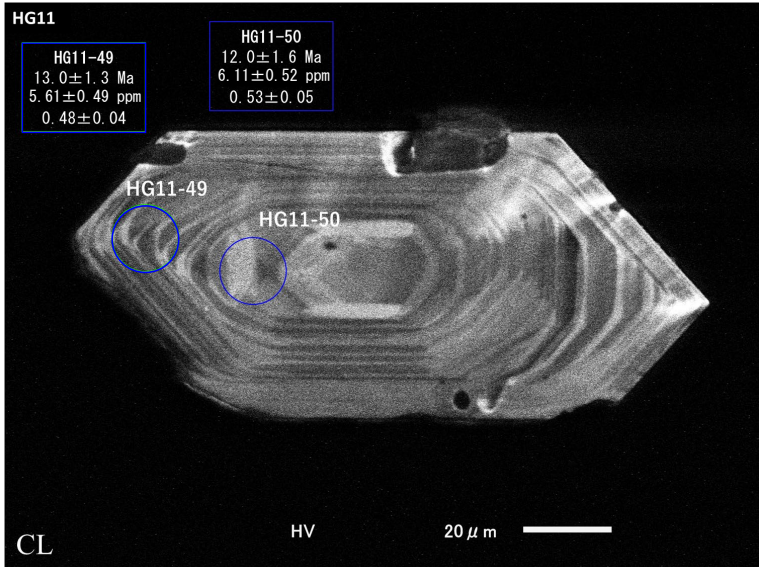
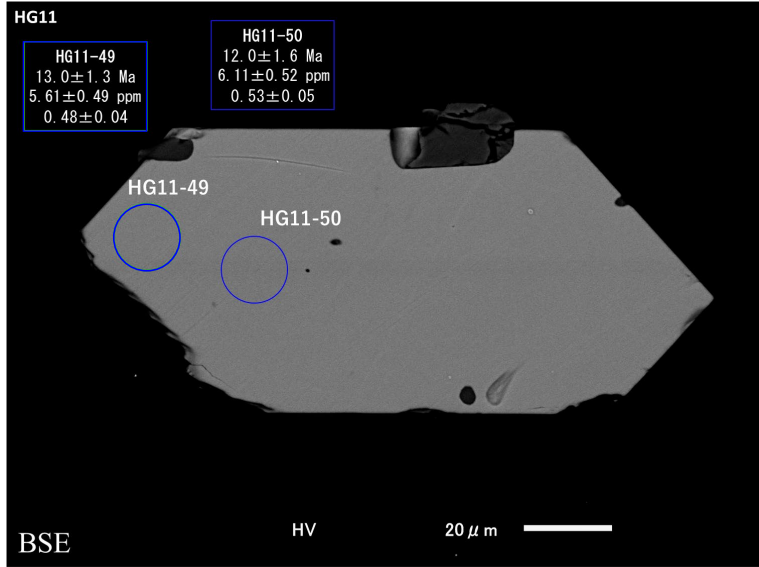
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type –not classified
- Major axis: 135 μm
- Minor axis: 54 μm
- Major axis/Minor axis: 2.5

Observed internal texture

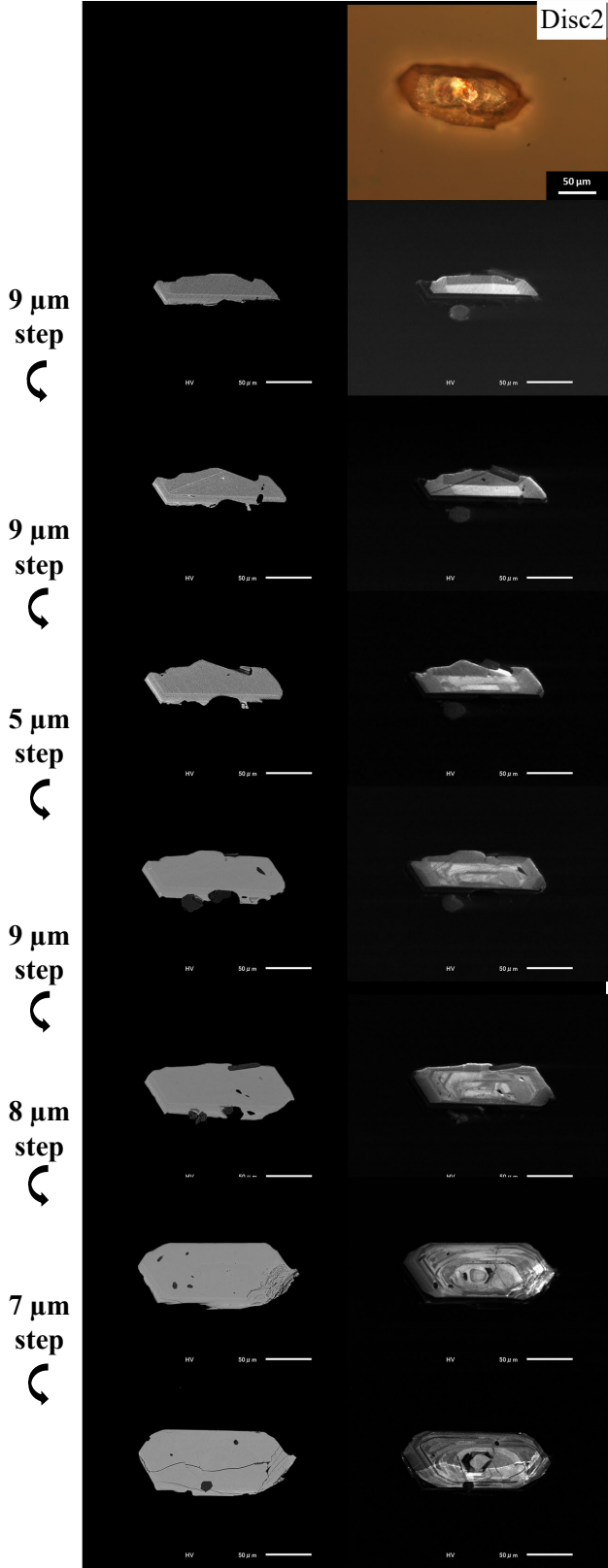
- OZ

Fig. 41 Zircon data of grain No. HG11

Morphological observation and CL observation for multi-layers

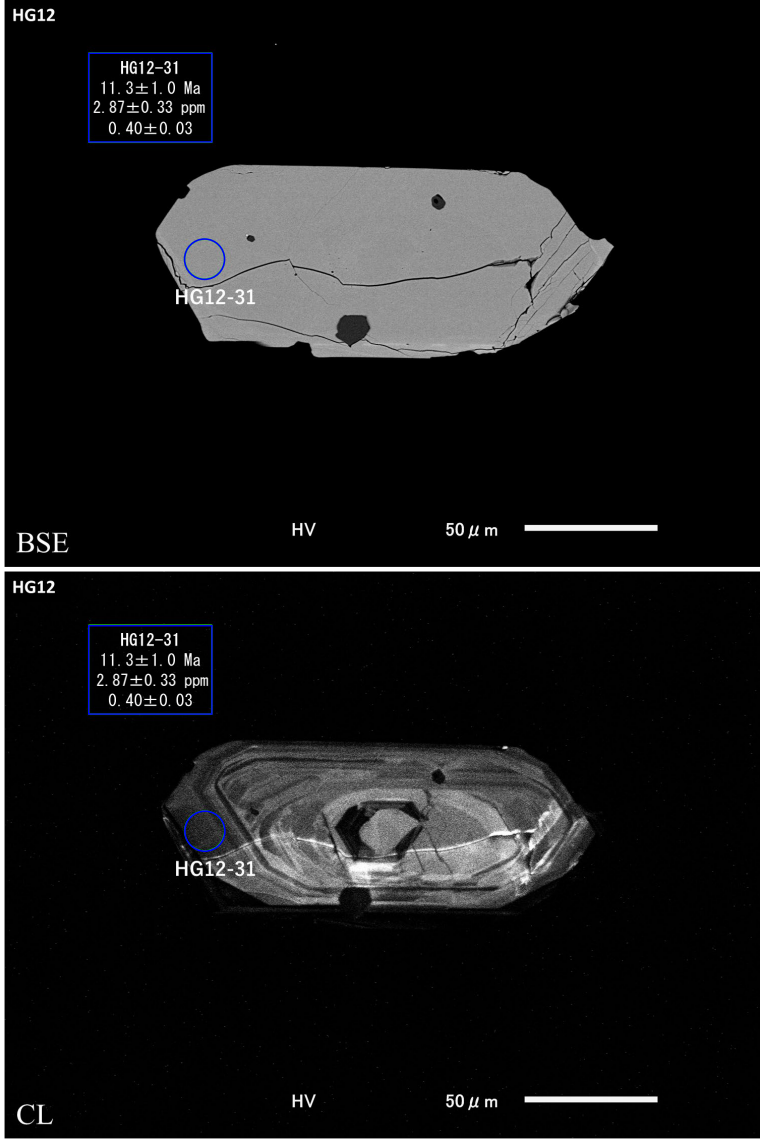
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 176 μm
- Minor axis: 79 μm
- Major axis/Minor axis: 2.2

Observed internal texture

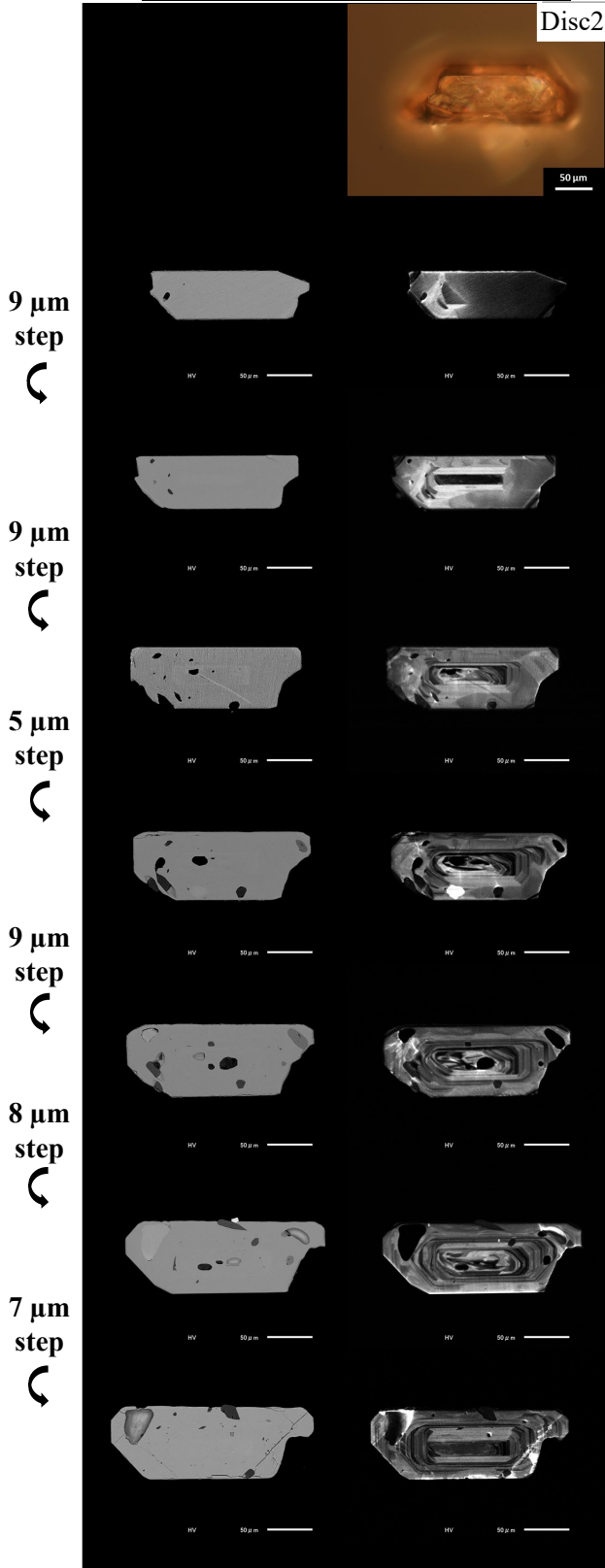
- OZ
- IHC

Fig. 42 Zircon data of grain No. HG12

Morphological observation and CL observation for multi-layers

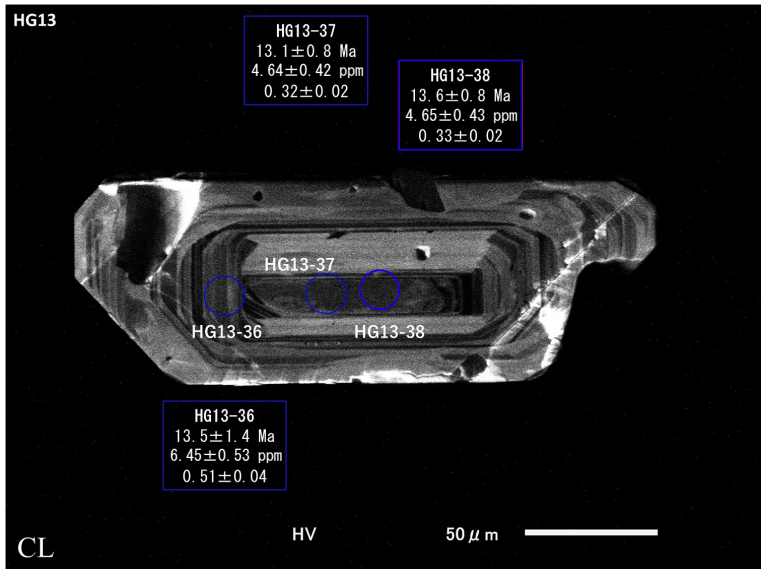
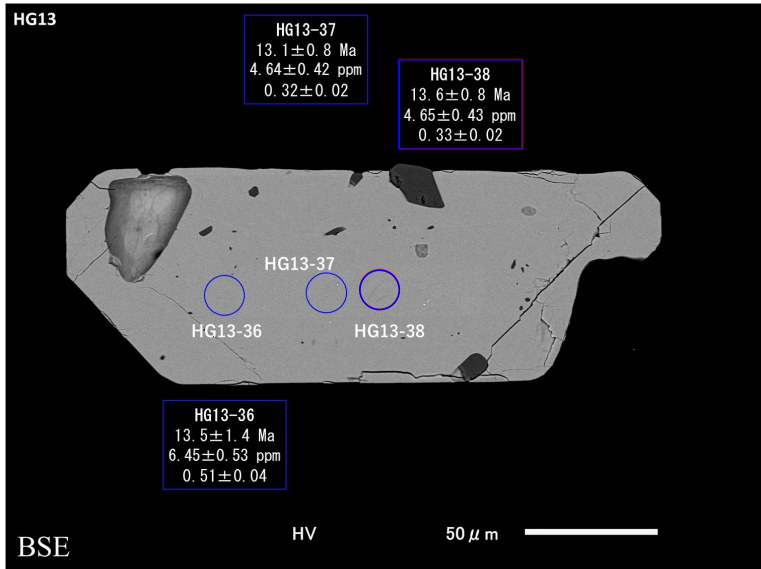
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {110}
- Major axis: 205 μm
- Minor axis: 80 μm
- Major axis/Minor axis: 2.6

Observed internal texture

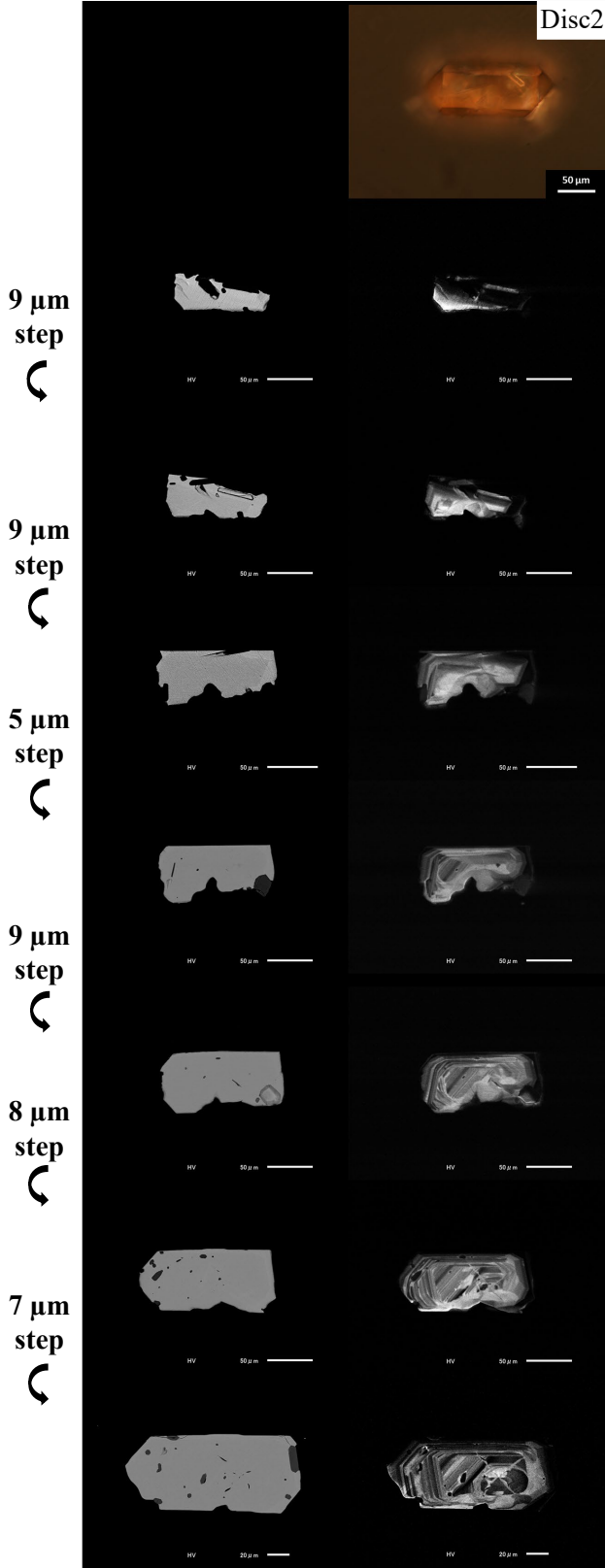
- OZ
- PT

Fig. 43 Zircon data of grain No. HG13

Morphological observation and CL observation for multi-layers

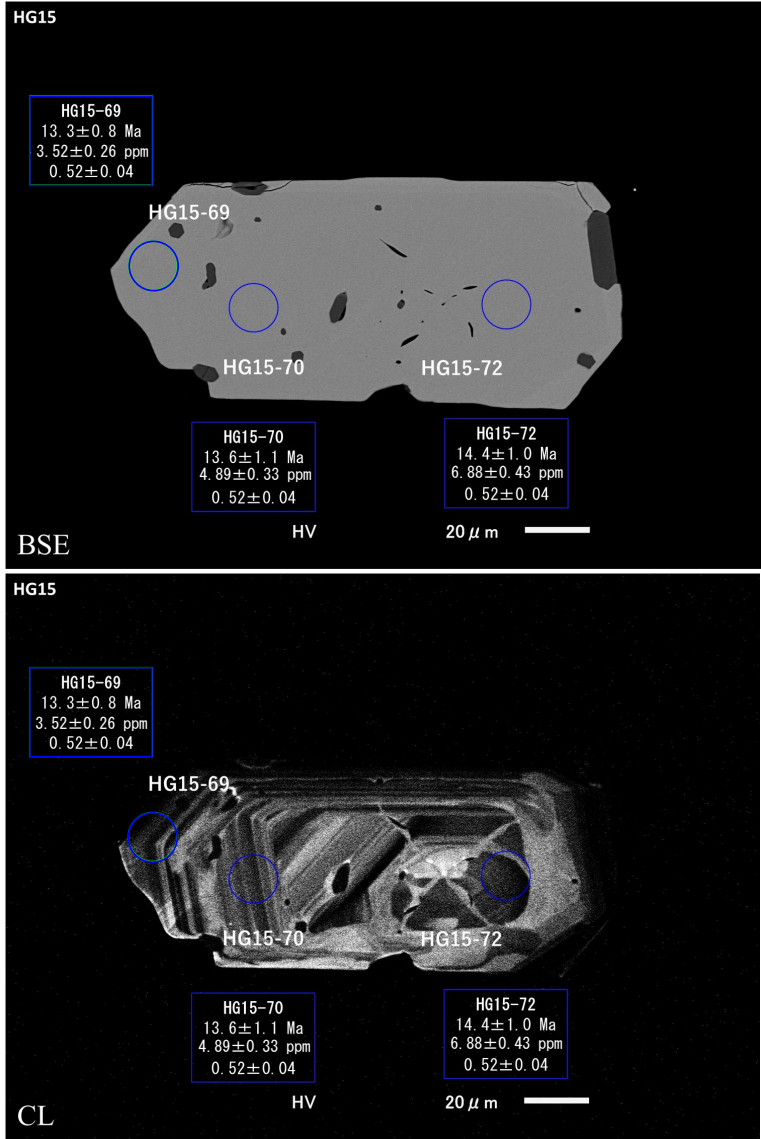
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 160 μm
- Minor axis: 70 μm
- Major axis/Minor axis: 2.3

Observed internal texture

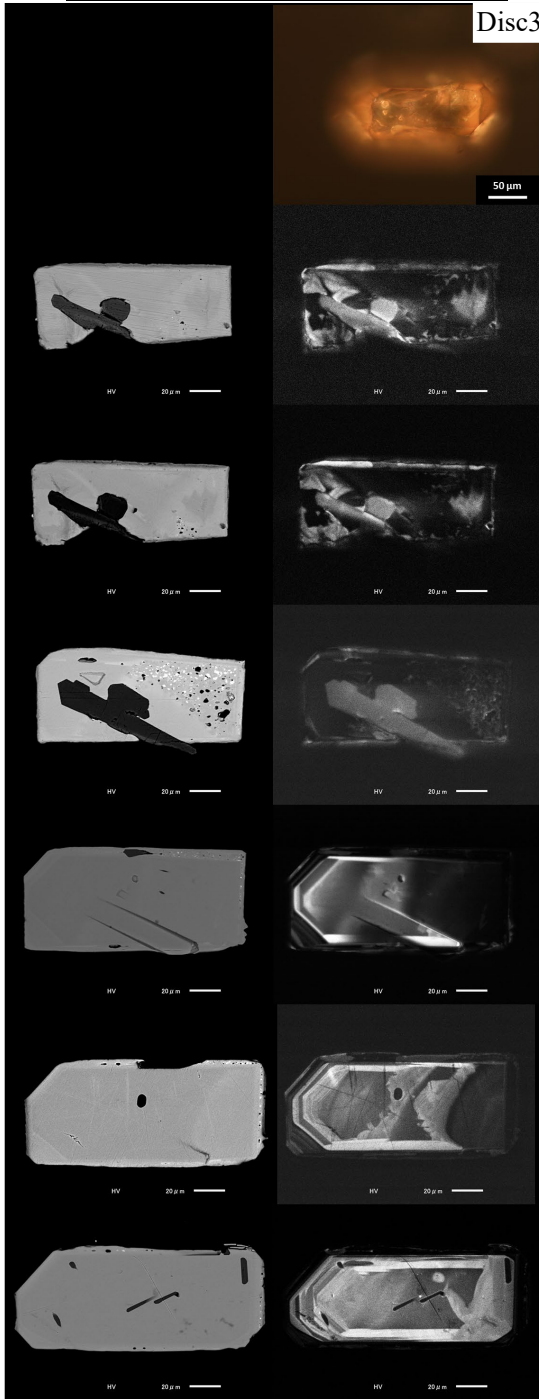
- OZ
- CT

Fig. 44 Zircon data of grain No. HG15

Morphological observation and CL observation for multi-layers

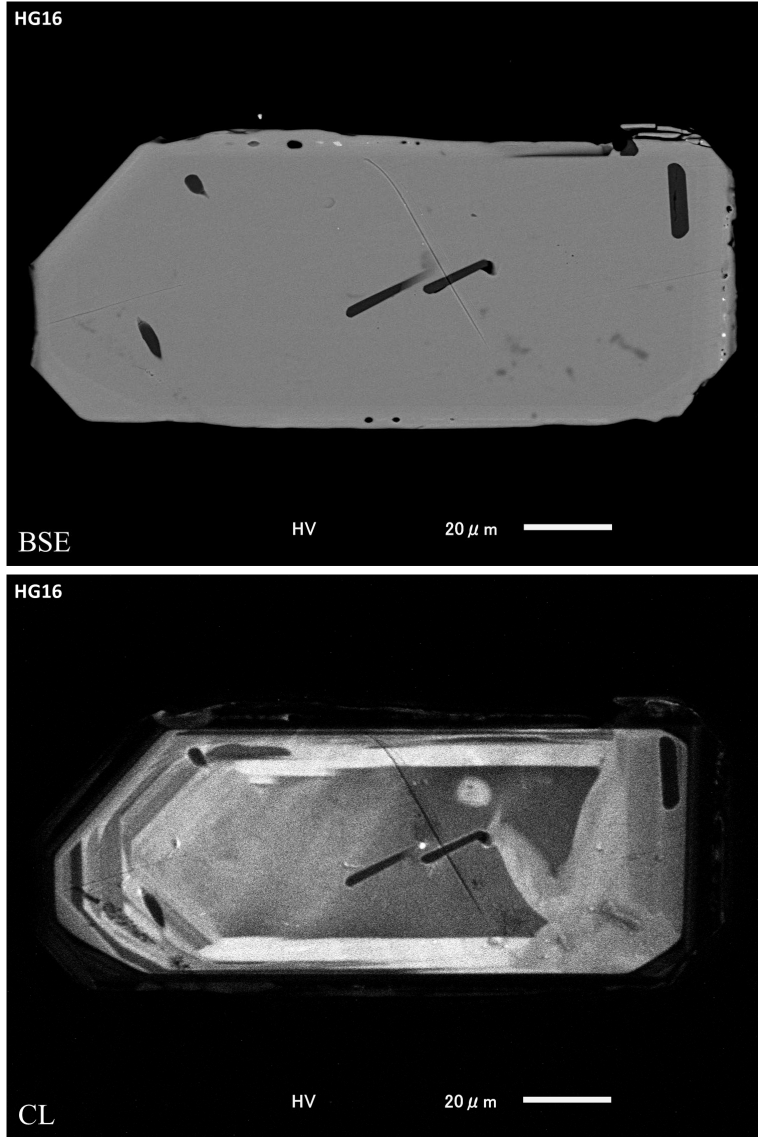
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 178 μm
- Minor axis: 65 μm
- Major axis/Minor axis: 2.8

Observed internal texture

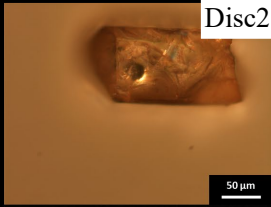
- OZ
- PT

Fig. 45 Zircon data of grain No. HG16

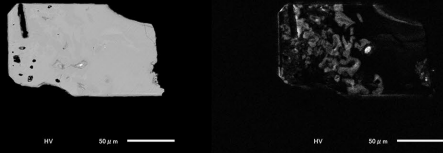
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

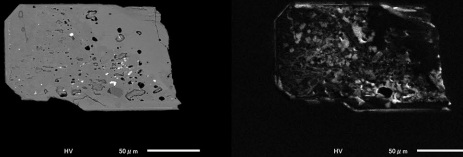
OZ :  PT :  IHC :  CT : 



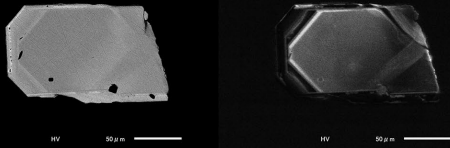
9 μm step



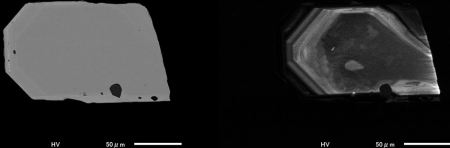
9 μm step



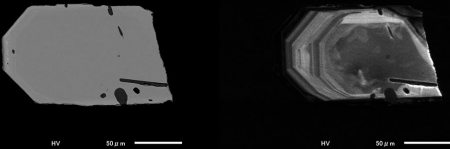
5 μm step



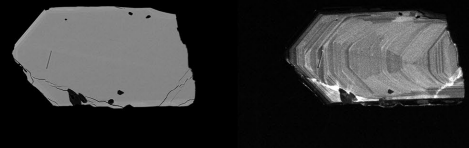
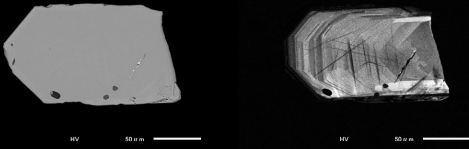
9 μm step



8 μm step

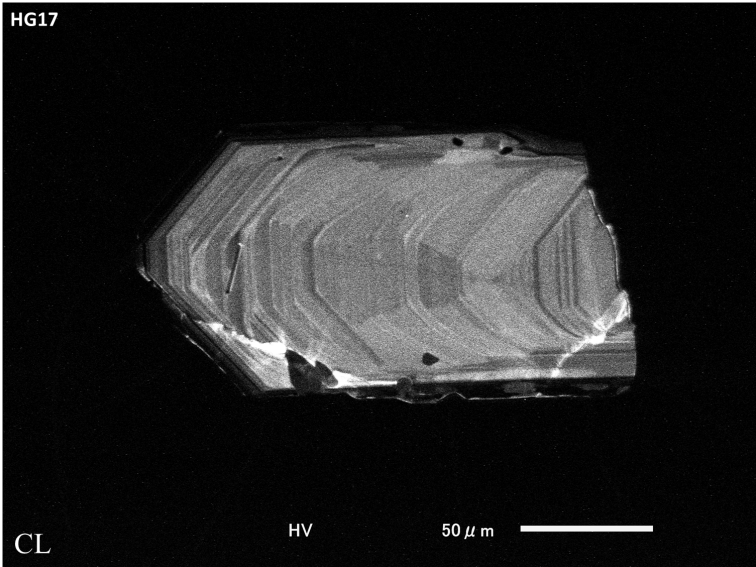
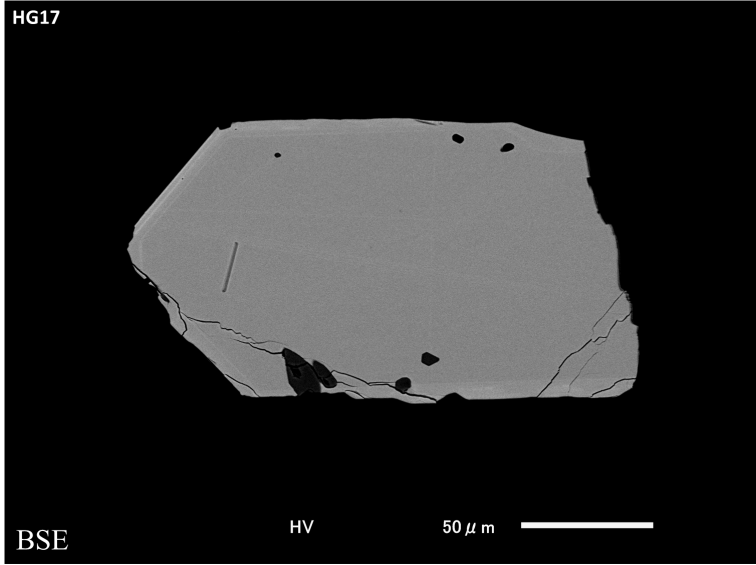


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 201 μm
- Minor axis: 98 μm
- Major axis/Minor axis: 2.0

Observed internal texture

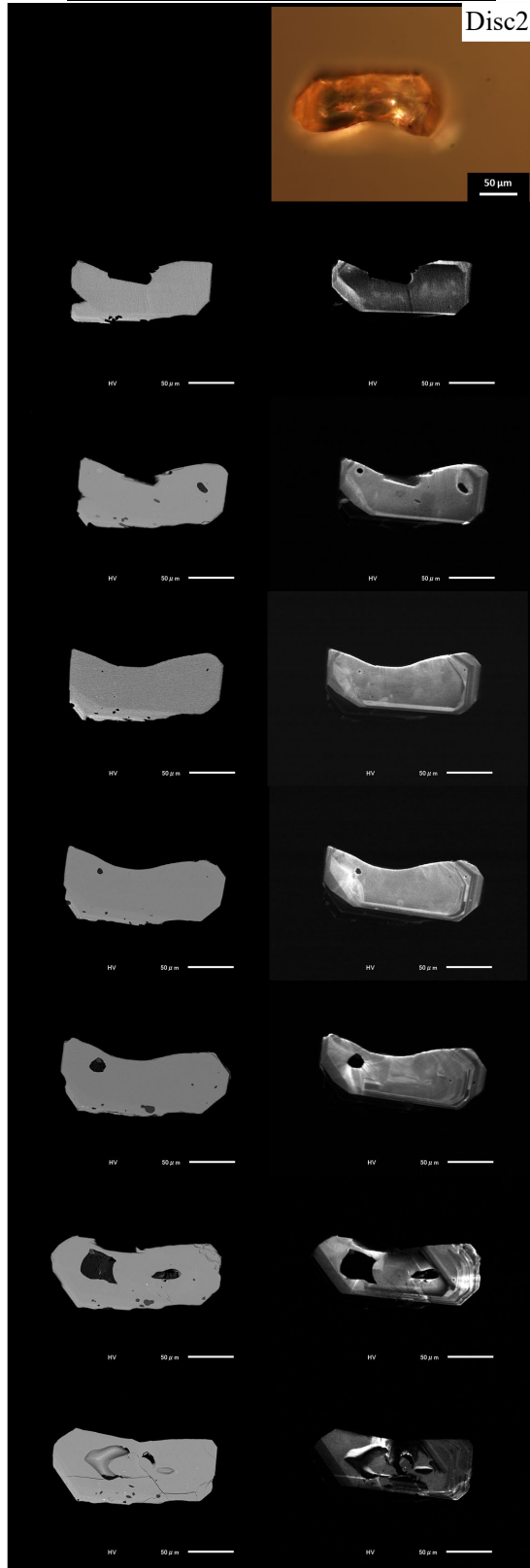
- OZ
- PT

Fig. 46 Zircon data of grain No. HG17

Morphological observation and CL observation for multi-layers

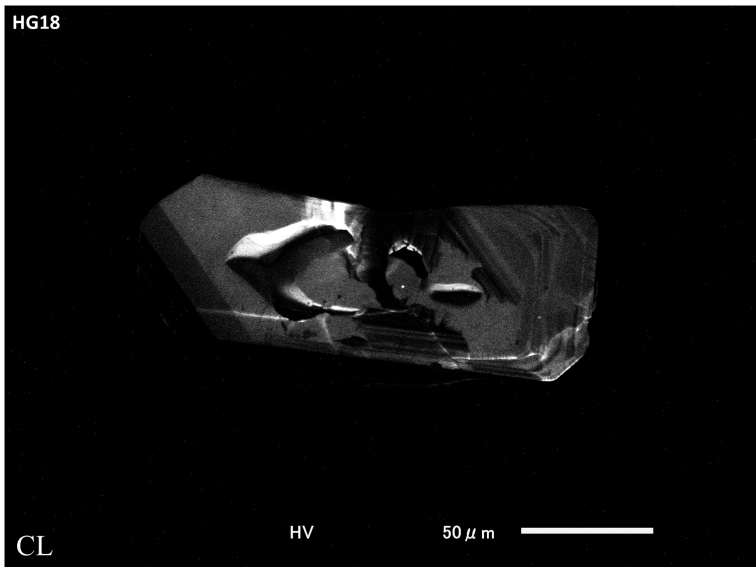
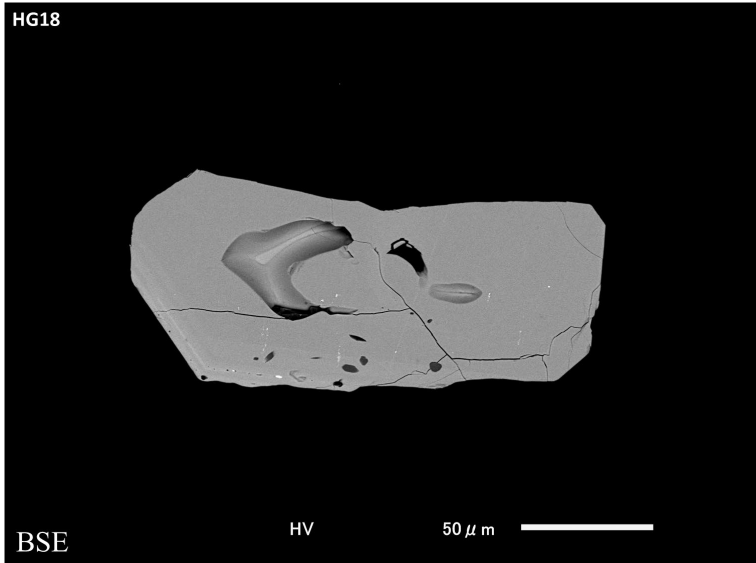
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type –not classified
- Major axis: 196 μm
- Minor axis: 84 μm
- Major axis/Minor axis: 2.3

Observed internal texture

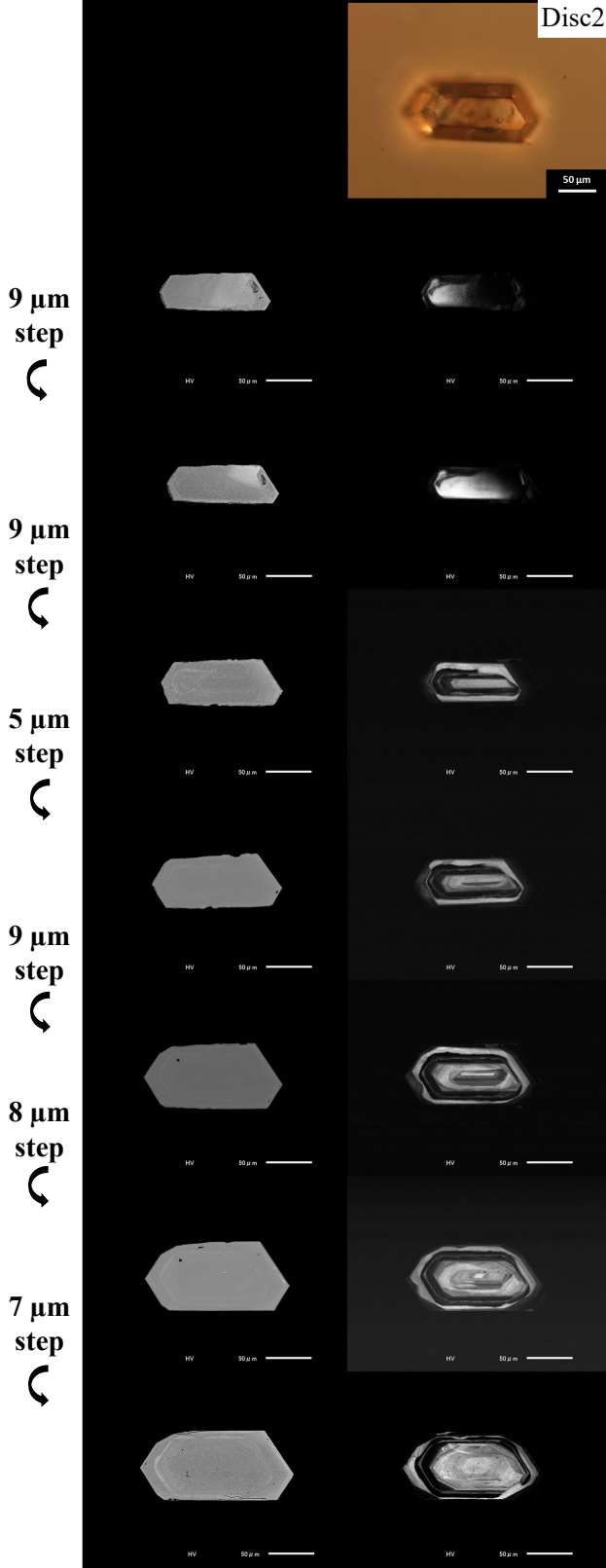
- OZ
- PT

Fig. 47 Zircon data of grain No. HG18

Morphological observation and CL observation for multi-layers

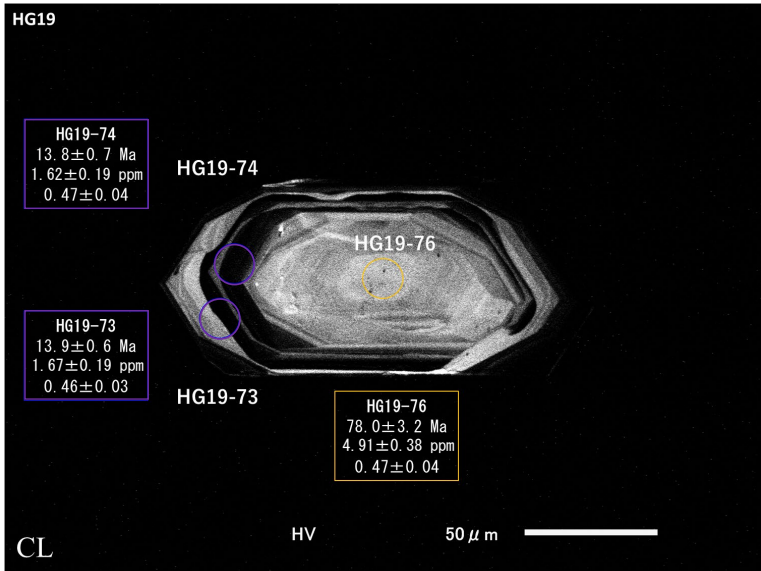
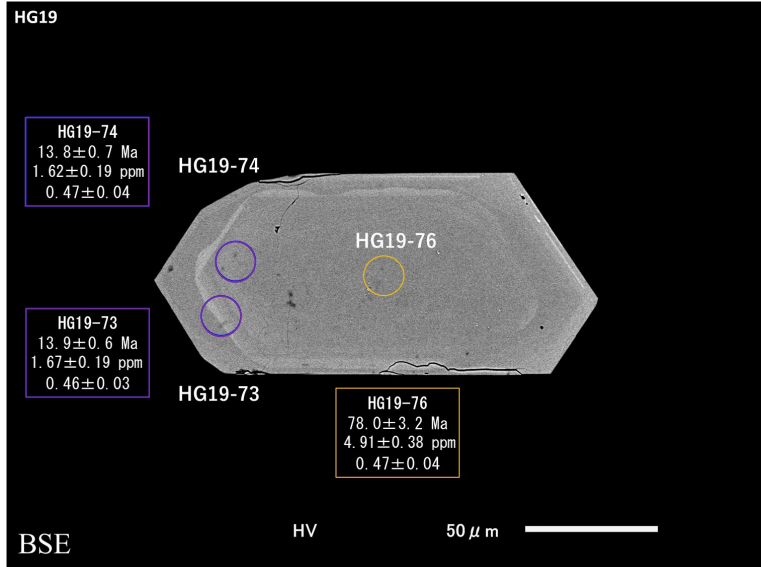
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

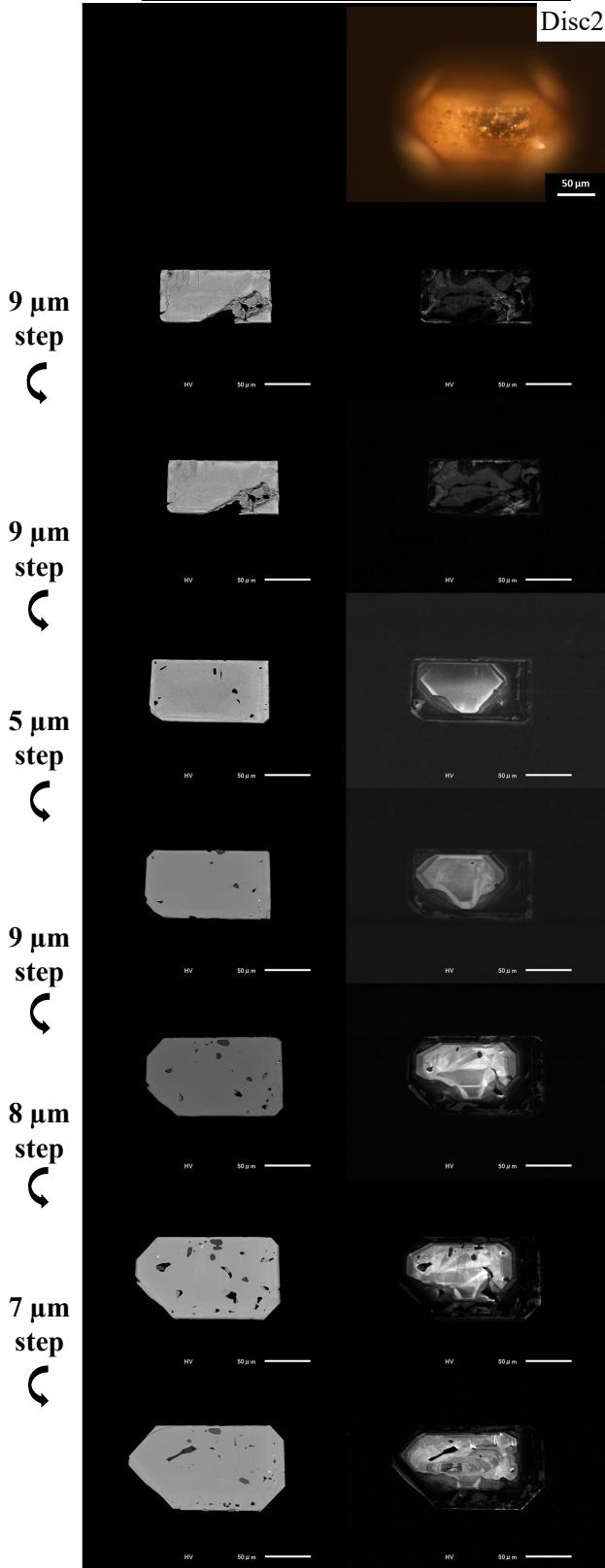
- Type {110}
- Major axis: 181 μm
- Minor axis: 77 μm
- Major axis/Minor axis: 2.3

Observed internal texture

- OZ
- PT

Fig. 48 Zircon data of grain No. HG19

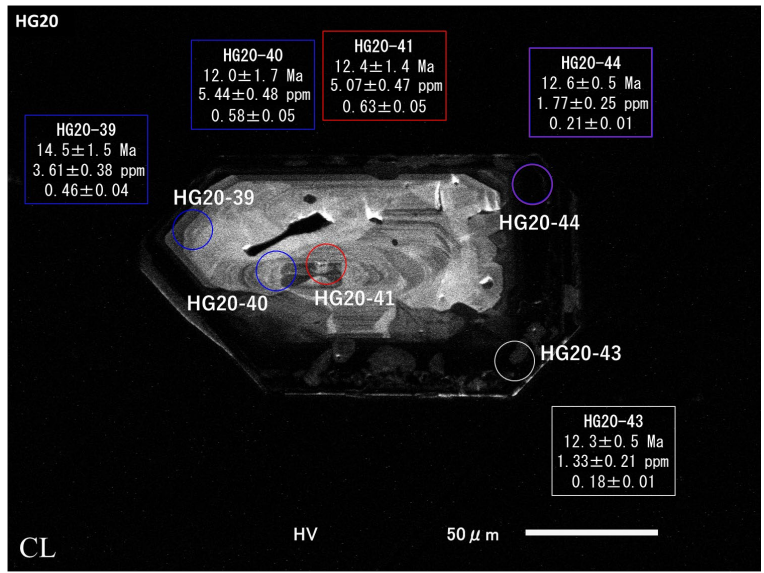
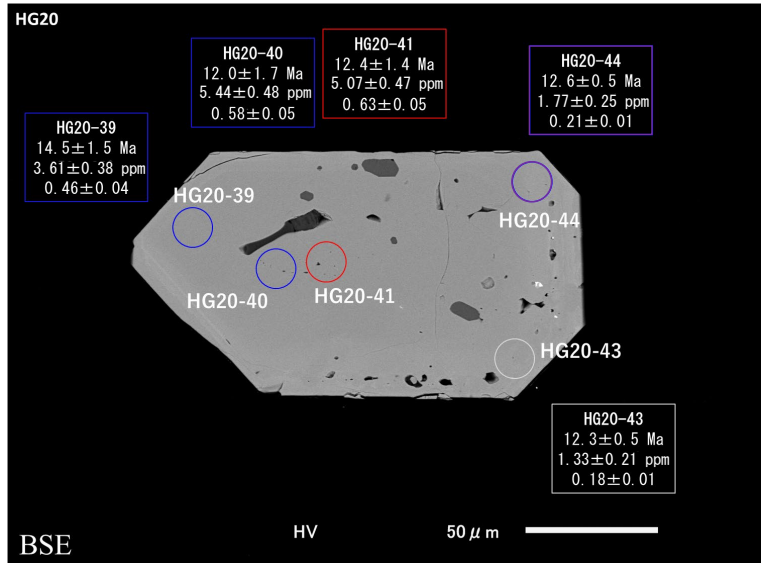
Morphological observation and CL observation for multi-layers



BSE images

CL images

Analysis spots for U-Pb age and Ti conc., Th/U ratio



Morphological description

- Type {100}
- Major axis: 85 μm
- Minor axis: 173 μm
- Major axis/Minor axis: 3.2

Observed internal texture

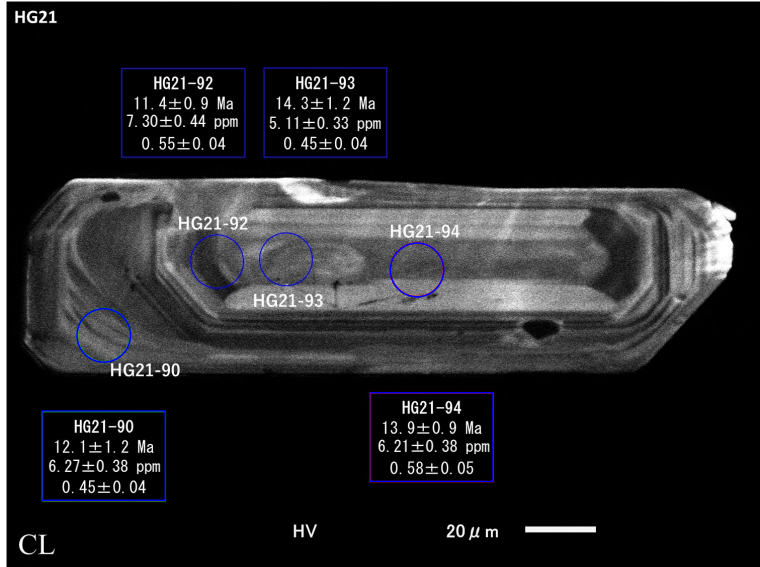
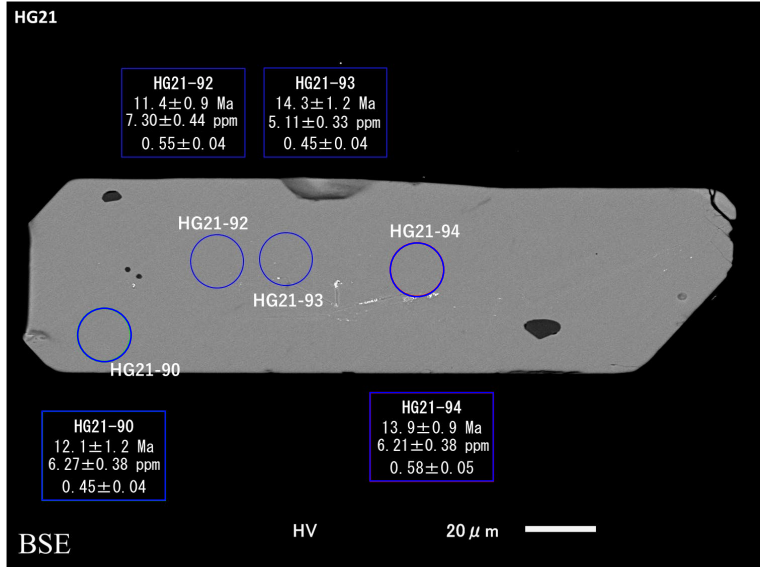
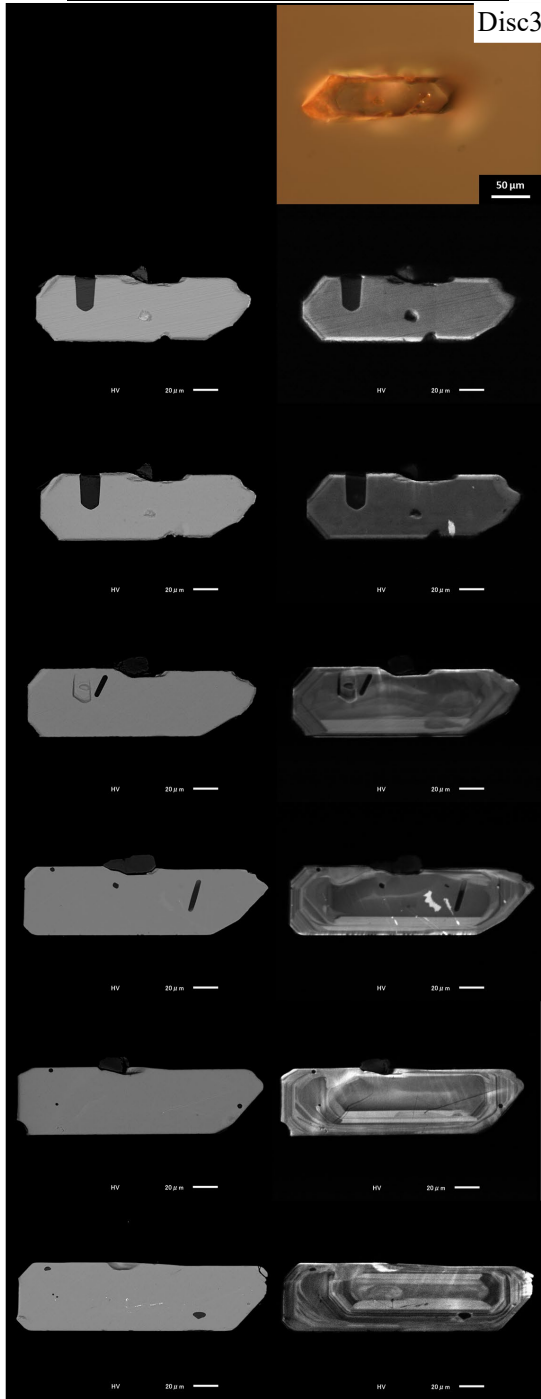
- OZ
- PT
- CT

Fig. 49 Zircon data of grain No. HG20

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images CL images

Morphological description

- Type {110}
- Major axis: 202 μm
- Minor axis: 62 μm
- Major axis/Minor axis: 3.2

Observed internal texture

- OZ
- PT

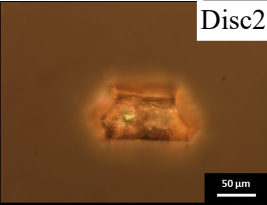
<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Fig. 50 Zircon data of grain No. HG21

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



9 μm step



9 μm step



5 μm step



9 μm step



8 μm step

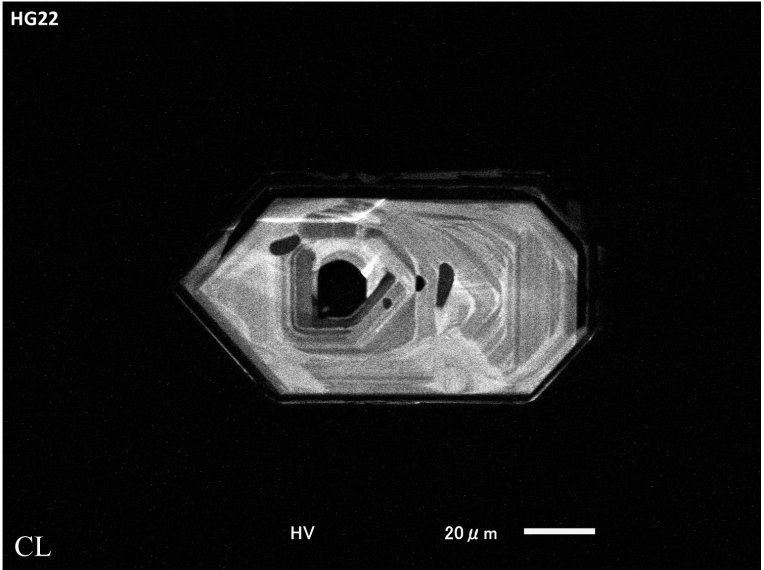
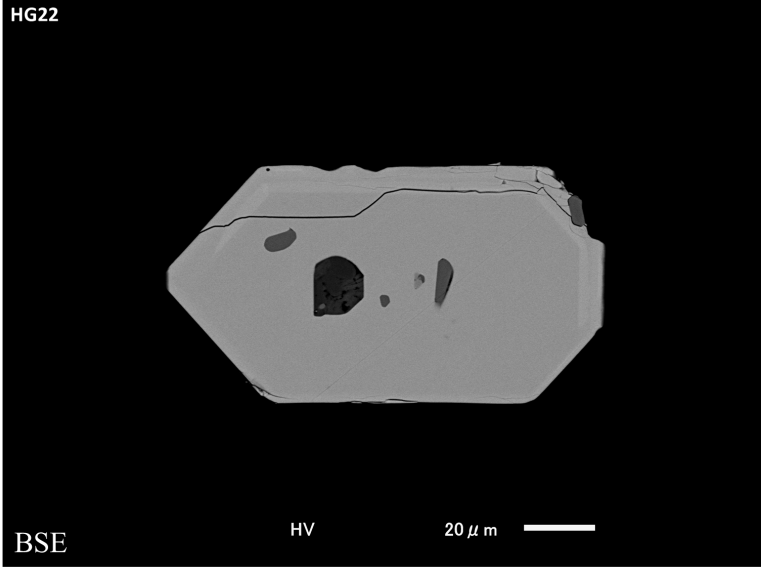


7 μm step



BSE images

CL images



Morphological description

- Type {110}
- Major axis: 140 μm
- Minor axis: 73 μm
- Major axis/Minor axis: 1.9

Observed internal texture

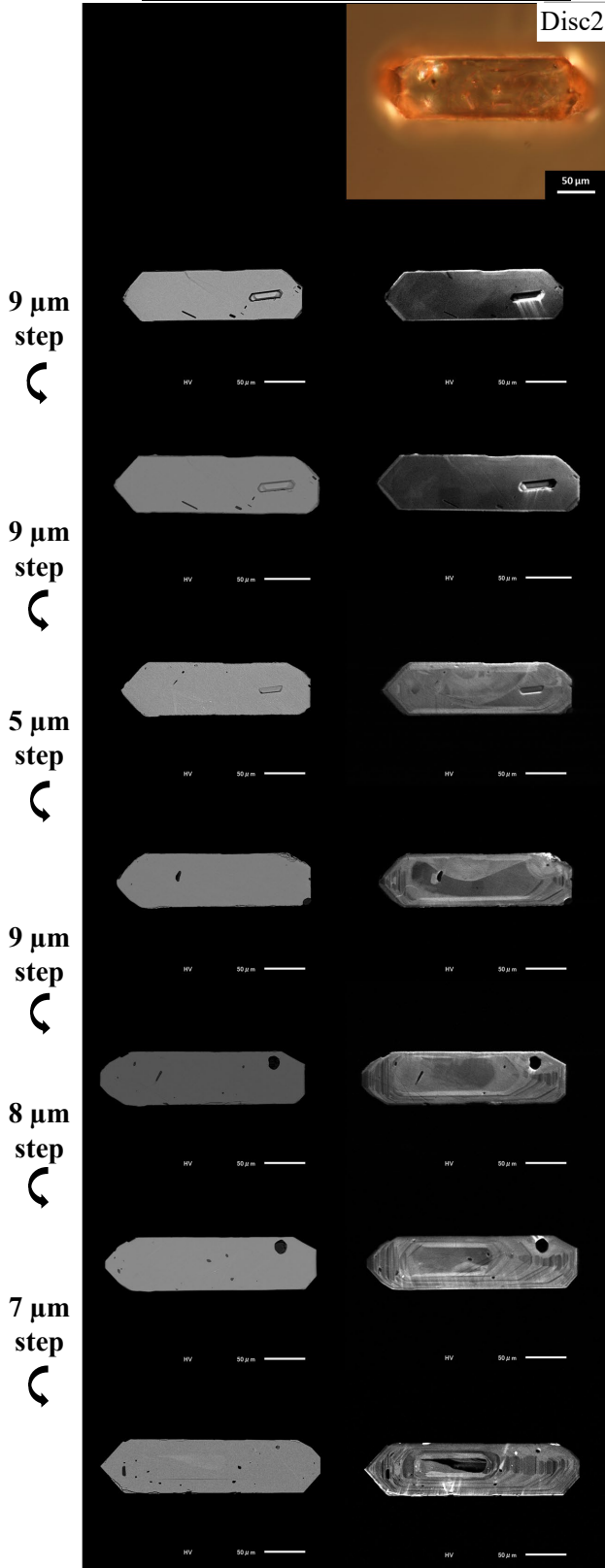
- OZ
- PT

Fig. 51 Zircon data of grain No. HG22

Morphological observation and CL observation for multi-layers

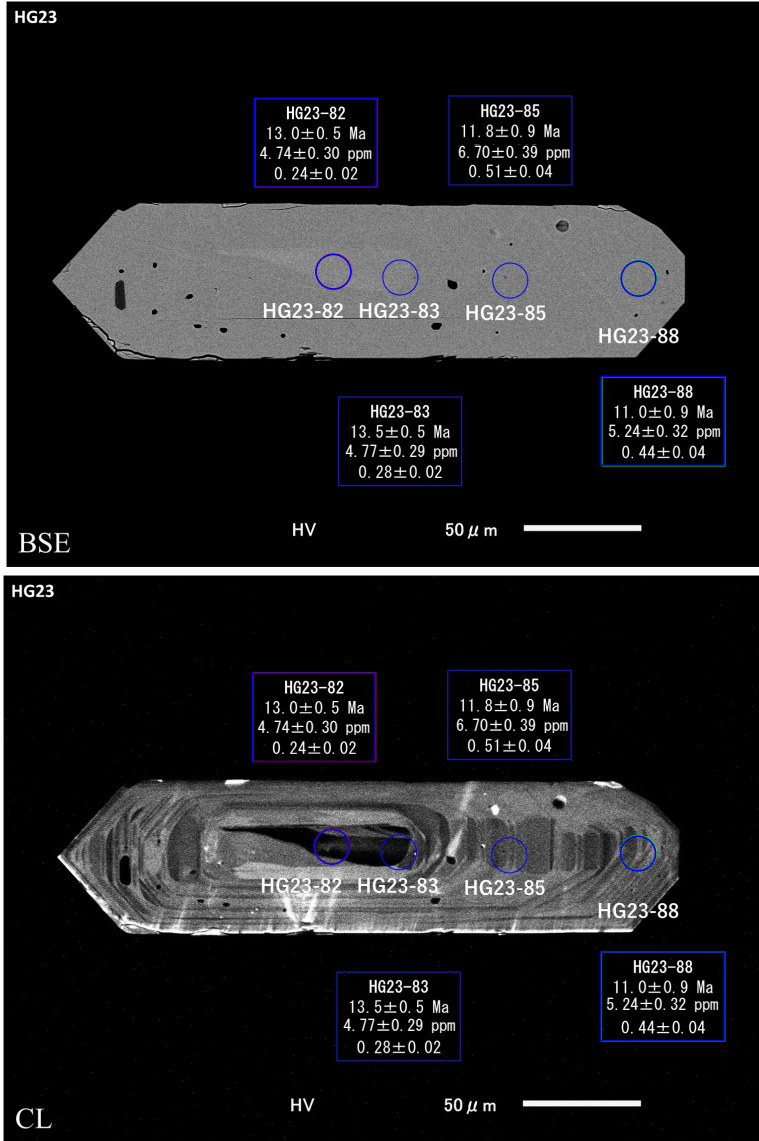
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 292 μm
- Minor axis: 85 μm
- Major axis/Minor axis: 3.5

Observed internal texture

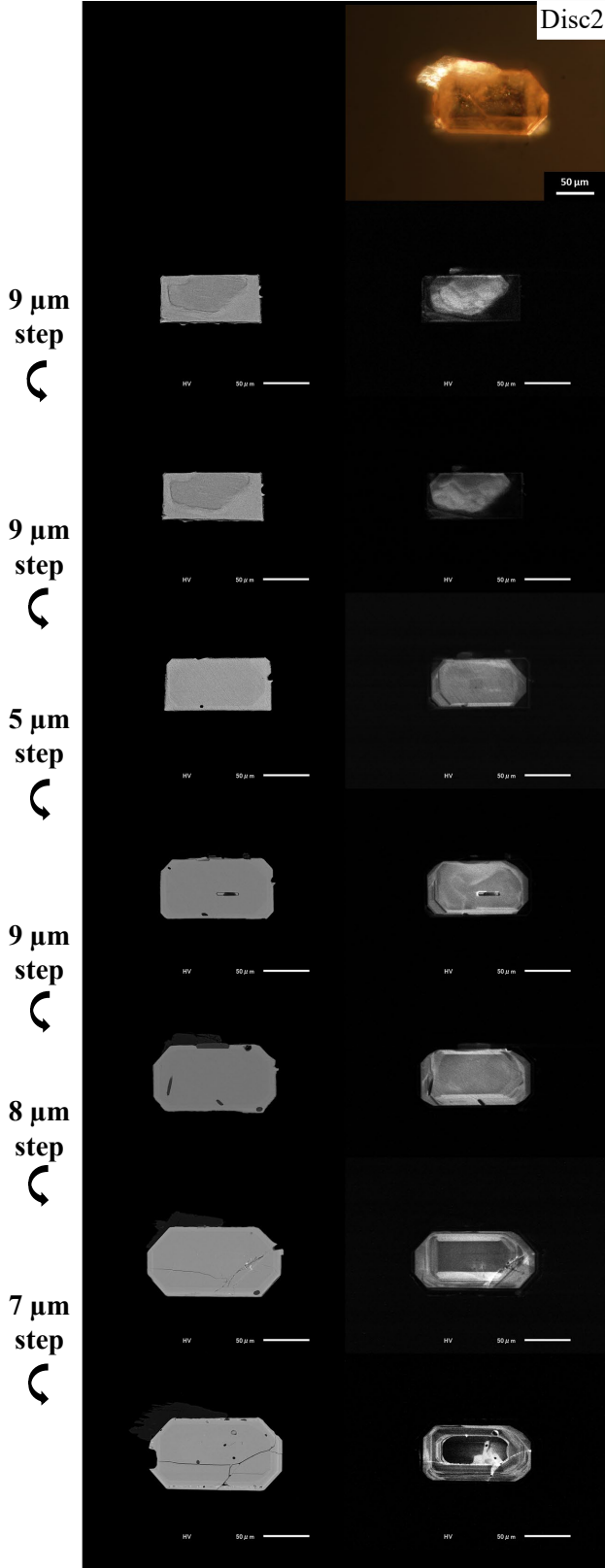
- OZ
- PT

Fig. 52 Zircon data of grain No. HG23

Morphological observation and CL observation for multi-layers

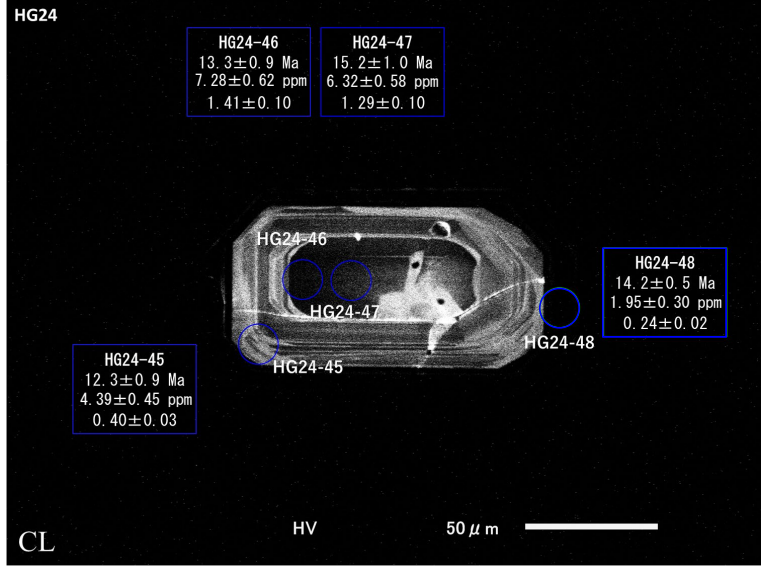
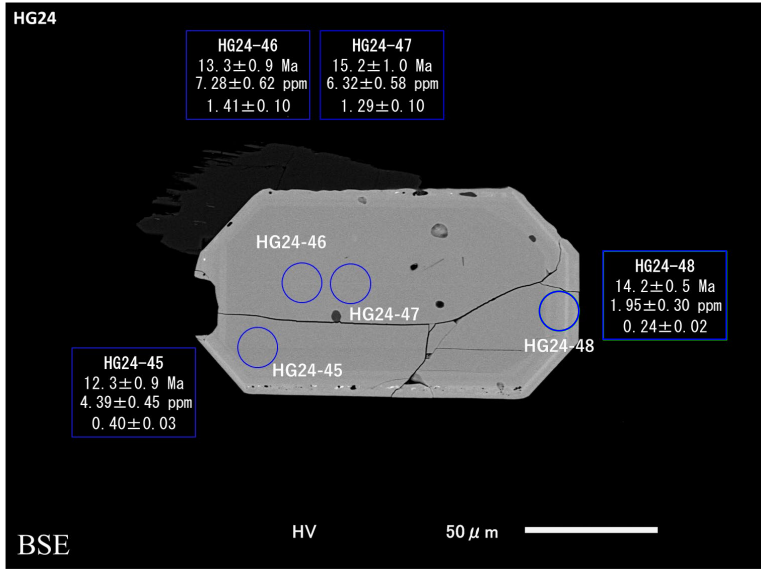
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 154 μm
- Minor axis: 72 μm
- Major axis/Minor axis: 2.1

Observed internal texture

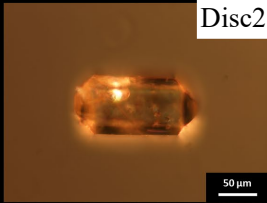
- OZ

Fig. 53 Zircon data of grain No. HG24

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



9 μm step



9 μm step



5 μm step



9 μm step



8 μm step

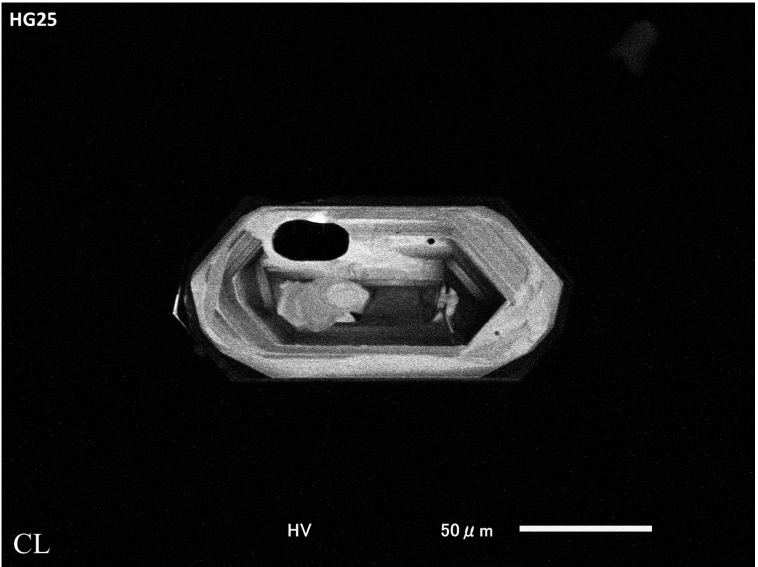
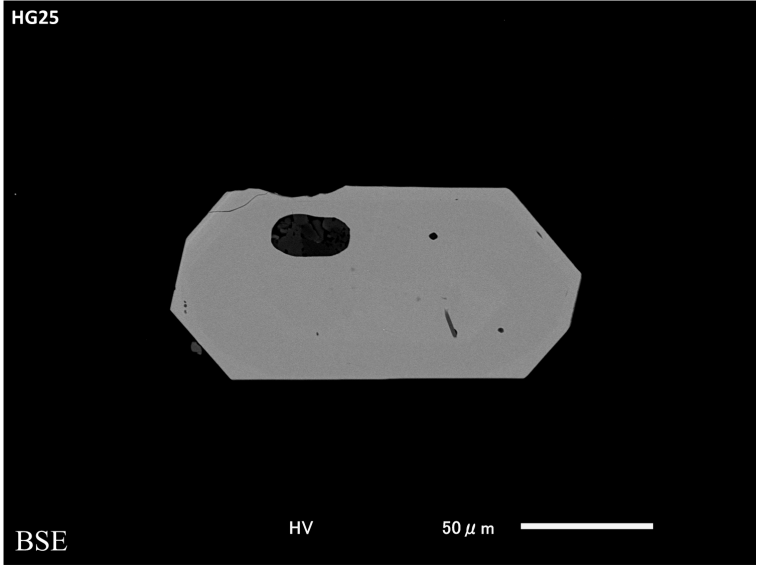


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 161 μm
- Minor axis: 78 μm
- Major axis/Minor axis: 2.1

Observed internal texture

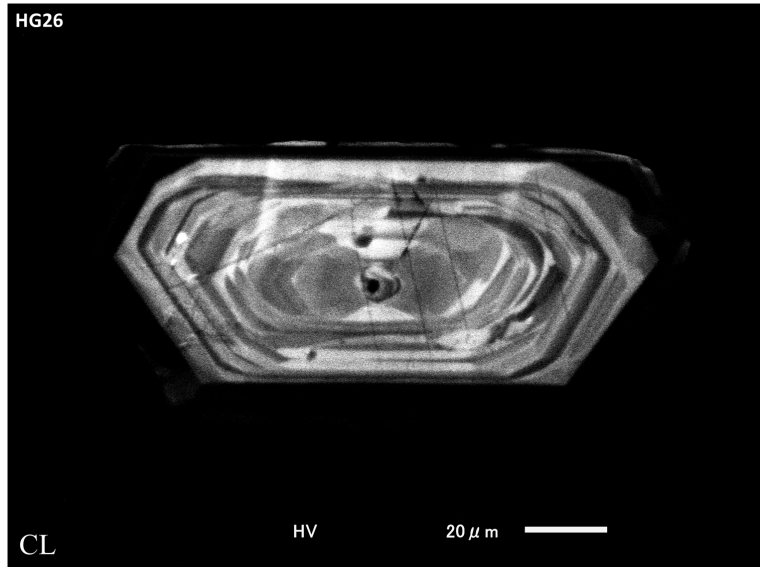
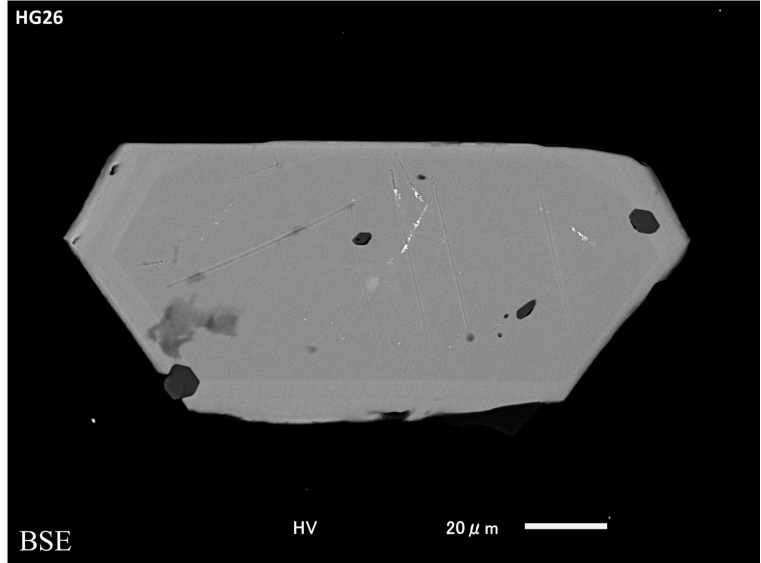
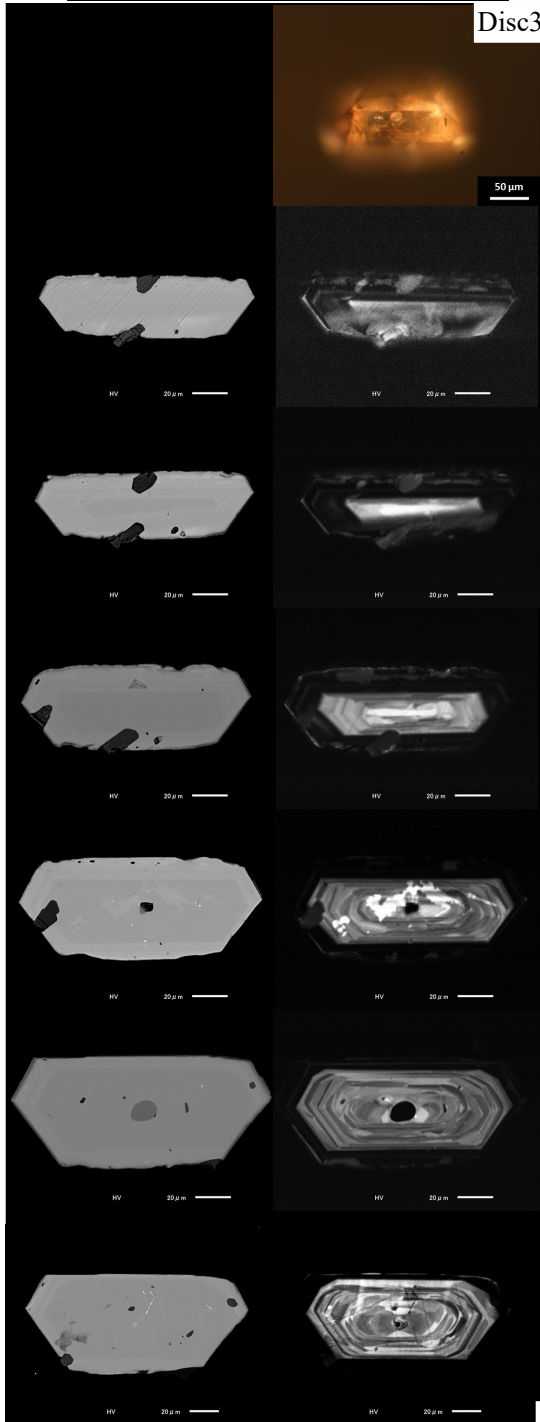
- OZ
- PT

Fig. 54 Zircon data of grain No. HG25

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 160 μm
- Minor axis: 60 μm
- Major axis/Minor axis: 2.7

Observed internal texture

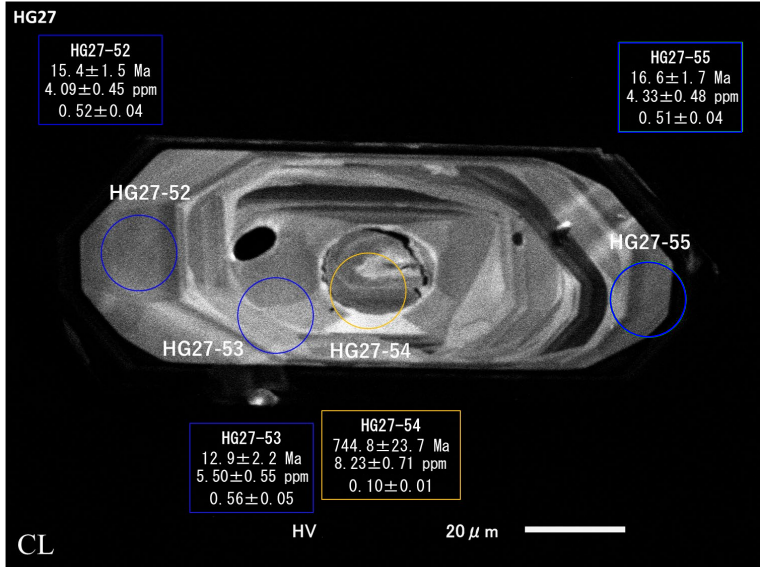
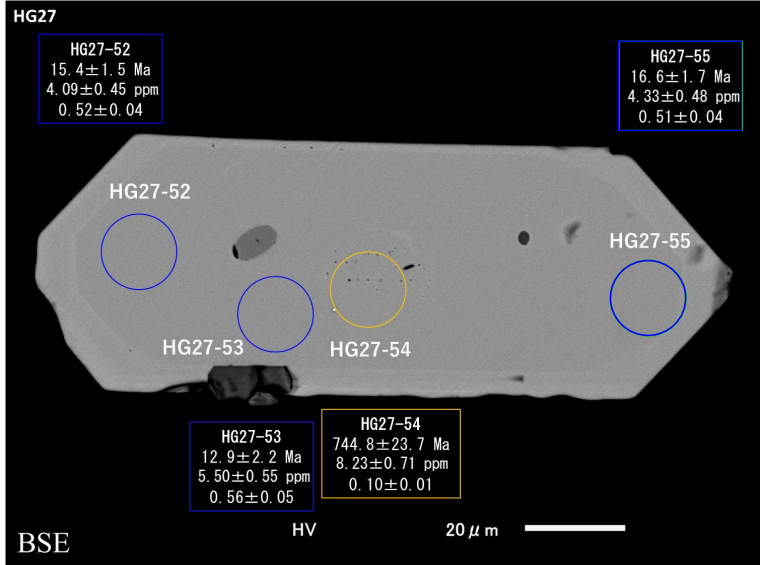
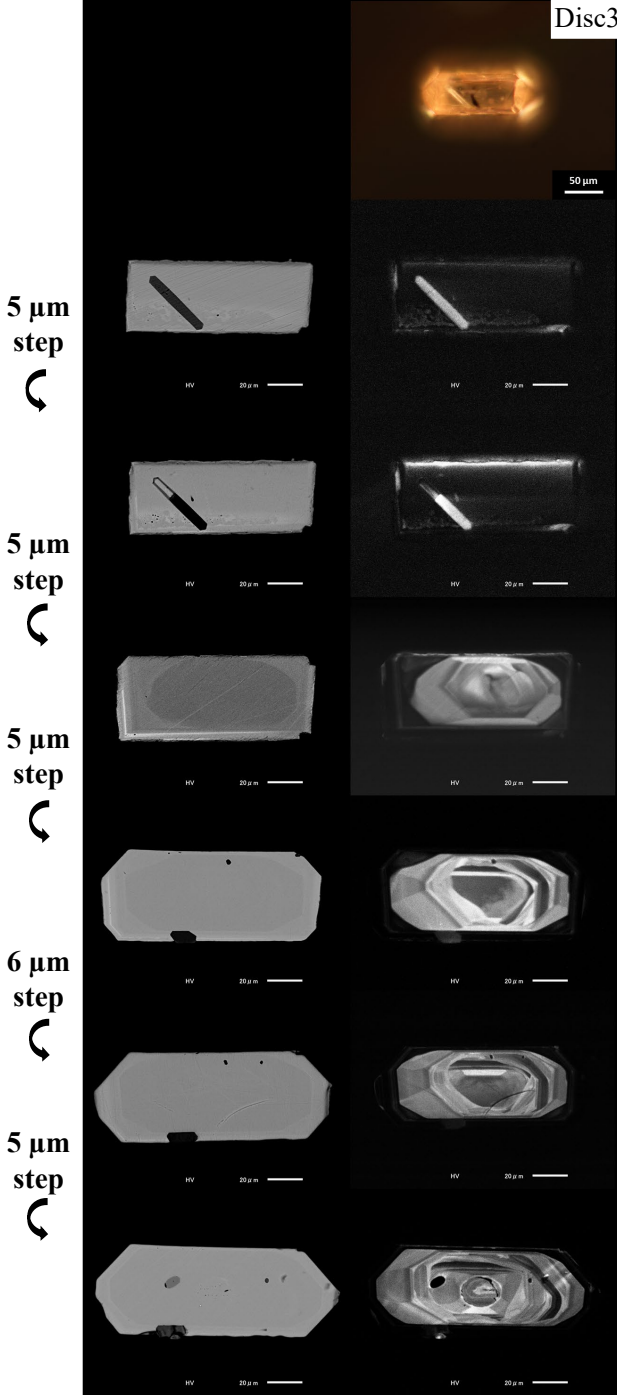
- OZ
- PT
- IHC
- CT

Fig. 55 Zircon data of grain No. HG26

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 141 μm
- Minor axis: 54 μm
- Major axis/Minor axis: 2.6

Observed internal texture

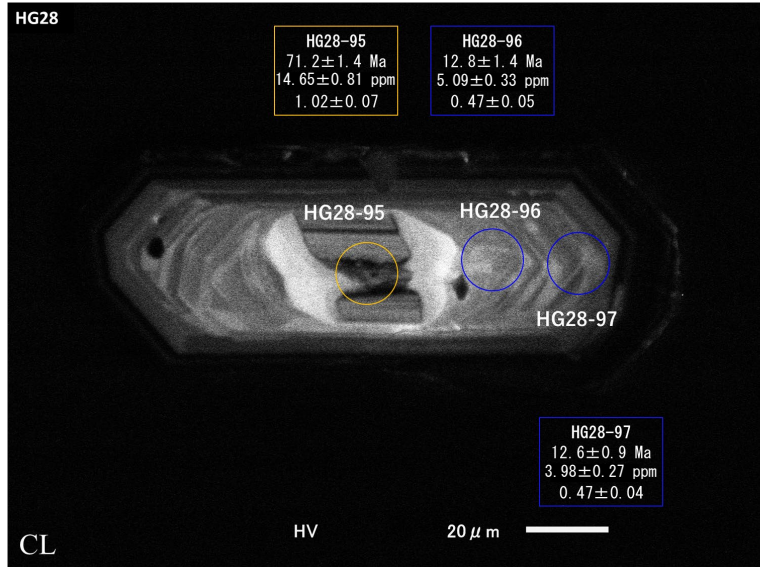
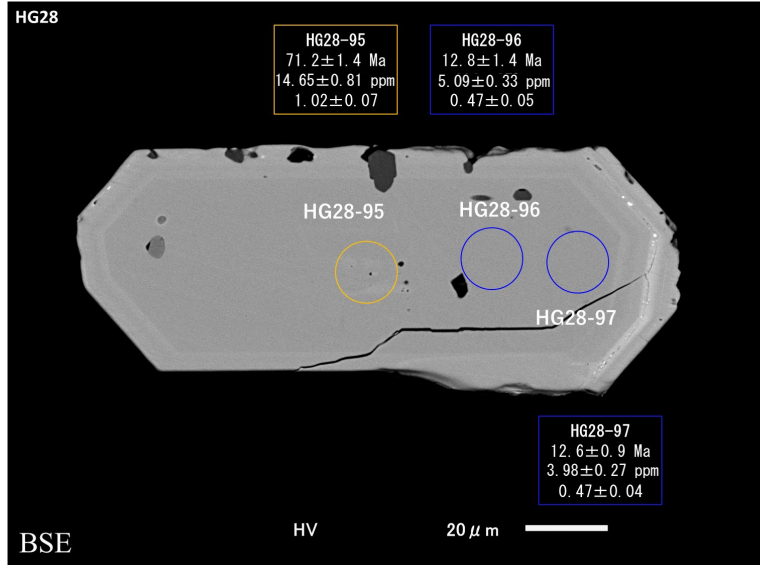
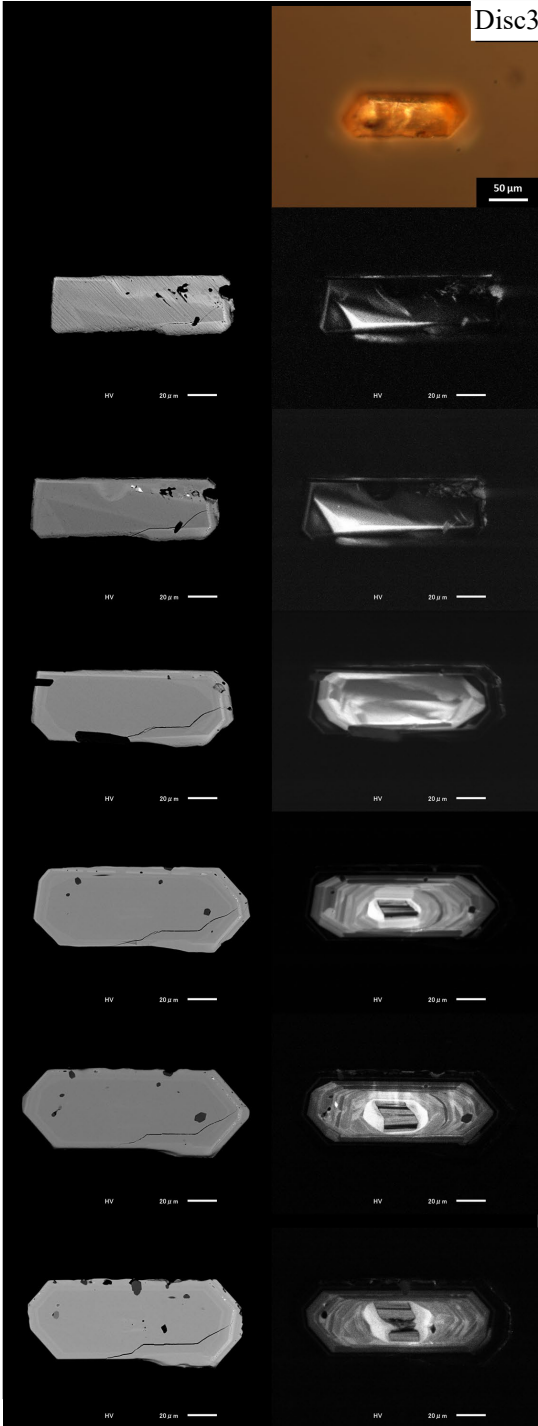
- OZ
- IHC

Fig. 56 Zircon data of grain No. HG27

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 152 μm
- Minor axis: 57 μm
- Major axis/Minor axis: 2.6

Observed internal texture

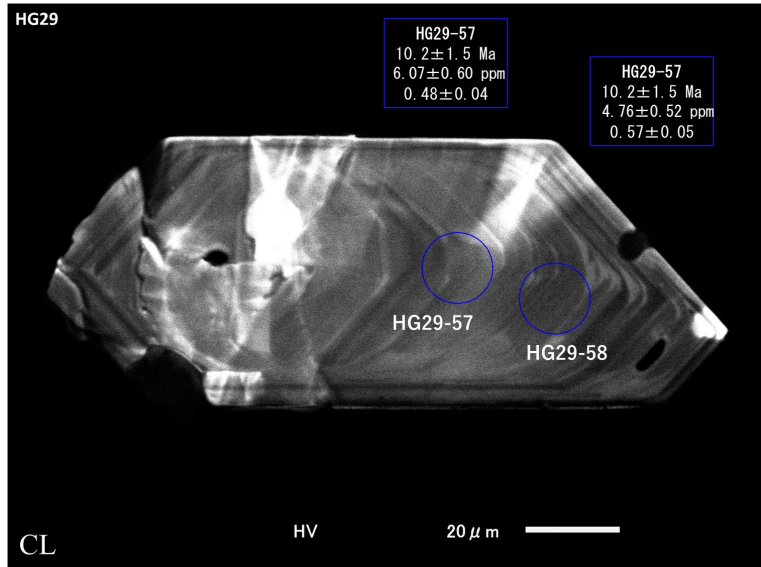
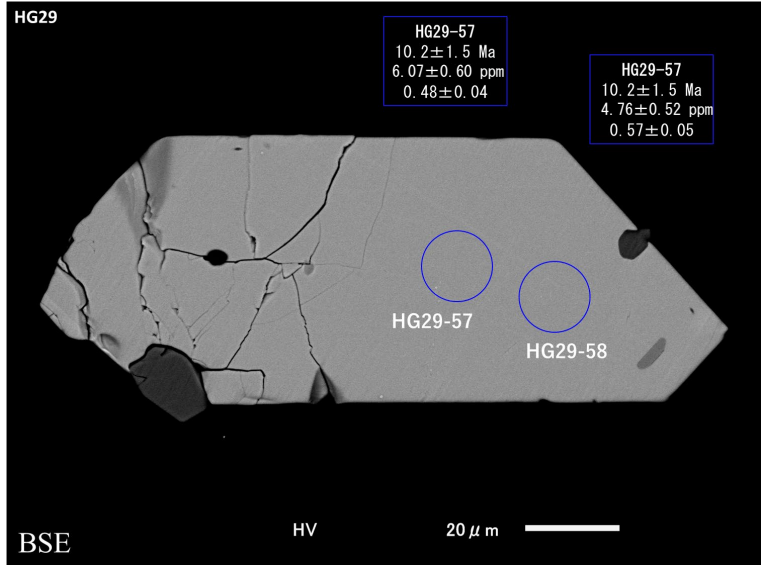
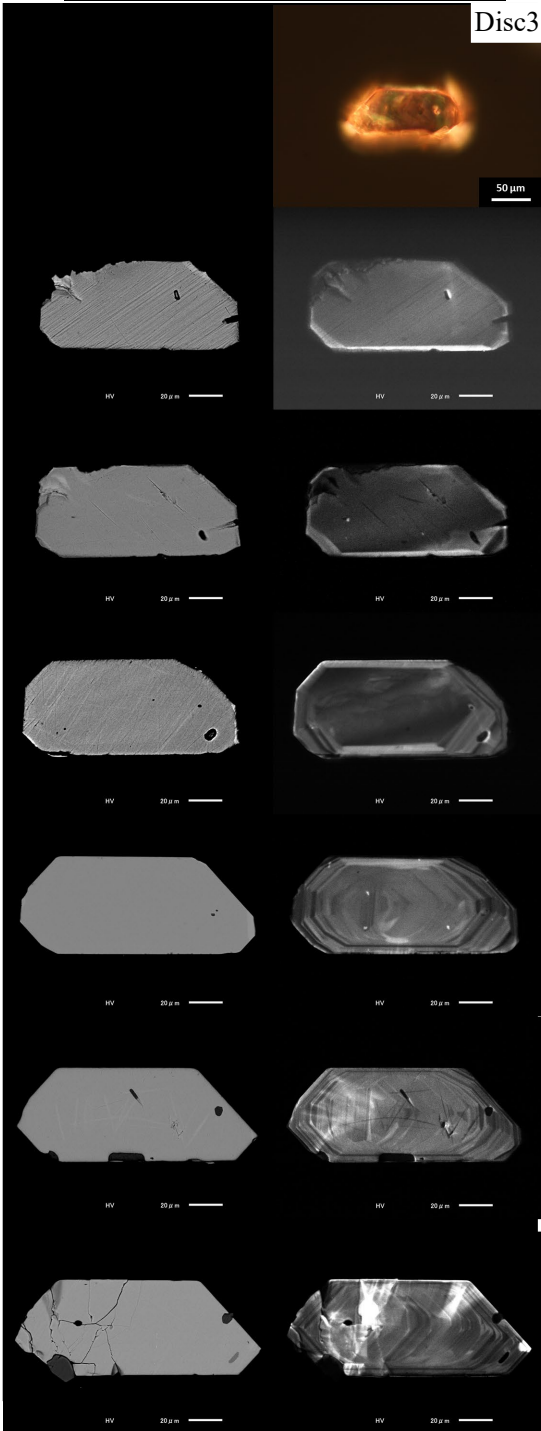
- OZ
- PT
- IHC

Fig. 57 Zircon data of grain No. HG28

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 148 μm
- Minor axis: 61 μm
- Major axis/Minor axis: 2.4

Observed internal texture

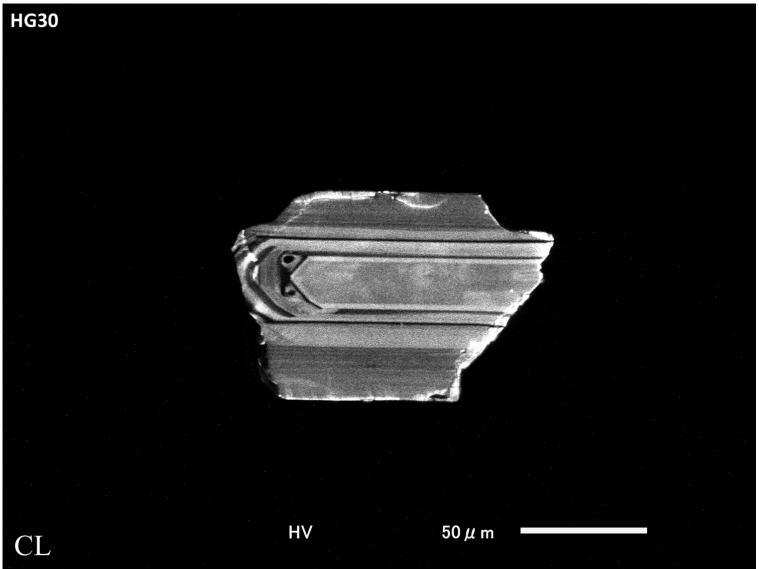
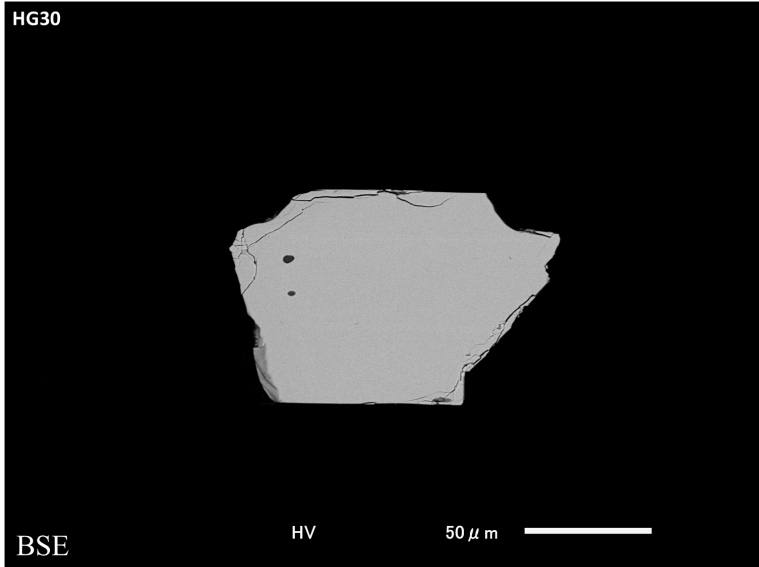
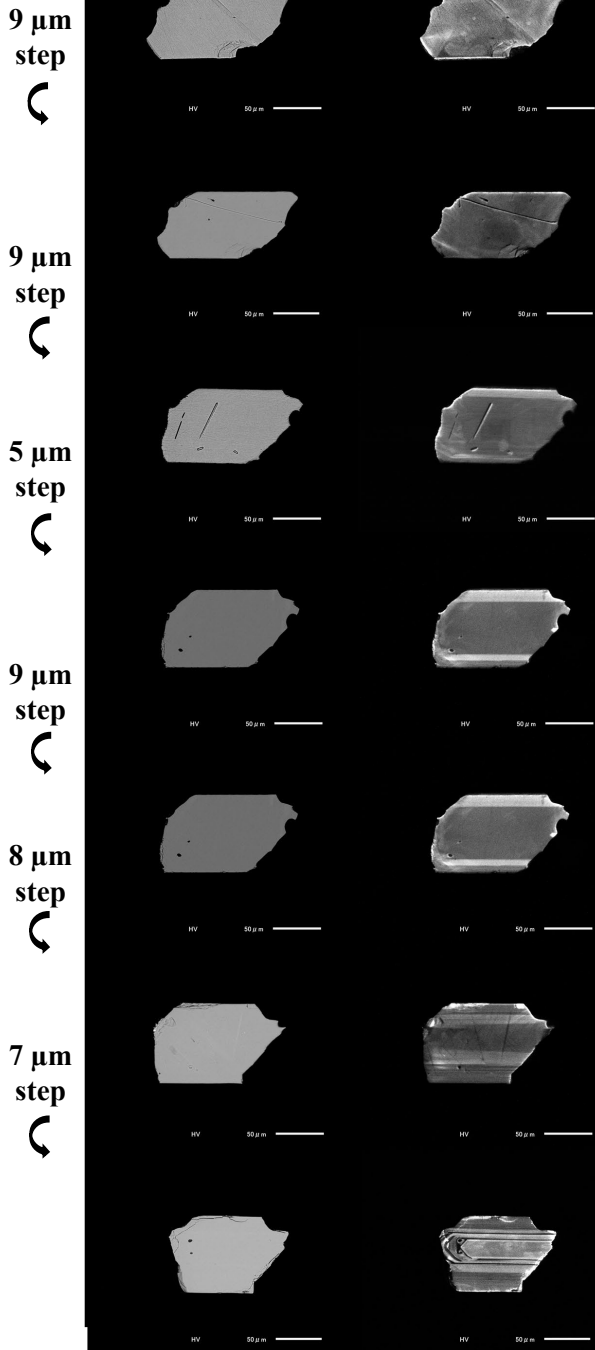
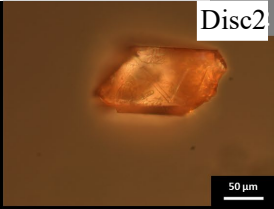
- OZ

Fig. 58 Zircon data of grain No. HG29

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



Morphological description

- Type –not classified
- Major axis: 167 μm
- Minor axis: 84 μm
- Major axis/Minor axis: 2.0

Observed internal texture

- OZ

BSE images

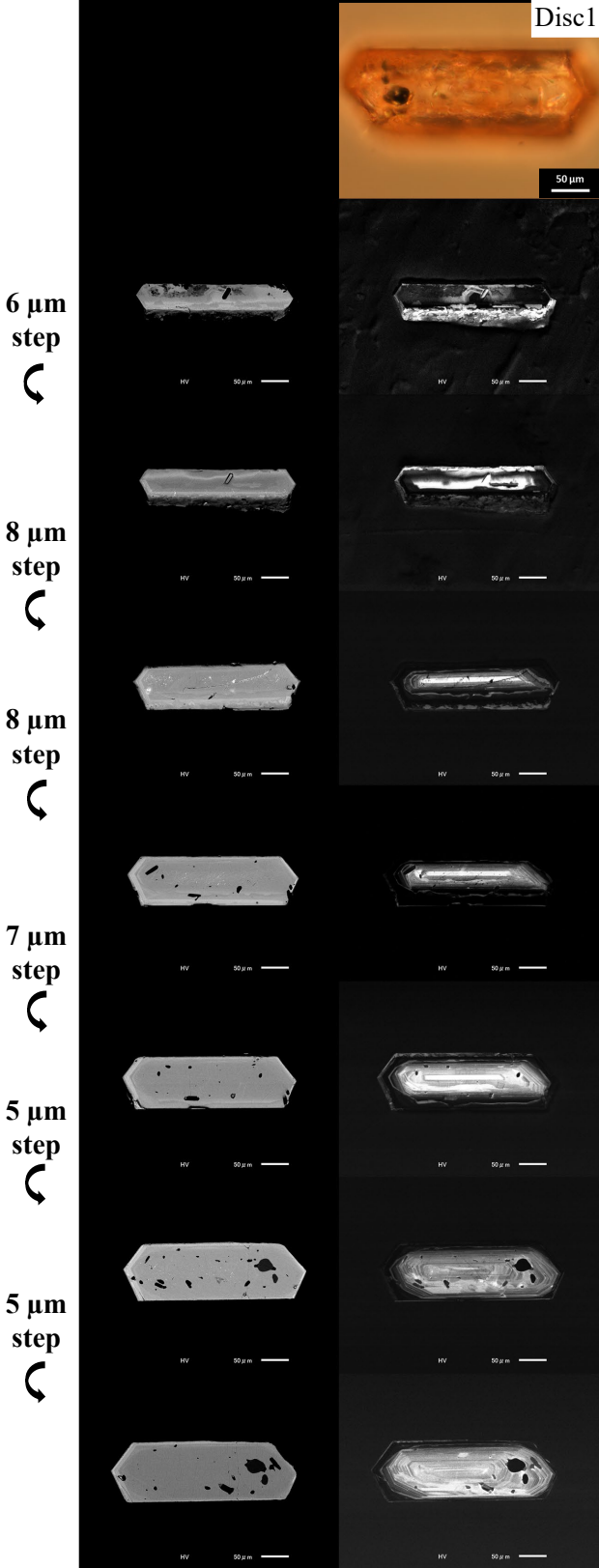
CL images

Fig. 59 Zircon data of grain No. HG30

Morphological observation and CL observation for multi-layers

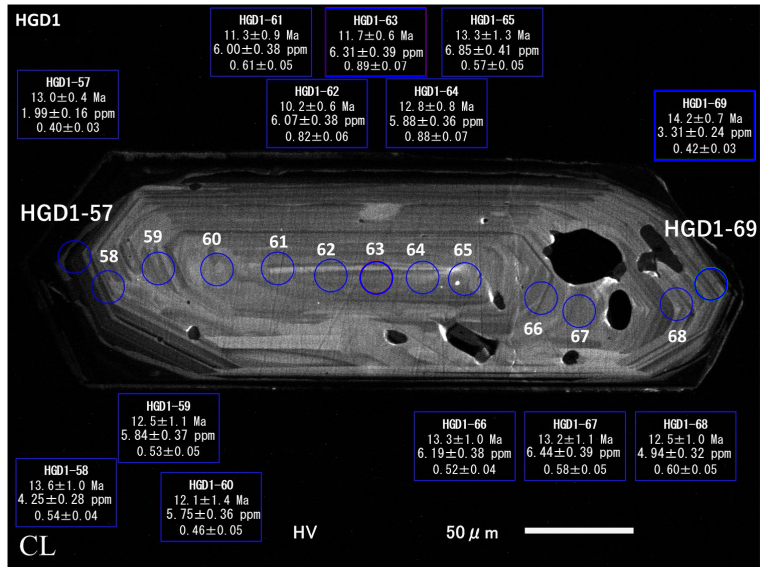
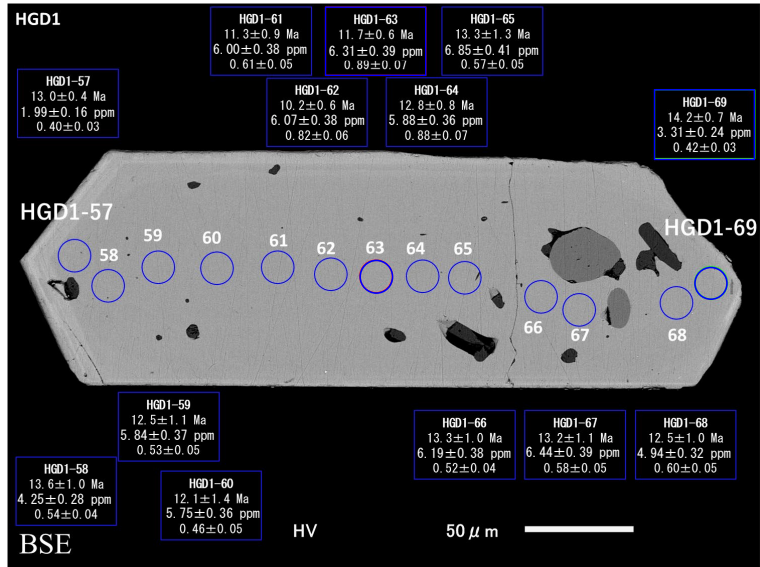
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images



Morphological description

- Type {110}
- Major axis: 327 μm
- Minor axis: 110 μm
- Major axis/Minor axis: 3.0

Observed internal texture

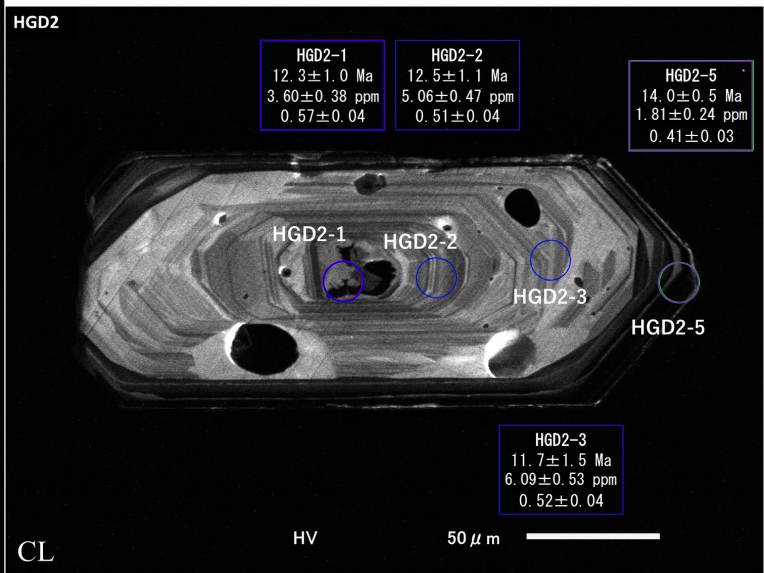
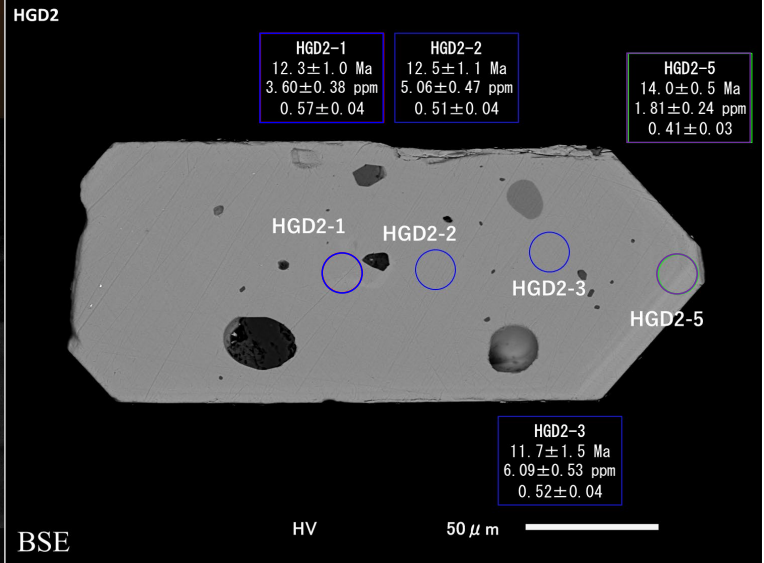
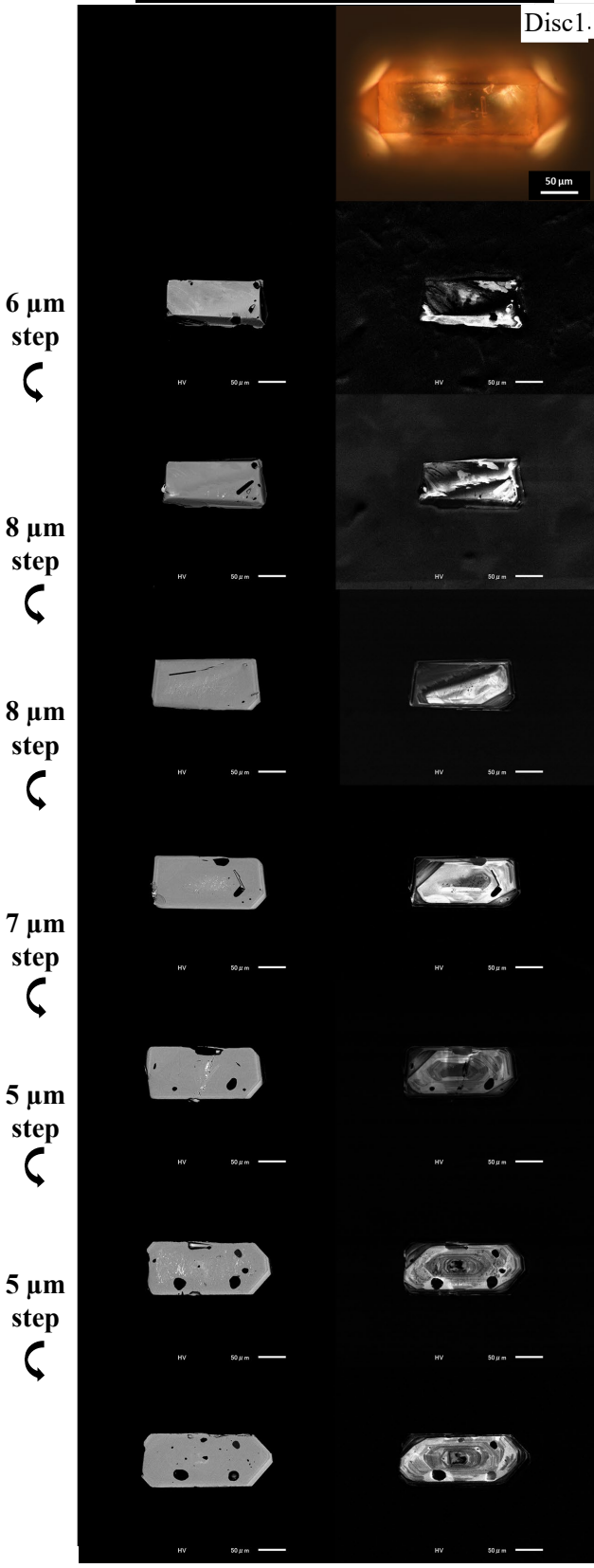
- OZ
- PT
- CT

Fig. 60 Zircon data of grain No. HGD1

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



Morphological description

- Type {100}
- Major axis: 254 μm
- Minor axis: 98 μm
- Major axis/Minor axis: 2.6

Observed internal texture

- OZ
- PT

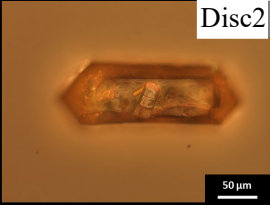
BSE images CL images

Fig. 61 Zircon data of grain No. HGD2

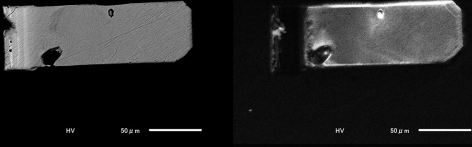
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

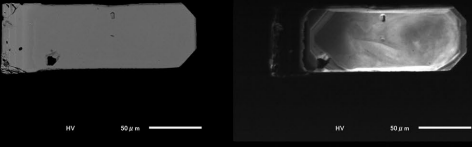
OZ :  PT :  IHC :  CT : 



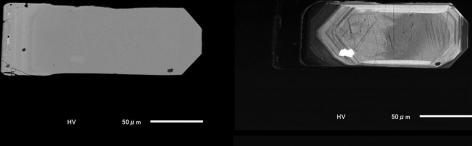
8 μm step



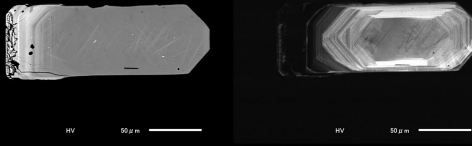
5 μm step



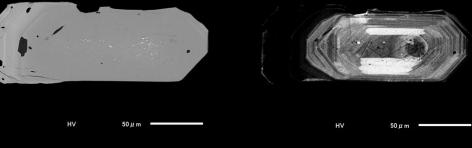
5 μm step



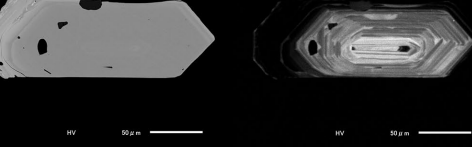
5 μm step



9 μm step

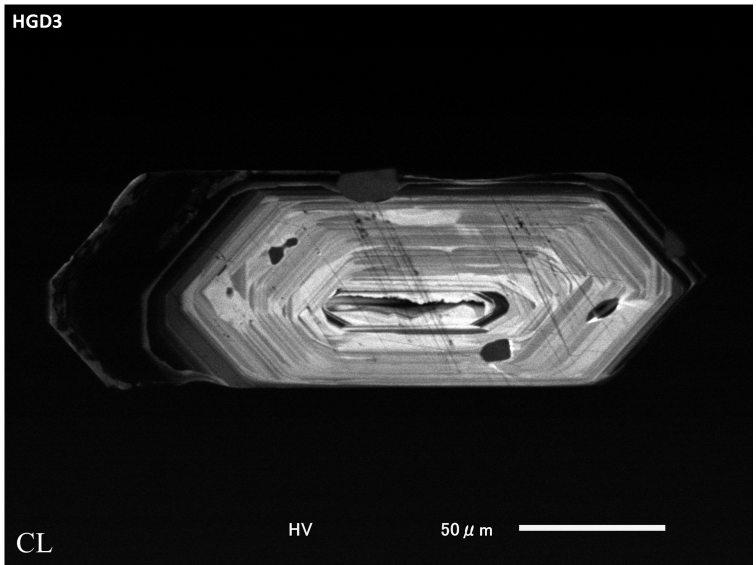
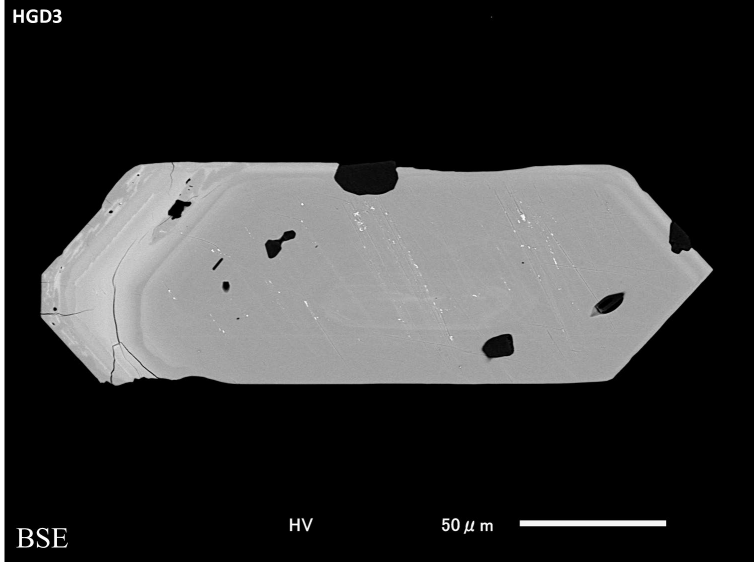


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 226 μm
- Minor axis: 81 μm
- Major axis/Minor axis: 2.8

Observed internal texture

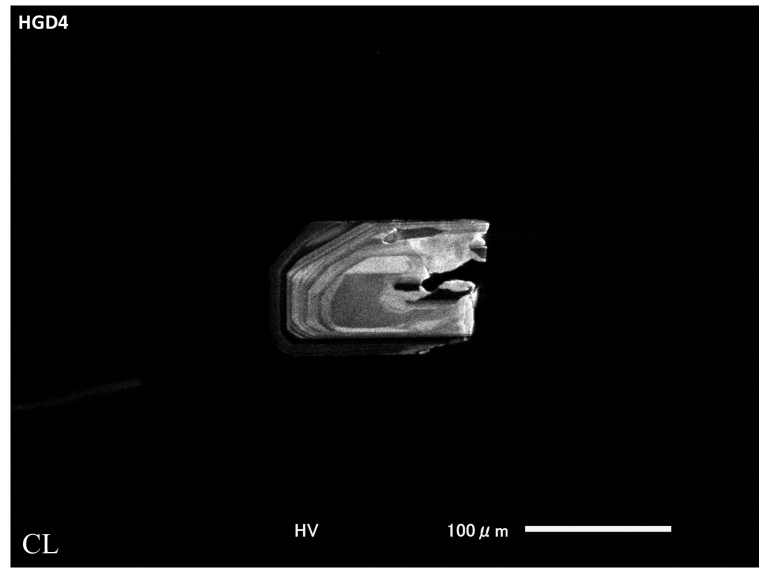
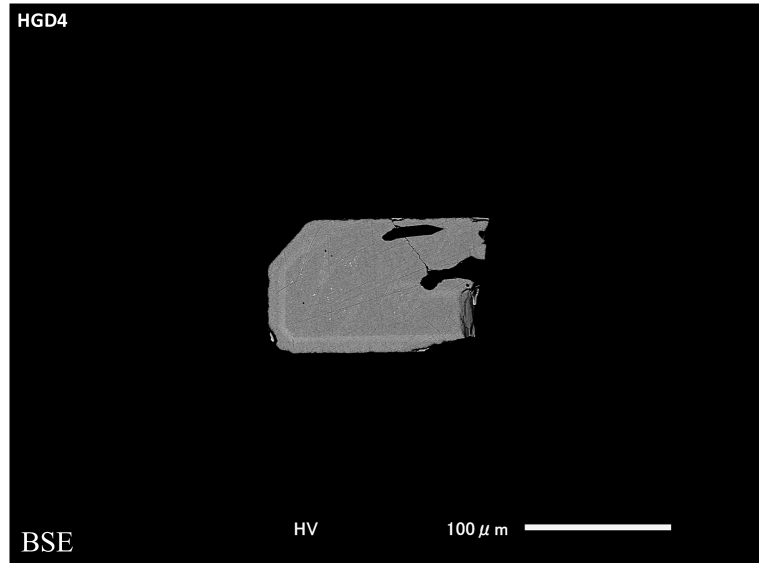
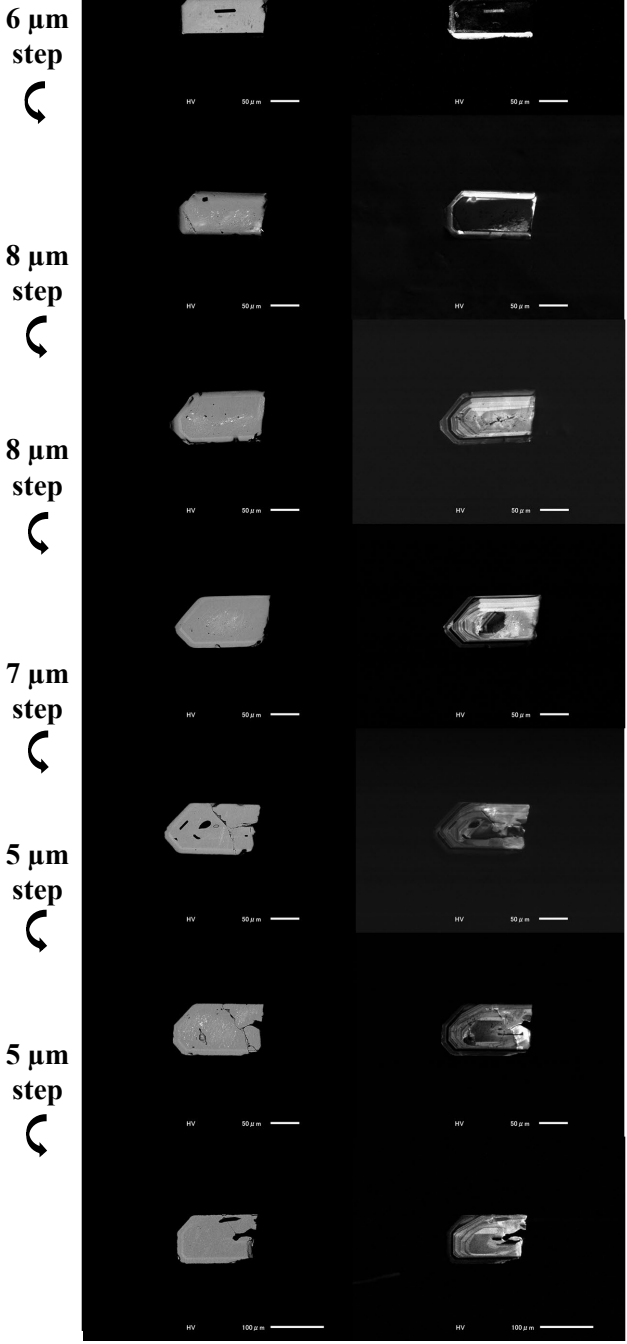
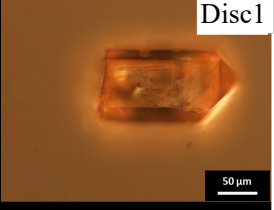
- OZ
- PT
- CT

Fig. 62 Zircon data of grain No. HGD3

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

Morphological description

- Type {100}
- Major axis: 178 μm
- Minor axis: 91 μm
- Major axis/Minor axis: 2.0

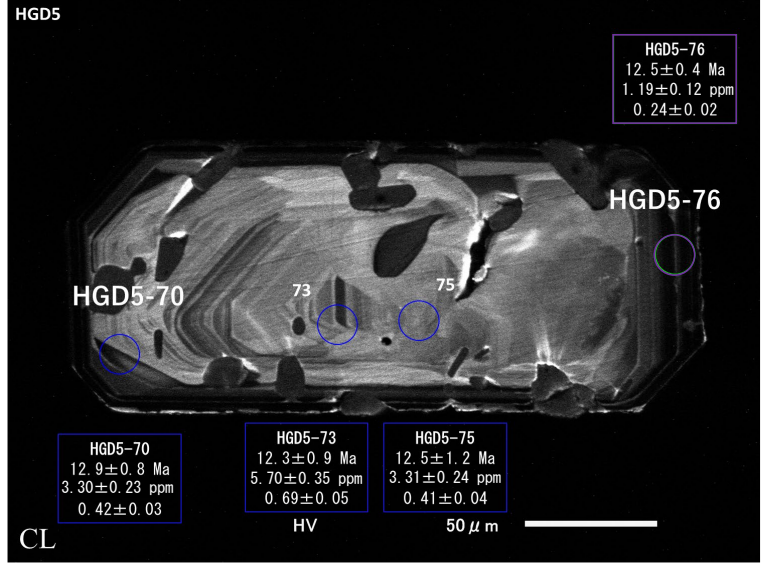
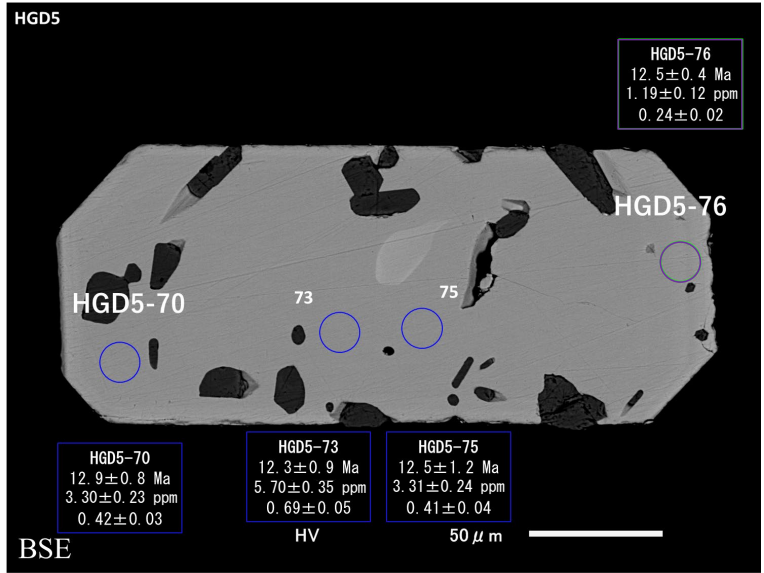
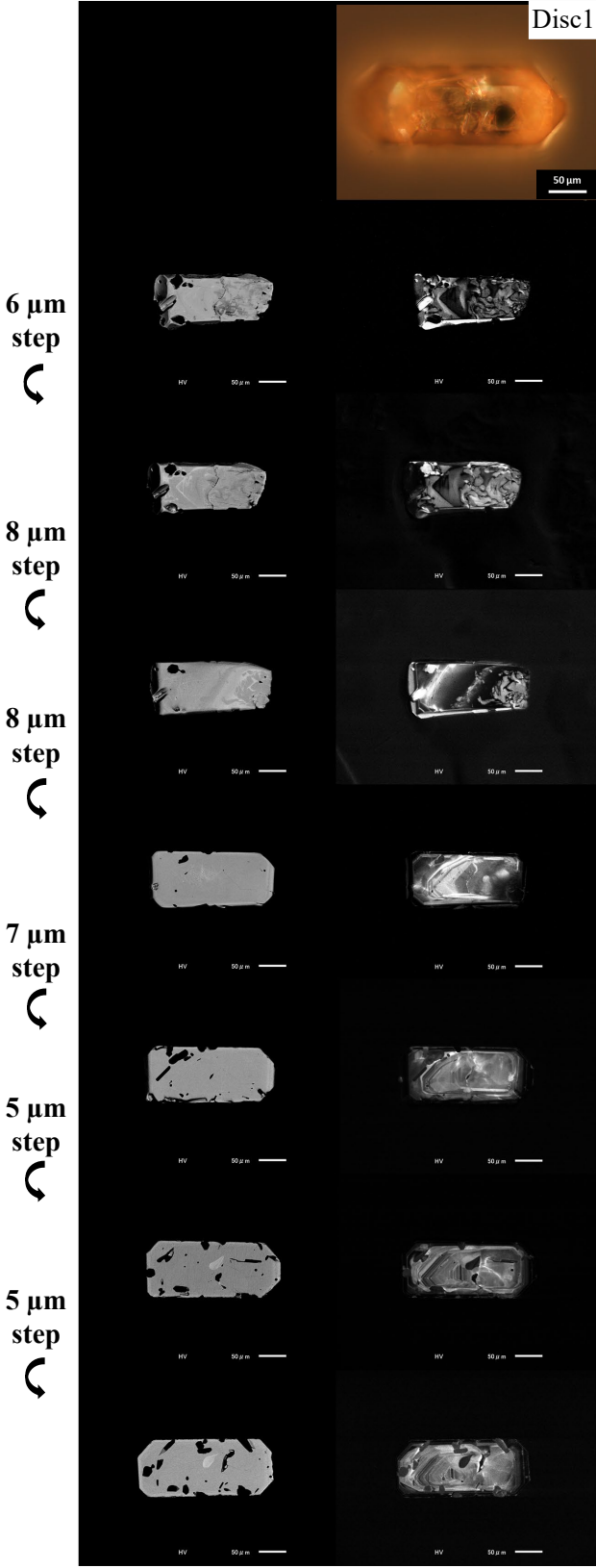
Observed internal texture

- OZ
- PT

Fig. 63 Zircon data of grain No. HGD4

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 265 μm
- Minor axis: 101 μm
- Major axis/Minor axis: 2.6

Observed internal texture

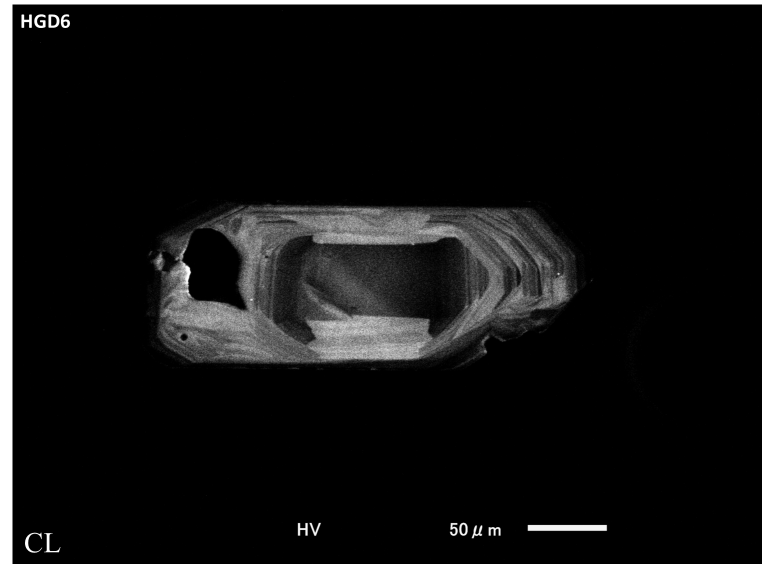
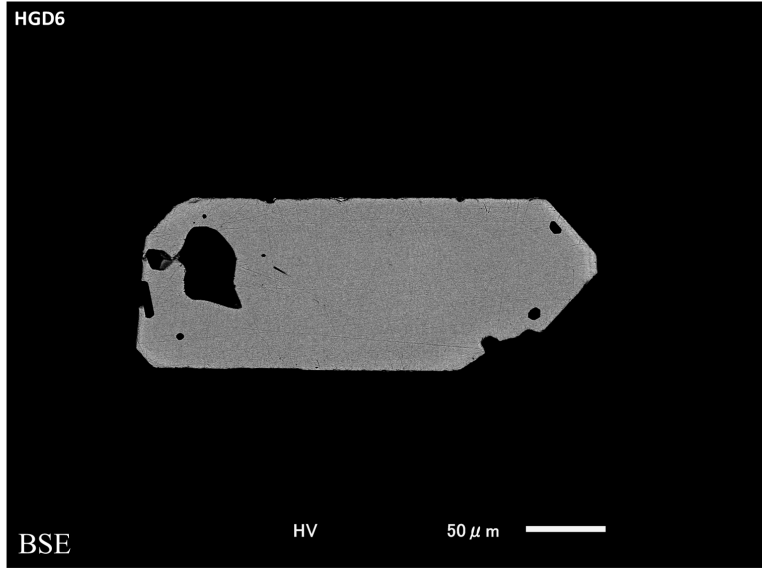
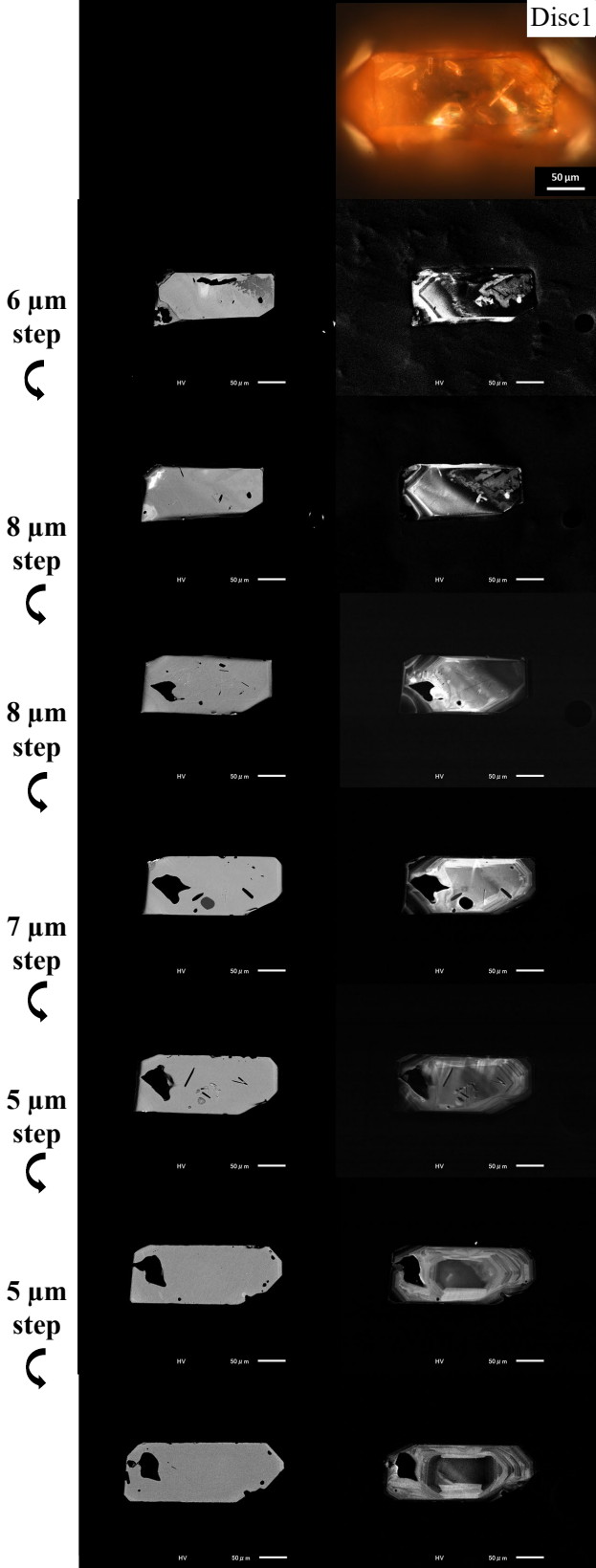
- OZ
- PT
- CT

Fig. 64 Zircon data of grain No. HGD5

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 301 μm
- Minor axis: 116 μm
- Major axis/Minor axis: 2.6

Observed internal texture

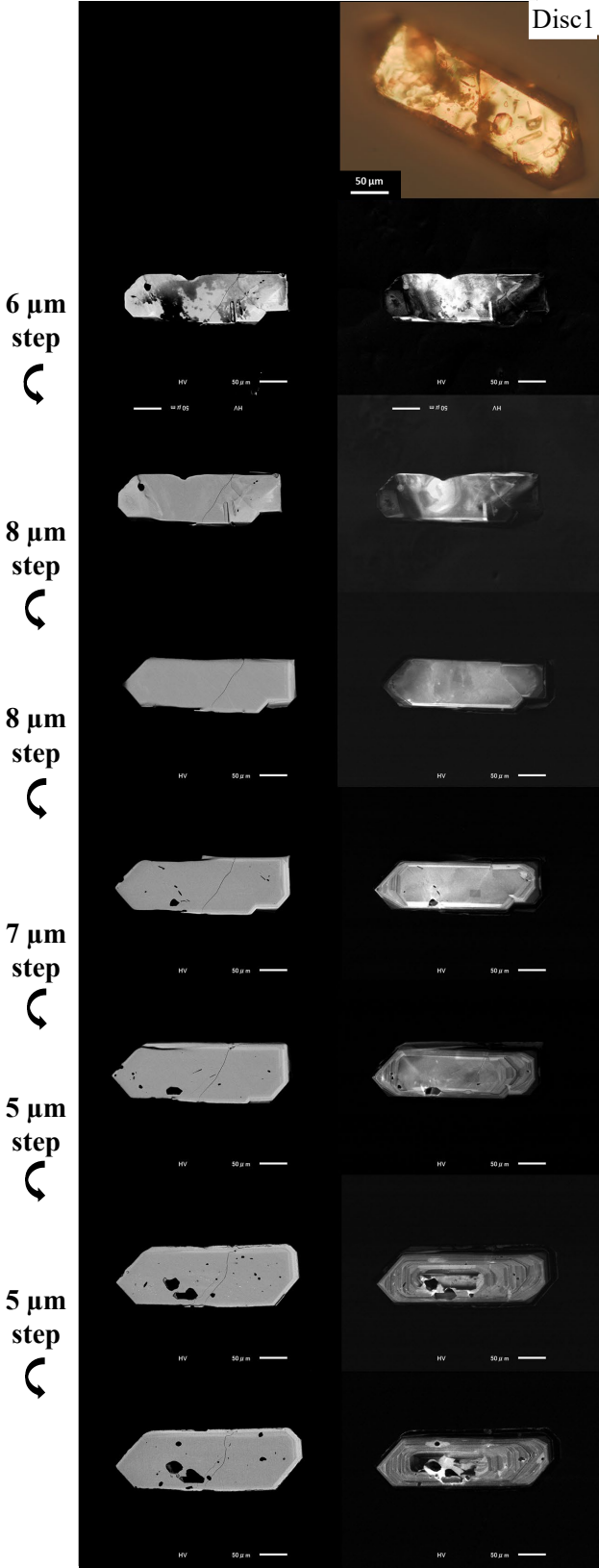
- OZ
- CT

Fig. 65 Zircon data of grain No. HGD6

Morphological observation and CL observation for multi-layers

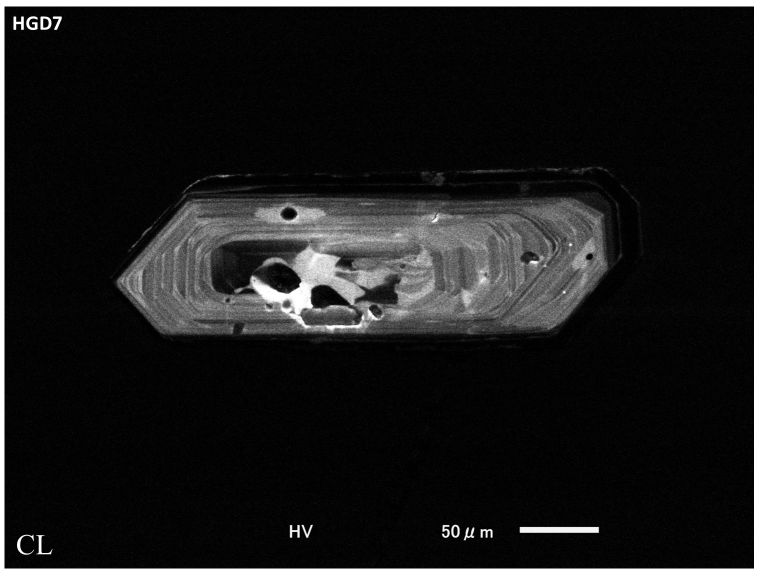
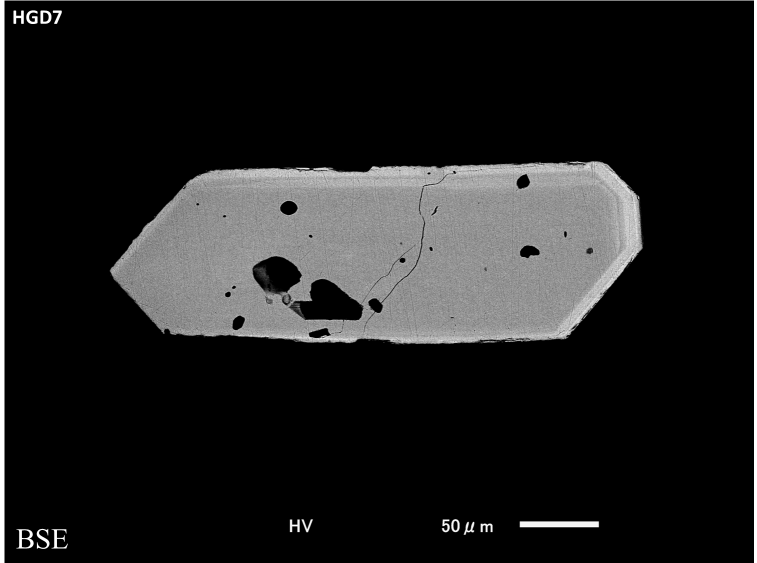
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 333 μm
- Minor axis: 111 μm
- Major axis/Minor axis: 3.0

Observed internal texture

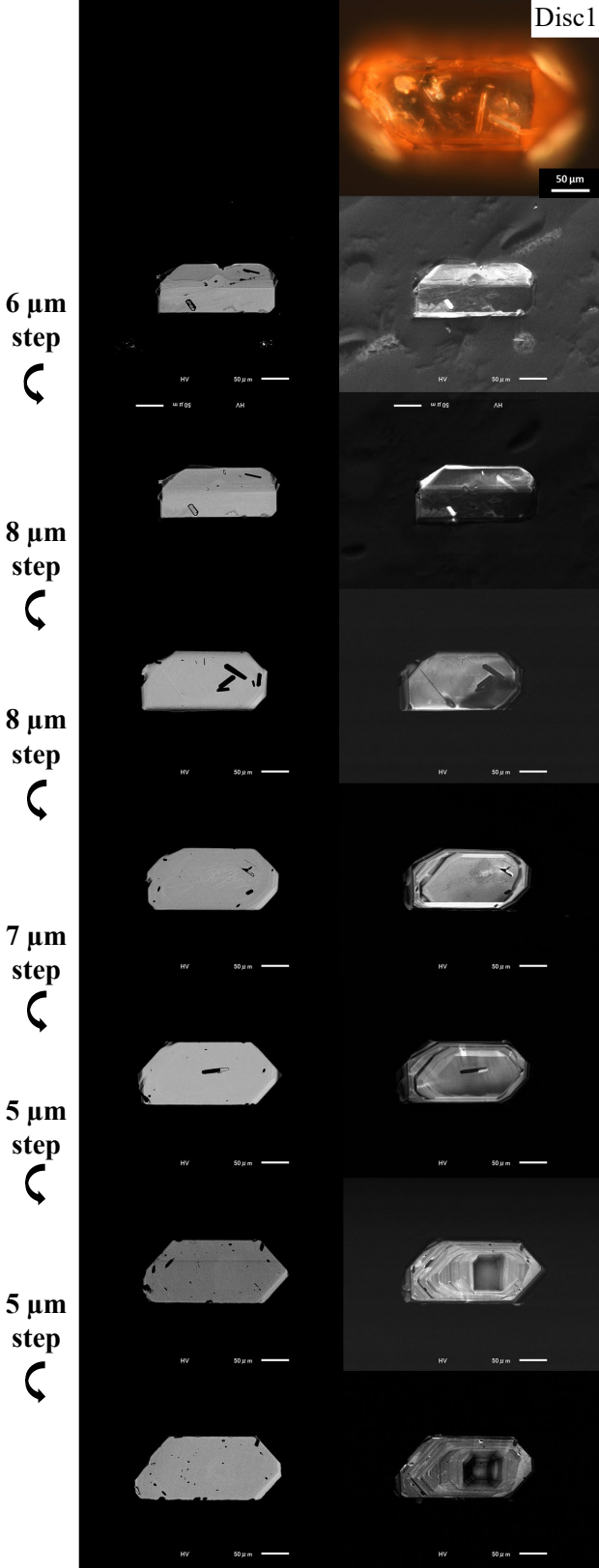
- OZ
- PT
- CT

Fig. 66 Zircon data of grain No. HGD7

Morphological observation and CL observation for multi-layers

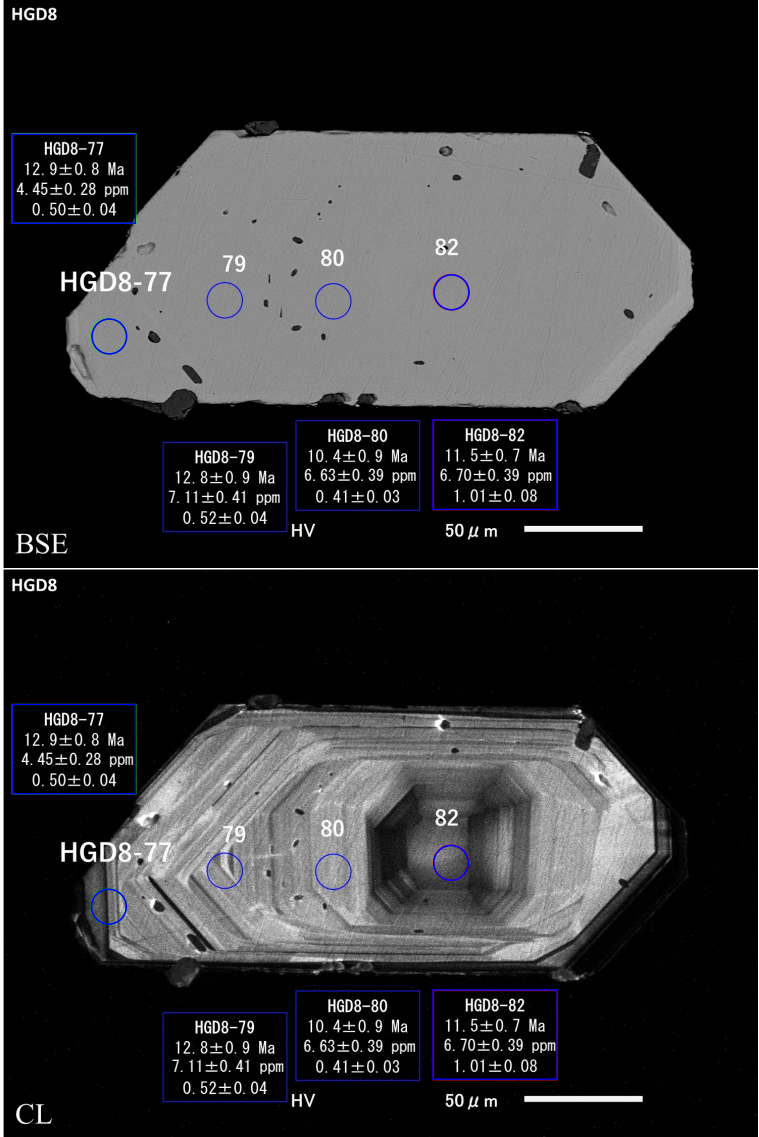
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 267 μm
- Minor axis: 115 μm
- Major axis/Minor axis: 2.3

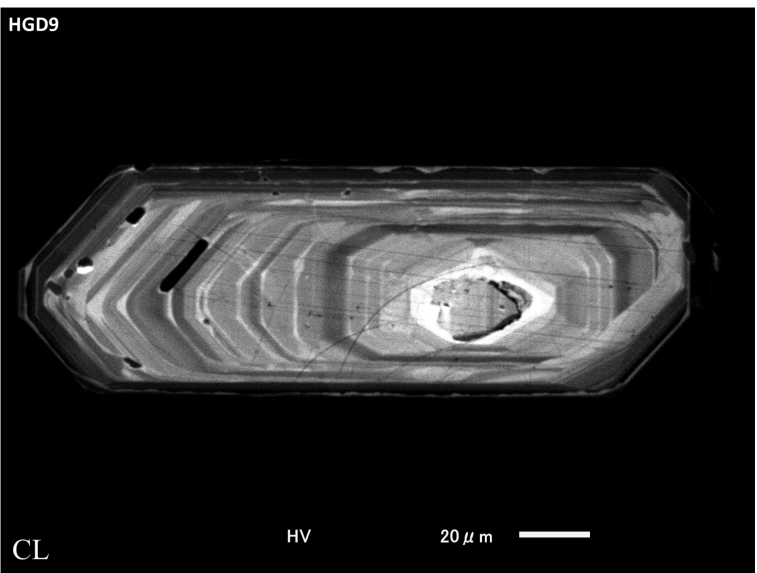
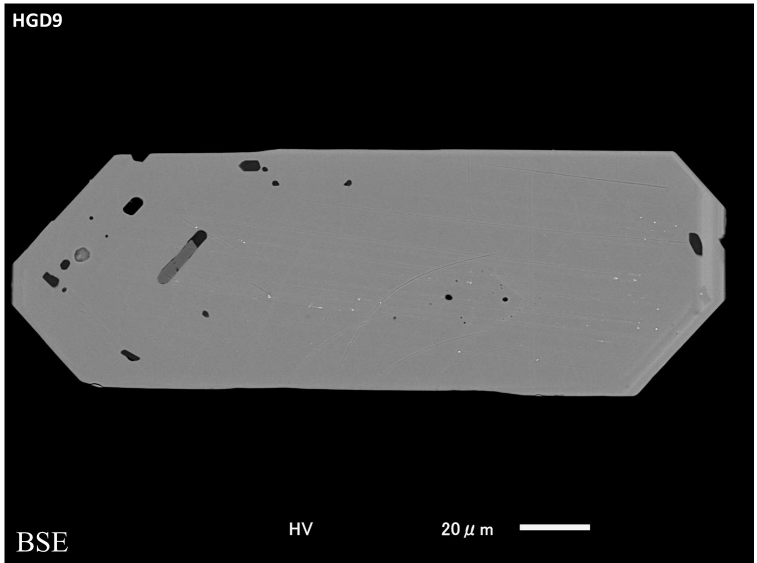
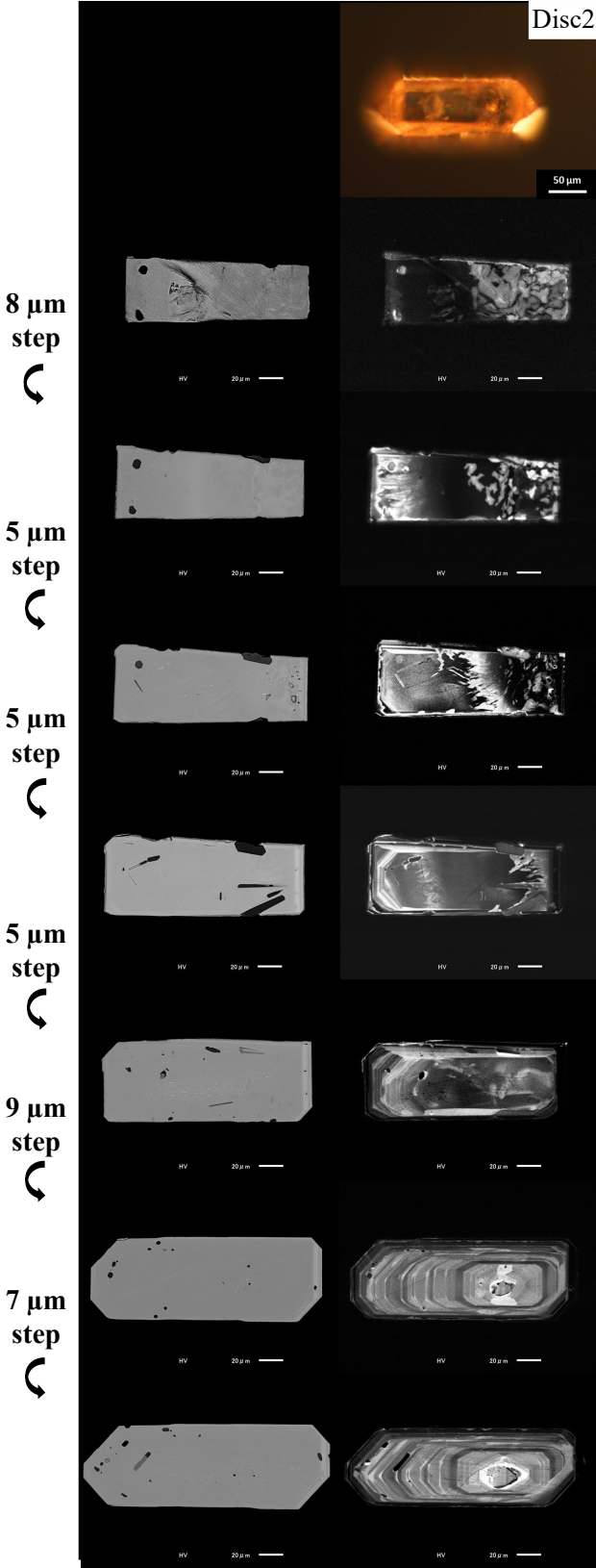
Observed internal texture

- OZ
- PT

Fig. 67 Zircon data of grain No. HGD8

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 204 μm
- Minor axis: 74 μm
- Major axis/Minor axis: 2.8

Observed internal texture

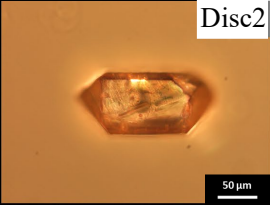
- OZ
- PT
- IHC
- CT

Fig. 68 Zircon data of grain No. HGD9

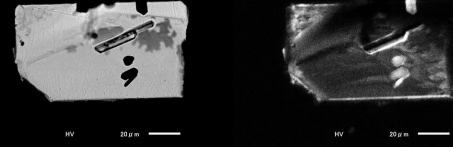
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

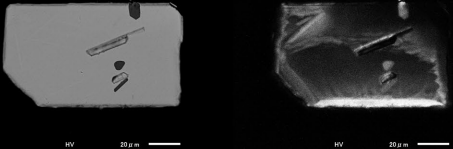
OZ : PT : IHC : CT :



8 μm step



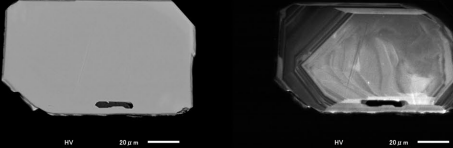
5 μm step



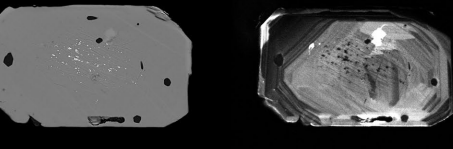
5 μm step



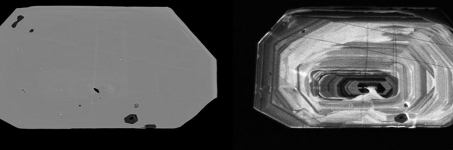
5 μm step



9 μm step

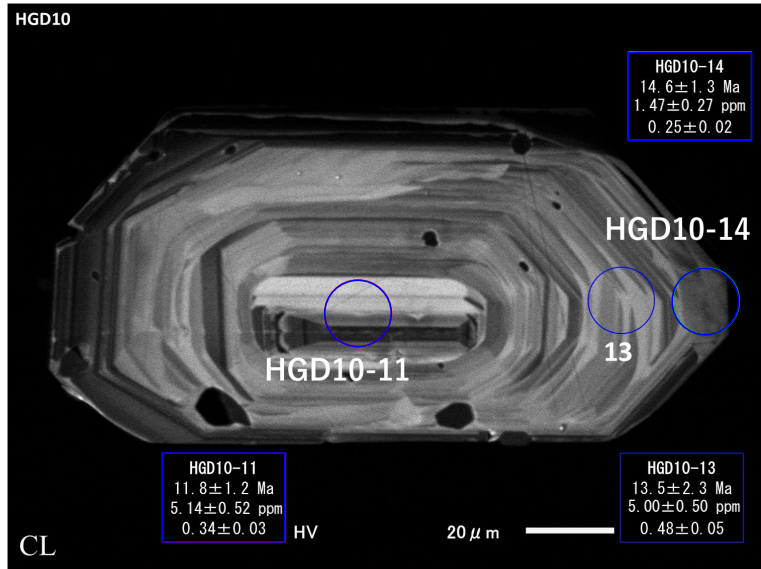
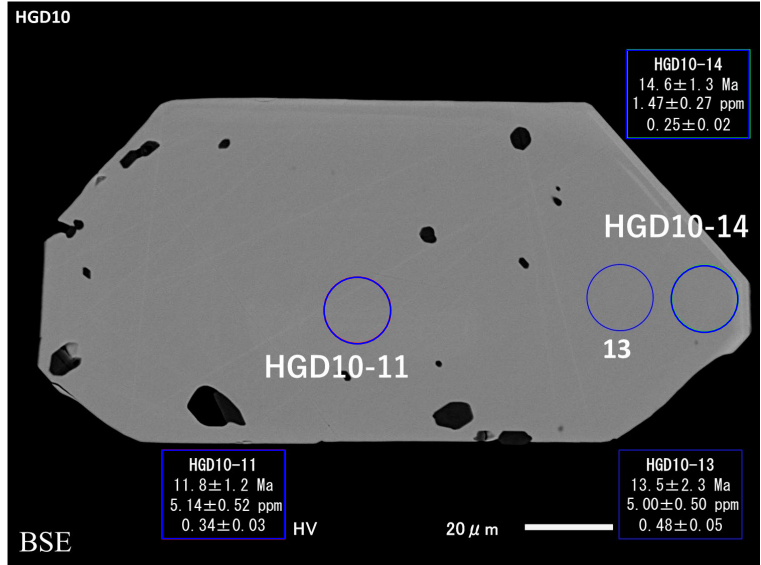


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 170 μm
- Minor axis: 79 μm
- Major axis/Minor axis: 2.2

Observed internal texture

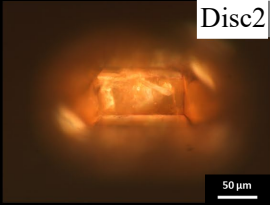
- OZ
- CT
- PT

Fig. 69 Zircon data of grain No. HGD10

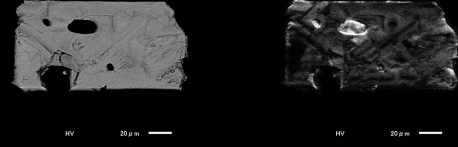
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

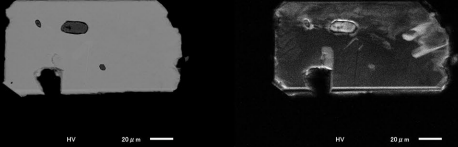
OZ :  PT :  IHC :  CT : 



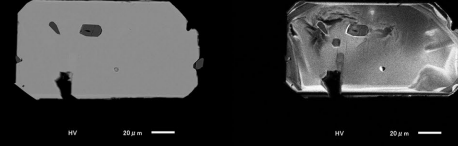
8 μm step



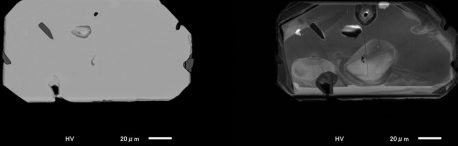
5 μm step



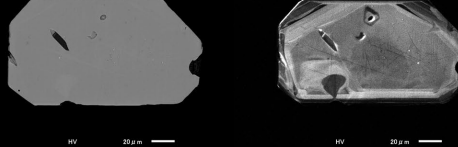
5 μm step



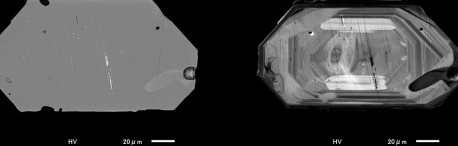
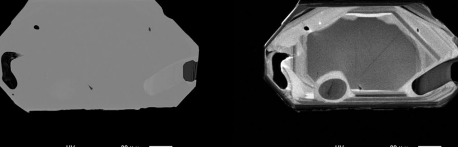
5 μm step



9 μm step

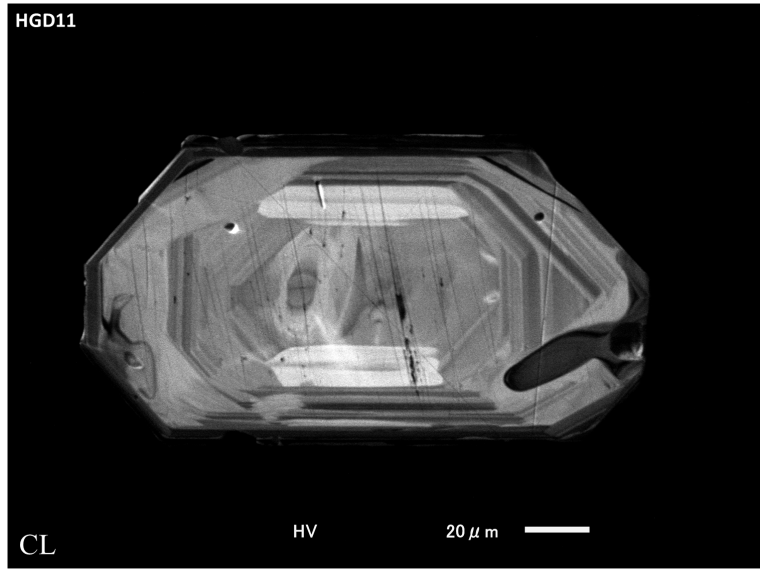
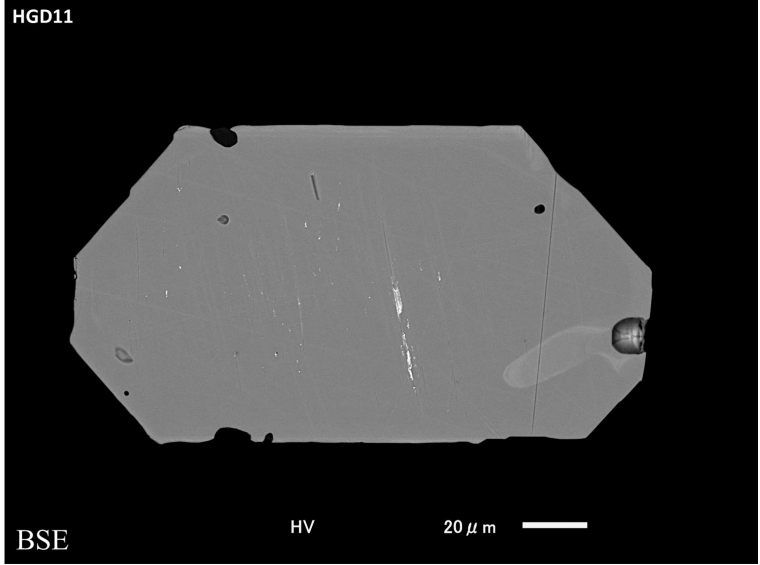


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 174 μm
- Minor axis: 72 μm
- Major axis/Minor axis: 2.4

Observed internal texture

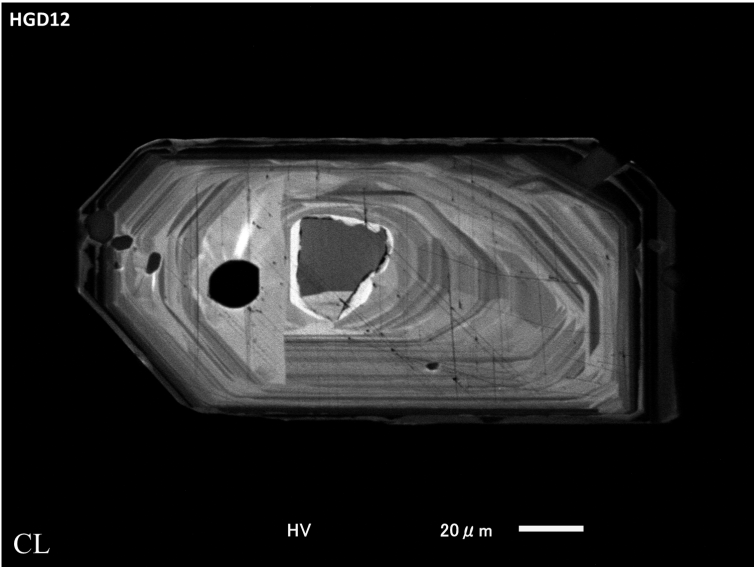
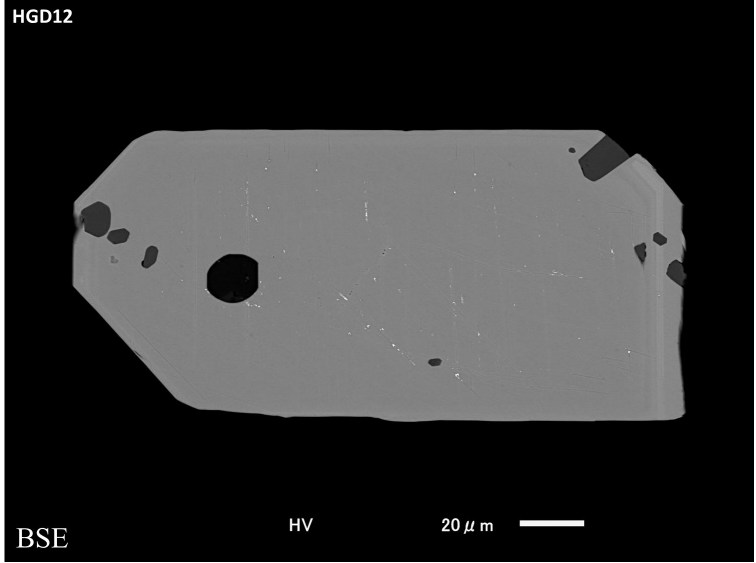
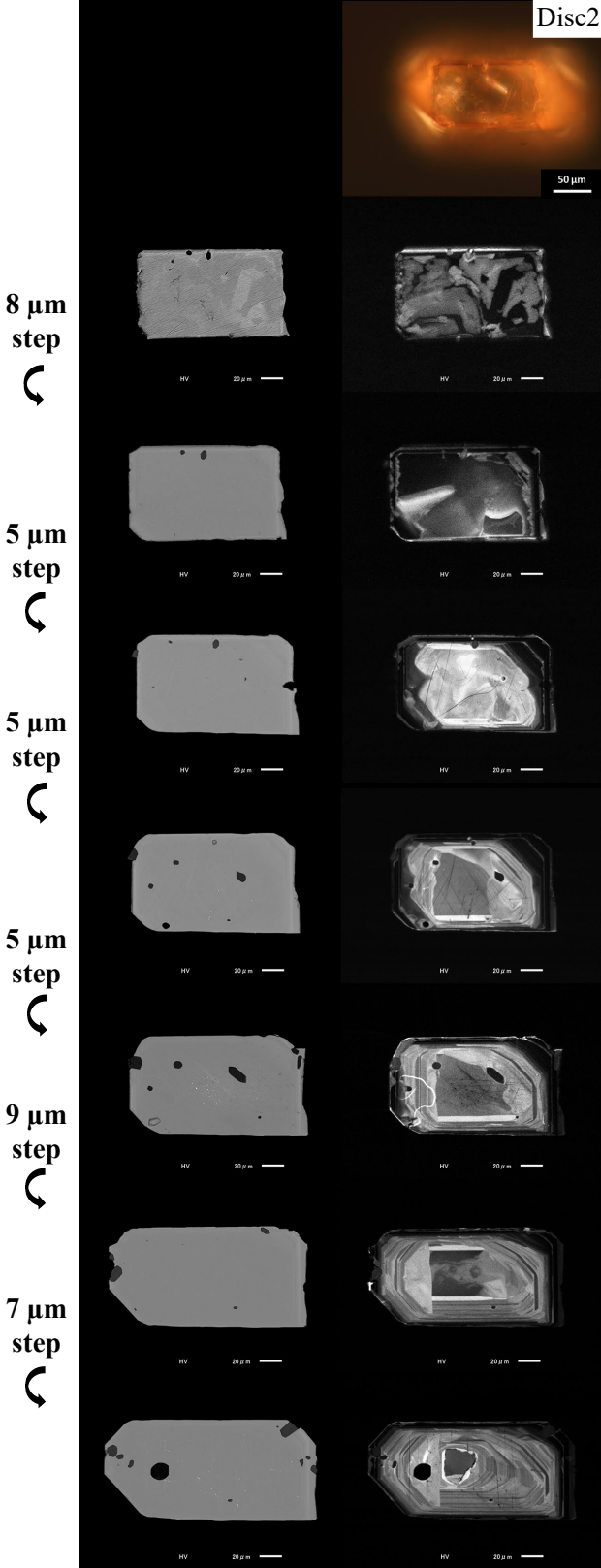
- OZ
- PT
- CT

Fig. 70 Zircon data of grain No. HGD11

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 210 μm
- Minor axis: 89 μm
- Major axis/Minor axis: 2.4

Observed internal texture

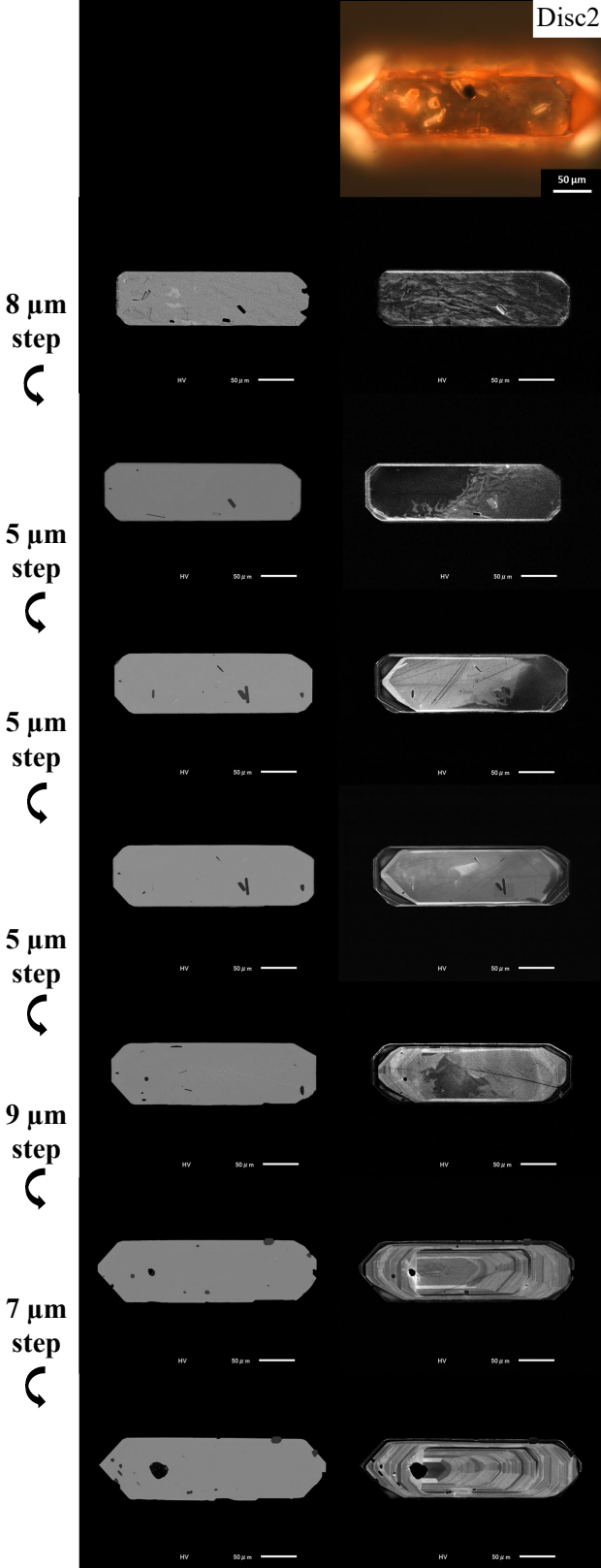
- OZ
- PT
- CT
- IHC

Fig. 71 Zircon data of grain No. HGD12

Morphological observation and CL observation for multi-layers

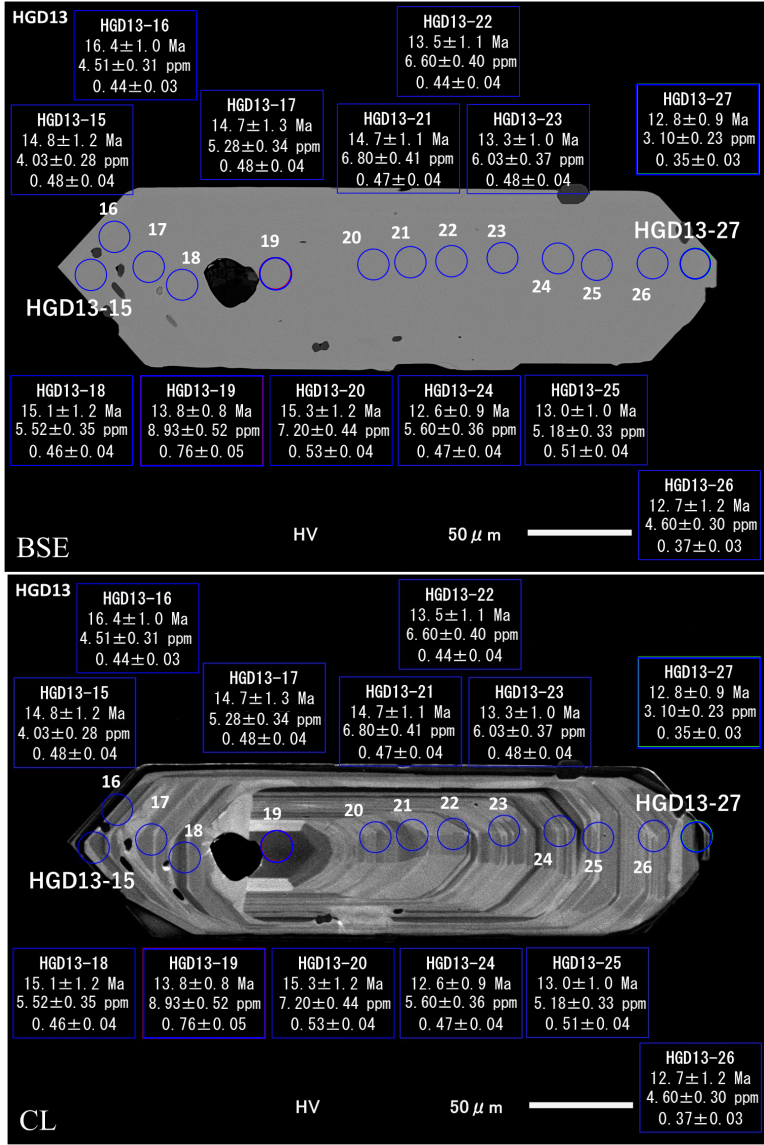
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : ○ PT : ○ IHC : ○ CT : ○



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 160 μm
- Minor axis: 87 μm
- Major axis/Minor axis: 1.8

Observed internal texture

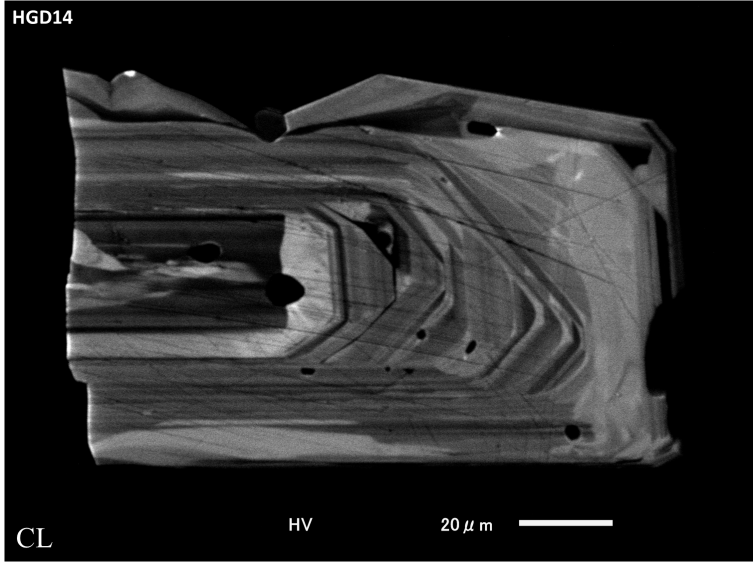
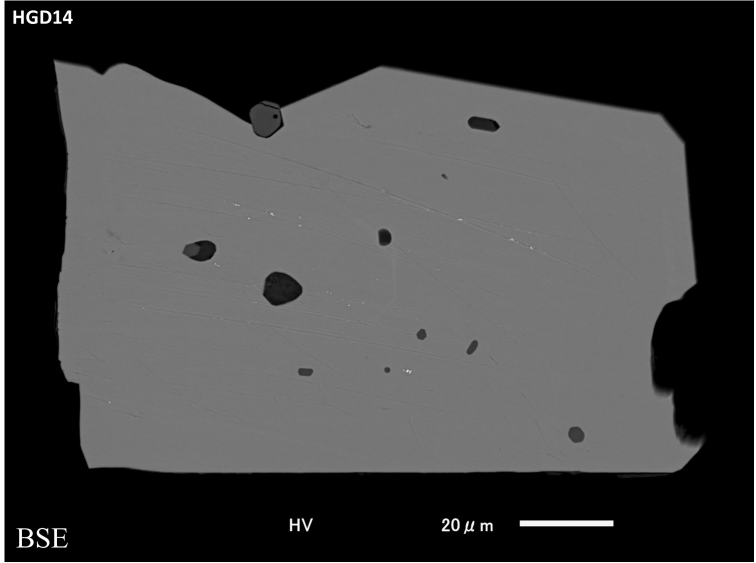
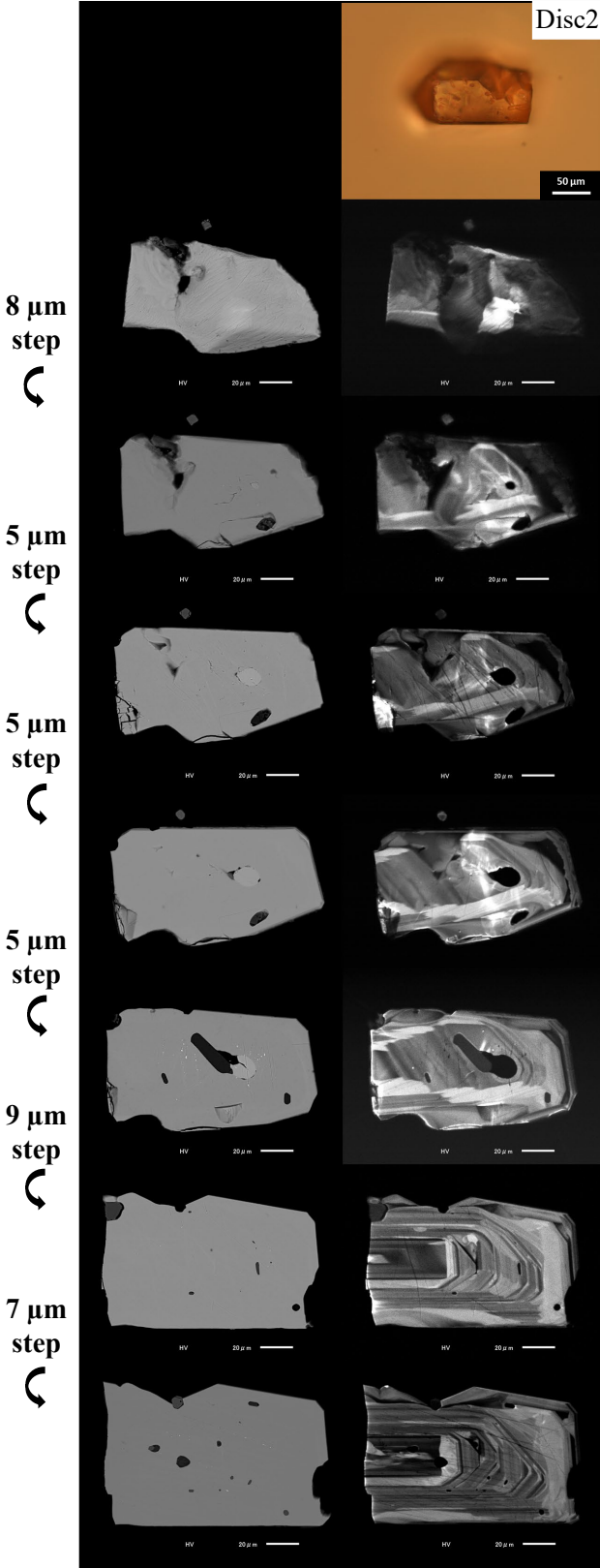
- OZ
- PT
- CT

Fig. 72 Zircon data of grain No. HGD13

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 332 μm
- Minor axis: 89 μm
- Major axis/Minor axis: 3.7

Observed internal texture

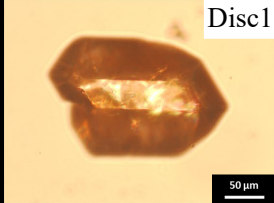
- OZ
- PT

Fig. 73 Zircon data of grain No. HGD14

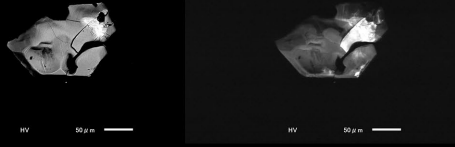
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



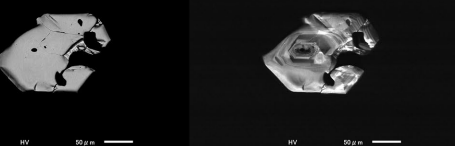
6 μm step



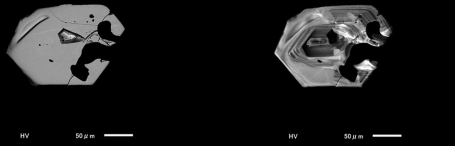
8 μm step



8 μm step



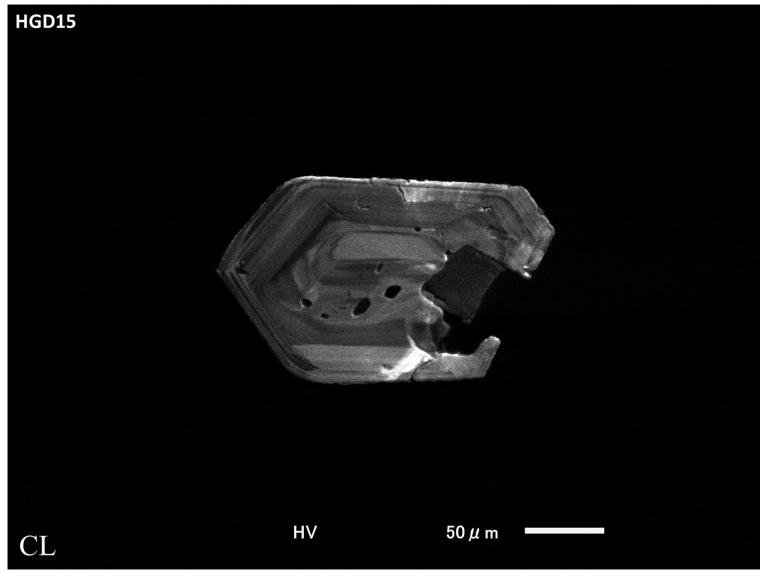
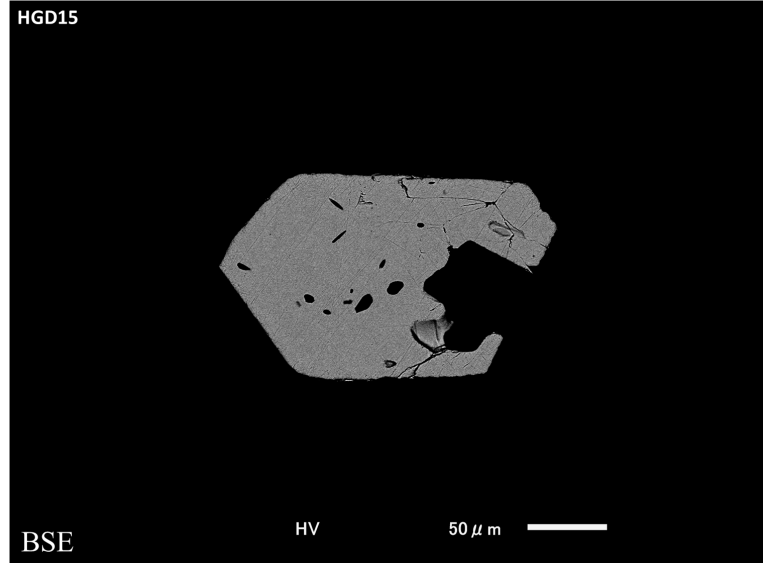
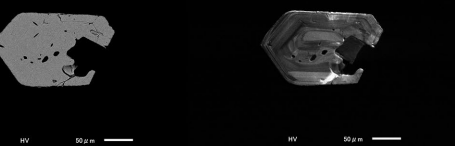
7 μm step



5 μm step



5 μm step



BSE images

CL images

Morphological description

- Type –not classified
- Major axis: 220 μm
- Minor axis: 156 μm
- Major axis/Minor axis: 1.4

Observed internal texture

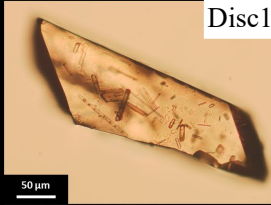
- OZ

Fig. 74 Zircon data of grain No. HGD15

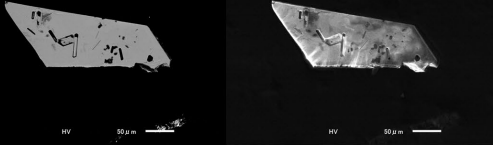
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



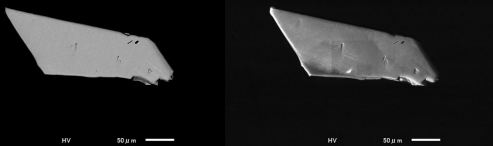
6 μm step



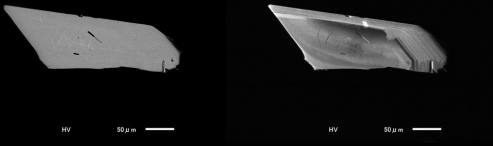
8 μm step



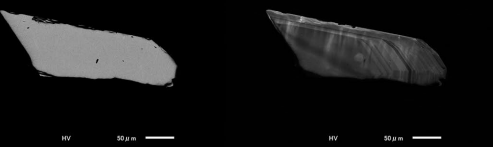
8 μm step



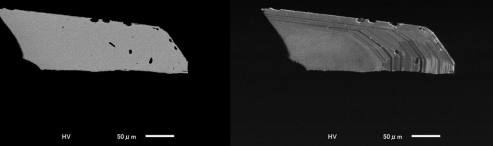
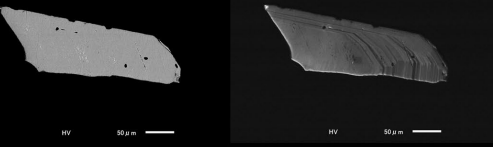
7 μm step



5 μm step

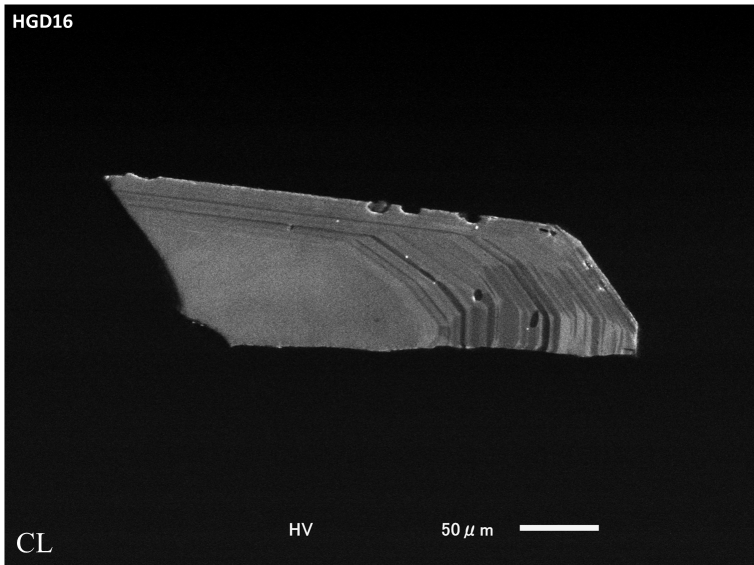
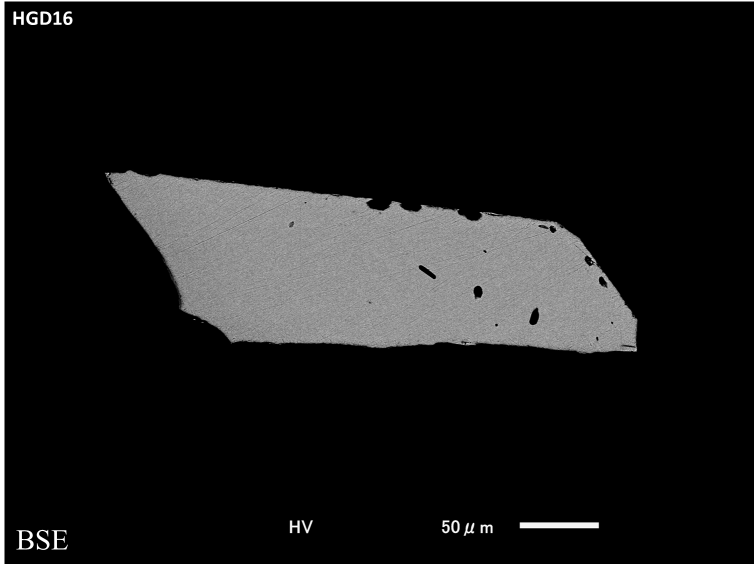


5 μm step



BSE images

CL images



Morphological description

- Type –not classified
- Major axis: 345 μm
- Minor axis: 106 μm
- Major axis/Minor axis: 3.3

Observed internal texture

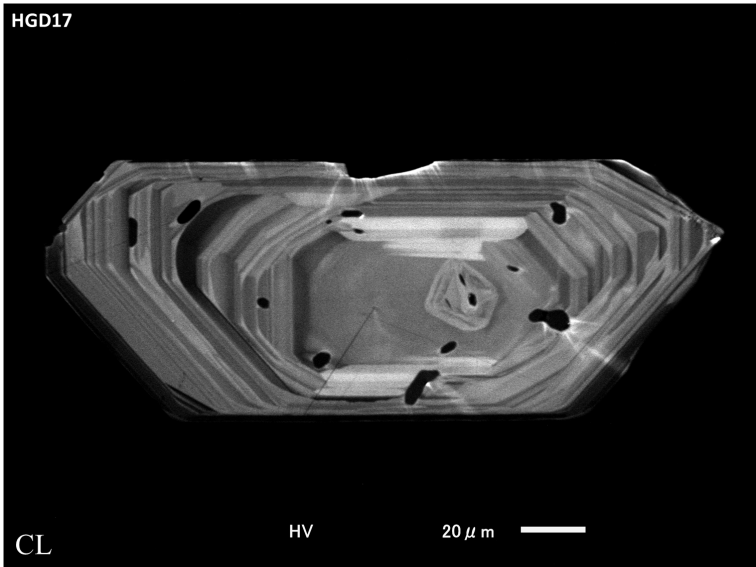
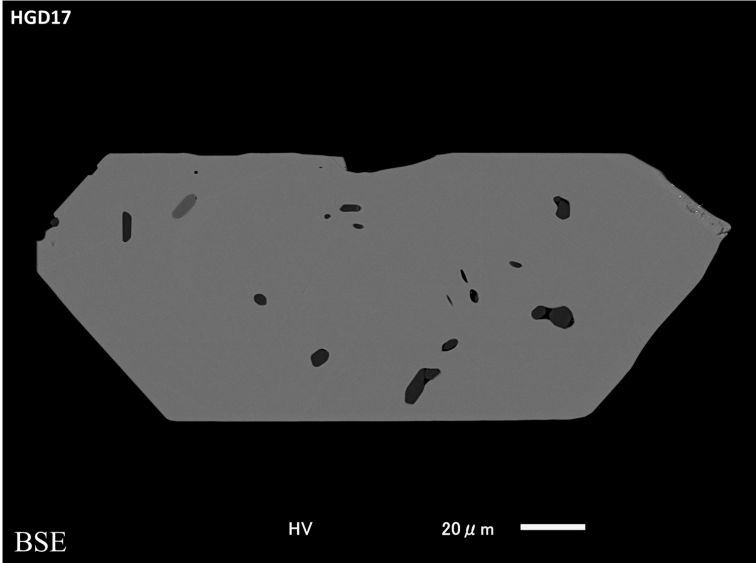
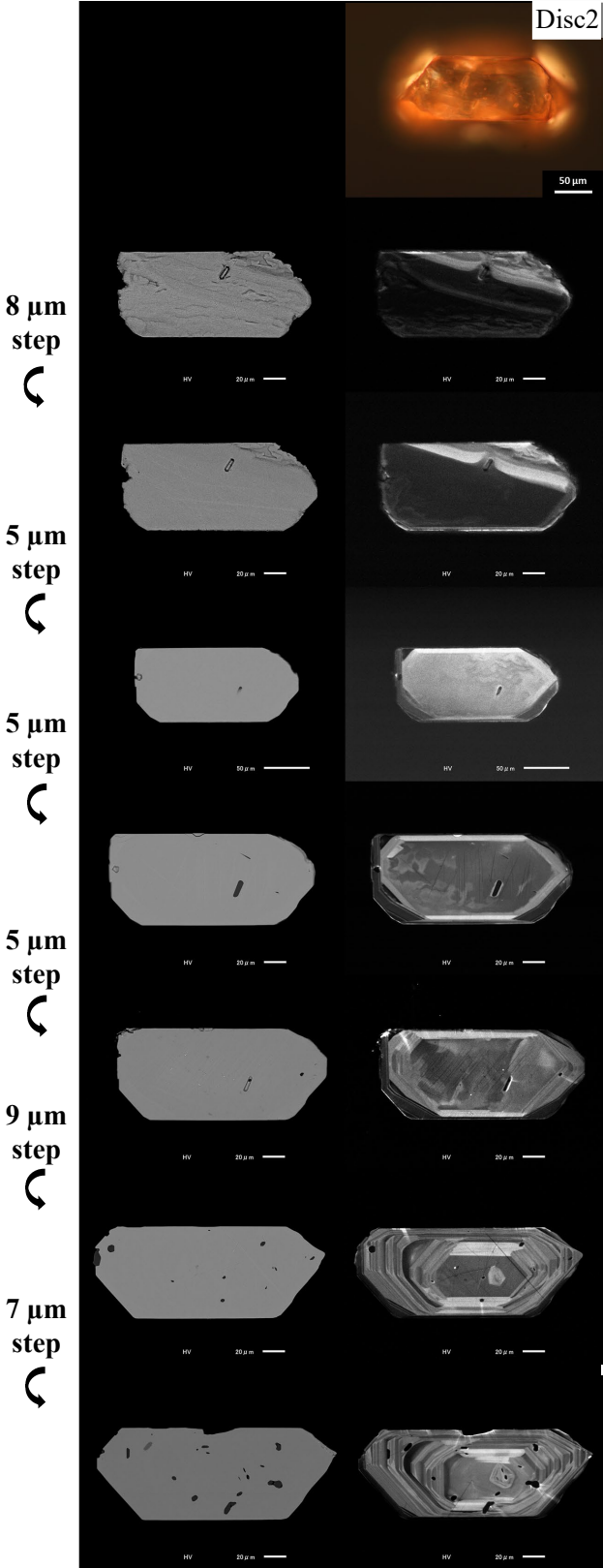
- OZ

Fig. 75 Zircon data of grain No. HGD16

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 218 μm
- Minor axis: 85 μm
- Major axis/Minor axis: 2.6

Observed internal texture

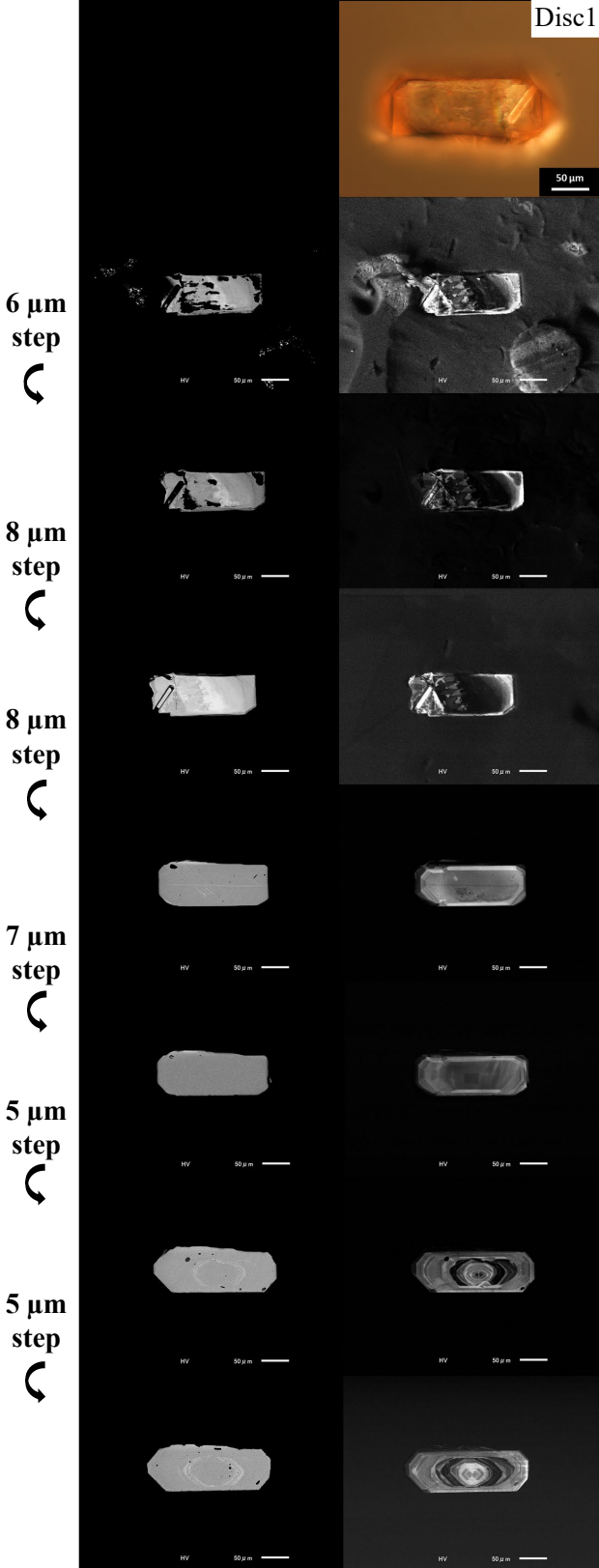
- OZ
- PT

Fig. 76 Zircon data of grain No. HGD17

Morphological observation and CL observation for multi-layers

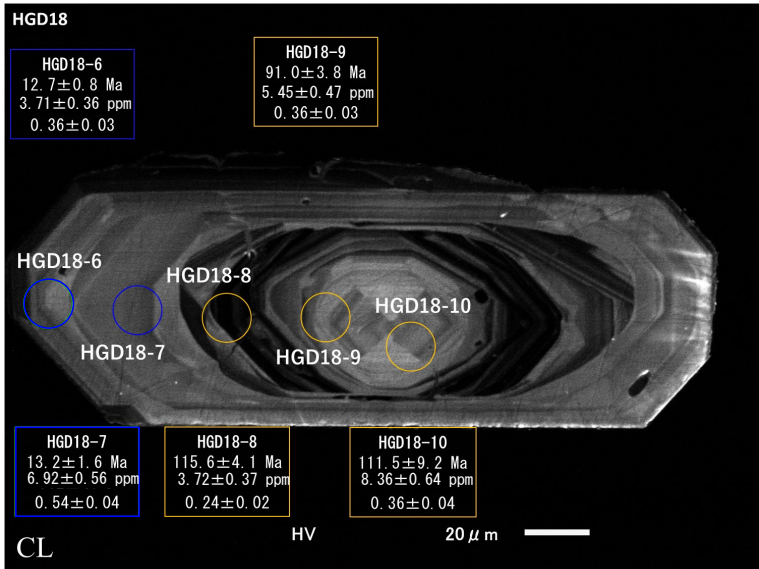
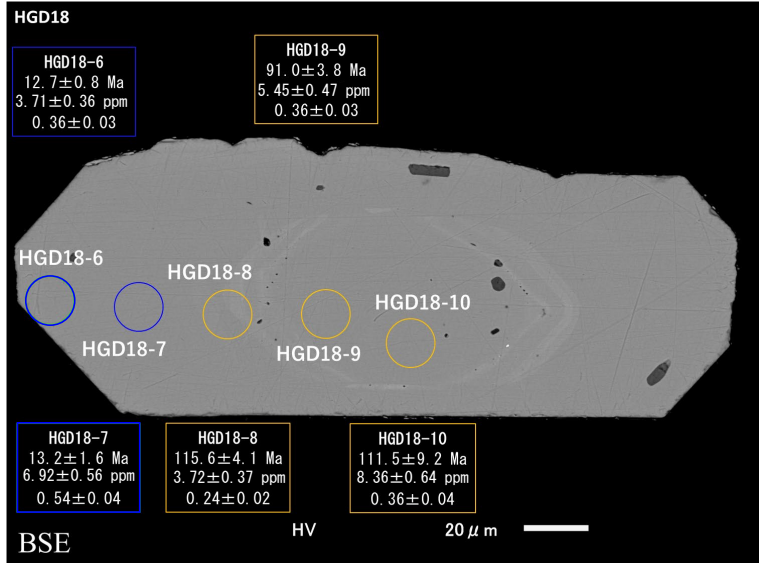
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 232 μm
- Minor axis: 93 μm
- Major axis/Minor axis: 2.5

Observed internal texture

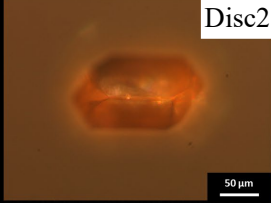
- OZ
- PT
- CT
- IHC

Fig. 77 Zircon data of grain No. HGD18

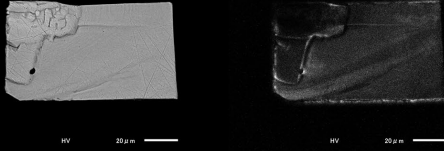
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

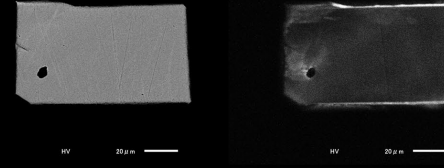
OZ :  PT :  IHC :  CT : 



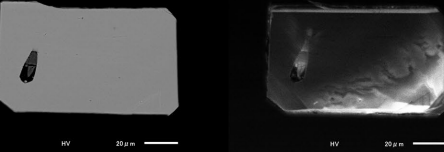
8 μm step



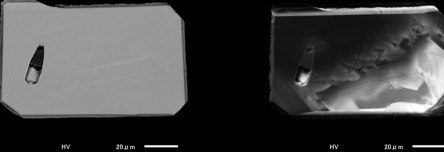
5 μm step



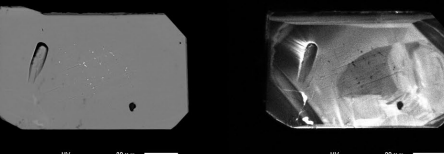
5 μm step



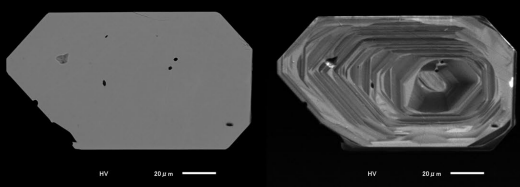
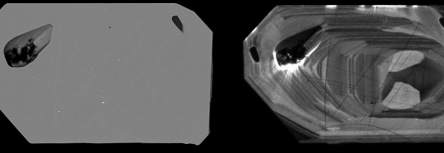
5 μm step



9 μm step

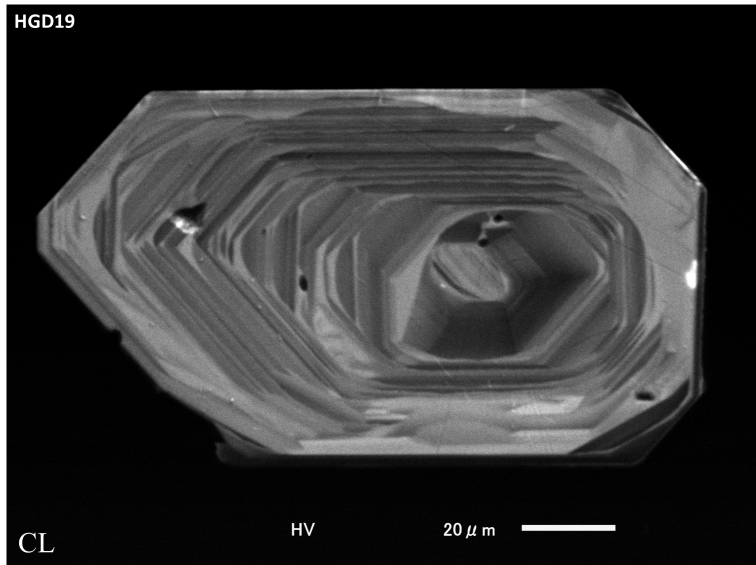
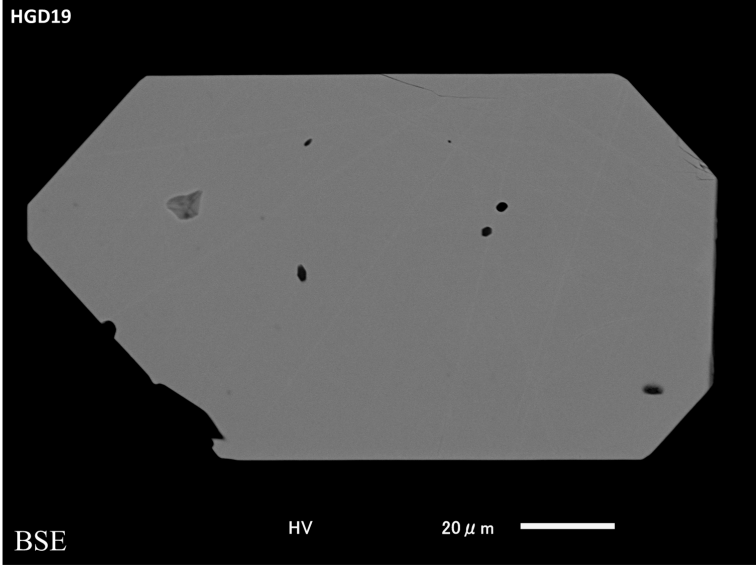


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 160 μm
- Minor axis: 87 μm
- Major axis/Minor axis: 1.8

Observed internal texture

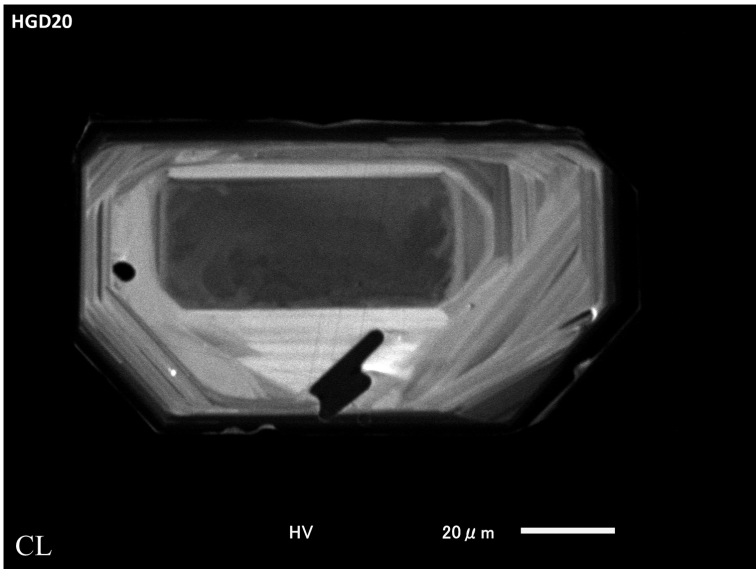
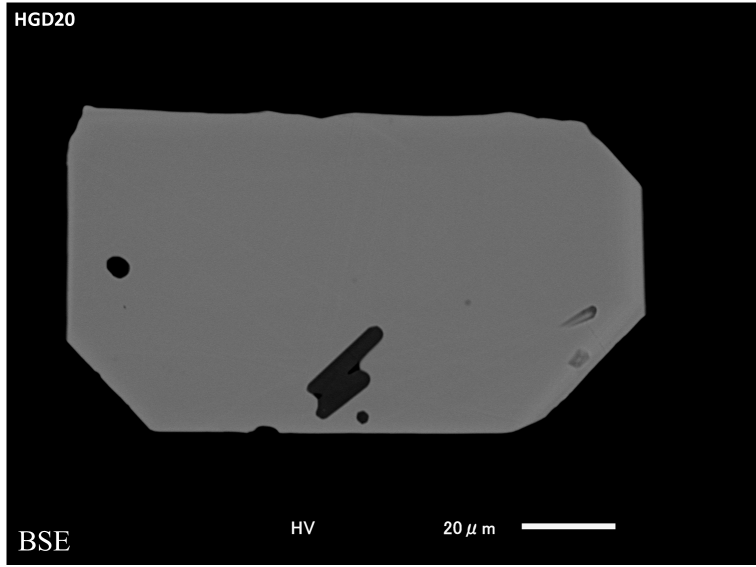
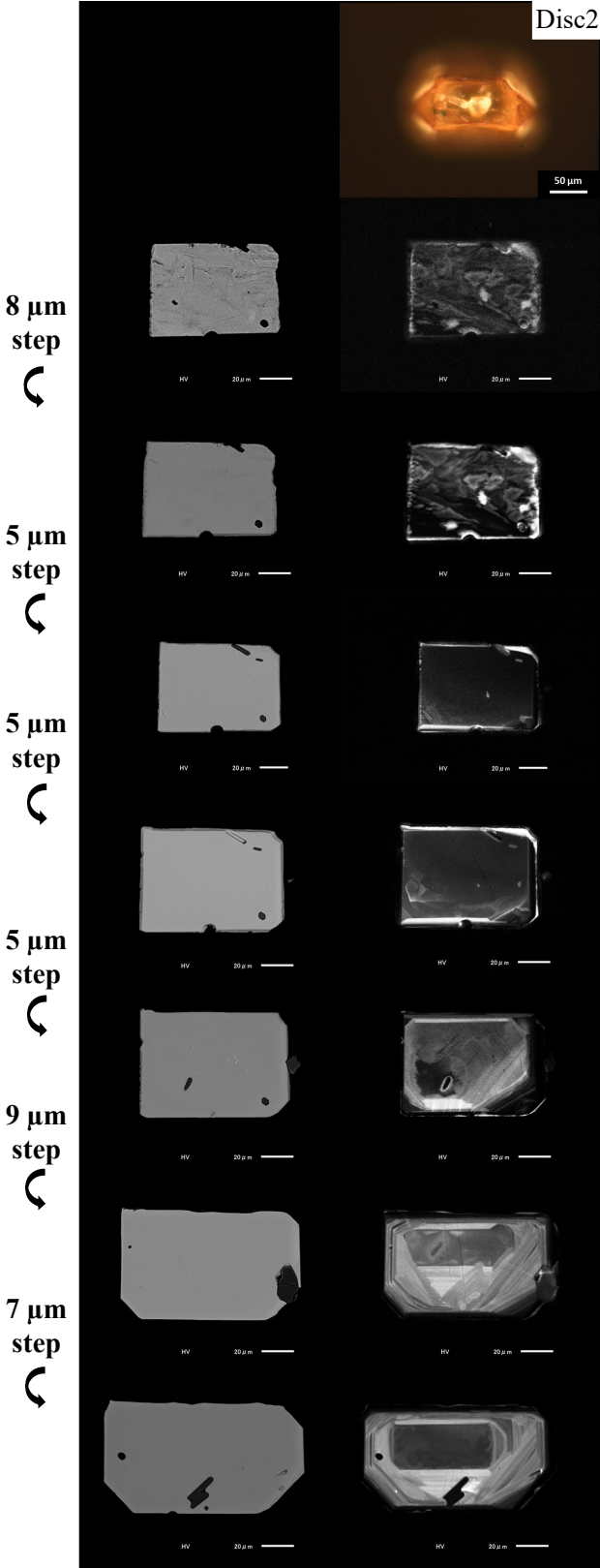
- OZ
- PT
- CT

Fig. 78 Zircon data of grain No. HGD19

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 166 μm
- Minor axis: 74 μm
- Major axis/Minor axis: 2.2

Observed internal texture

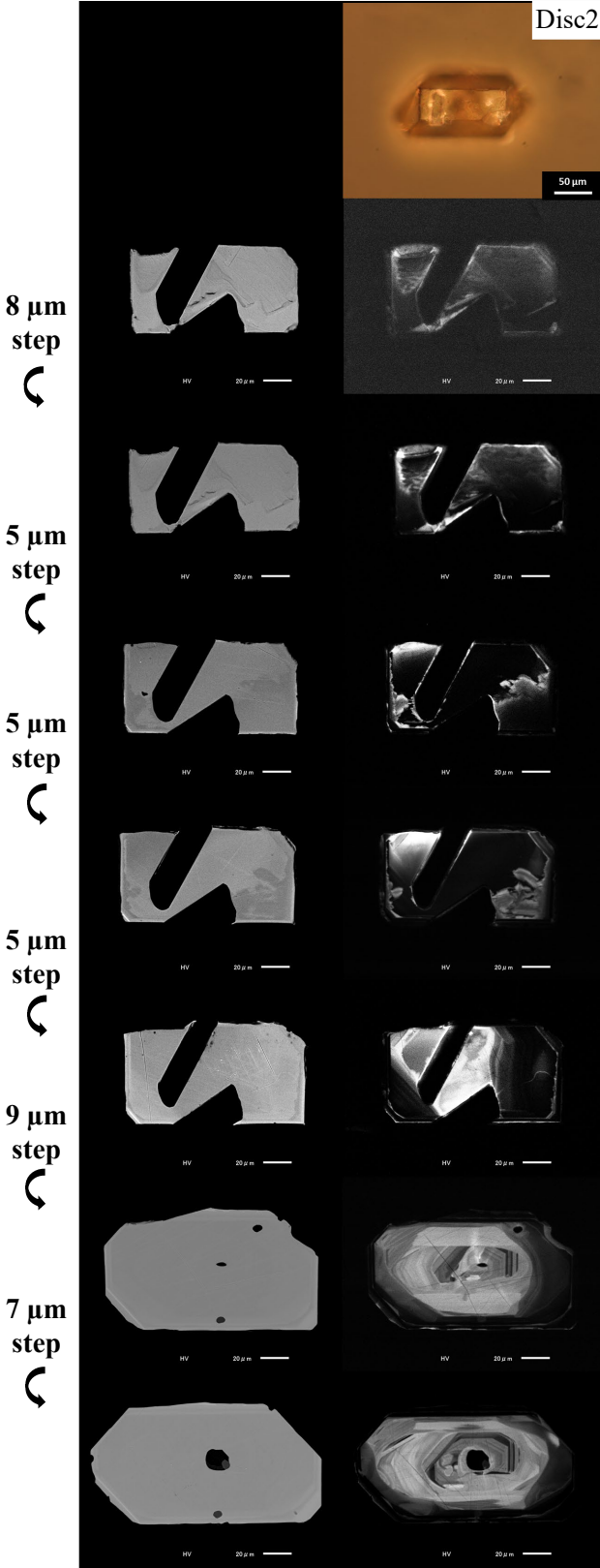
- OZ
- PT

Fig. 79 Zircon data of grain No. HGD20

Morphological observation and CL observation for multi-layers

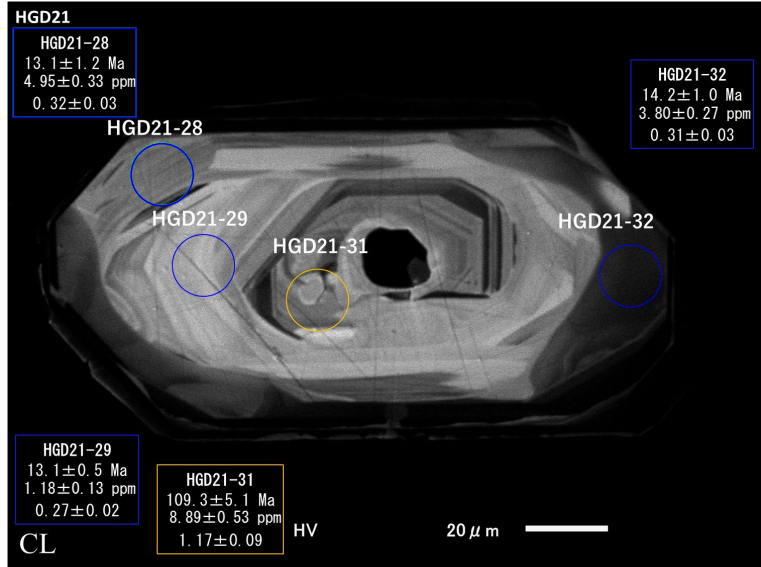
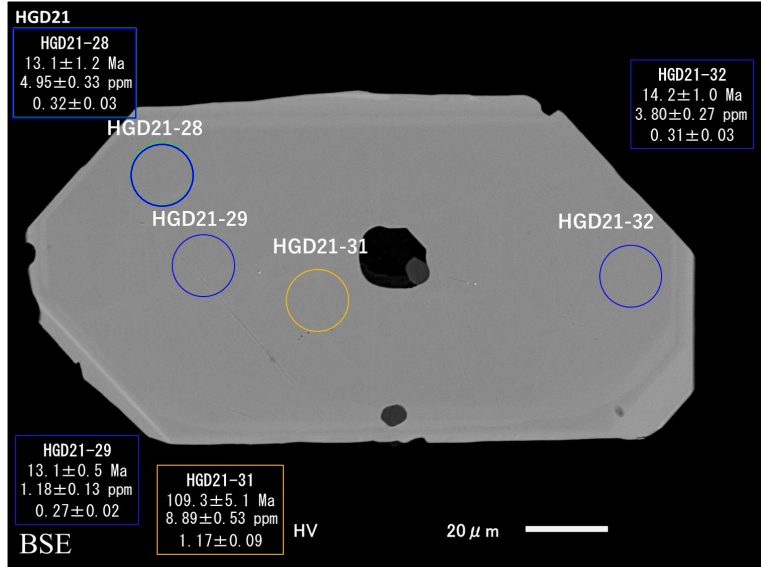
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 177 μm
- Minor axis: 81 μm
- Major axis/Minor axis: 2.2

Observed internal texture

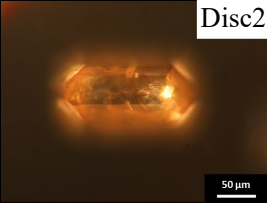
- OZ
- PT
- CT

Fig. 80 Zircon data of grain No. HGD21

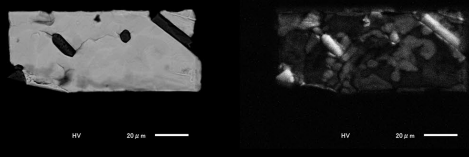
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

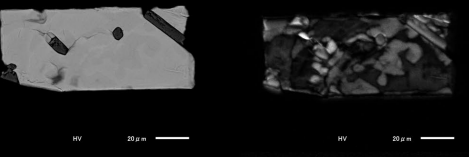
OZ :  PT :  IHC :  CT : 



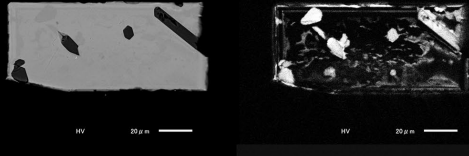
8 μm step



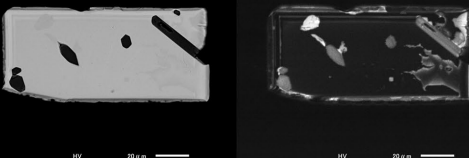
5 μm step



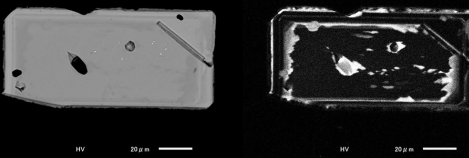
5 μm step



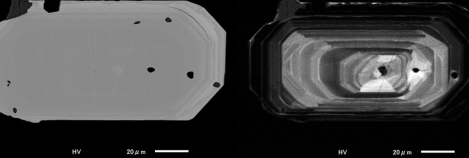
5 μm step



9 μm step

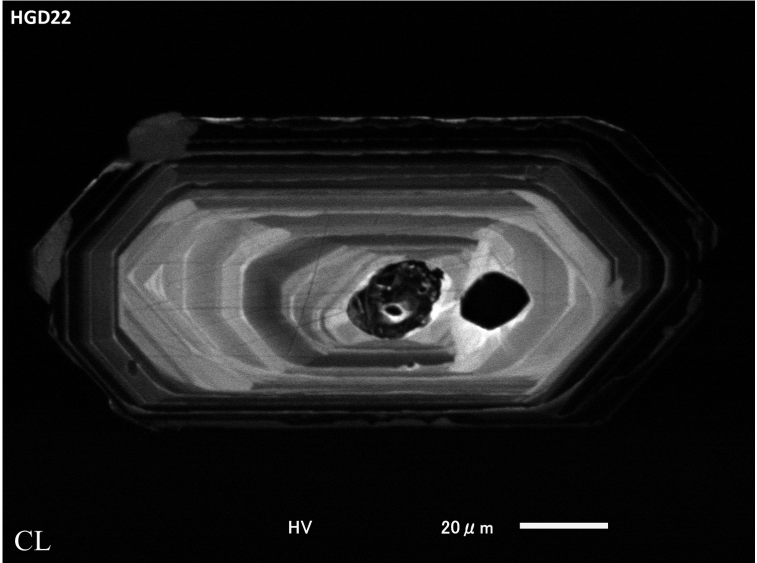
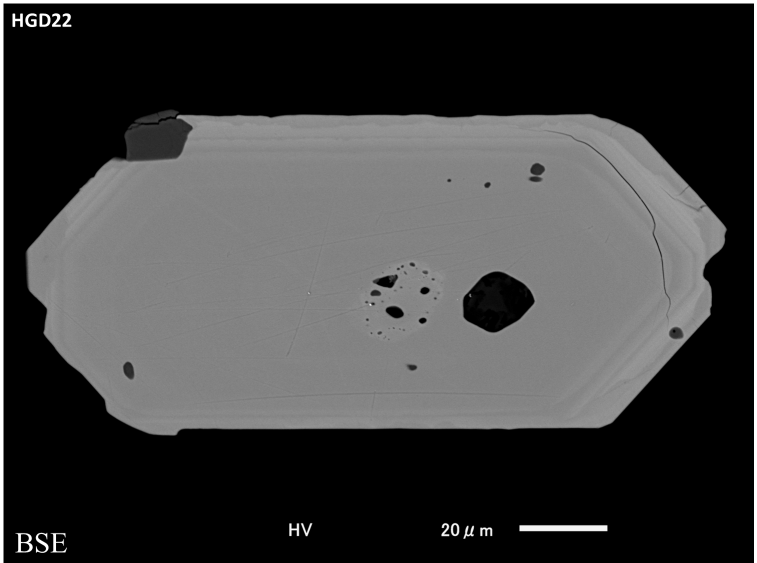


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 175 μm
- Minor axis: 80 μm
- Major axis/Minor axis: 2.2

Observed internal texture

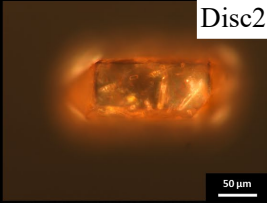
- OZ
- PT
- CT
- IHC

Fig. 81 Zircon data of grain No. HGD22

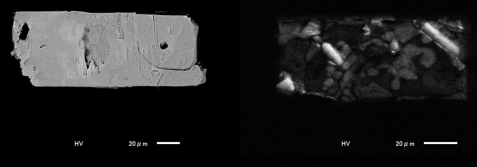
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

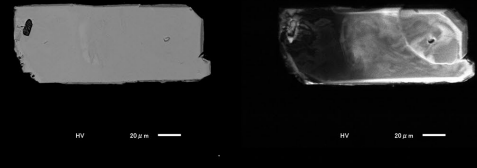
OZ :  PT :  IHC :  CT : 



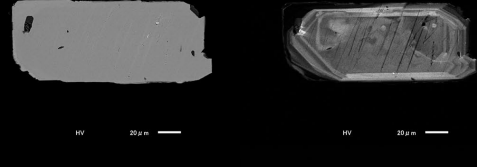
8 μm step



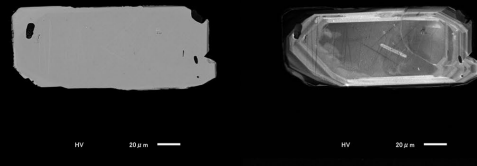
5 μm step



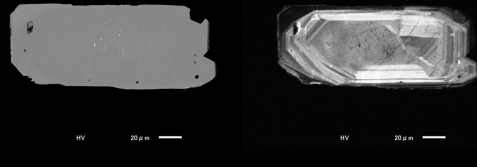
5 μm step



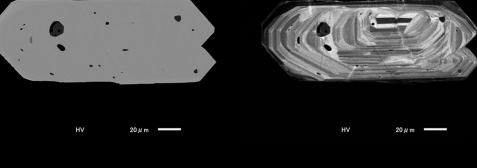
5 μm step



9 μm step

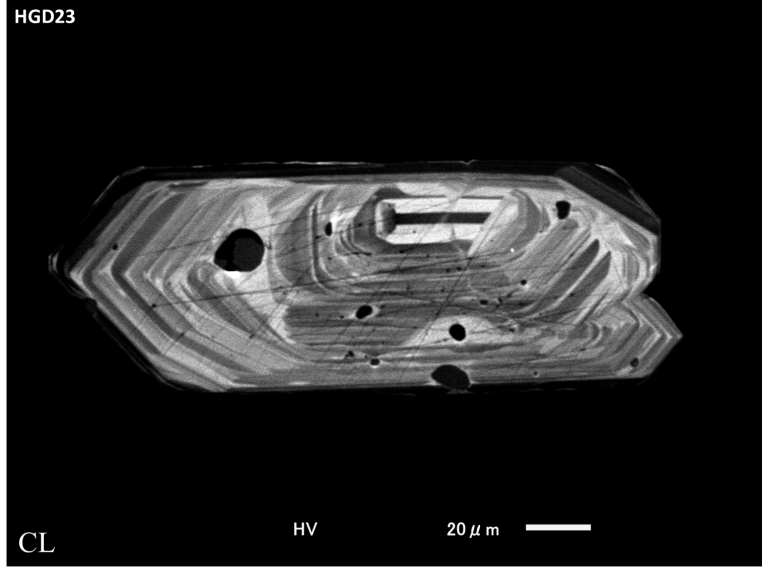
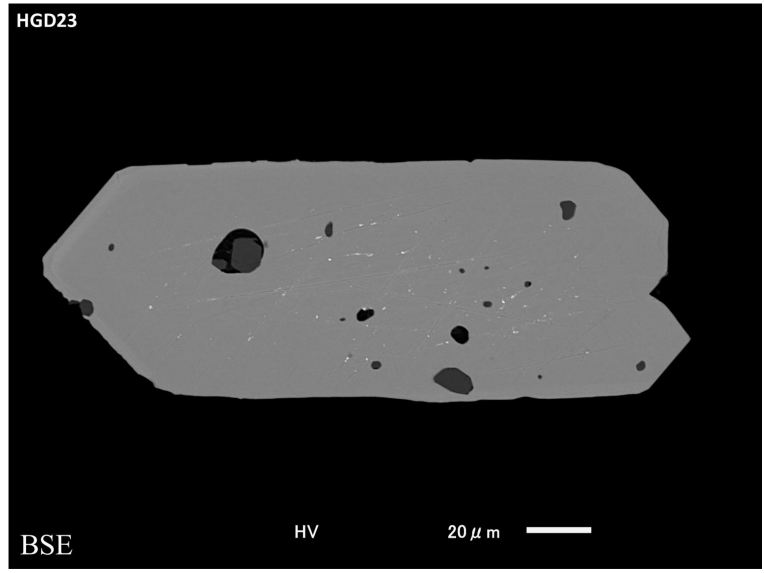


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 192 μm
- Minor axis: 78 μm
- Major axis/Minor axis: 2.5

Observed internal texture

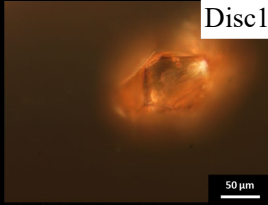
- OZ
- PT
- CT

Fig. 82 Zircon data of grain No. HGD23

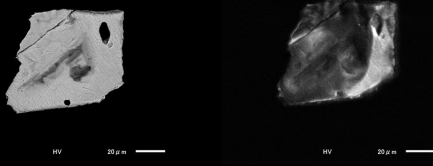
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

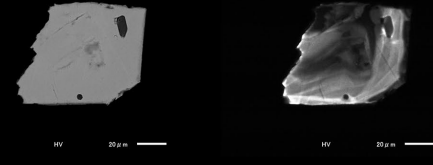
OZ :  PT :  IHC :  CT : 



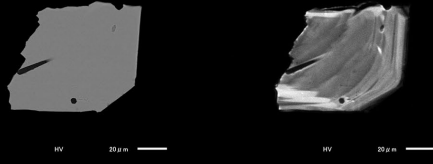
8 μm step



5 μm step



5 μm step



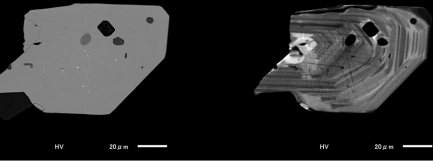
5 μm step



9 μm step

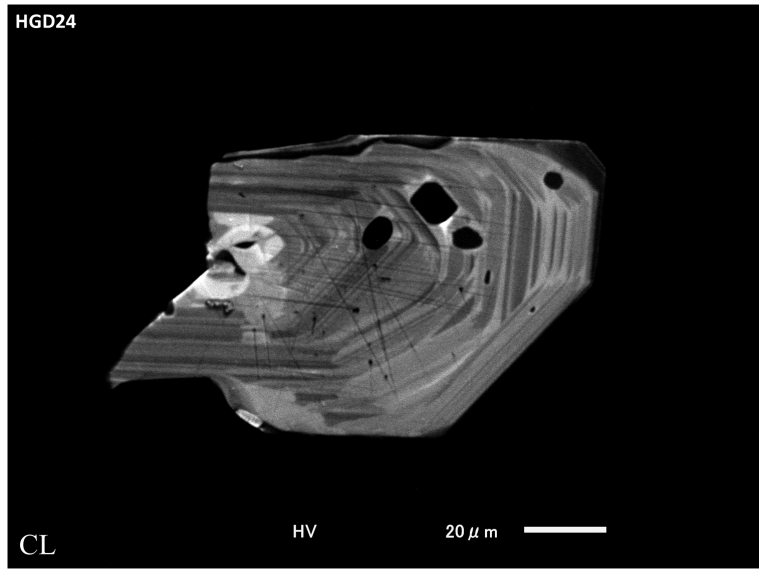
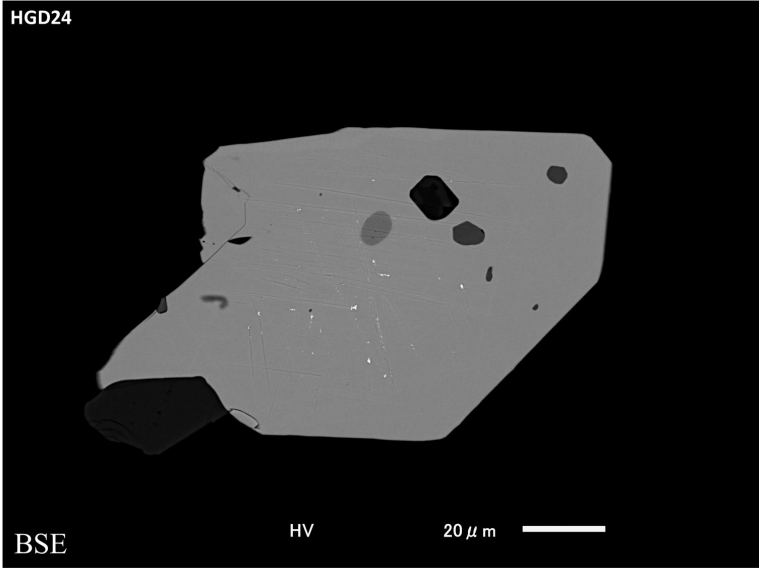


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 124 μm
- Minor axis: 74 μm
- Major axis/Minor axis: 1.7

Observed internal texture

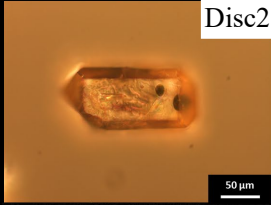
- OZ
- PT

Fig. 83 Zircon data of grain No. HGD24

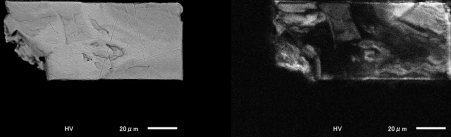
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

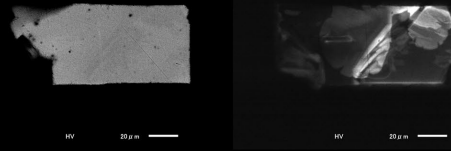
OZ :  PT :  IHC :  CT : 



8 μm step



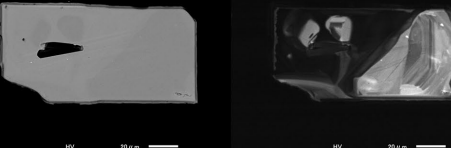
5 μm step



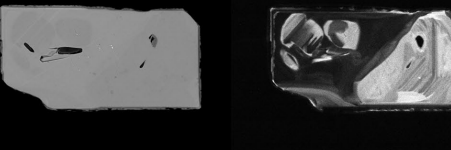
5 μm step



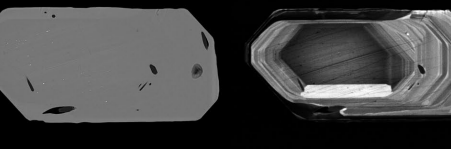
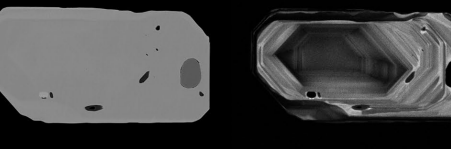
5 μm step



9 μm step

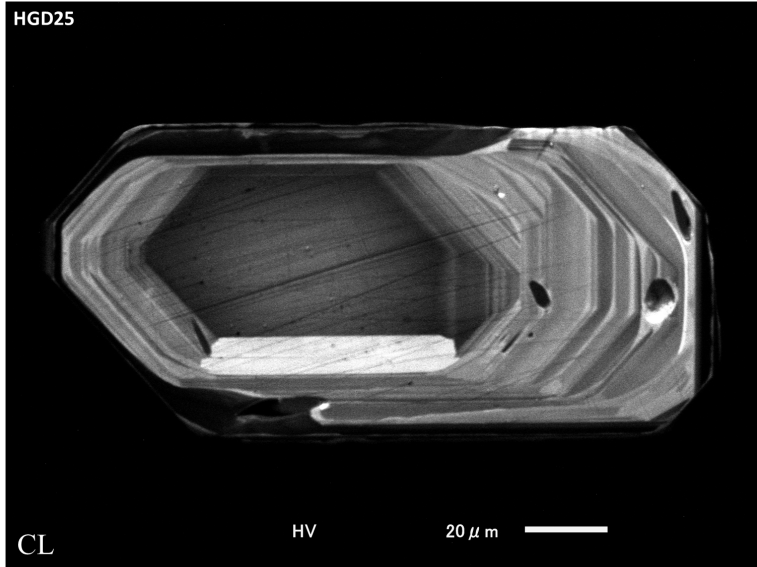
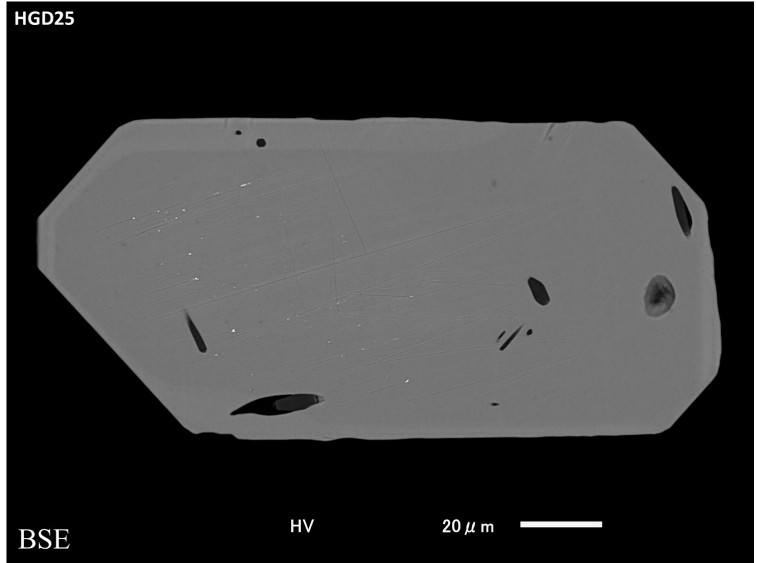


7 μm step



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 162 μm
- Minor axis: 77 μm
- Major axis/Minor axis: 2.1

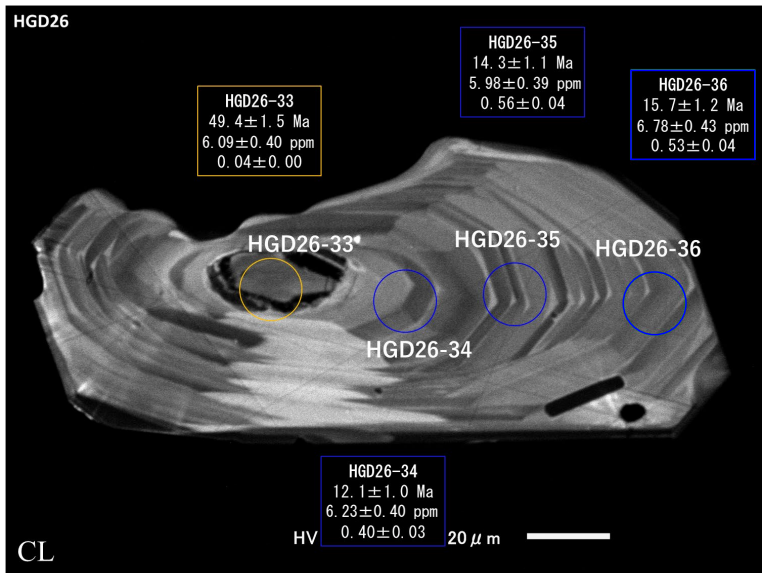
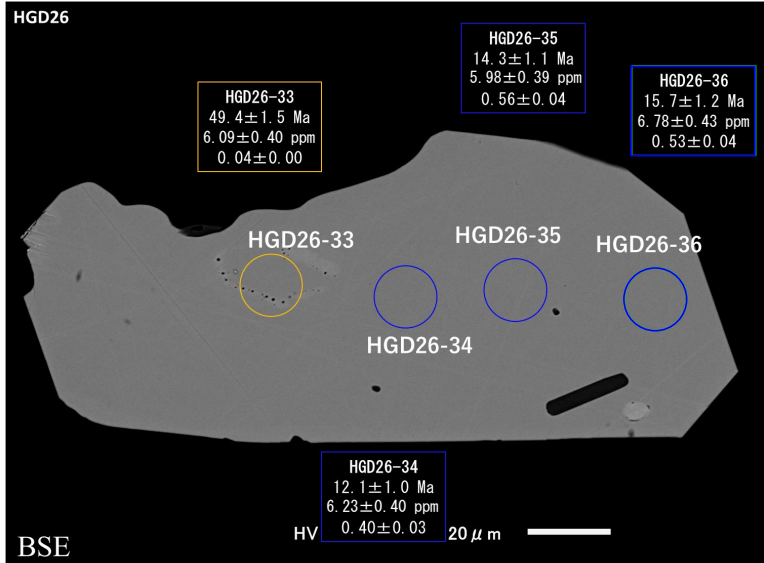
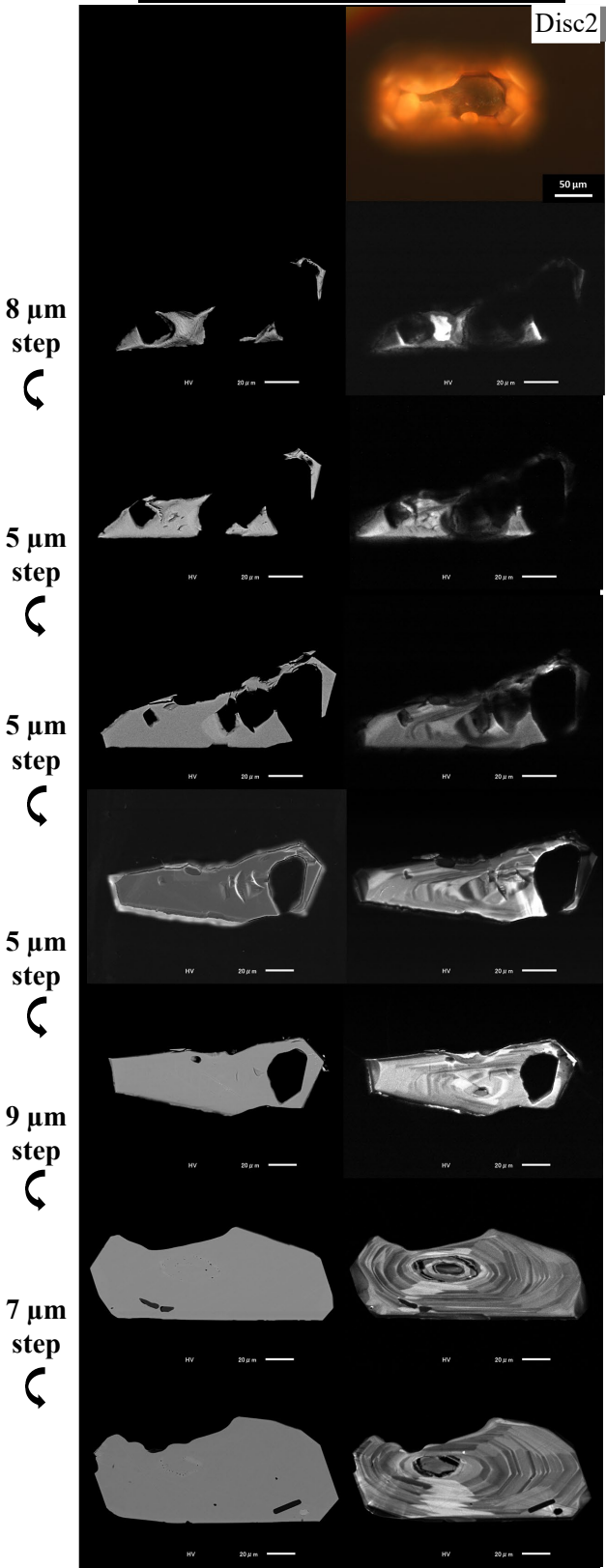
Observed internal texture

- OZ
- CT

Fig. 84 Zircon data of grain No. HGD25

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 174 μm
- Minor axis: 68 μm
- Major axis/Minor axis: 2.5

Observed internal texture

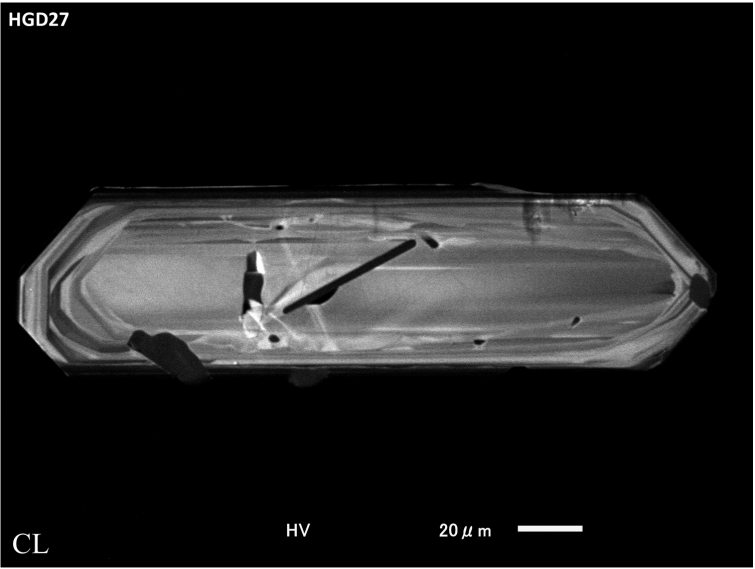
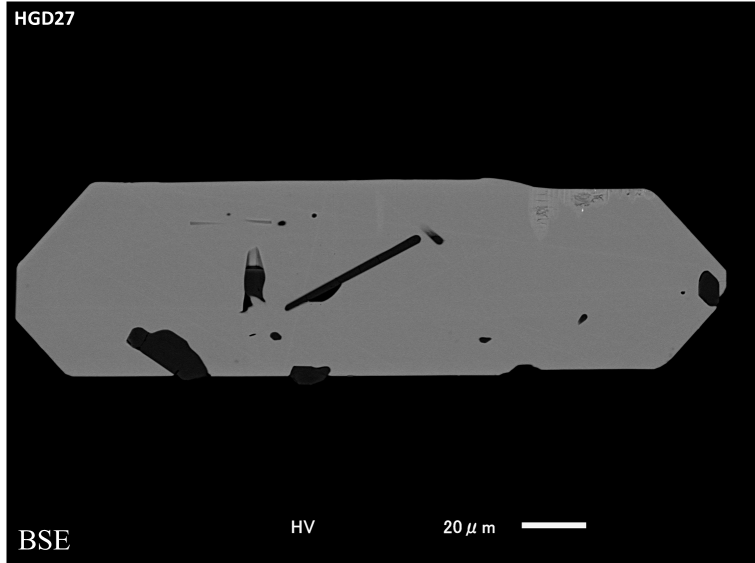
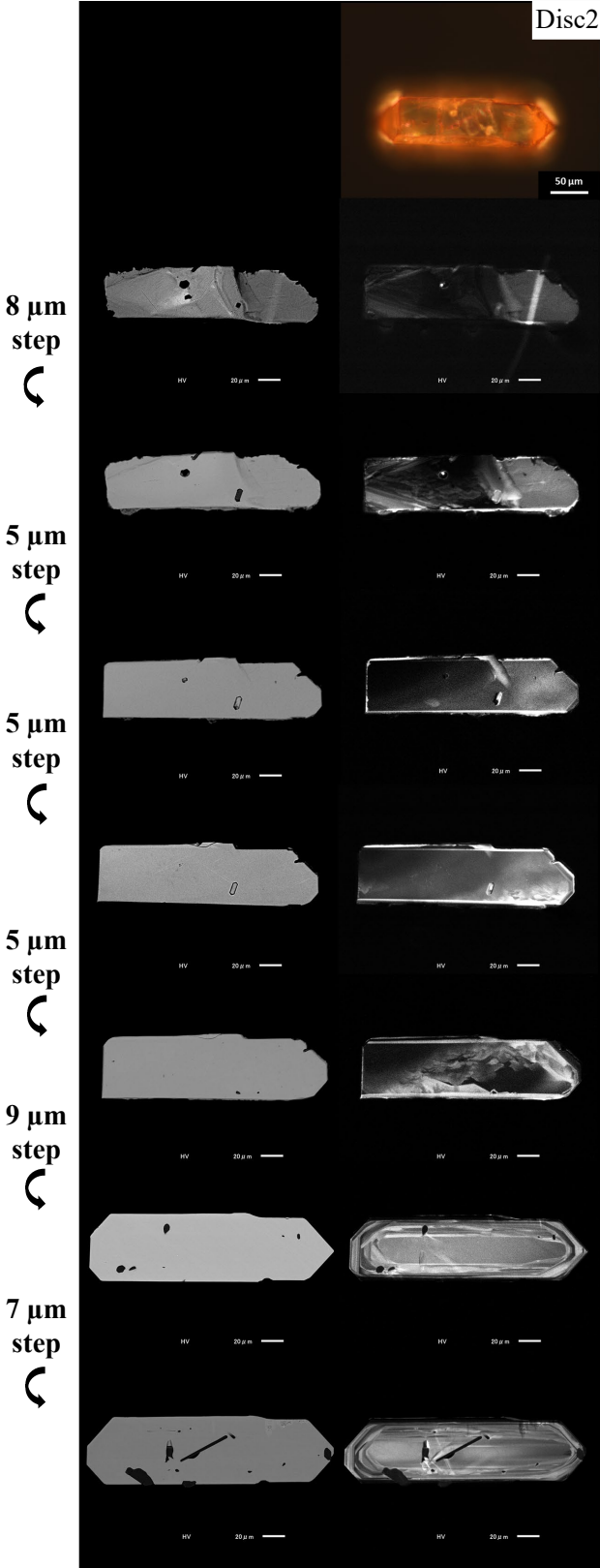
- OZ
- IHC

Fig. 85 Zircon data of grain No. HGD26

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

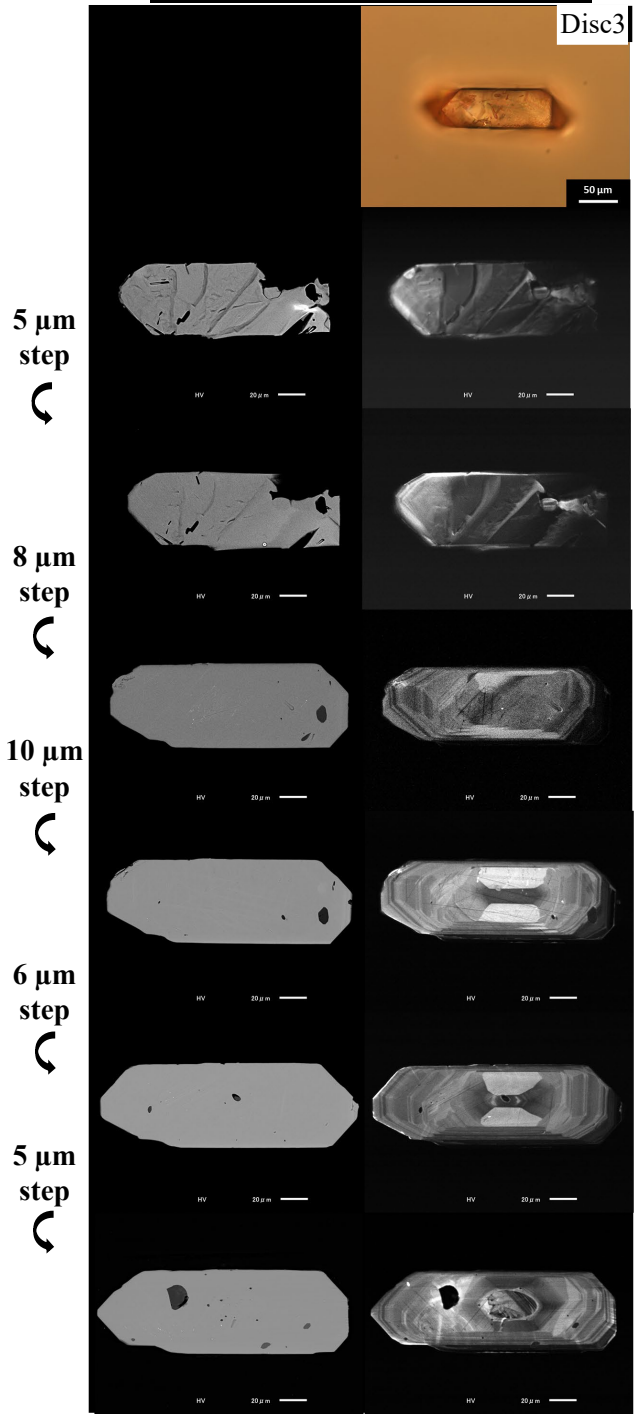
- Type {100}
- Major axis: 226 μm
- Minor axis: 62 μm
- Major axis/Minor axis: 3.6

Observed internal texture

- OZ
- PT
- IHC
- CT

Fig. 86 Zircon data of grain No. HGD27

Morphological observation and CL observation for multi-layers

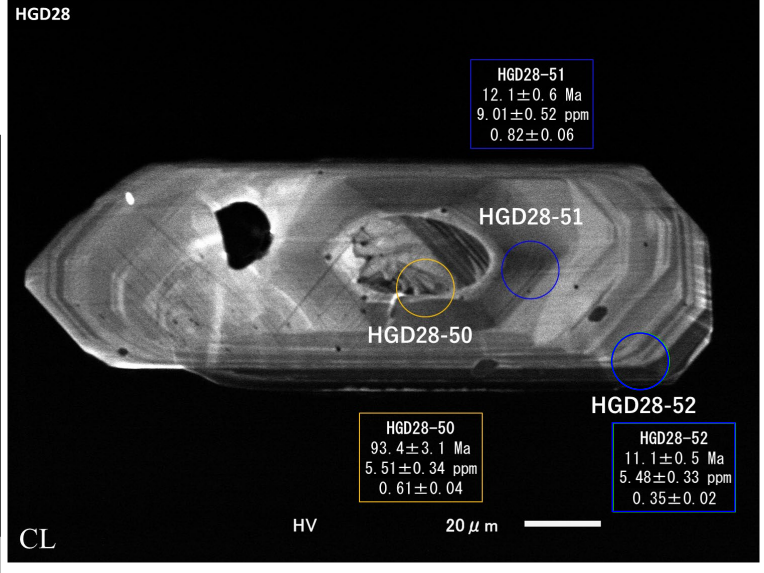
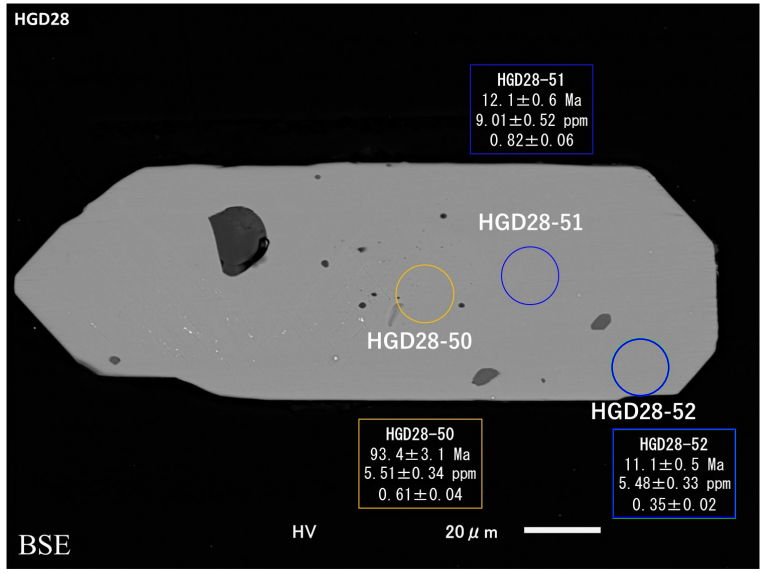


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {100}
- Major axis: 194 μm
- Minor axis: 56 μm
- Major axis/Minor axis: 3.4

Observed internal texture

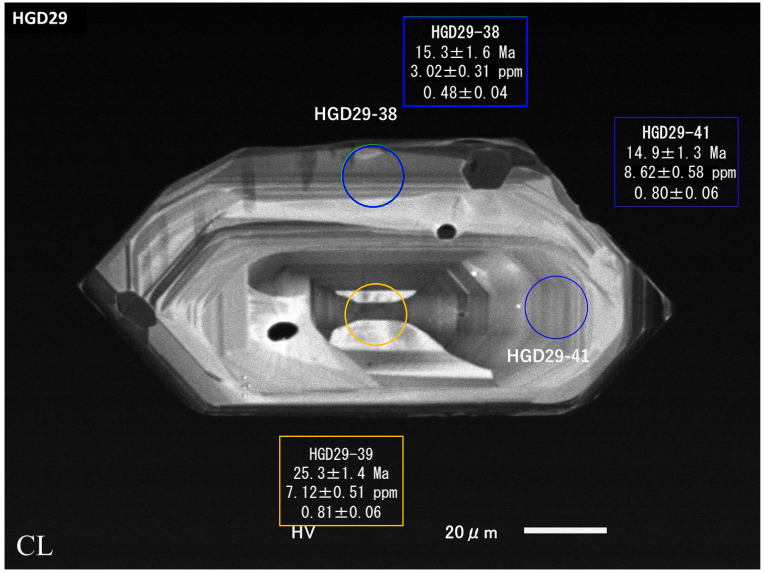
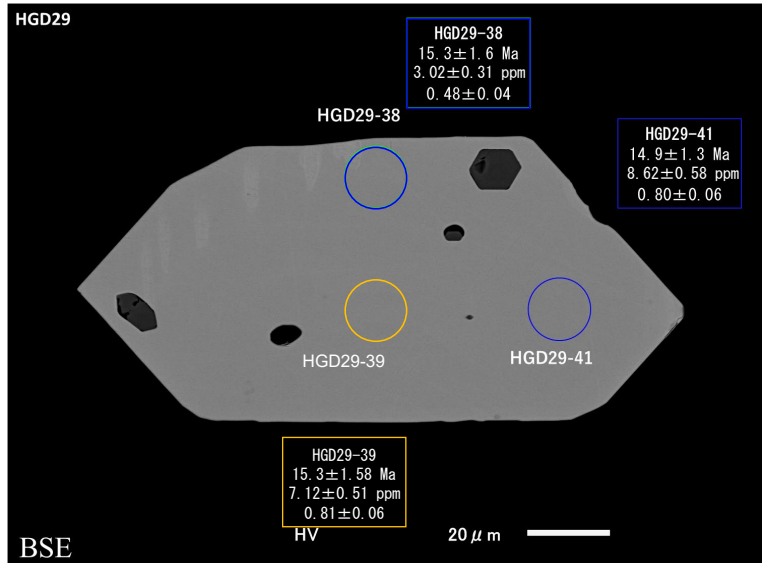
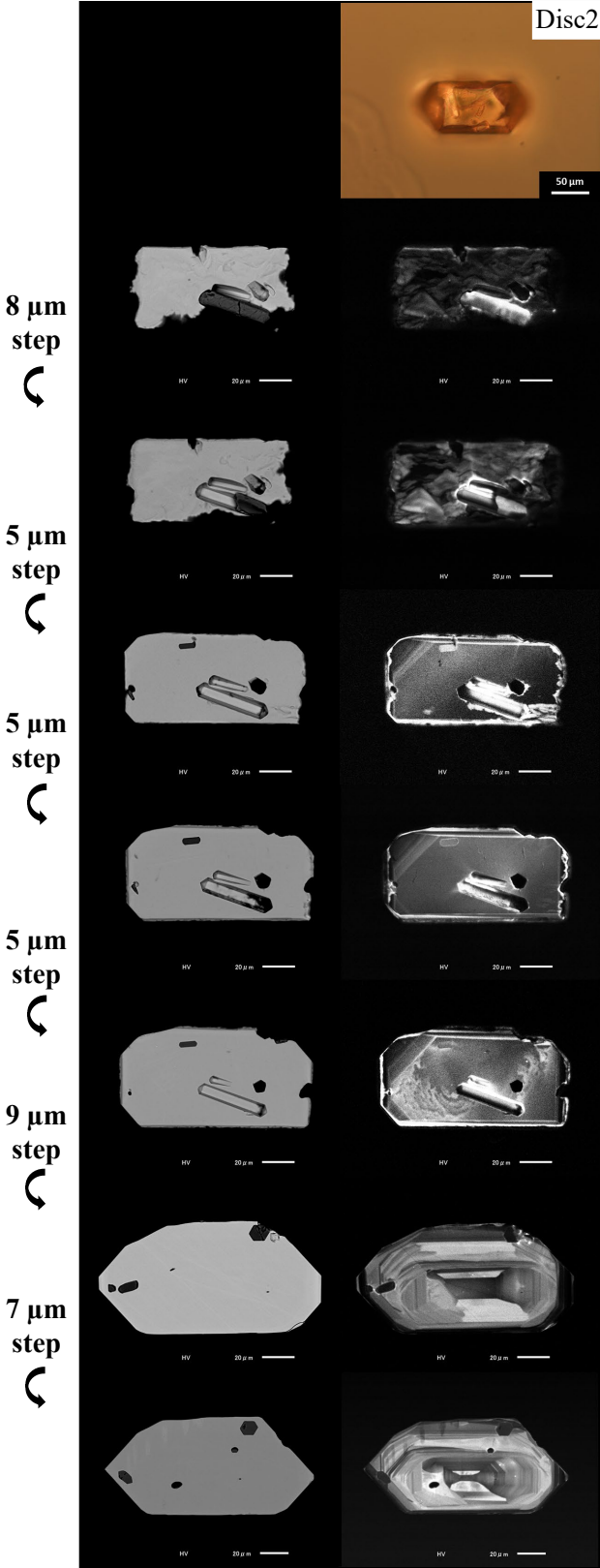
- OZ
- PT
- IHC

Fig. 87 Zircon data of grain No. HGD28

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

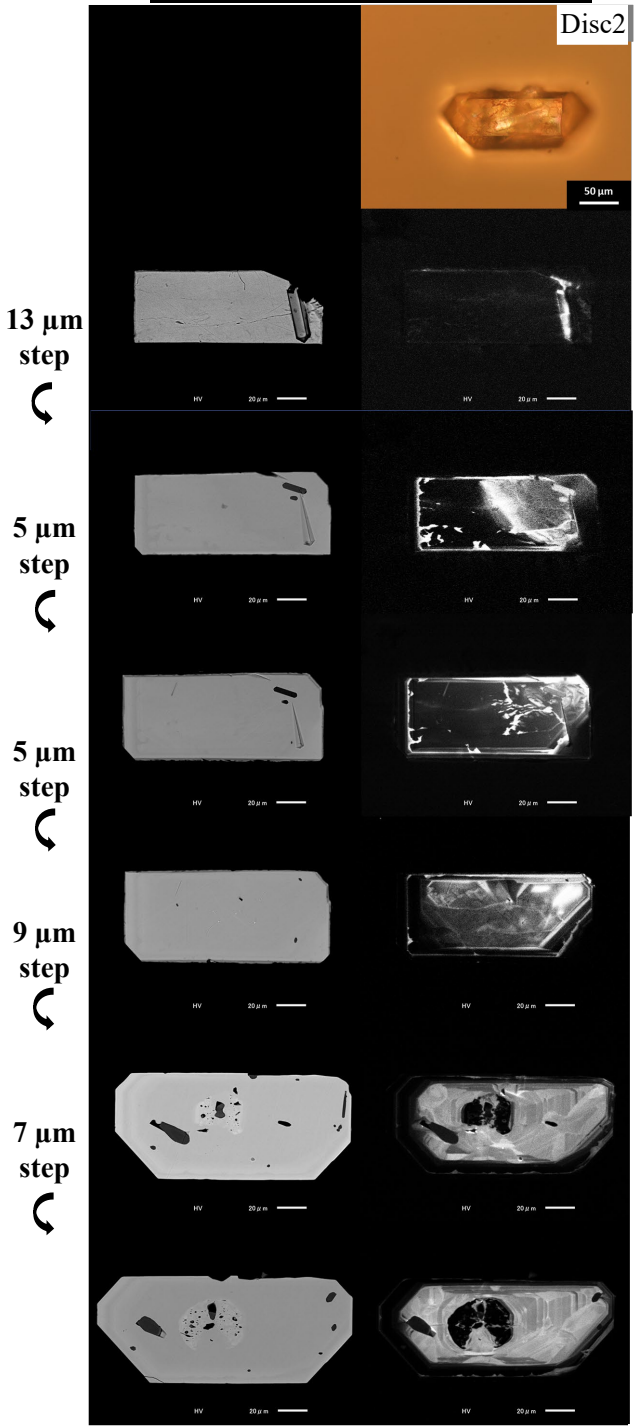
- Type {100}
- Major axis: 142 μm
- Minor axis: 70 μm
- Major axis/Minor axis: 2.0

Observed internal texture

- OZ
- PT

Fig. 88 Zircon data of grain No. HGD29

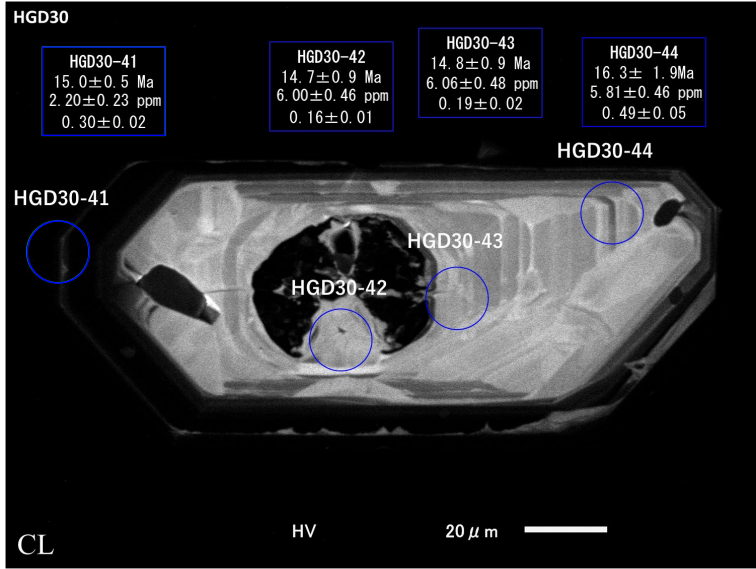
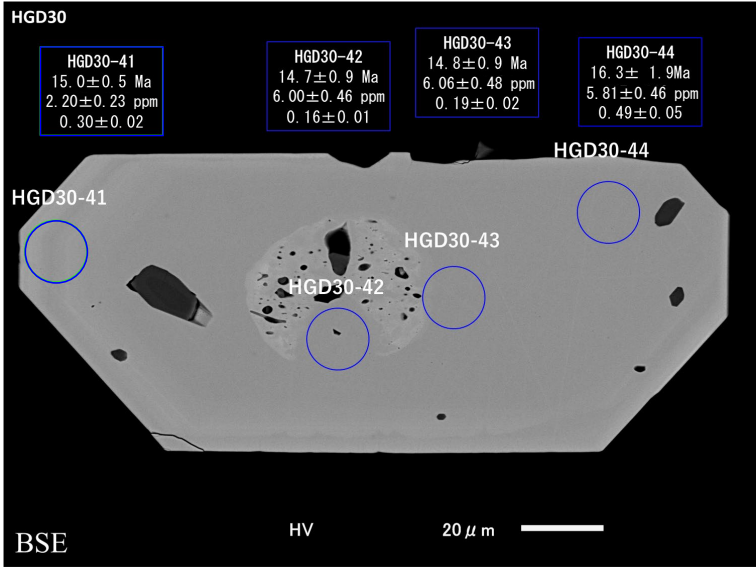
Morphological observation and CL observation for multi-layers



BSE images

CL images

Analysis spots for U-Pb age and Ti conc., Th/U ratio



Morphological description

- Type {100}
- Major axis: 187 μm
- Minor axis: 75 μm
- Major axis/Minor axis: 2.5

Observed internal texture

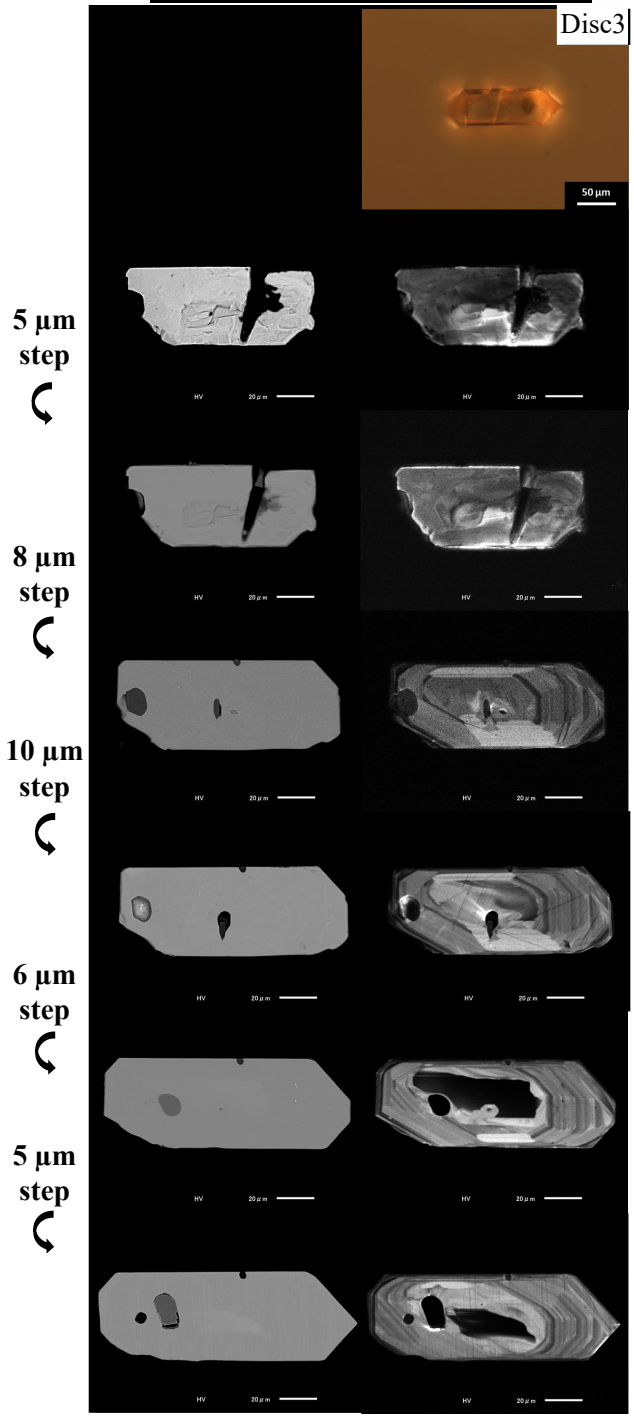
- OZ
- PT
- CT

Fig. 89 Zircon data of grain No. HGD30

Morphological observation and CL observation for multi-layers

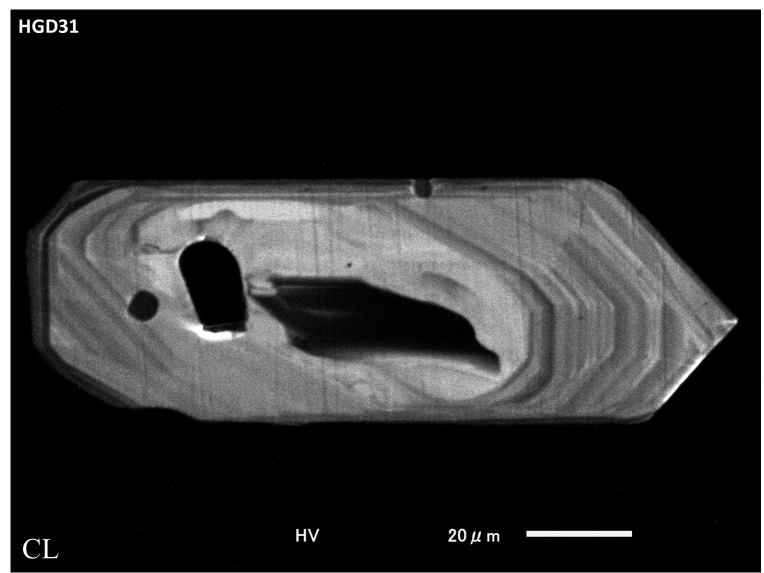
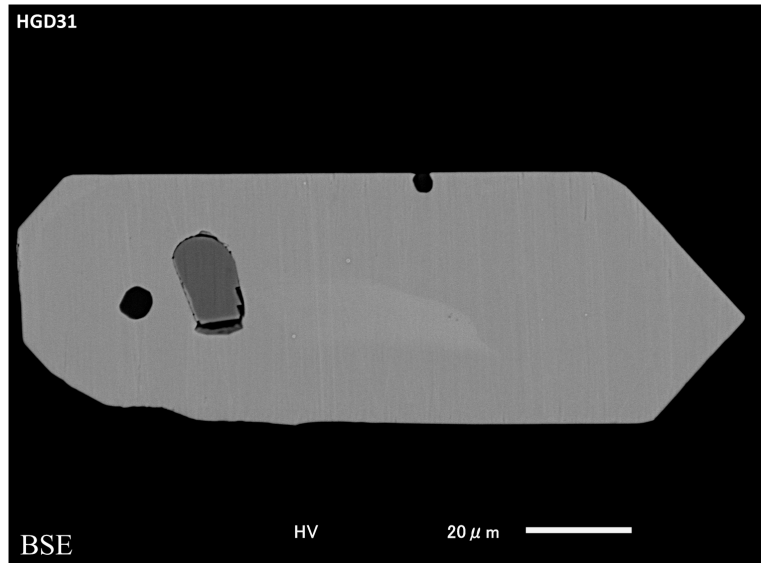
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 148 μm
- Minor axis: 48 μm
- Major axis/Minor axis: 3.1

Observed internal texture

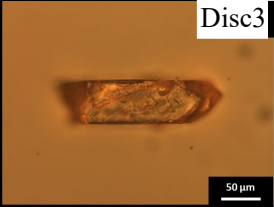
- OZ
- PT

Fig. 90 Zircon data of grain No. HGD31

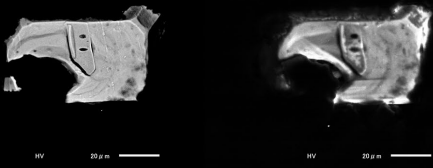
Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

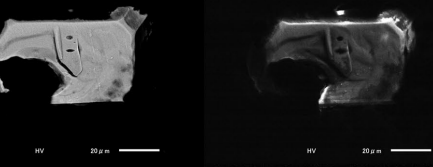
OZ :  PT :  IHC :  CT : 



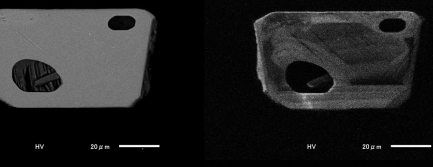
5 μm step



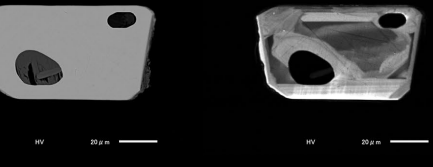
8 μm step



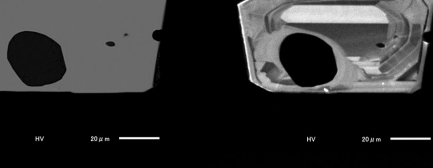
10 μm step



6 μm step



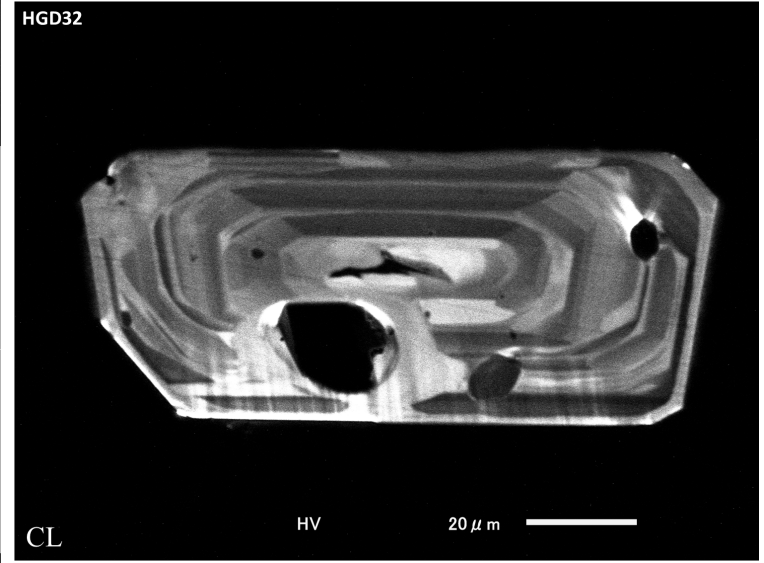
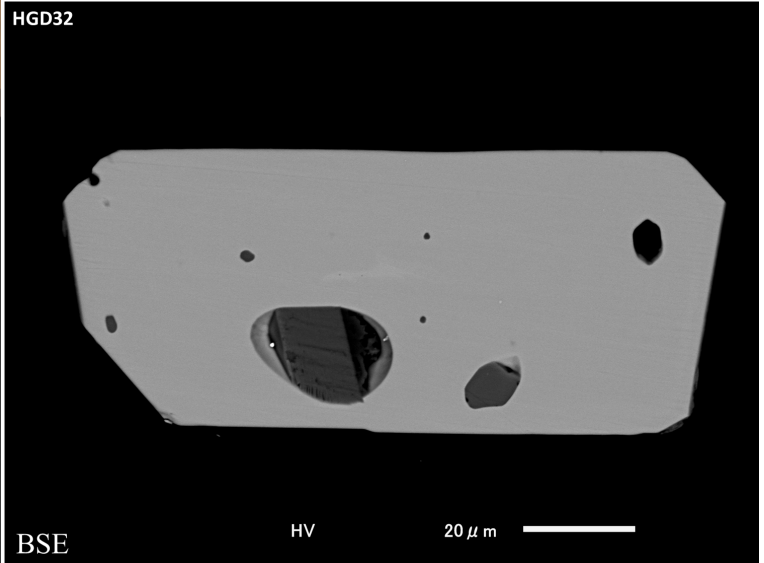
5 μm step



BSE images

CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core



Morphological description

- Type –not classified
- Major axis: 207 μm
- Minor axis: 57 μm
- Major axis/Minor axis: 3.6

Observed internal texture

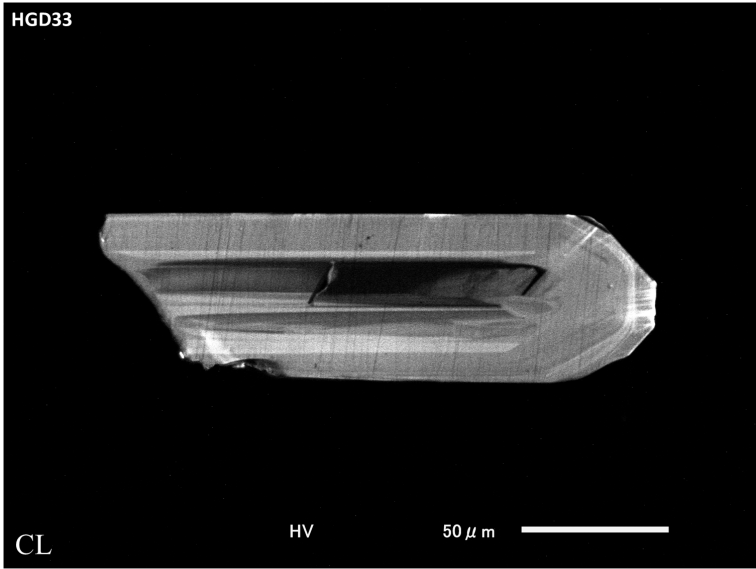
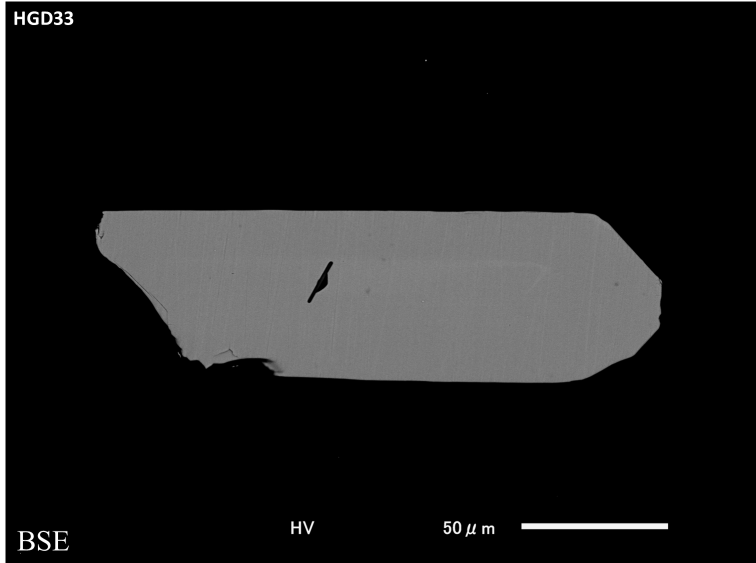
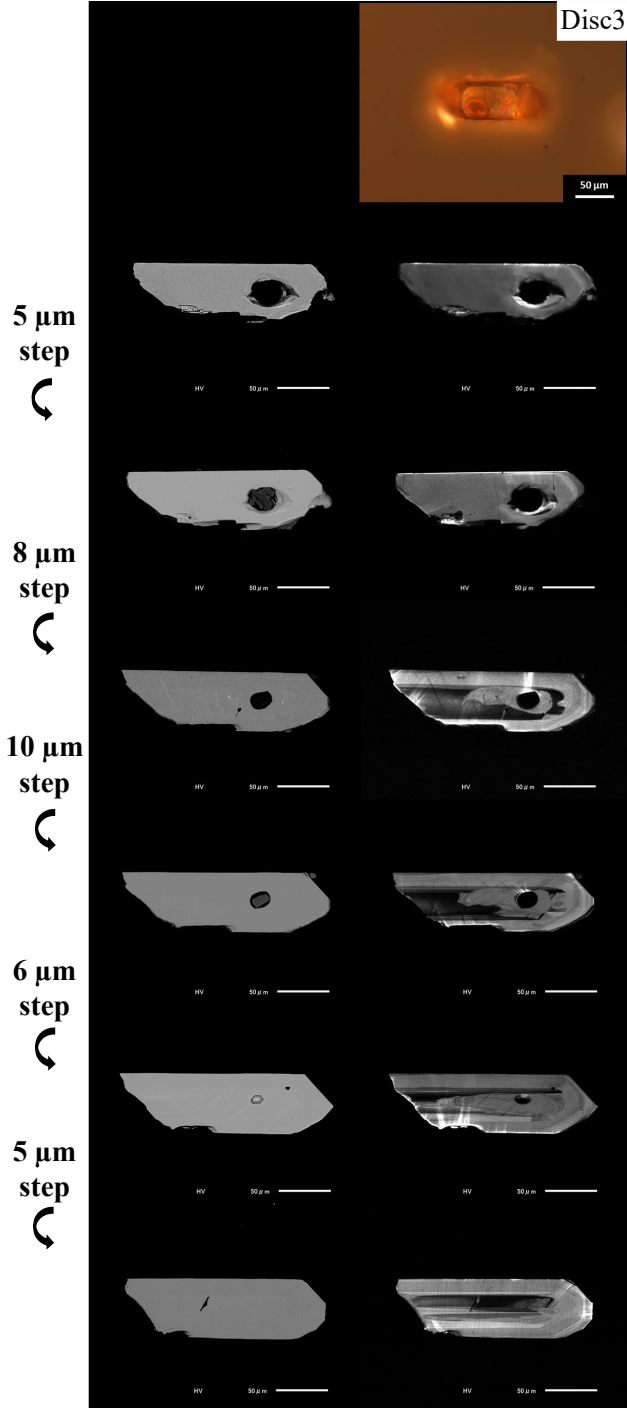
- OZ
- PT

Fig. 91 Zircon data of grain No. HGD32

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type –not classified
- Major axis: 134 μm
- Minor axis: 51 μm
- Major axis/Minor axis: 2.6

Observed internal texture

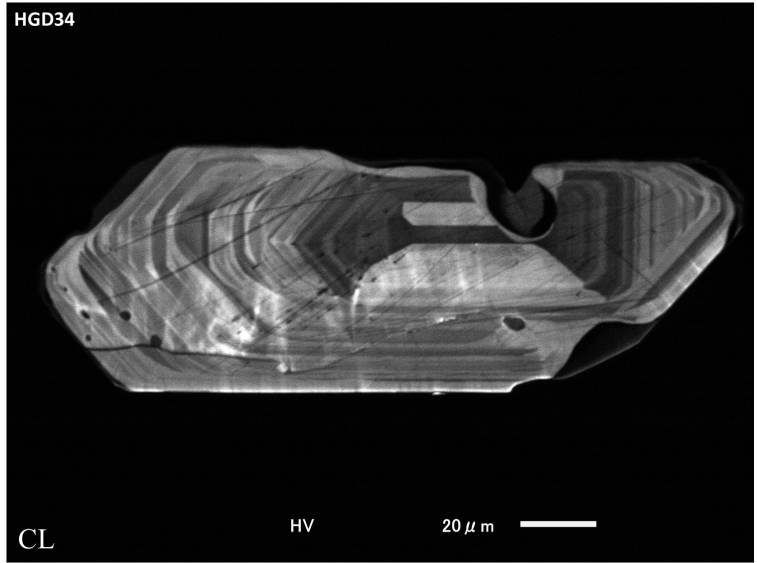
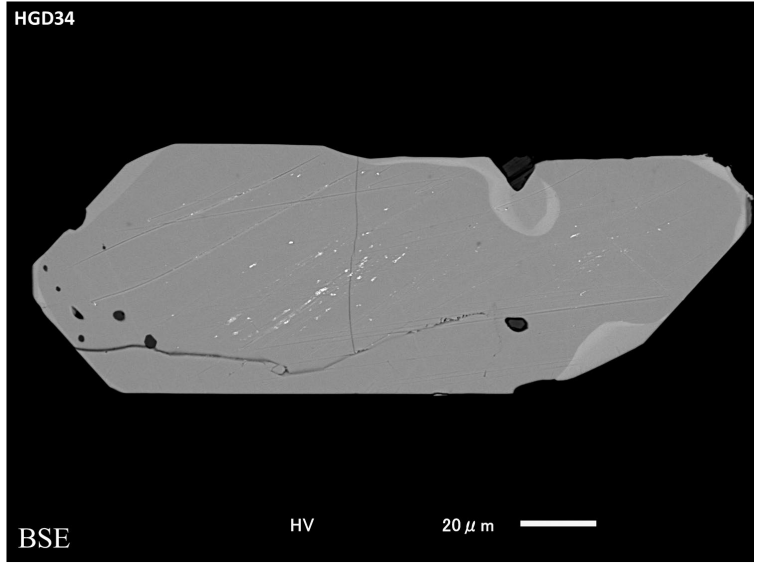
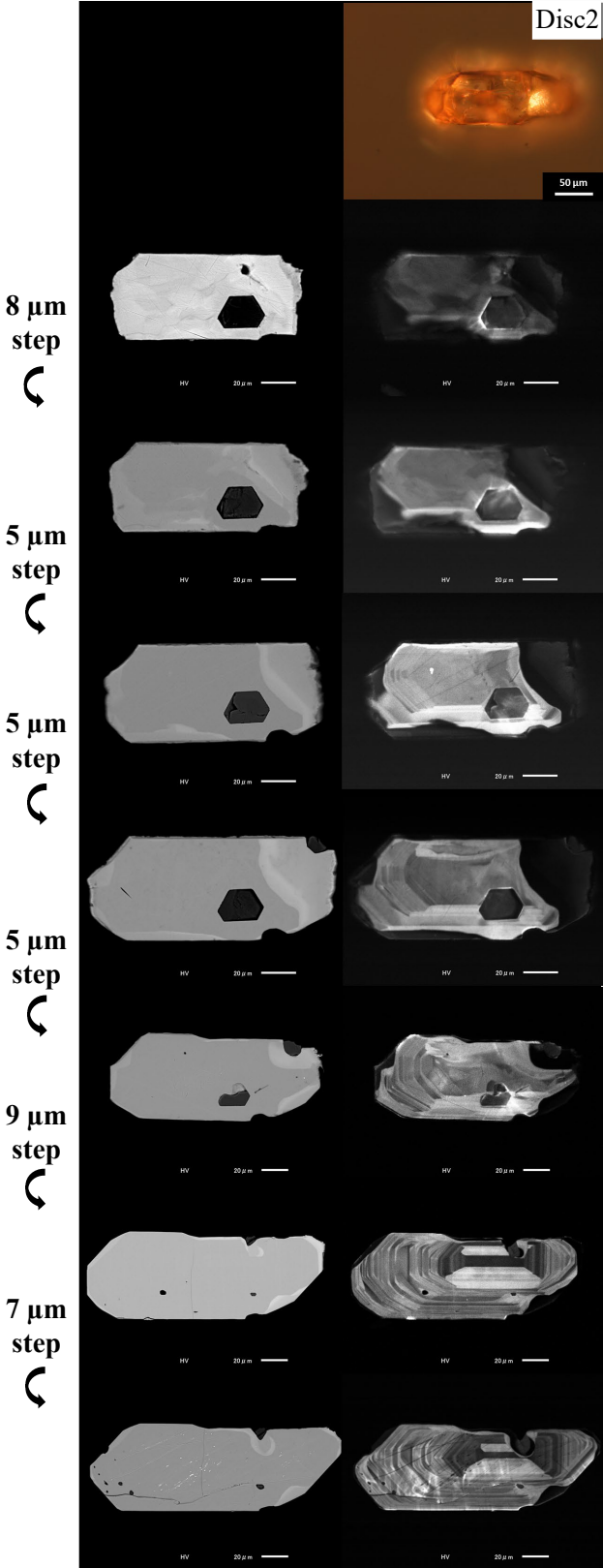
- OZ
- PT

Fig. 92 Zircon data of grain No. HGD33

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

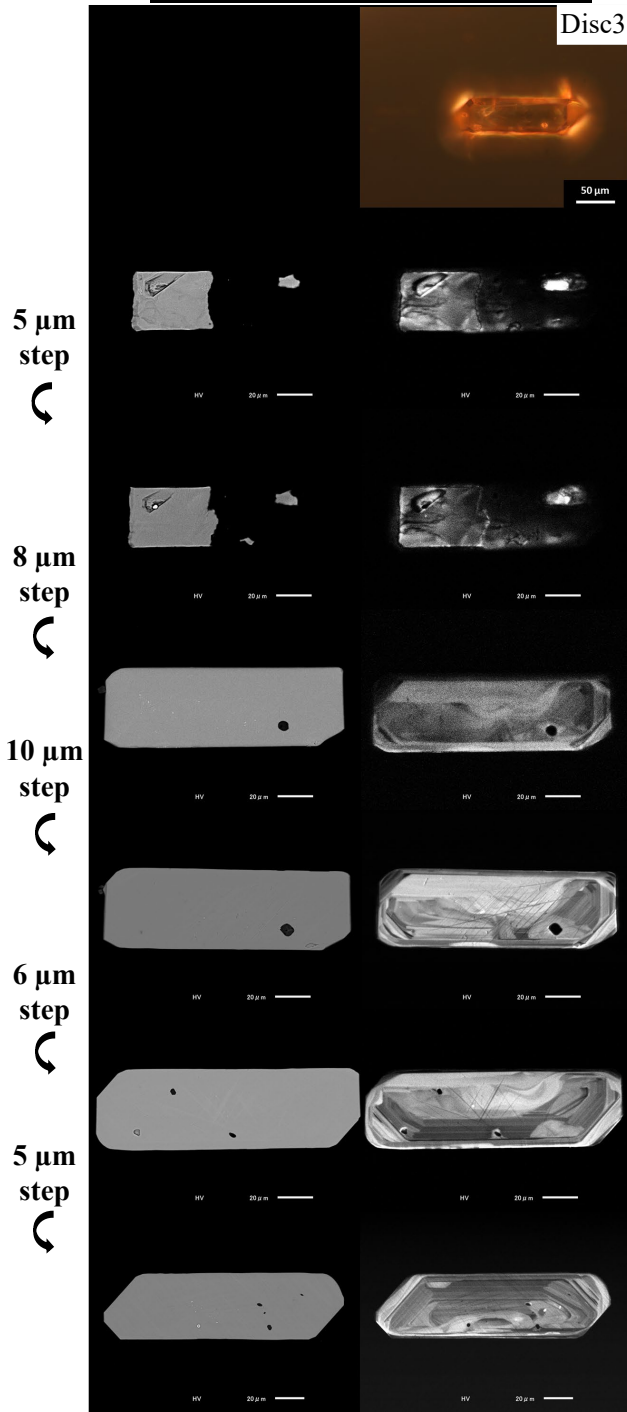
- Type {100}
- Major axis: 190 μm
- Minor axis: 71 μm
- Major axis/Minor axis: 2.7

Observed internal texture

- OZ
- PT

Fig. 93 Zircon data of grain No. HGD34

Morphological observation and CL observation for multi-layers

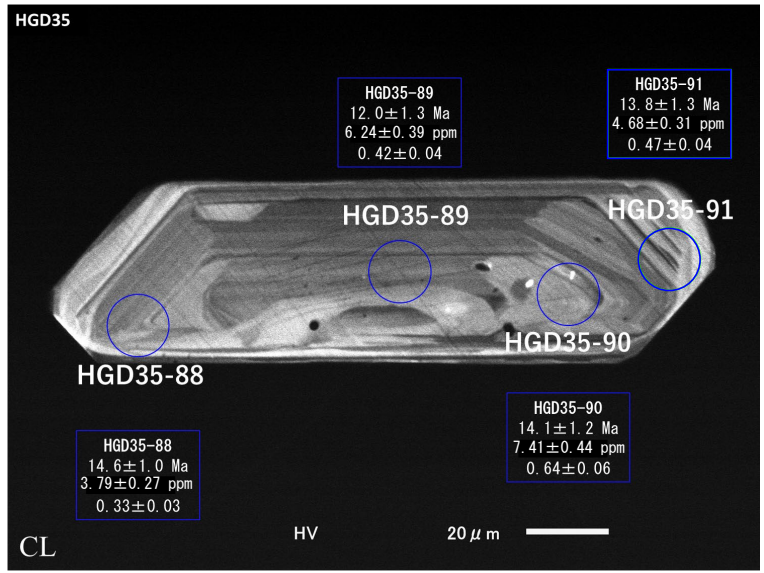
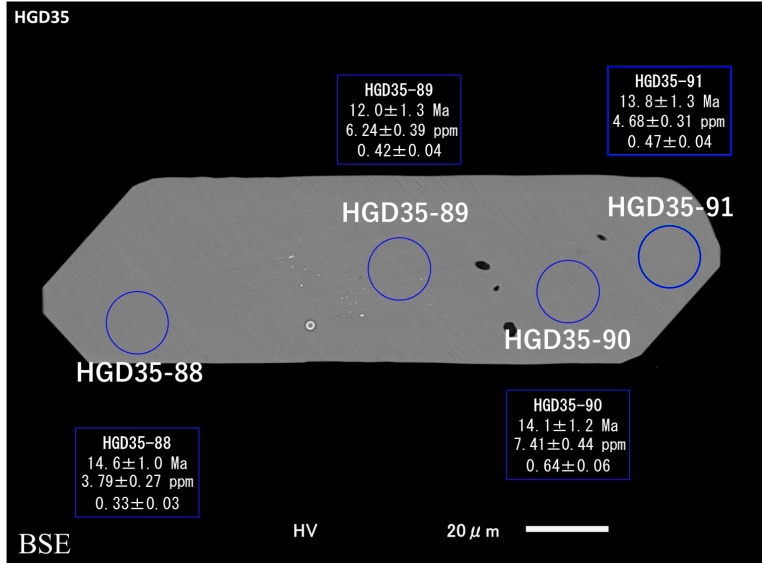


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {100}
- Major axis: 165 μm
- Minor axis: 47 μm
- Major axis/Minor axis: 3.5

Observed internal texture

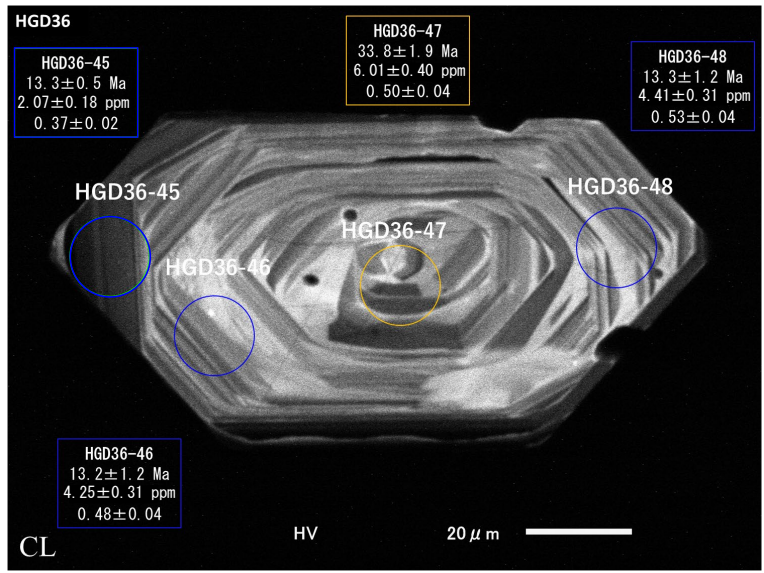
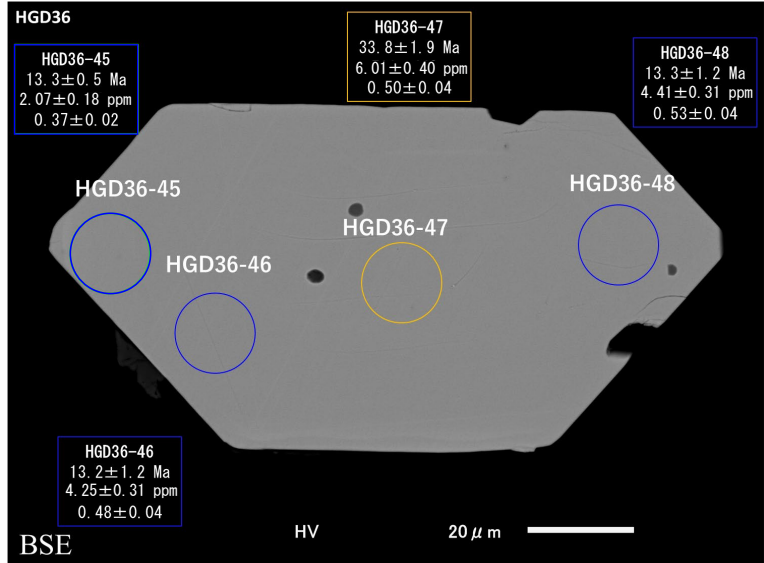
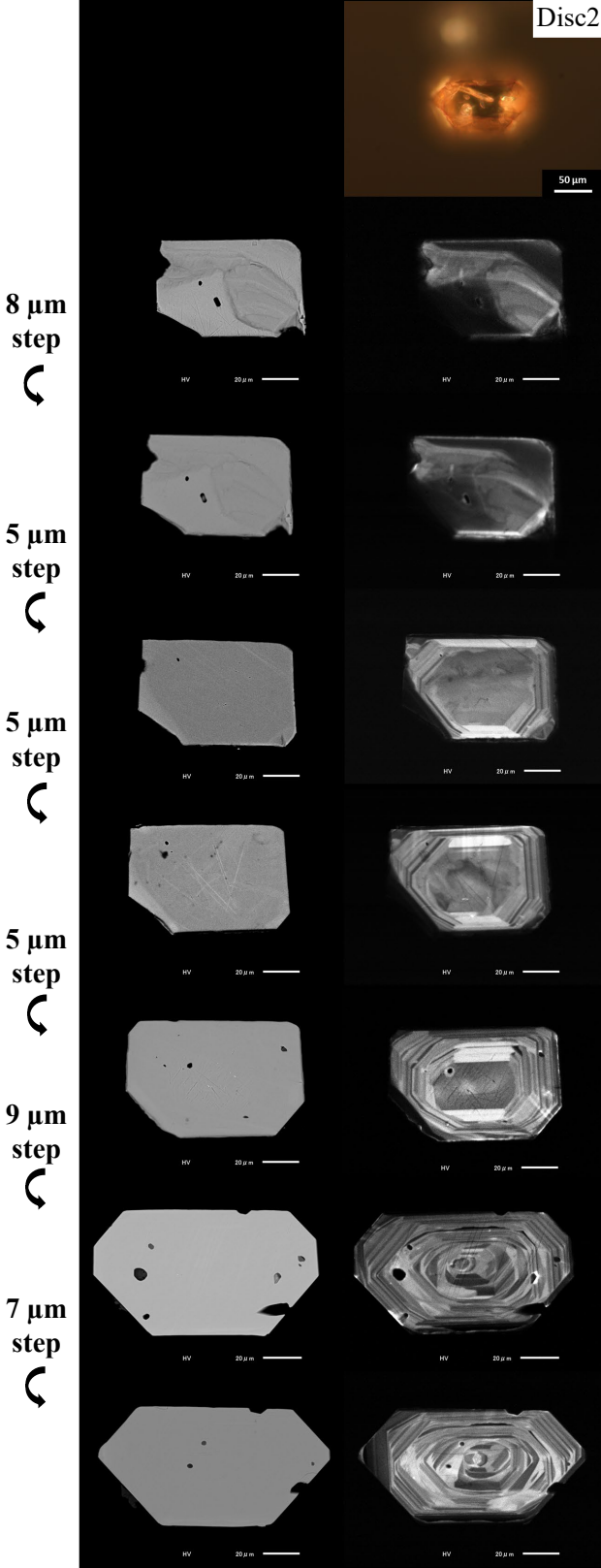
- OZ
- PT

Fig. 94 Zircon data of grain No. HGD35

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 124 μm
- Minor axis: 65 μm
- Major axis/Minor axis: 1.9

Observed internal texture

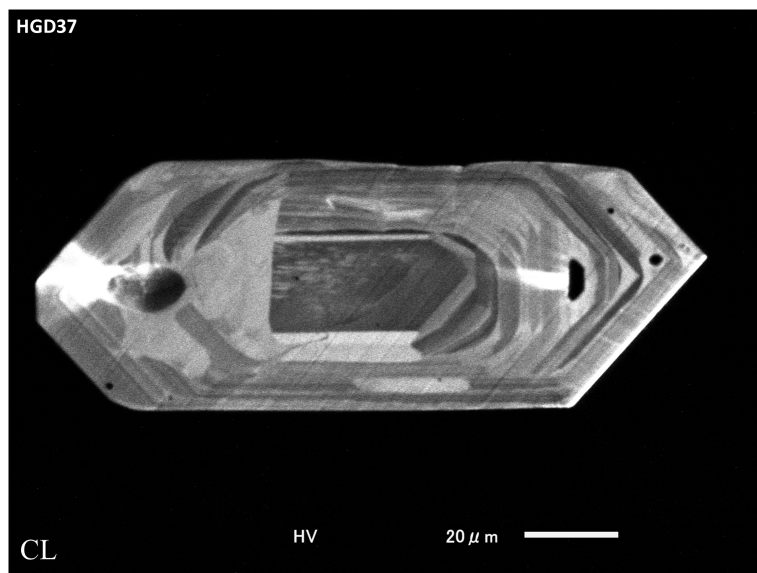
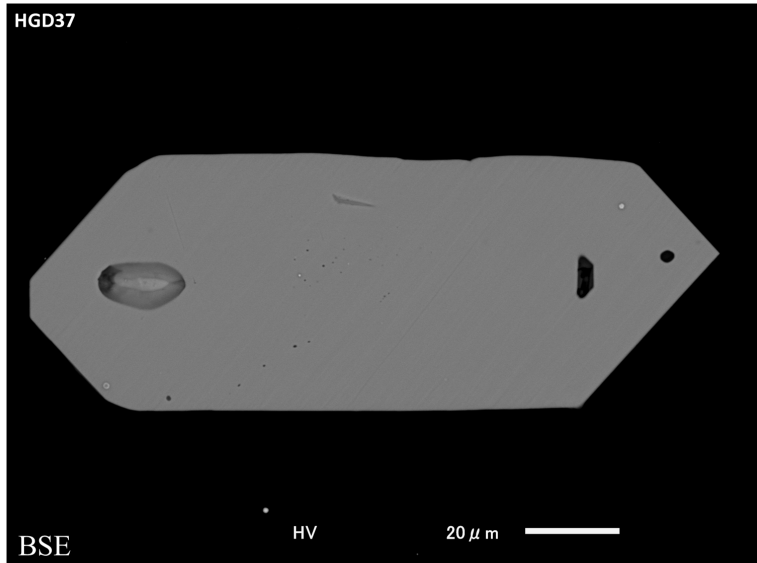
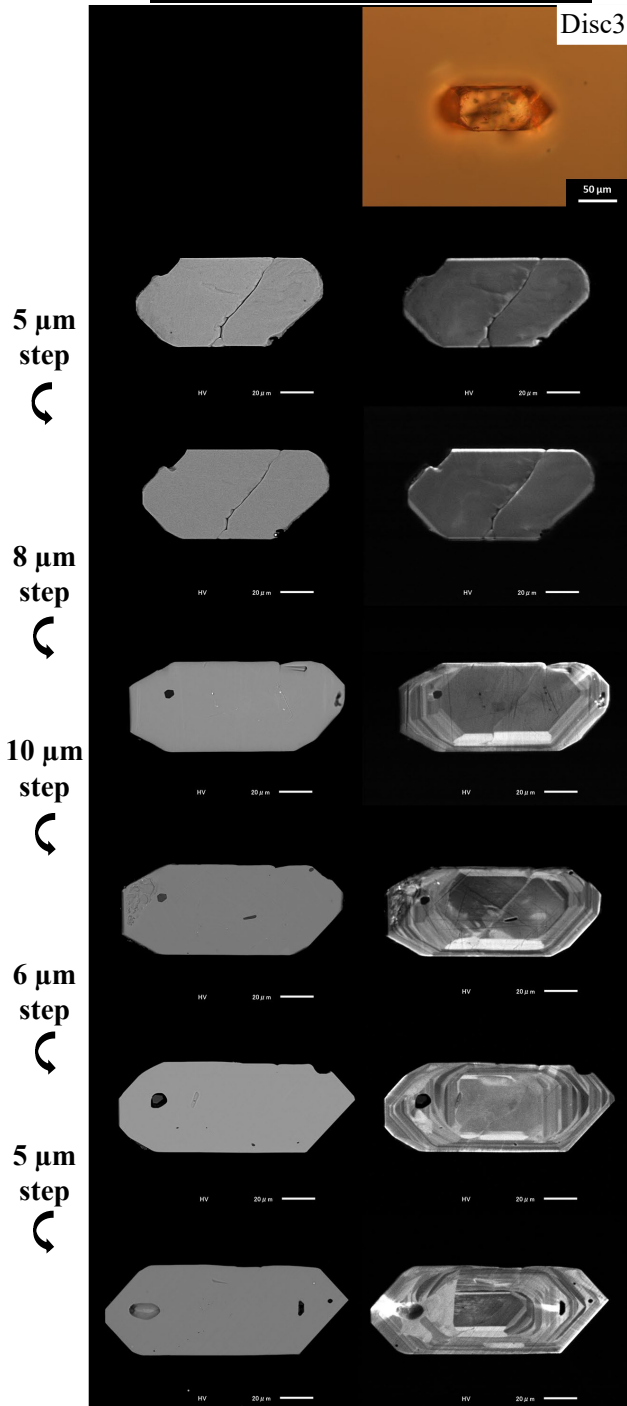
- OZ
- PT
- IHC

Fig. 95 Zircon data of grain No. HGD36

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

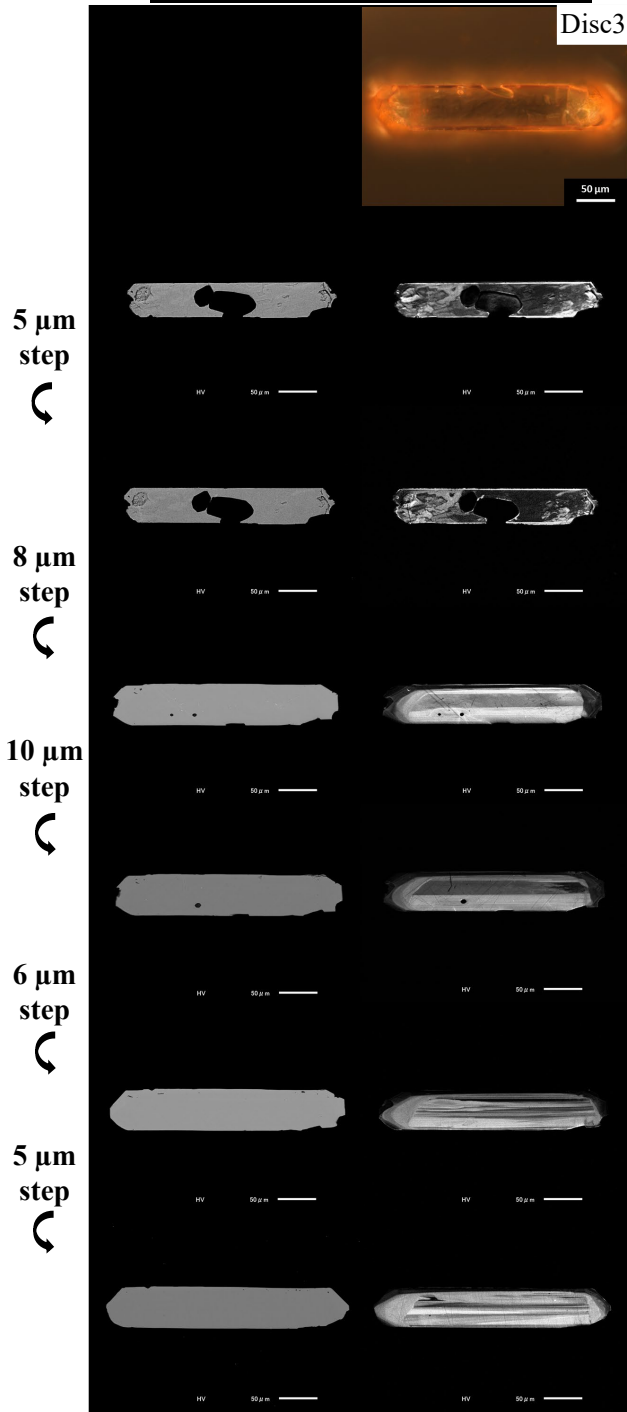
- Type {100}
- Major axis: 148 μm
- Minor axis: 59 μm
- Major axis/Minor axis: 2.5

Observed internal texture

- OZ
- PT

Fig. 96 Zircon data of grain No. HGD37

Morphological observation and CL observation for multi-layers

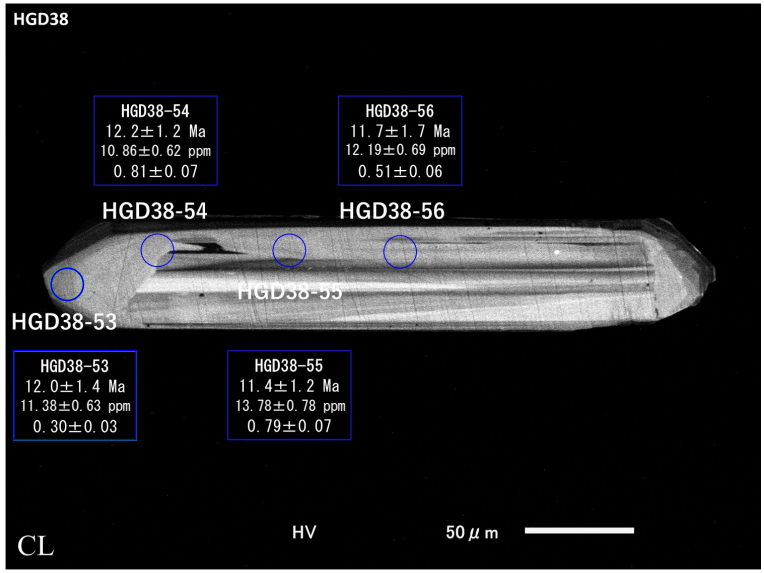
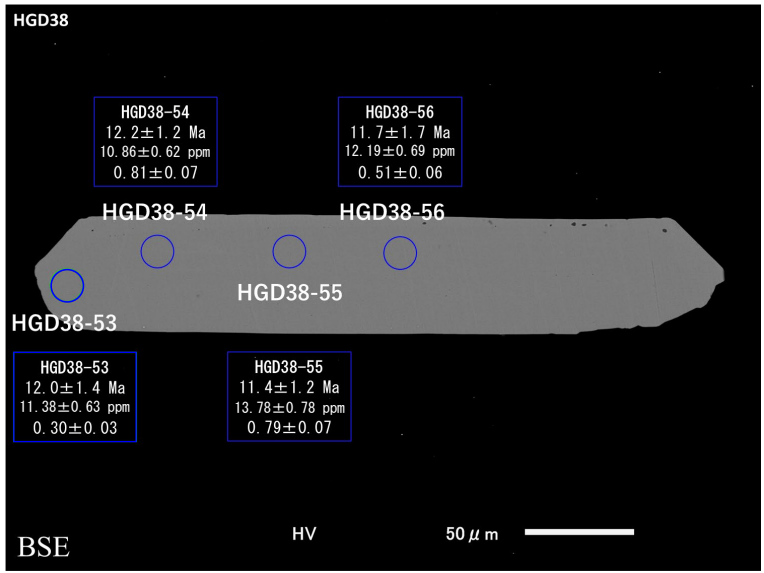


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : ○ PT : ○ IHC : ○ CT : ○



Morphological description

- Type –not classified
- Major axis: 316 μm
- Minor axis: 59 μm
- Major axis/Minor axis: 5.4

Observed internal texture

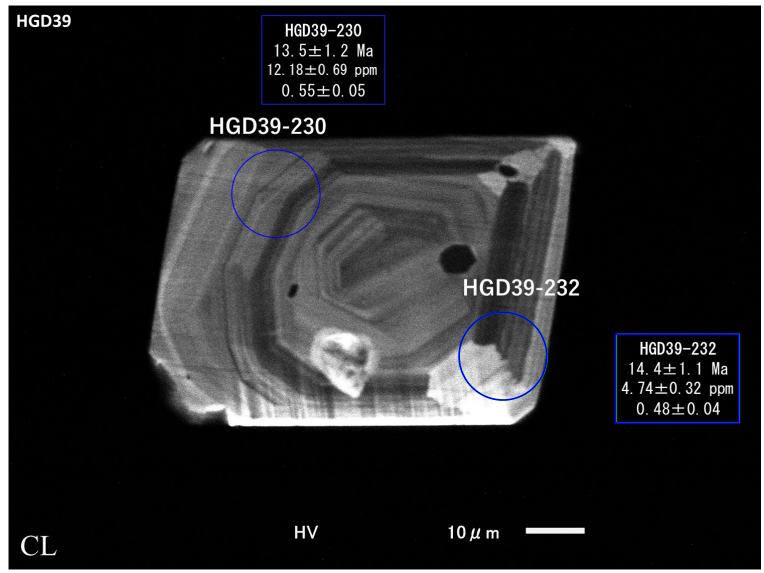
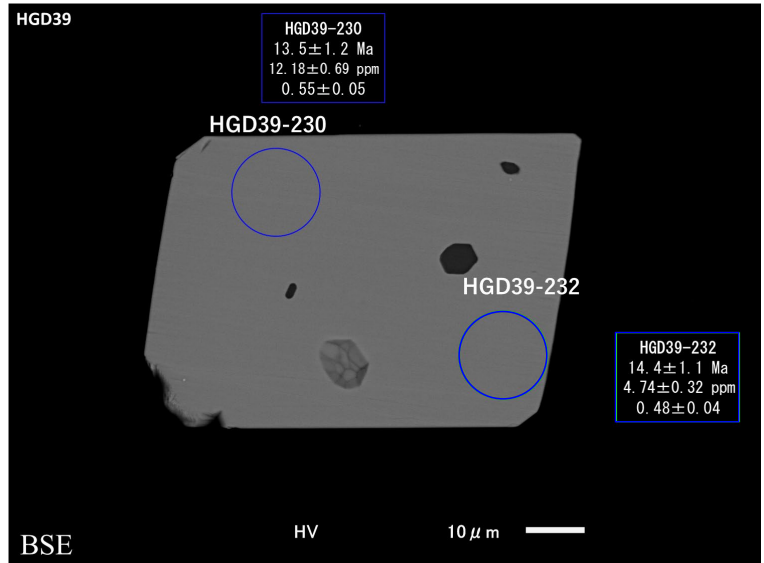
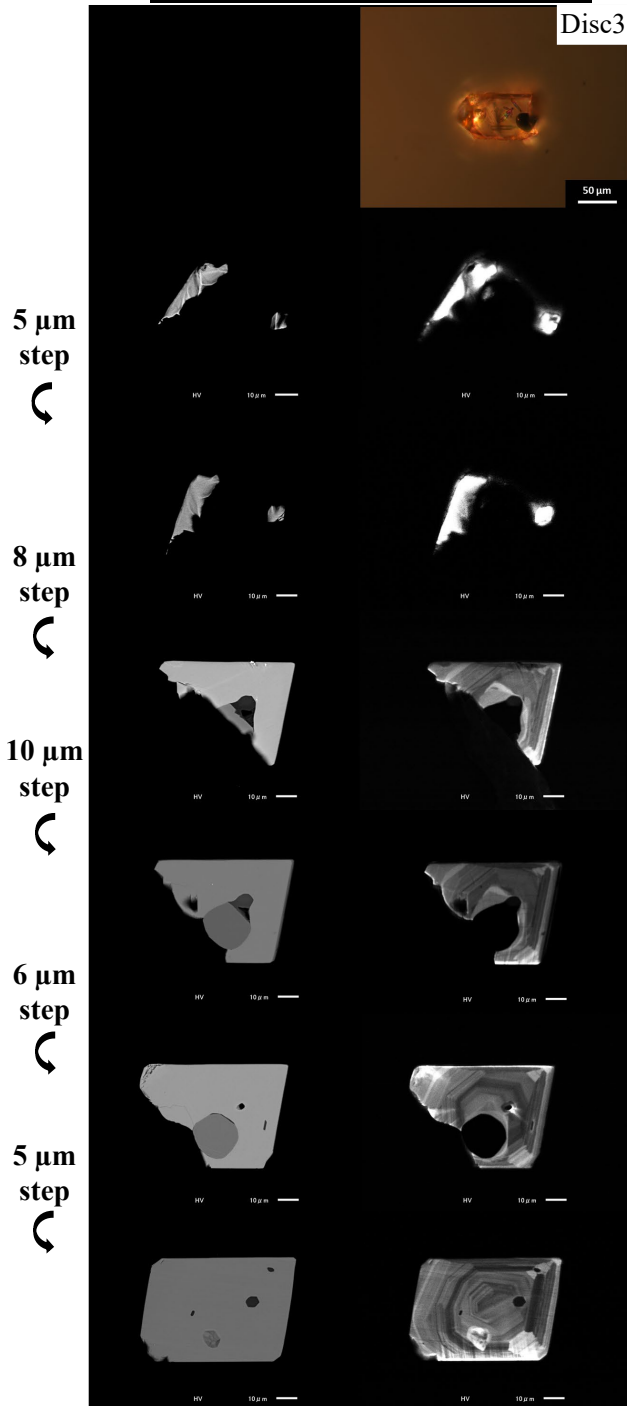
- OZ
- PT
- CT

Fig. 97 Zircon data of grain No. HGD38

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {100}
- Major axis: 105 μm
- Minor axis: 60 μm
- Major axis/Minor axis: 1.8

Observed internal texture

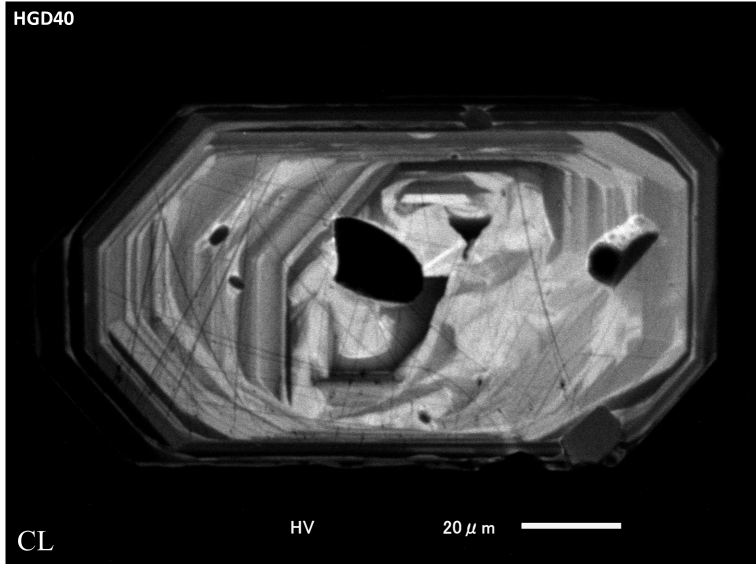
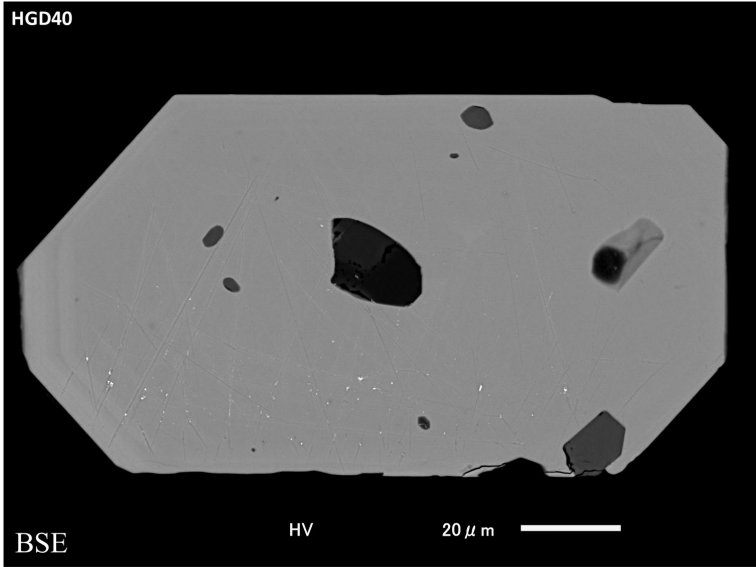
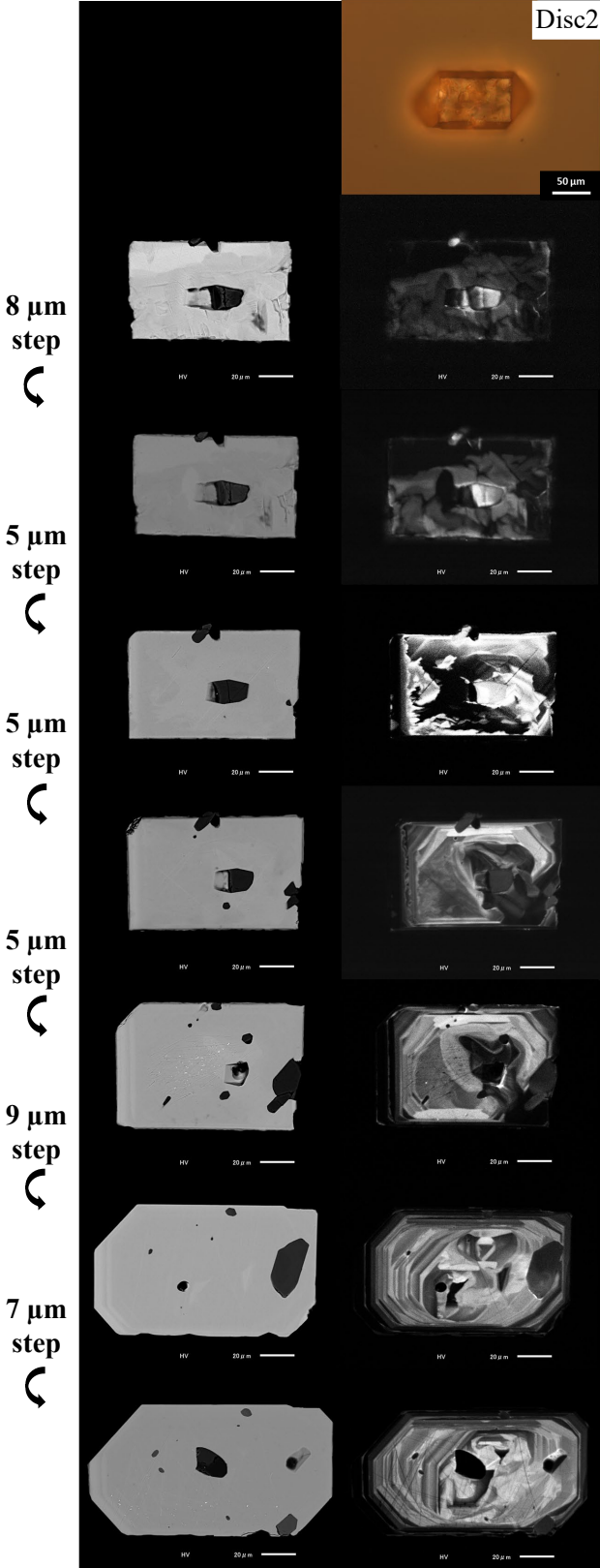
- OZ
- PT

Fig. 98 Zircon data of grain No. HGD39

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 154 μm
- Minor axis: 78 μm
- Major axis/Minor axis: 2.0

Observed internal texture

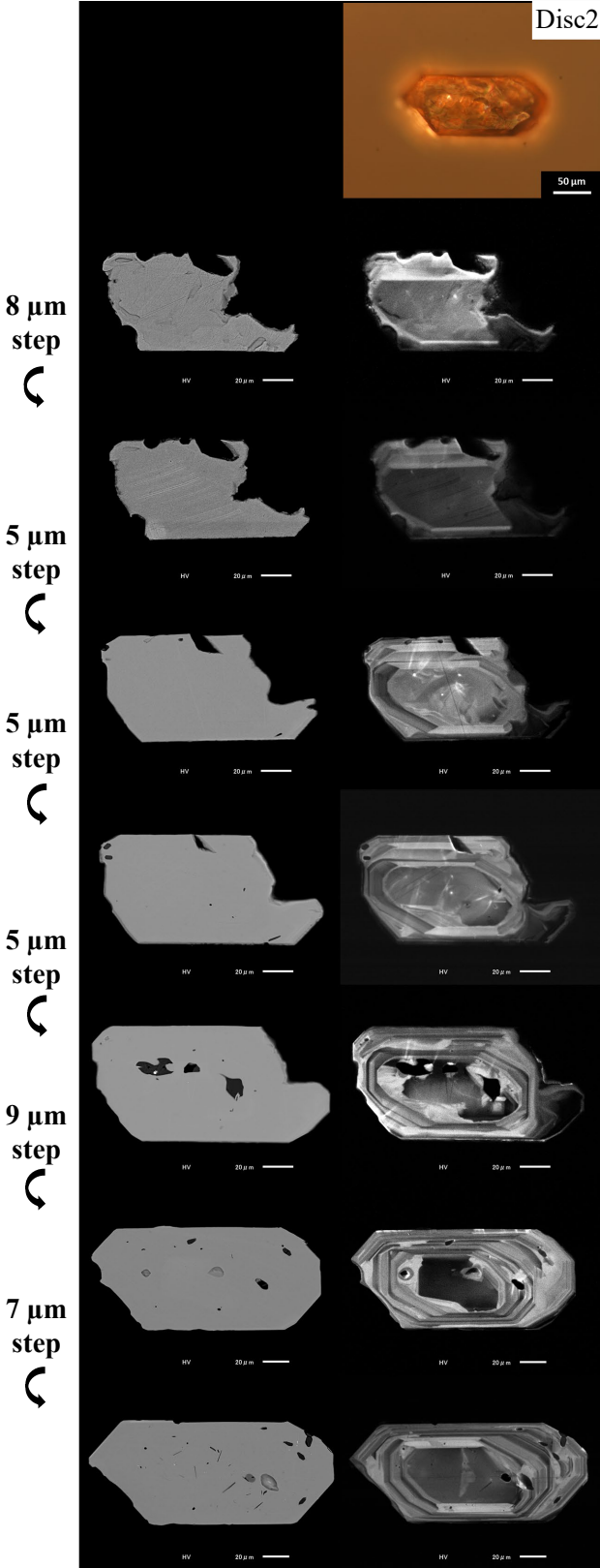
- OZ
- PT
- CT

Fig. 99 Zircon data of grain No. HGD40

Morphological observation and CL observation for multi-layers

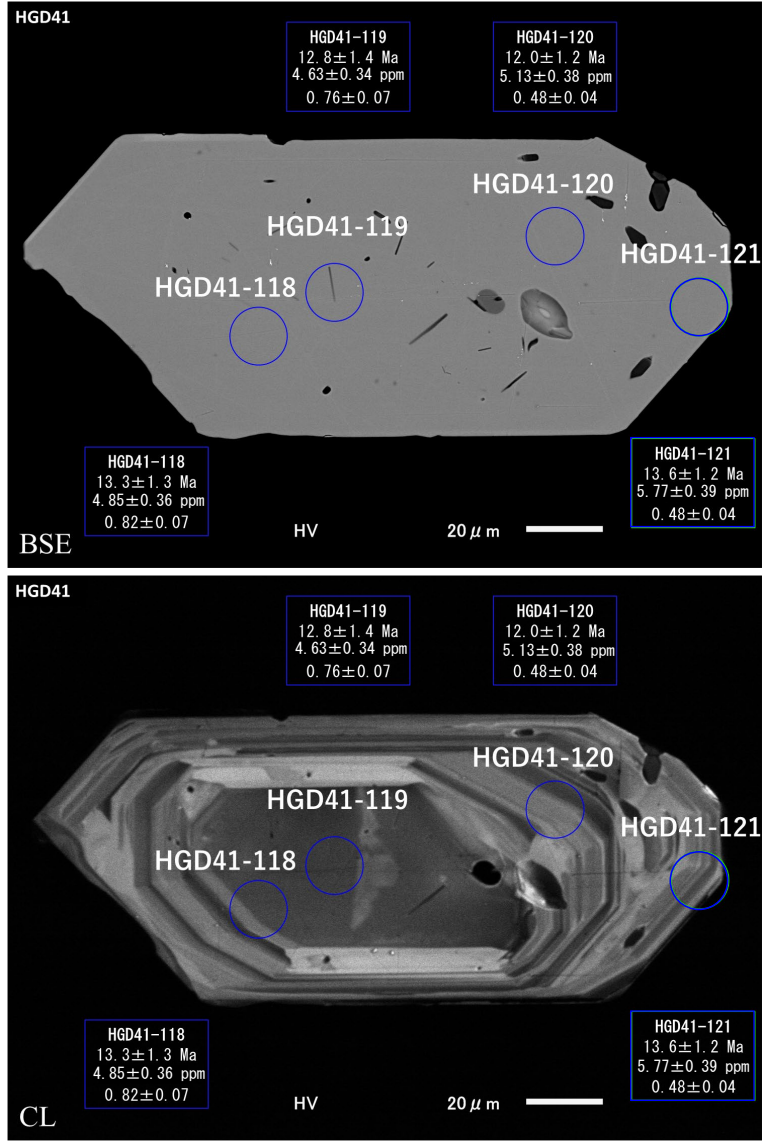
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type –not classified
- Major axis: 183 μm
- Minor axis: 76 μm
- Major axis/Minor axis: 2.4

Observed internal texture

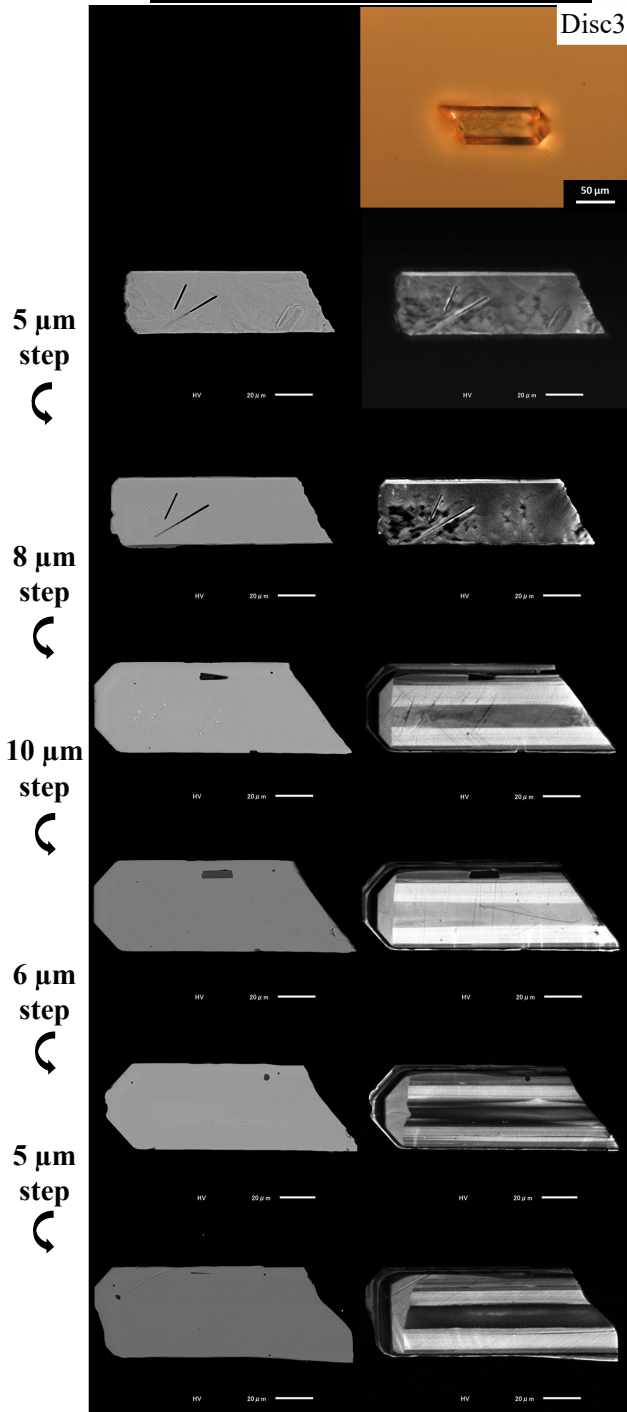
- OZ
- PT

Fig. 100 Zircon data of grain No. HGD41

Morphological observation and CL observation for multi-layers

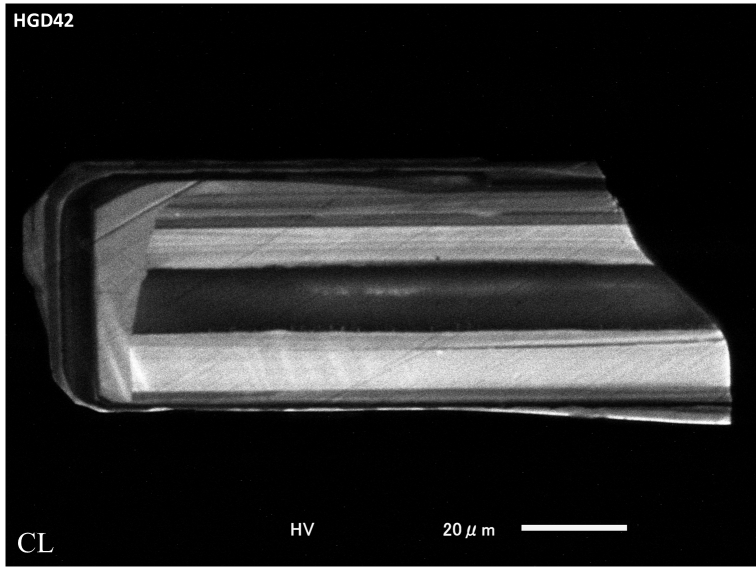
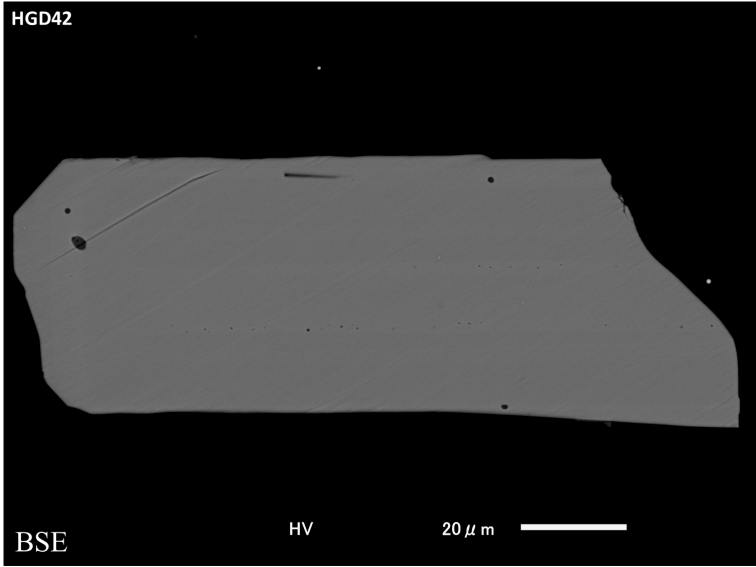
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core



Morphological description

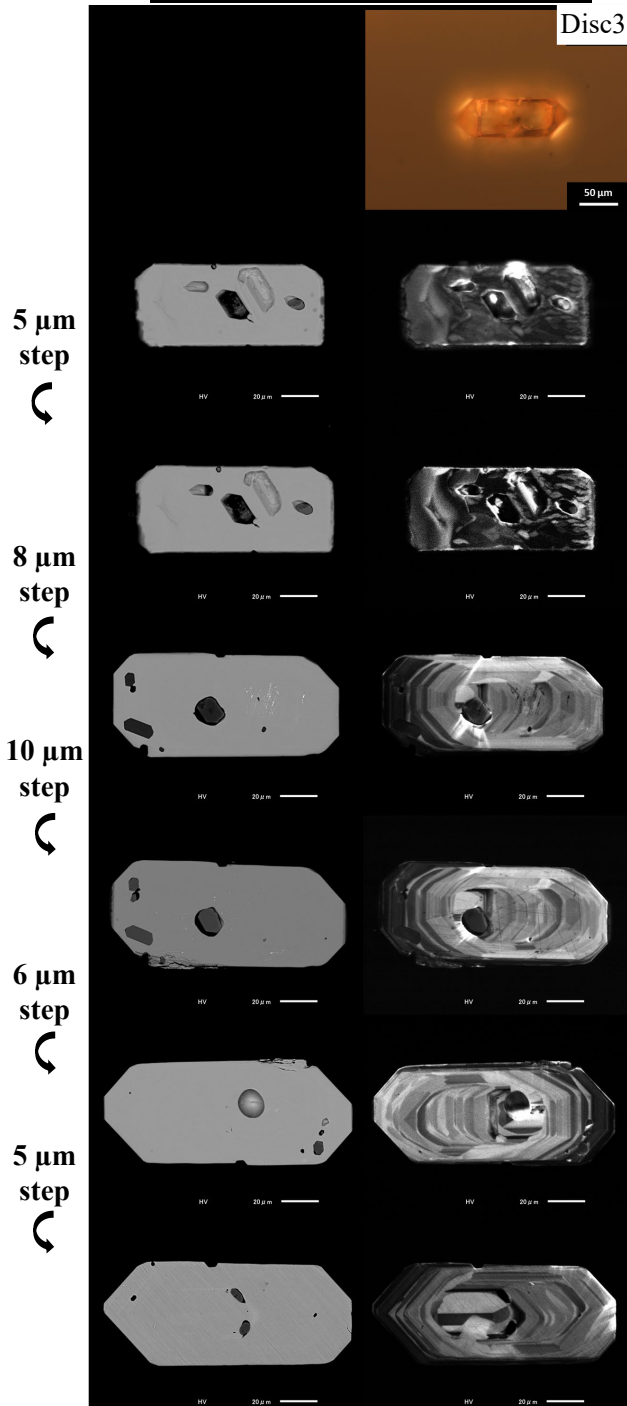
- Type {100}
- Major axis: 144 μm
- Minor axis: 51 μm
- Major axis/Minor axis: 2.9

Observed internal texture

- OZ

Fig. 101 Zircon data of grain No. HGD42

Morphological observation and CL observation for multi-layers

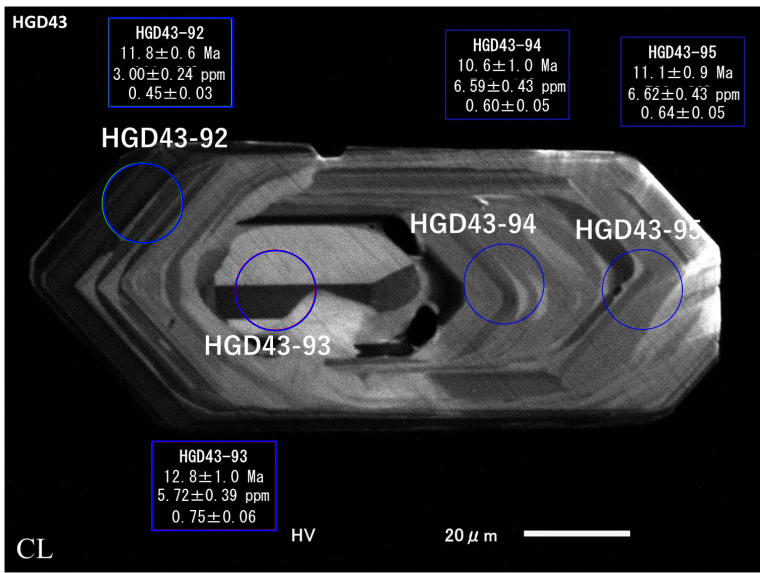
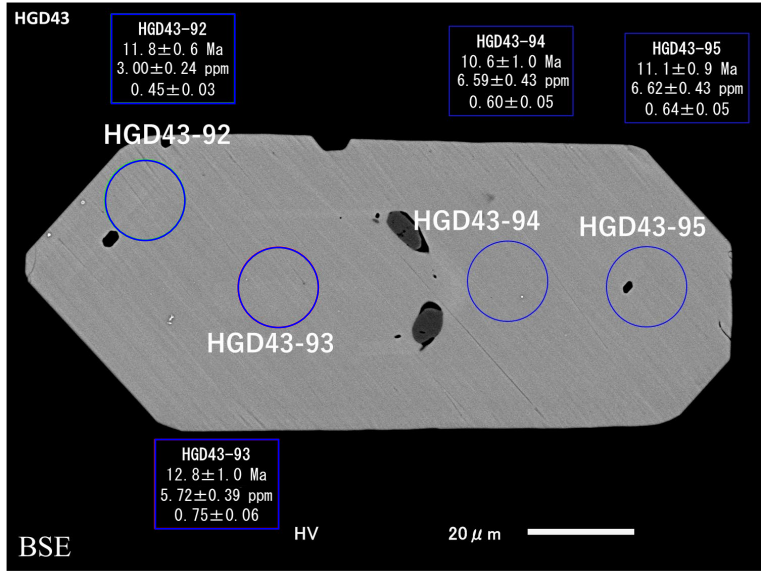


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {100}
- Major axis: 142 μm
- Minor axis: 51 μm
- Major axis/Minor axis: 2.8

Observed internal texture

- OZ
- PT

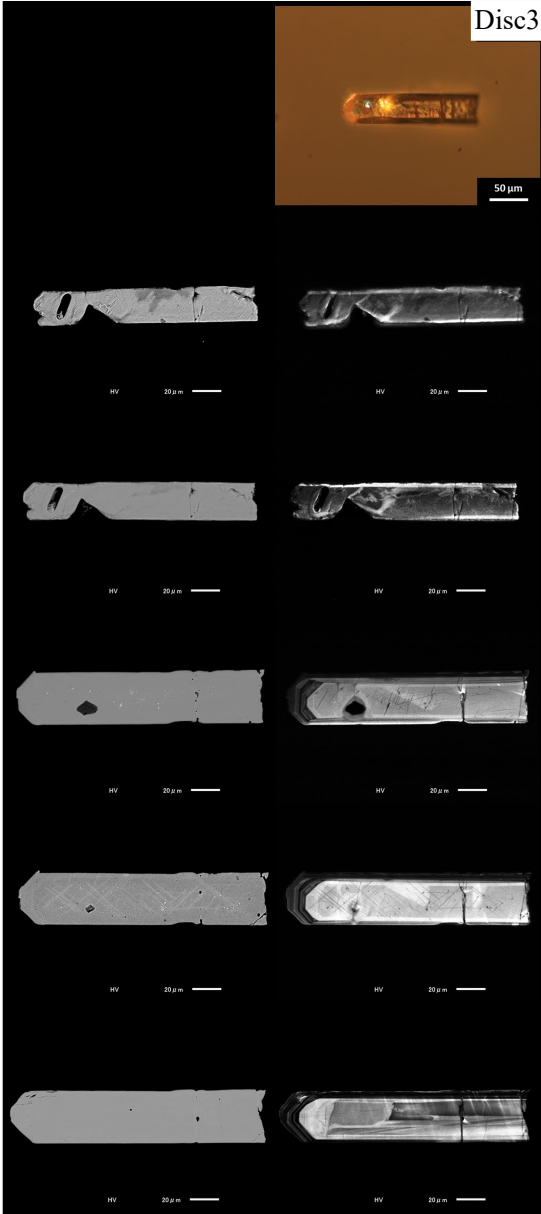
Fig. 102 Zircon data of grain No. HGD43

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 

Dropped out



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

- Type {110}
- Major axis: 177 μm
- Minor axis: 38 μm
- Major axis/Minor axis: 4.7

Observed internal texture

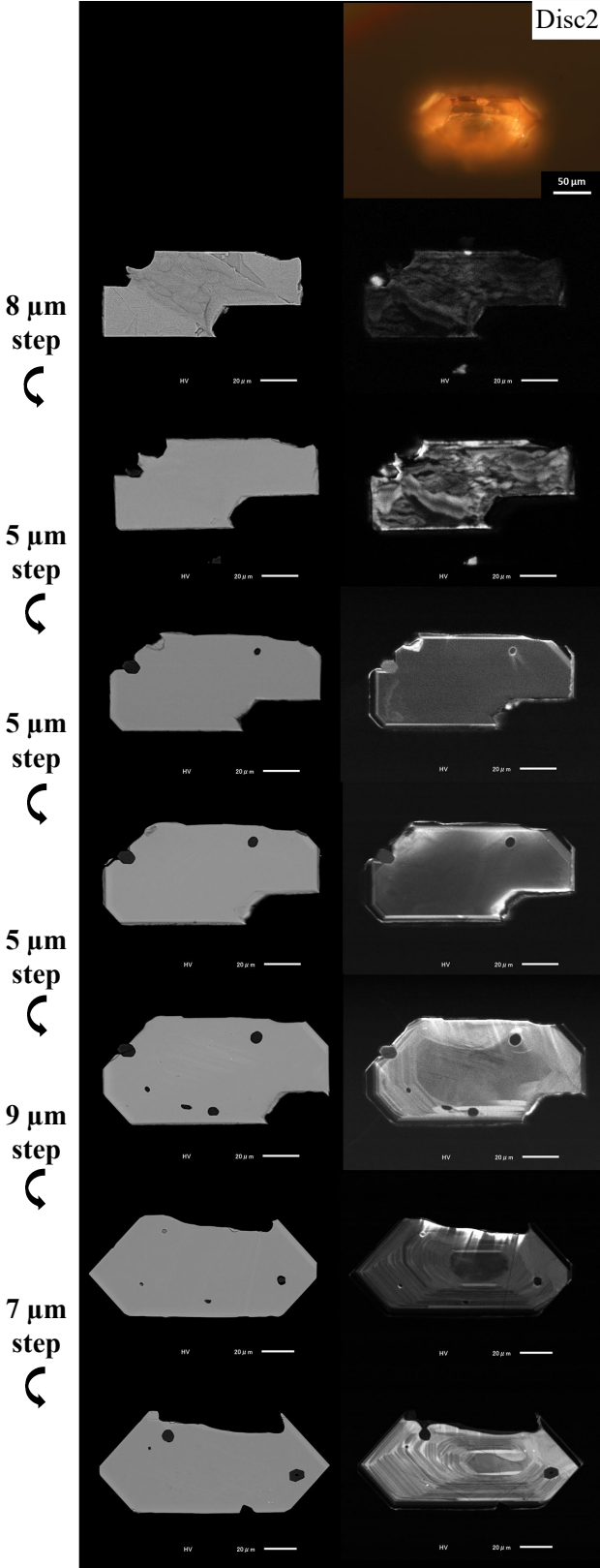
- OZ

Fig. 103 Zircon data of grain No. HGD44

Morphological observation and CL observation for multi-layers

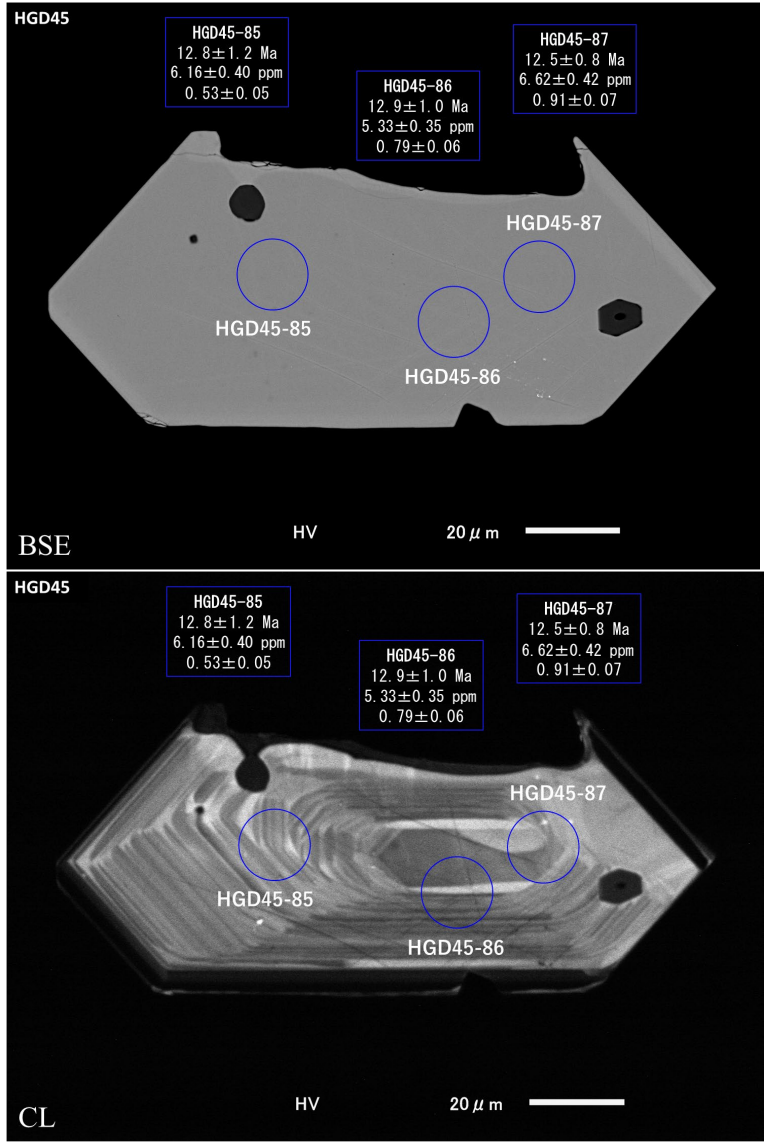
Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images



Morphological description

- Type {100}
- Major axis: 144 μm
- Minor axis: 62 μm
- Major axis/Minor axis: 2.3

Observed internal texture

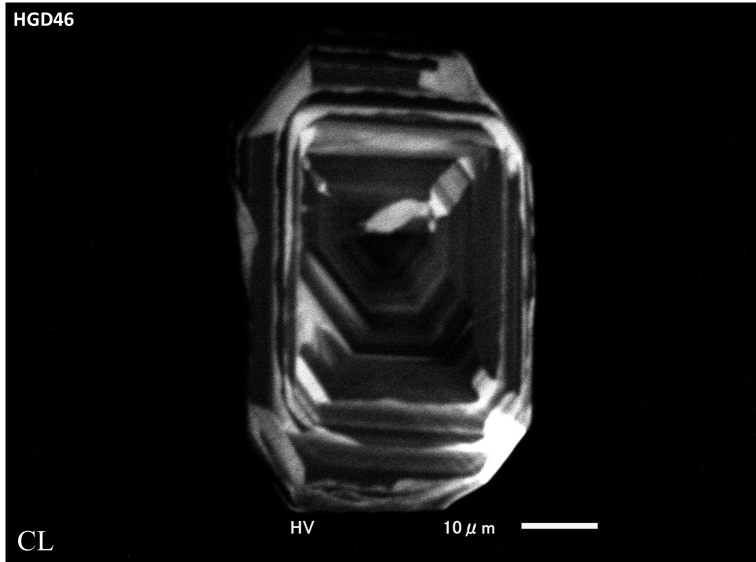
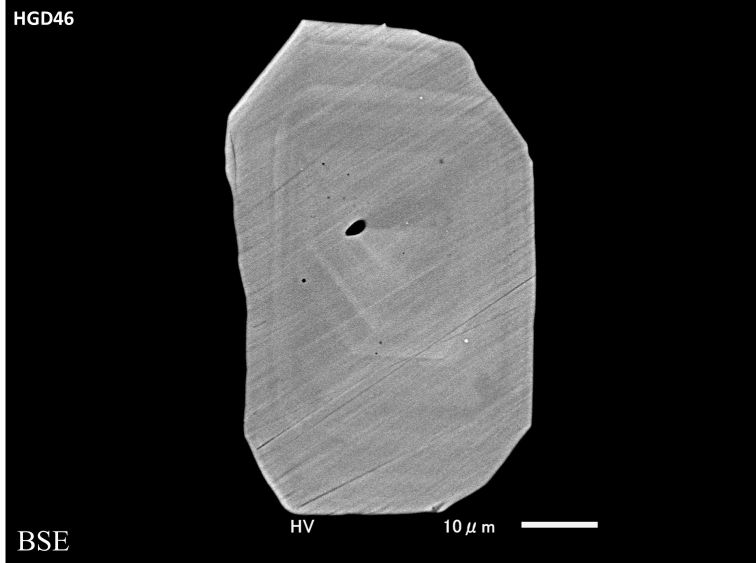
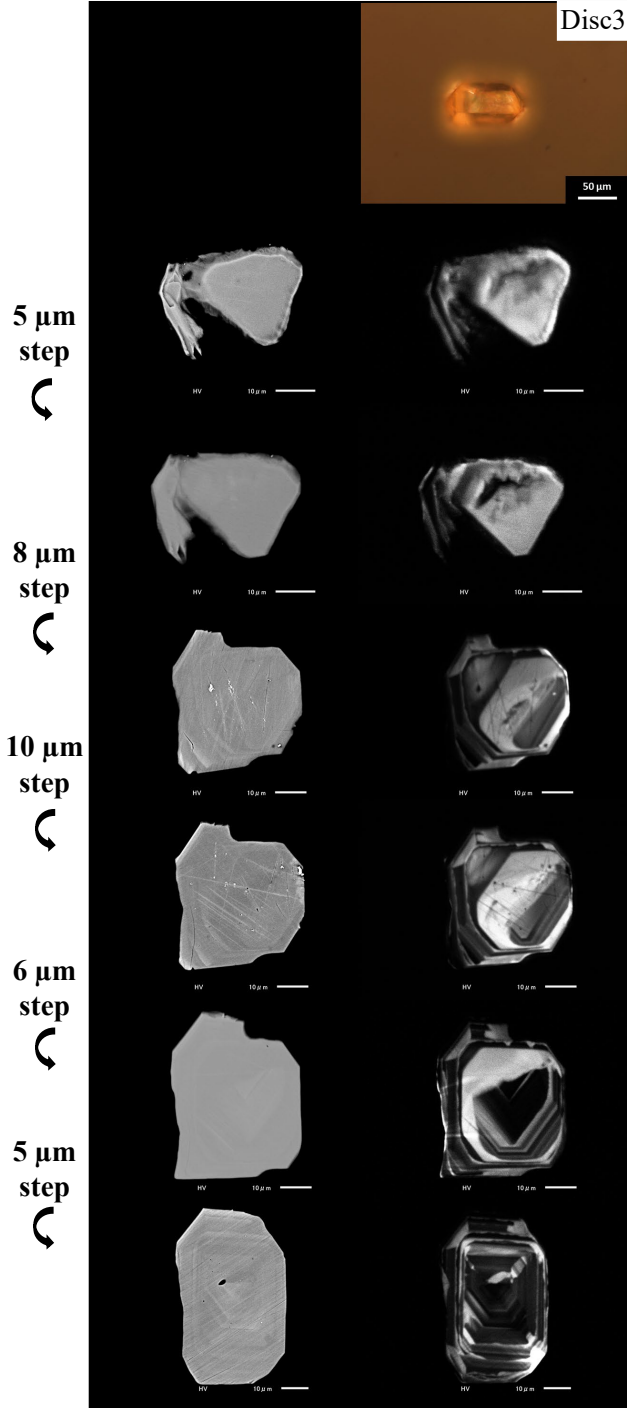
- OZ
- PT

Fig. 104 Zircon data of grain No. HGD45

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Morphological description

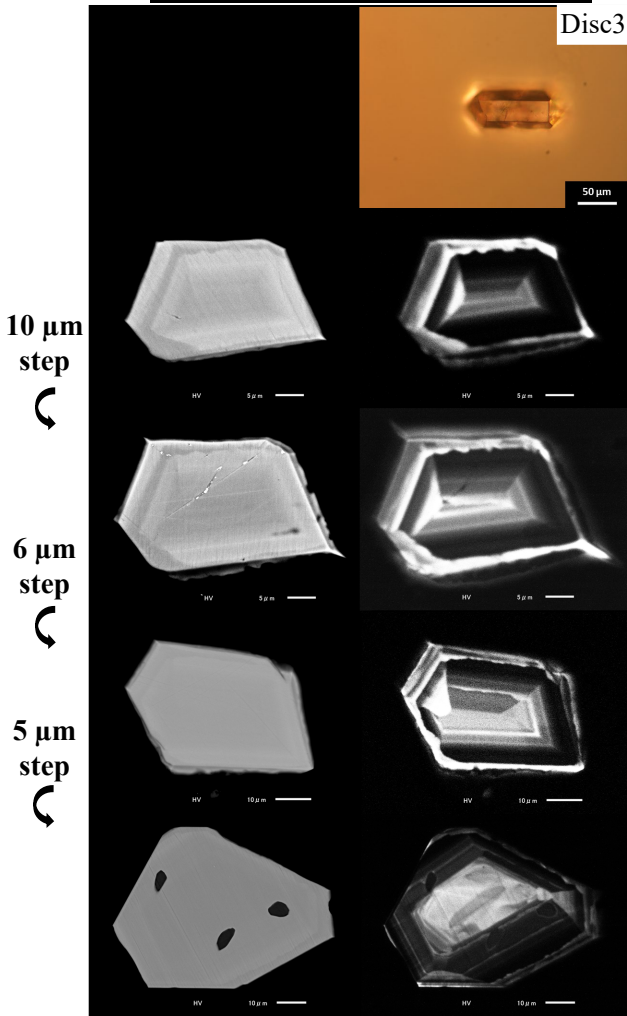
- Type {100}
- Major axis: 100 μm
- Minor axis: 51 μm
- Major axis/Minor axis: 1.9

Observed internal texture

- OZ
- PT

Fig. 105 Zircon data of grain No. HGD46

Morphological observation and CL observation for multi-layers

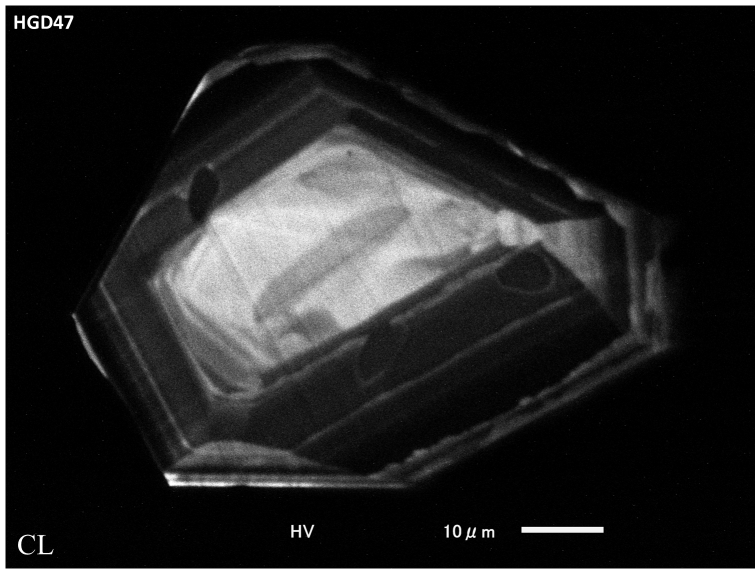
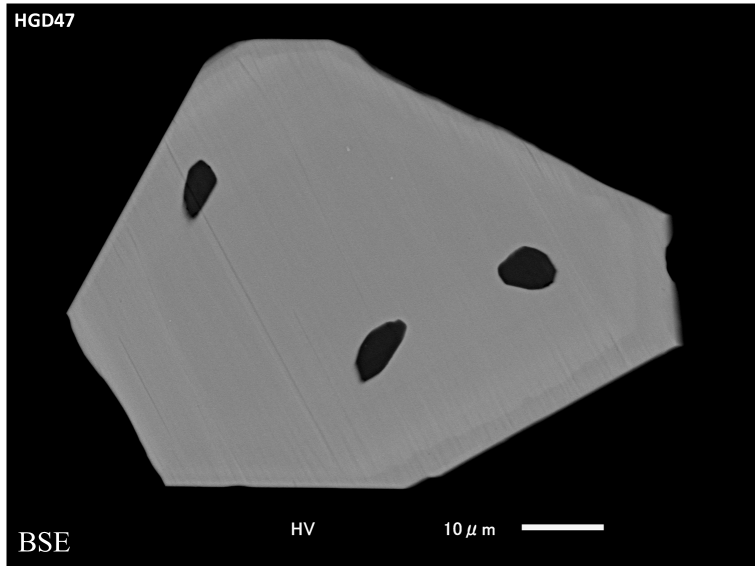


BSE images CL images

<Legend>
 OZ: Oscillatory zoning
 PT: Porous texture
 CT: Chaotic texture
 LDT: Local disturbance texture
 IHC: Inherited core

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ : PT : IHC : CT :



Morphological description

- Type {100}
- Major axis: 121 μm
- Minor axis: 48 μm
- Major axis/Minor axis: 2.5

Observed internal texture

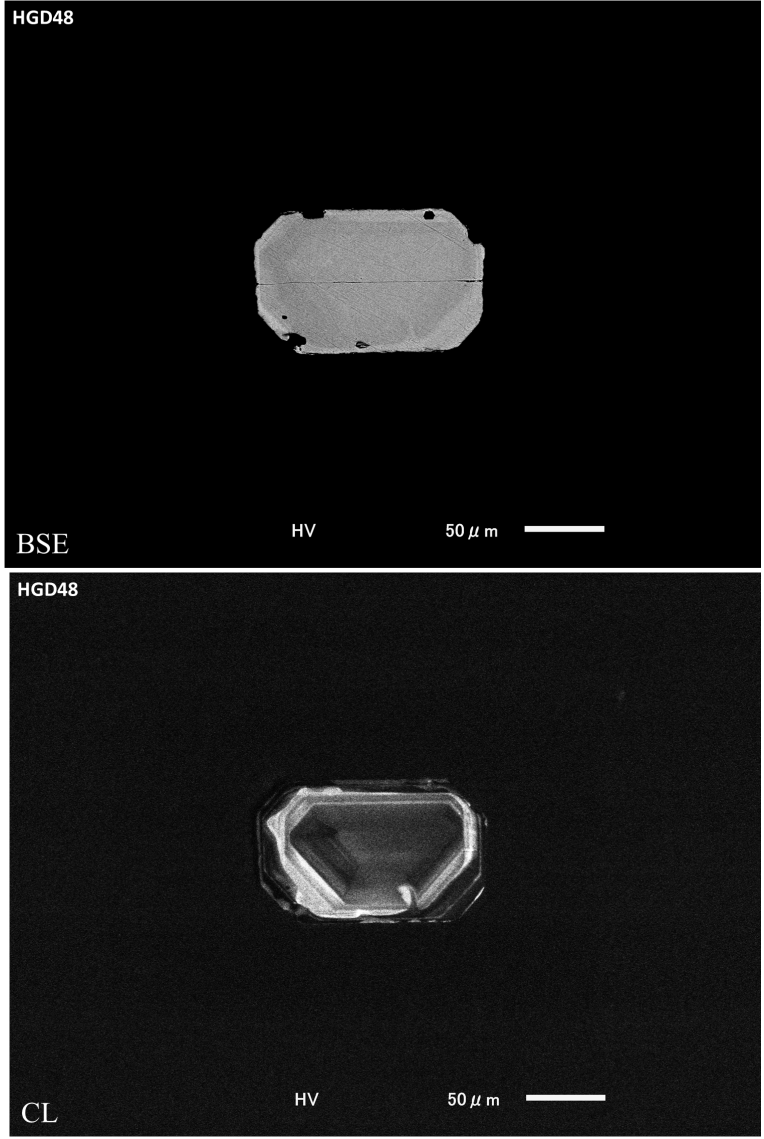
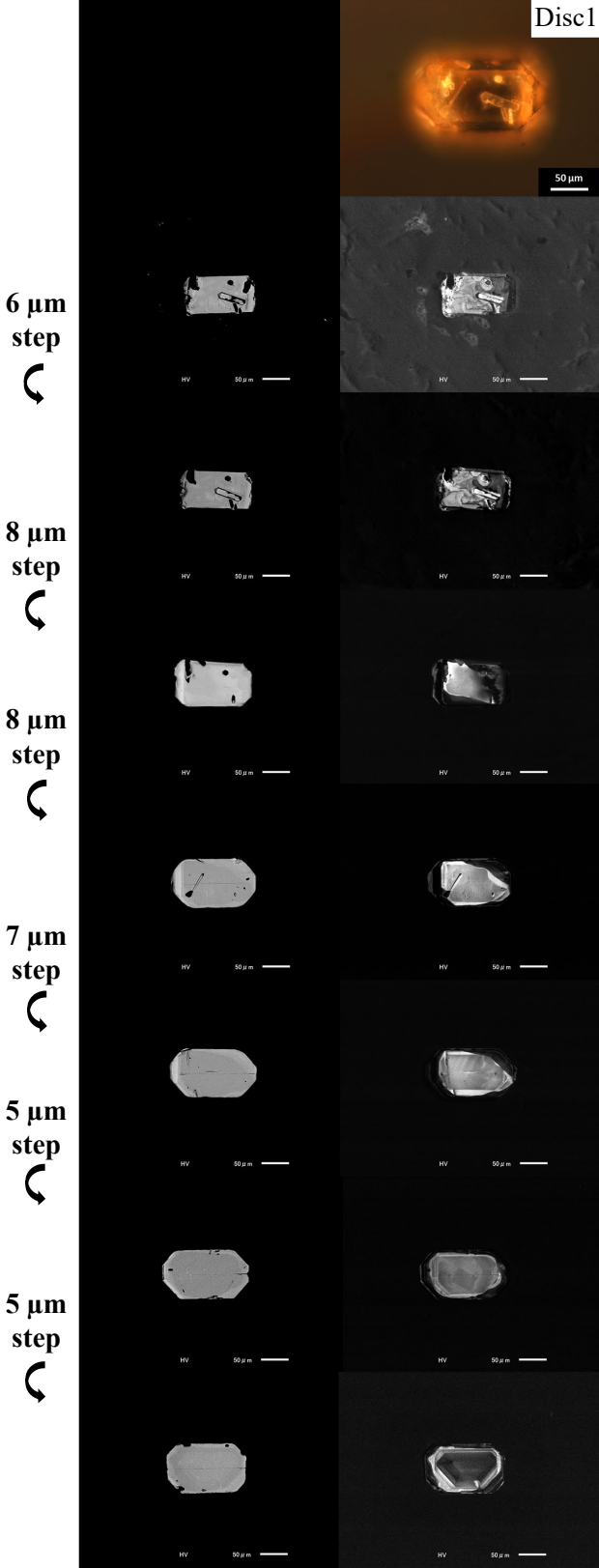
- OZ
- PT

Fig. 106 Zircon data of grain No. HGD47

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



Morphological description

- Type {100}
- Major axis: 180 μm
- Minor axis: 95 μm
- Major axis/Minor axis: 1.9

Observed internal texture

- OZ

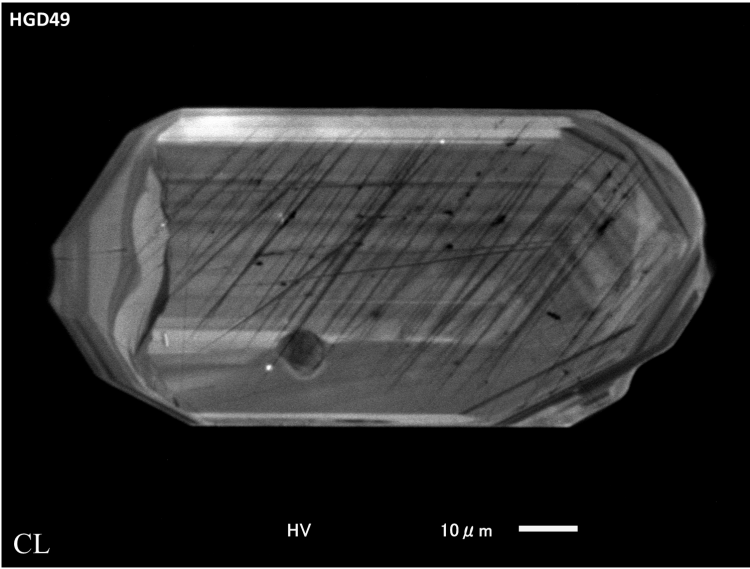
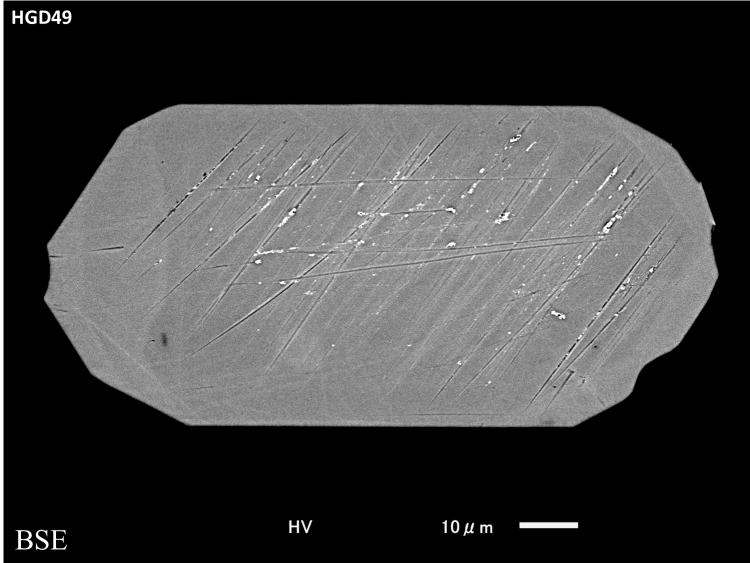
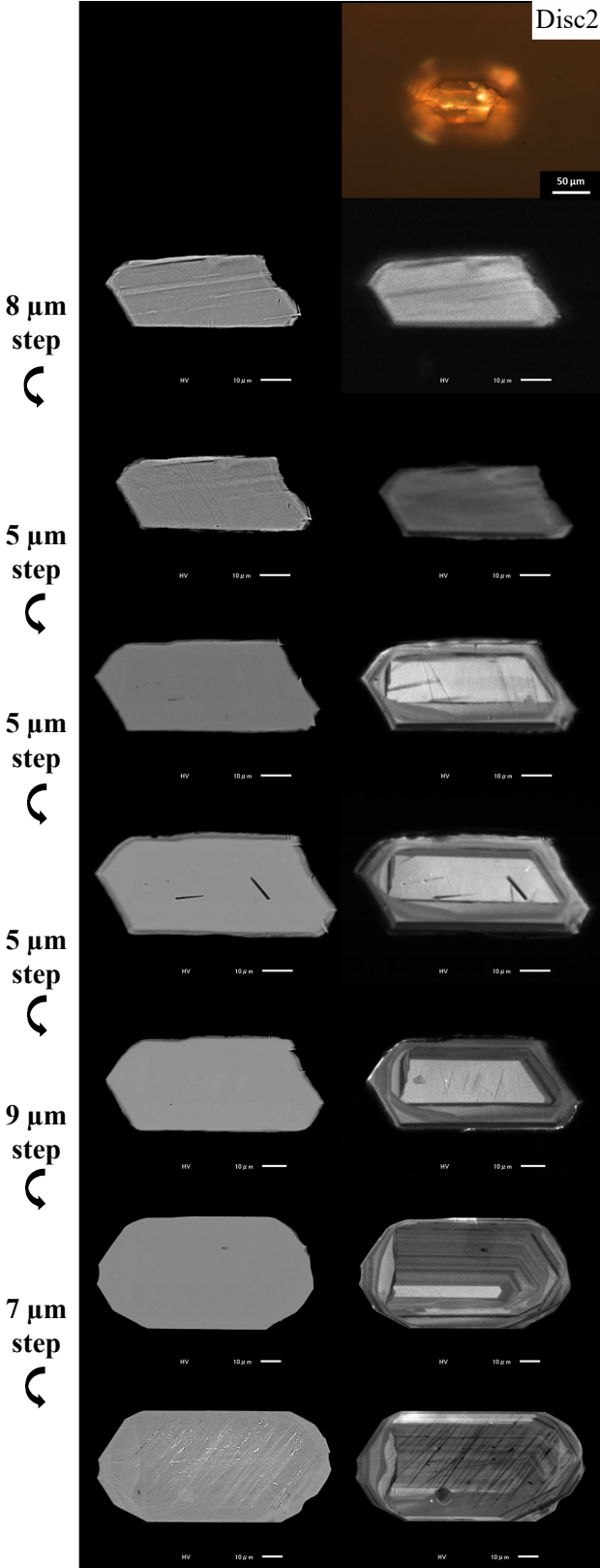
BSE images CL images

Fig. 107 Zircon data of grain No. HGD48

Morphological observation and CL observation for multi-layers

Analysis spots for U-Pb age and Ti conc., Th/U ratio

OZ :  PT :  IHC :  CT : 



BSE images

CL images

Morphological description

- Type {100}
- Major axis: 113 μm
- Minor axis: 60 μm
- Major axis/Minor axis: 1.9

Observed internal texture

- OZ

Fig. 108 Zircon data of grain No. HGD49