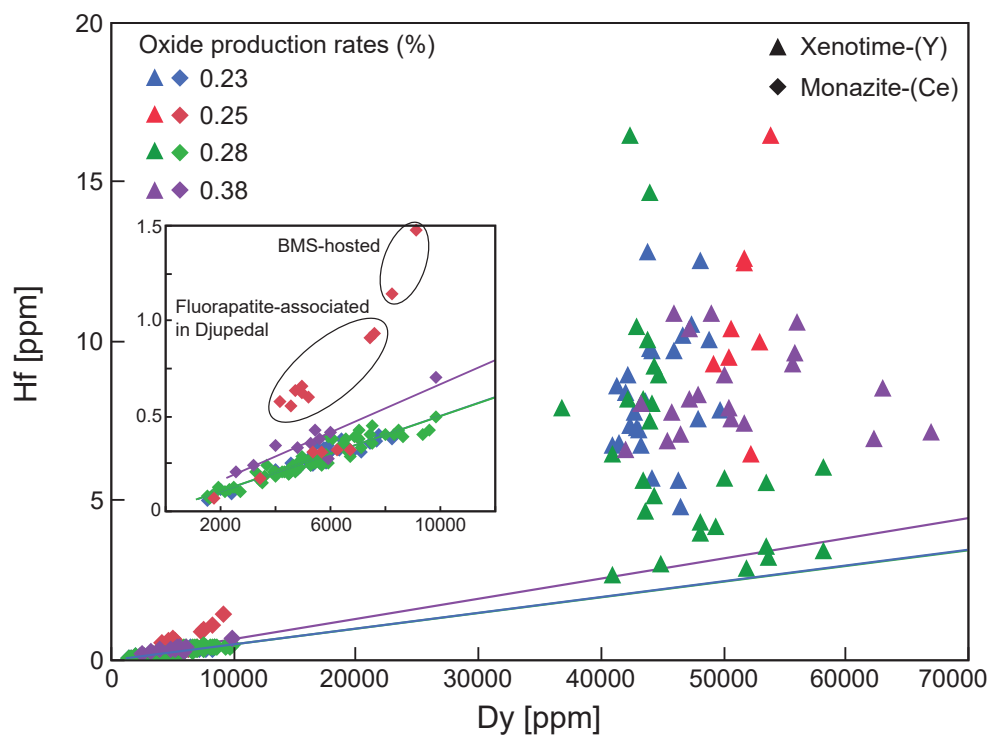
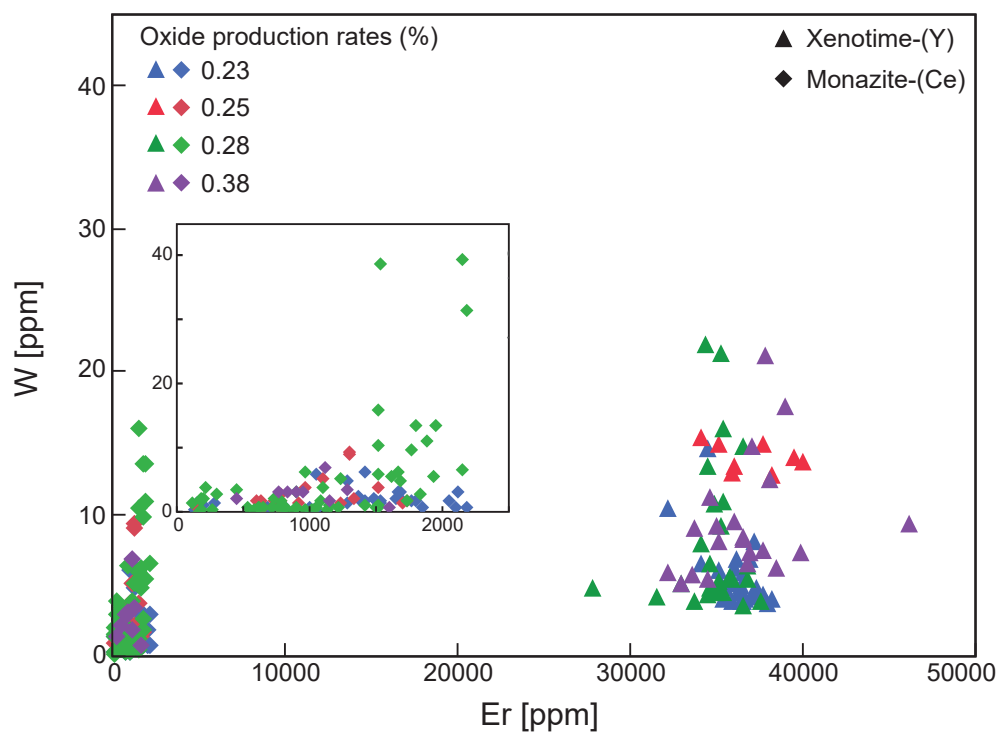


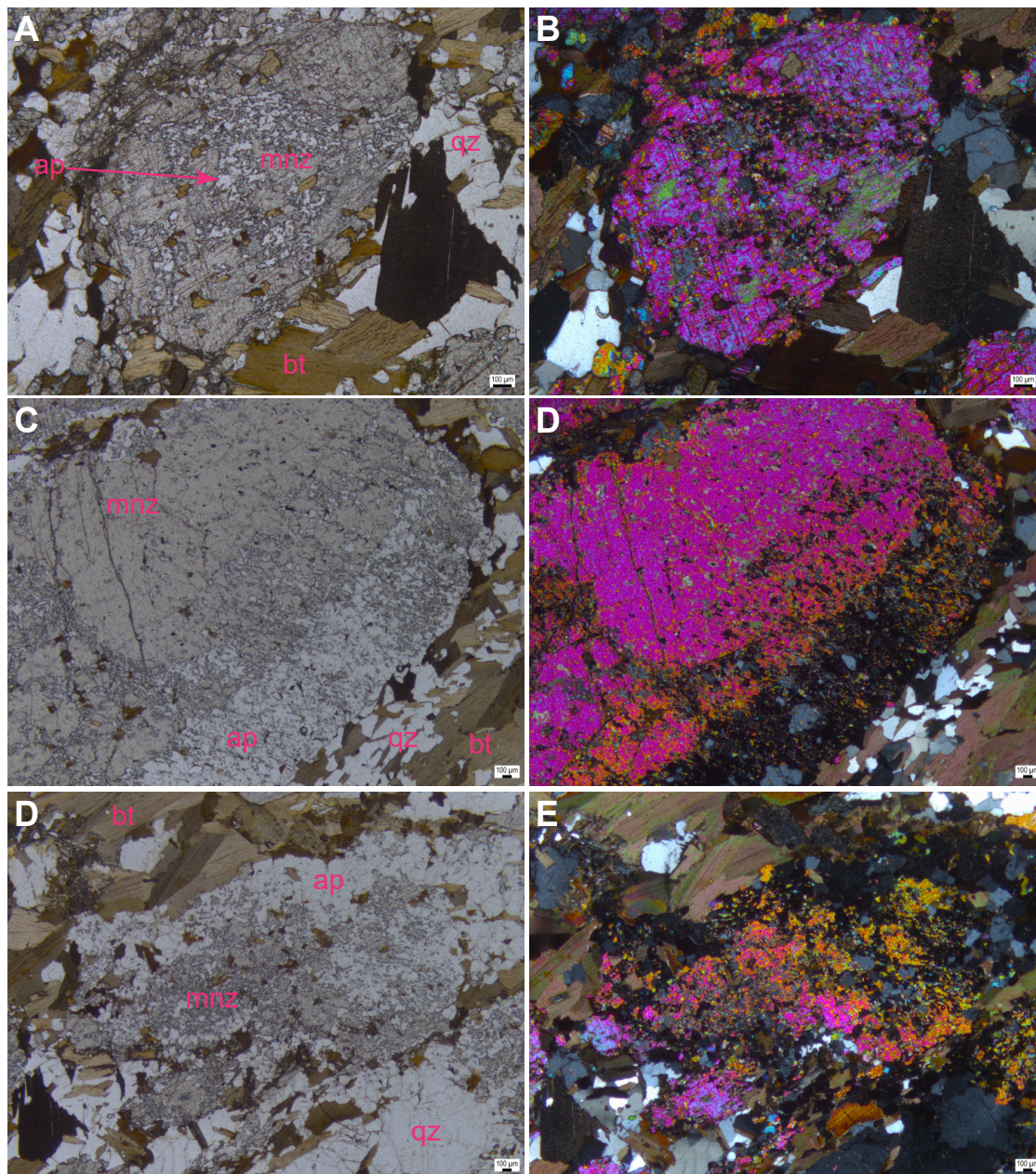
**FIGURE EA1.** Ta vs. Ho concentrations in monazite and xenotime from LA-ICP-MS showing the interference effects, see Electronic Supplementary Material description.



**FIGURE EA2.** Hf vs Dy concentrations in monazite and xenotime from LA-ICP-MS showing the interference effects on Hf in monazite, see Electronic Supplementary Material description.



**FIGURE EA3.** W vs Er concentrations in monazite and xenotime from LA-ICP-MS showing a limited interference effect on W, see Electronic Supplementary Material description.



**FIGURE EA4.** Additional photomicrographs showing the significant replacement of primary monazite in Djupedal. Note especially the continuation of the twin lamellae in the altered monazite crystals, which we consider clear evidence that fluorapatite replaced monazite and not the other way around.