Supplementary Figure 1

Atlas 5 SEM image mosaic = 600 image tiles

Fig. 9e

Fig. 9d

Fig. 9a

SFig. 6c

Fig. 9b

Fig. 9f

Fig. 9c

Fluorapatite

1 mm

Supplementary Figure 2

Atlas 5 SEM image mosaic = 593 image tiles

SFig. 7g

SFig. 7a

Fig. 7b

orange calcite globule

SFig. 7i

SFig. 7j

Qtz

SFig. 7h

orange calcite globule

Fig. 7f Fig. 7c

Fig. 7g

orange calcite globule

Fig. 7h

1 mm

Supplementary Figure 3

Fig. 8a

Fig. 8c

Fig. 8e

Fig. 8d

Fig. 8b

Fig. 8f

orange calcite matrix

Atlas 5 SEM image mosaic = 479 image tiles

2 mm

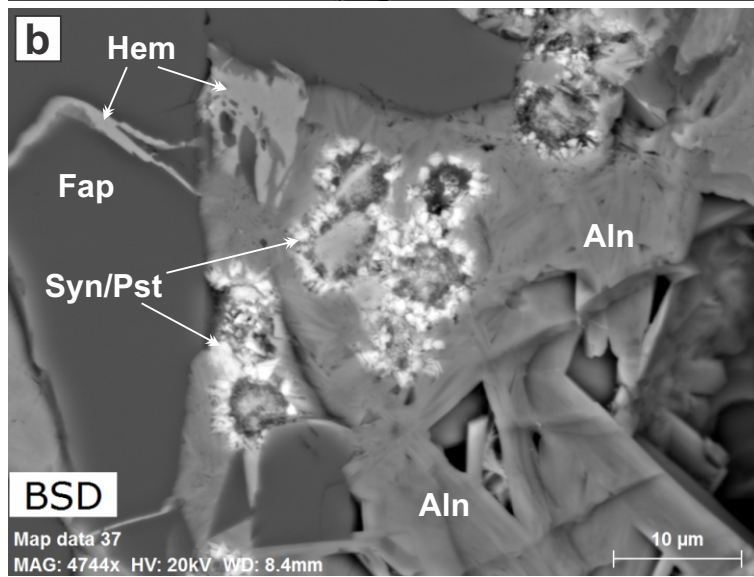**Supplementary Figure 4**

Supplementary Figure 5
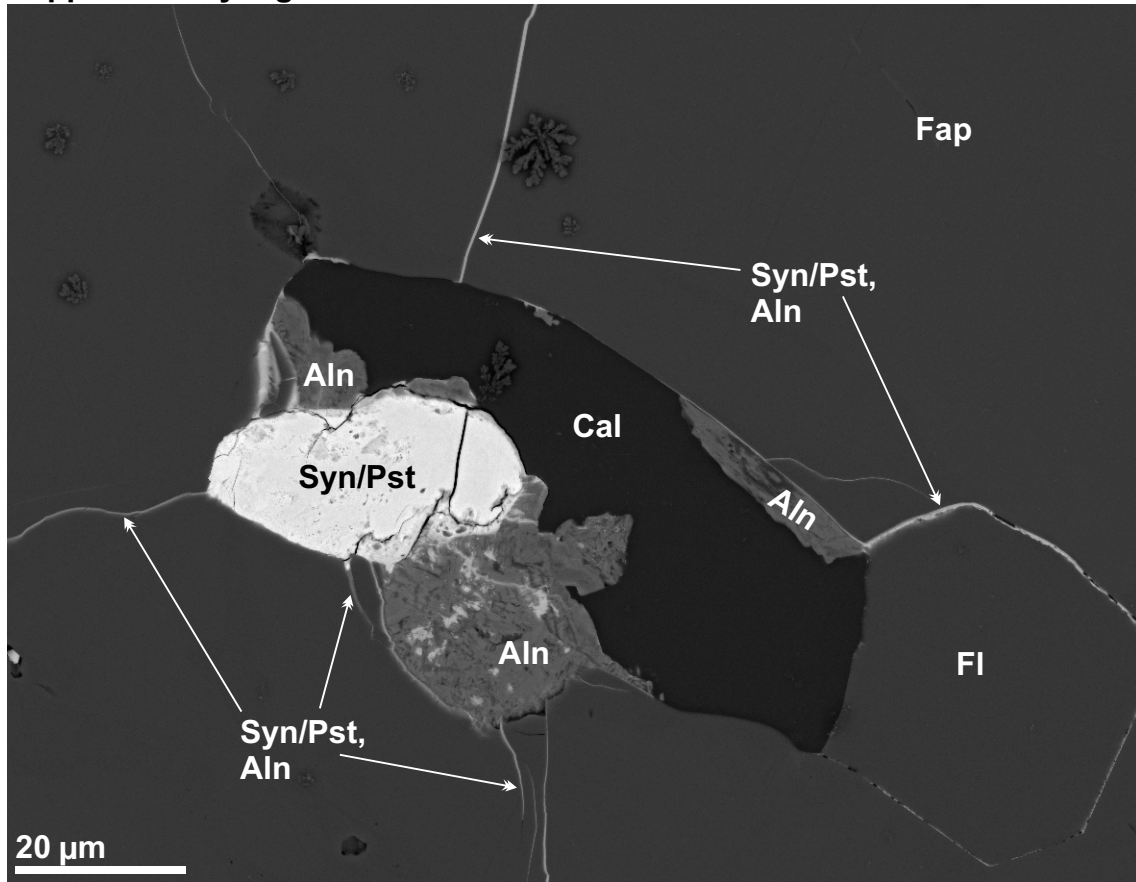
Supplementary Figure 6
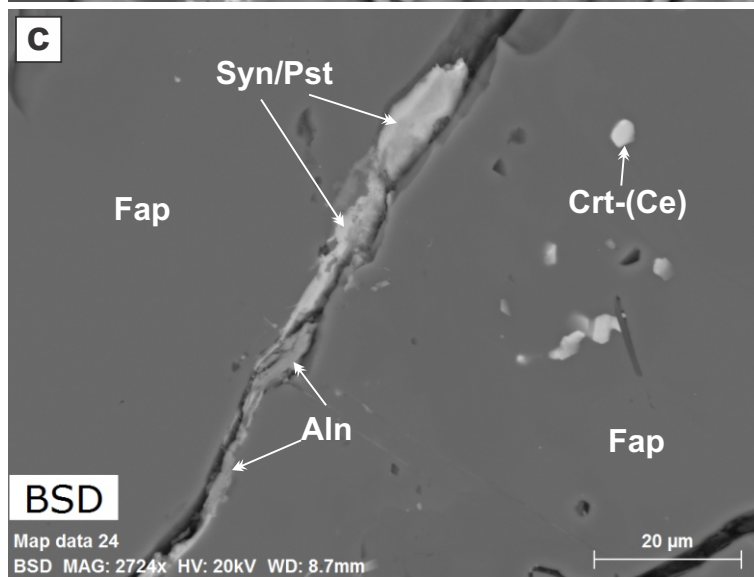
Supplementary Figure 7

Supplementary Figure 8
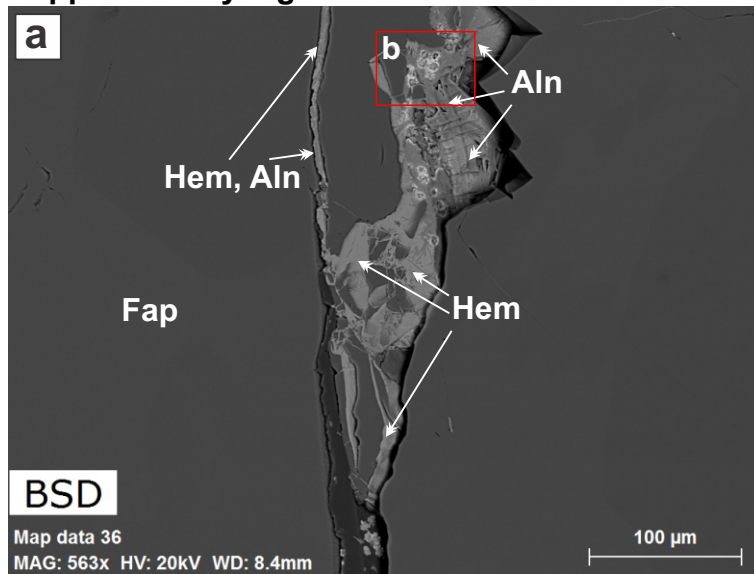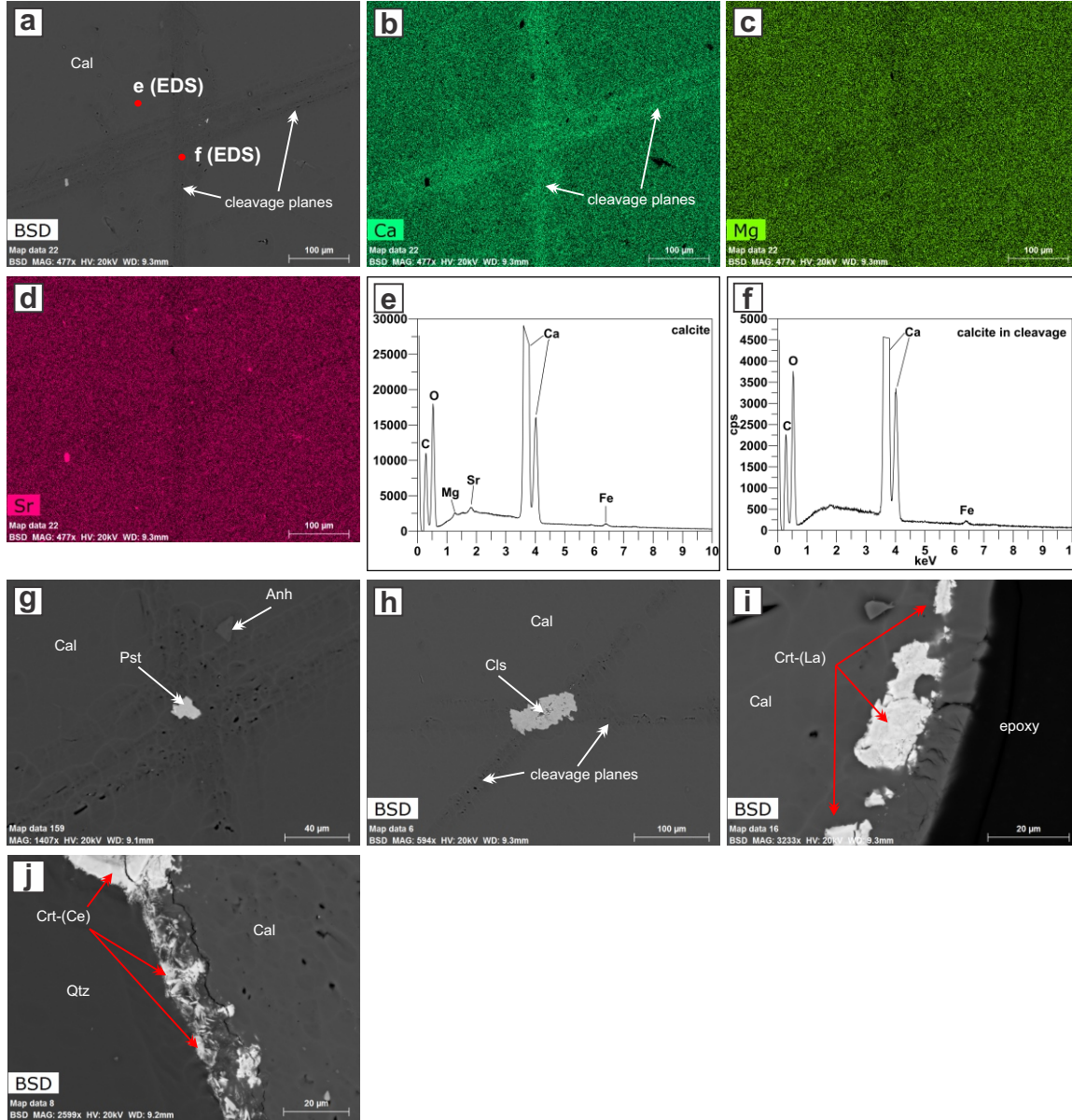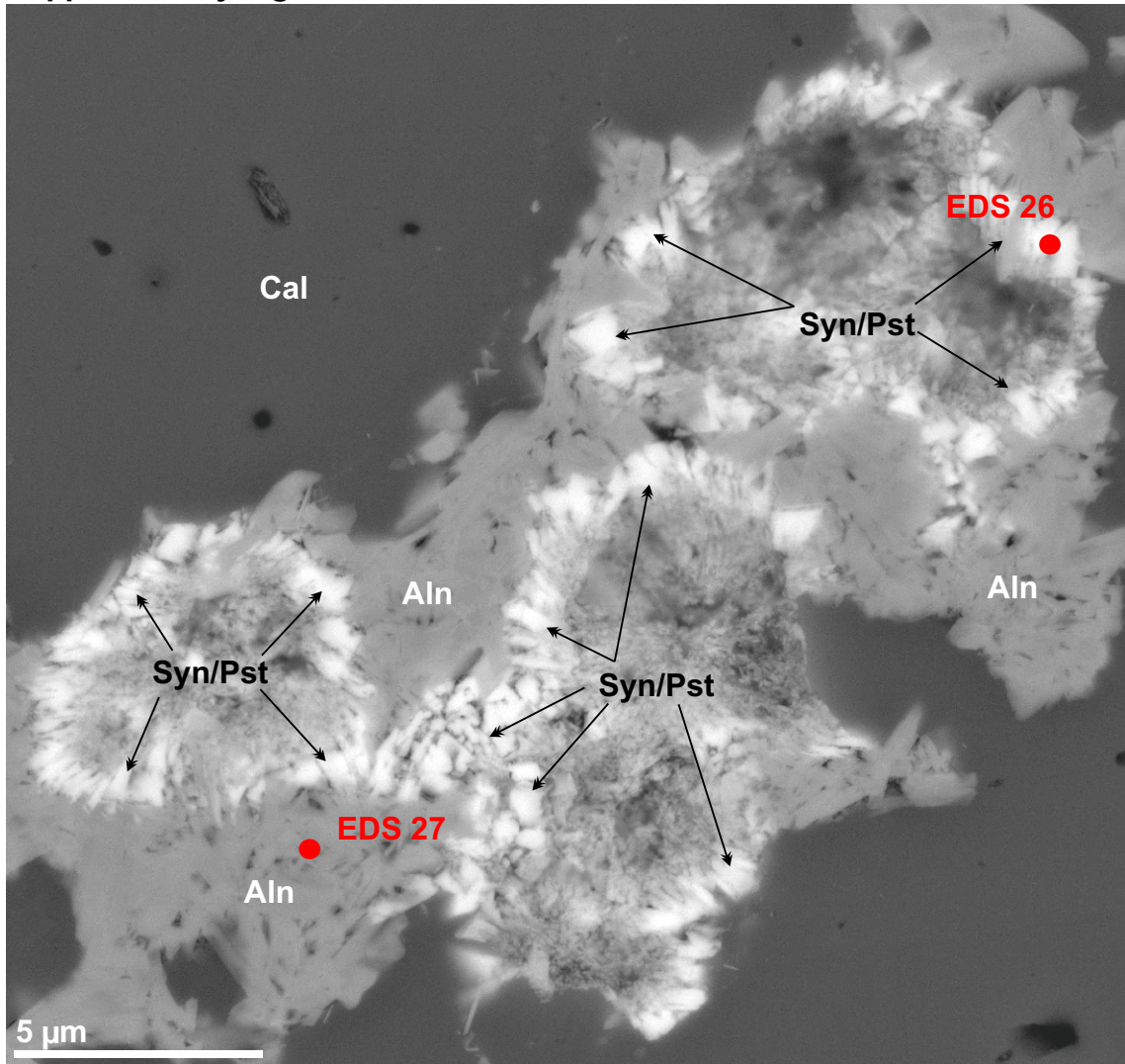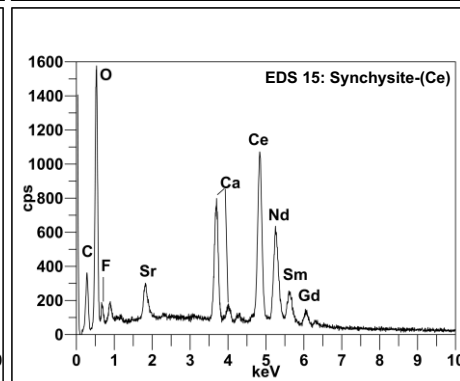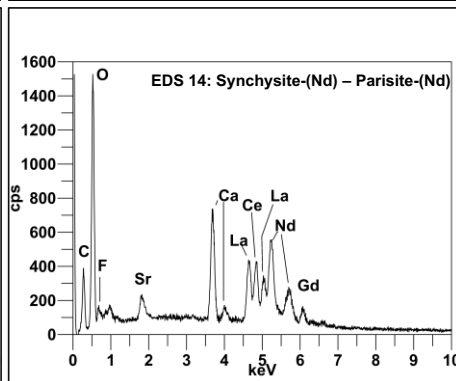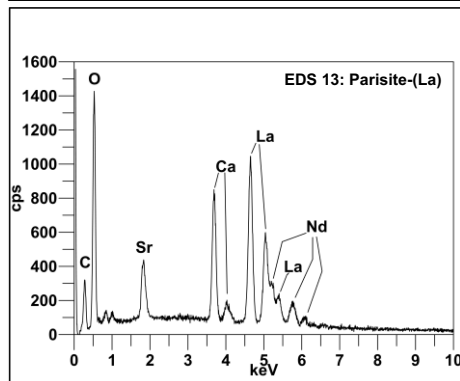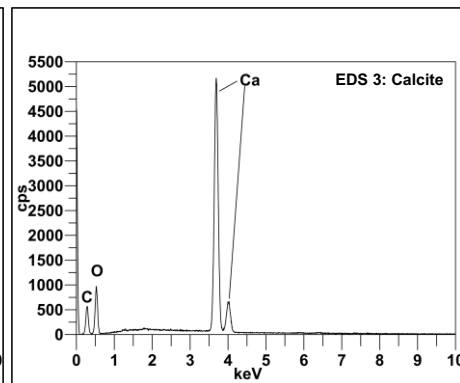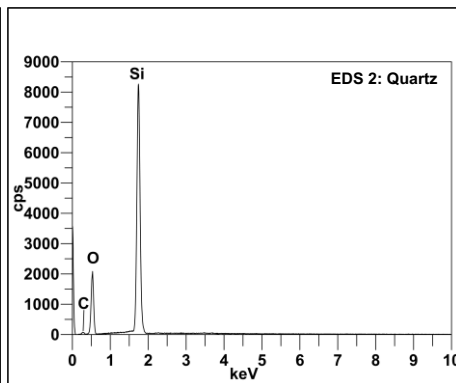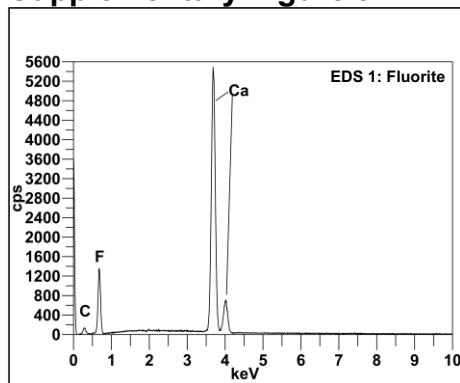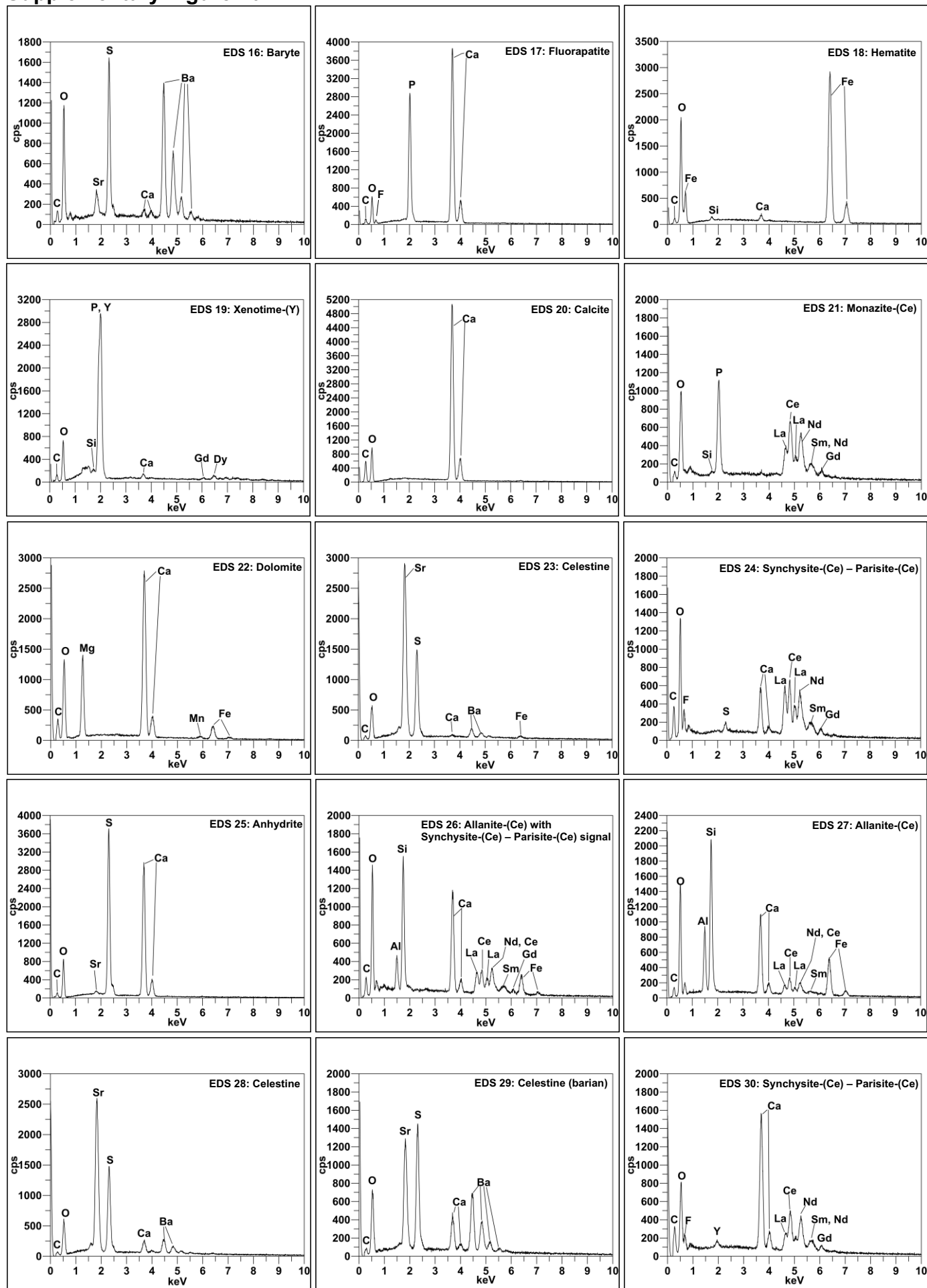
Supplementary Figure 9
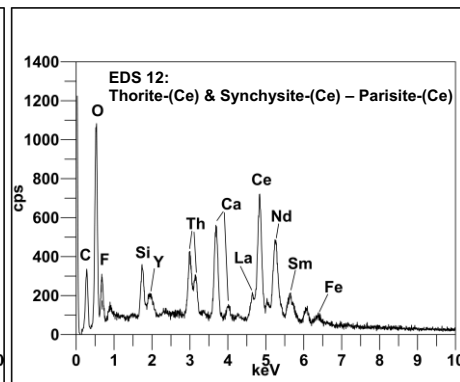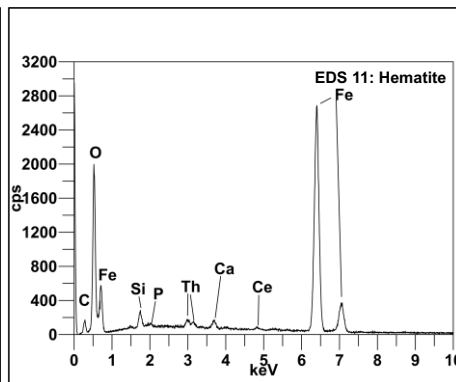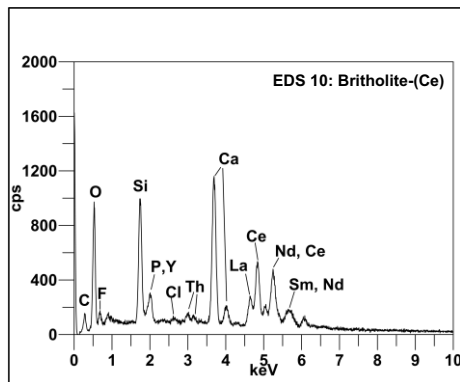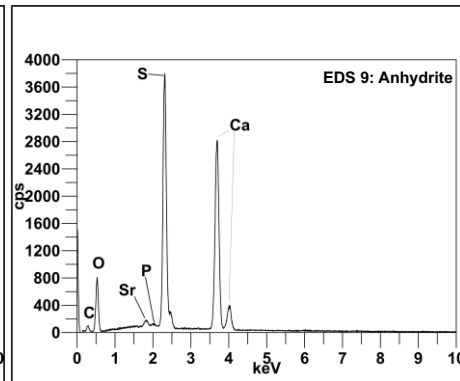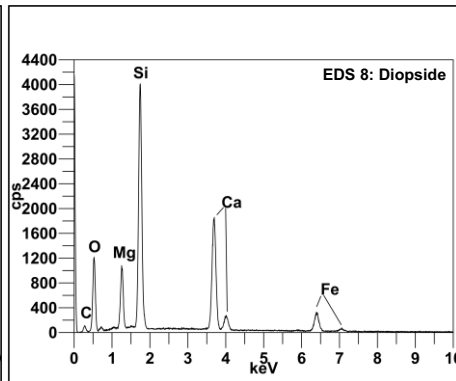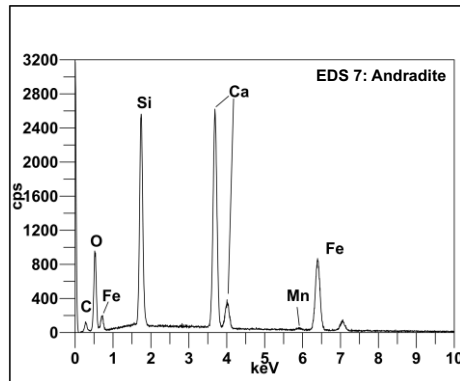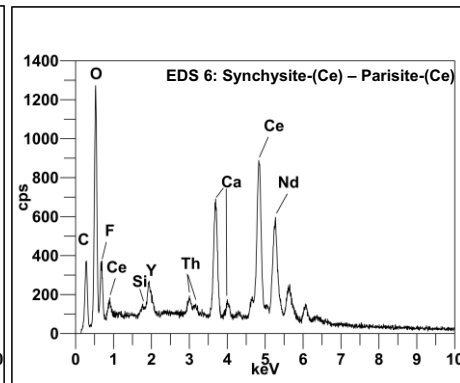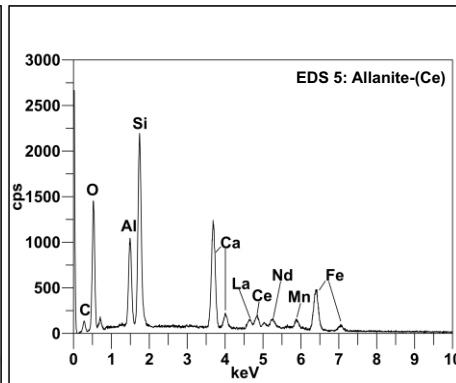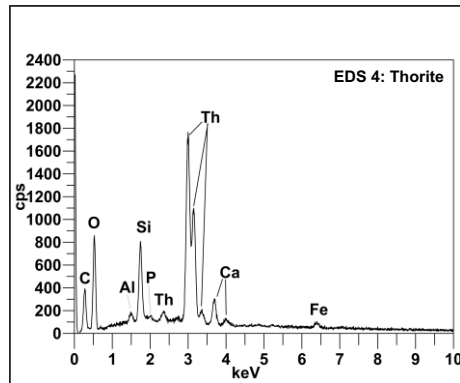
Supplementary Figure 10

Supplementary Figure 11