

GSA Data Repository Item 2016297

Frost, C.D., McLaughlin, J.F., Frost, B.R., Fanning, C.M., Swapp, S.M., Kruckenberg, S.C., and Gonzalez, J., 2016, Hadean origins of Paleoarchean continental crust in the central Wyoming Province: GSA Bulletin, doi:10.1130/B31555.1.

DATA REPOSITORY FIGURES

Tables DR1–DR10

Figure DR1. Field photographs of layered gneisses, including the UC Ranch orthogneiss (E-F).

(A) The bimodal character of the layered gneisses is evident from this outcrop, which exposes weakly deformed and faulted mafic inclusions within complexly foliated and folded quartzofeldspathic gneiss; downthrown block to the left, B.R. Frost for scale.

(B) Strongly foliated, layered gneiss (10SM2) intruded by a dike of Neoarchean banded granite, one of the units within the Wyoming batholith (Bagdonas et al., 2016).

(C) Outcrop containing both fine-grained biotite hornblende gneiss (11BBL01; beneath hammer) and coarser-grained biotite hornblende gneiss (11BBL02). The coarse-grained gneiss is in places complexly folded (see upper portion of photograph).

(D) Banded variant of the UC Ranch orthogneiss in which biotite defines the foliation.

(E) Equigranular variant of the UC Ranch orthogneiss. Sample 00SR01 was collected from this outcrop.

Figure DR2. Photomicrographs of layered gneisses.

(A) Foliated, equigranular tonalitic orthogneiss (11BBL02) containing hornblende, biotite, plagioclase, and quartz, minor exsolved potassium feldspar in plagioclase, and accessory allanite, titanite, zircon, and apatite. Foliation is largely defined by mafic mineral orientations. Note the relict igneous texture preserved by the plagioclase in the bottom center of the slide. 11BBL 01 and 11BBL02 are the only gneiss samples in the study found to contain hornblende.

(B) Foliated, equigranular tonalitic orthogneiss (14GR01) composed of plagioclase, quartz, and biotite with accessory apatite, zircon, allanite and titanite and minor exsolved potassium feldspar. Some plagioclase crystals exhibit igneous textures. Foliation is defined by orientation of biotite.

(C) Foliated, equigranular tonalitic orthogneiss (12GR02) containing plagioclase, quartz, and biotite with accessory apatite, zircon, allanite and titanite and minor exsolved potassium feldspar. Some plagioclase crystals exhibit igneous textures. The irregular grain boundaries are consistent with deformation at amphibolite facies. Foliation is defined by orientation of biotite.

Figure DR3. Field photographs of massive gneisses. (A) Outcrop of coarse-grained, pinkish Sacawee gneiss containing plagioclase megacrysts in a finer-grained matrix of biotite, feldspar, and quartz. The view to the east includes the bare summits of Lankin Dome and Moonstone Peak in the far distance. (B) Foliated Sacawee gneiss from an outcrop east of samples 11BBL01 and 11BBL02. The foliation is variable both in intensity and in orientation on the outcrop scale.

Figure DR4. Photomicrographs of massive gneisses. (A) Sample 11SM13, a gray “wispy” gneiss, is characterized by distinctive granoblastic foliation-defining quartz ribbons and plagioclase and potassium feldspar megacrysts. Feldspar is sericitized. Nearly complete recrystallization and deformation of the quartz gives this unit a layered appearance in some locations. (B) Sample 10SM10 is a typical coarse-grained feldspar-quartz-biotite Sacawee gneiss. Large clots of biotite are common in this unit. (C) Sacawee gneiss sample 00BG05 contains large tabular orthoclase crystals that have been deformed and contain quartz inclusions. Secondary muscovite, although relatively uncommon, is present in this sample.

Figure DR5. Concordia diagram for all analyses of zircon from sample 10GR02.

Figure DR6. Cathodoluminescence image of 10GR02. Black and white ellipses indicate locations of U-Pb spot analyses.

Figure DR7. Cathodoluminescence image of 11BBL02. Black and white ellipses indicate locations of U-Pb spot analyses.

Figure DR8. Concordia diagram for all analyses of zircon from sample 11BBL02.

Figure DR9. Cathodoluminescence image of 11BBL01. Black and white ellipses indicate locations of U-Pb spot analyses.

Figure DR10. Concordia diagram for all analyses of zircon from sample 11BBL01.

Figure DR11. Concordia diagram for all analyses of zircon from sample 00SR01.

Figure DR12. Cathodoluminescence image of 10MB01. Black and white ellipses indicate locations of U-Pb spot analyses.

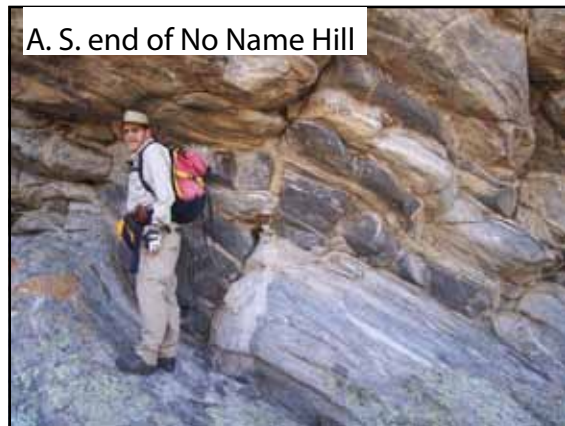
Figure DR13. Cathodoluminescence image of 11SM13. Black and white ellipses indicate locations of U-Pb spot analyses.

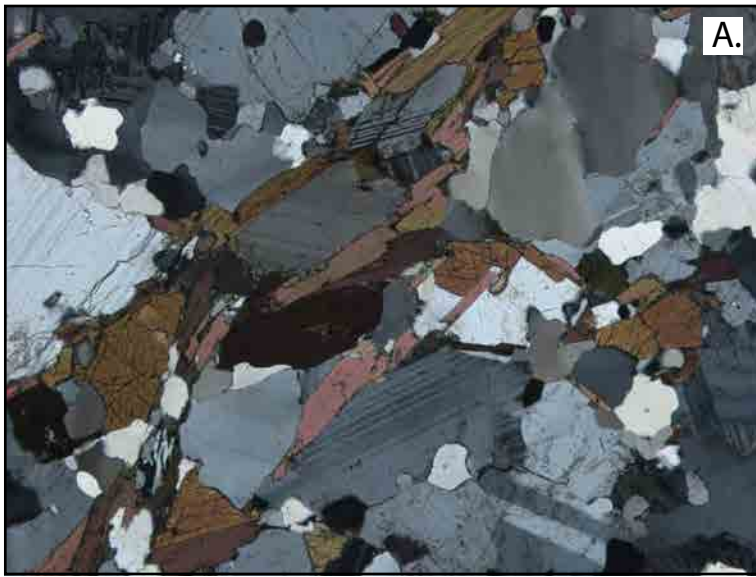
Figure DR14. Concordia diagram for all analyses of zircon from sample 11SM07.

Figure DR15. Cathodoluminescence image of 11SM07. Black and white ellipses indicate locations of U-Pb spot analyses.

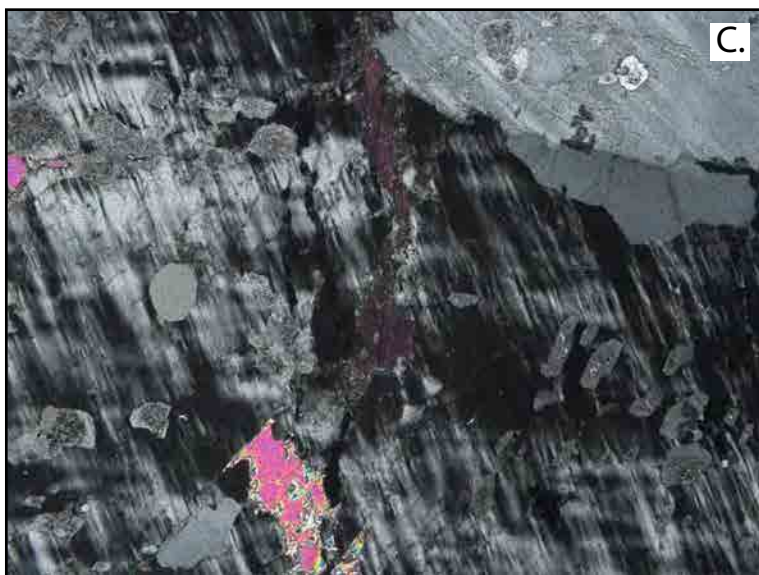
Figure DR16. Cathodoluminescence image of 10SM10. Black and white ellipses indicate locations of U-Pb spot analyses.

Figure DR17 Cathodoluminescence image of 00BG05. Black and white ellipses indicate locations of U-Pb spot analyses.









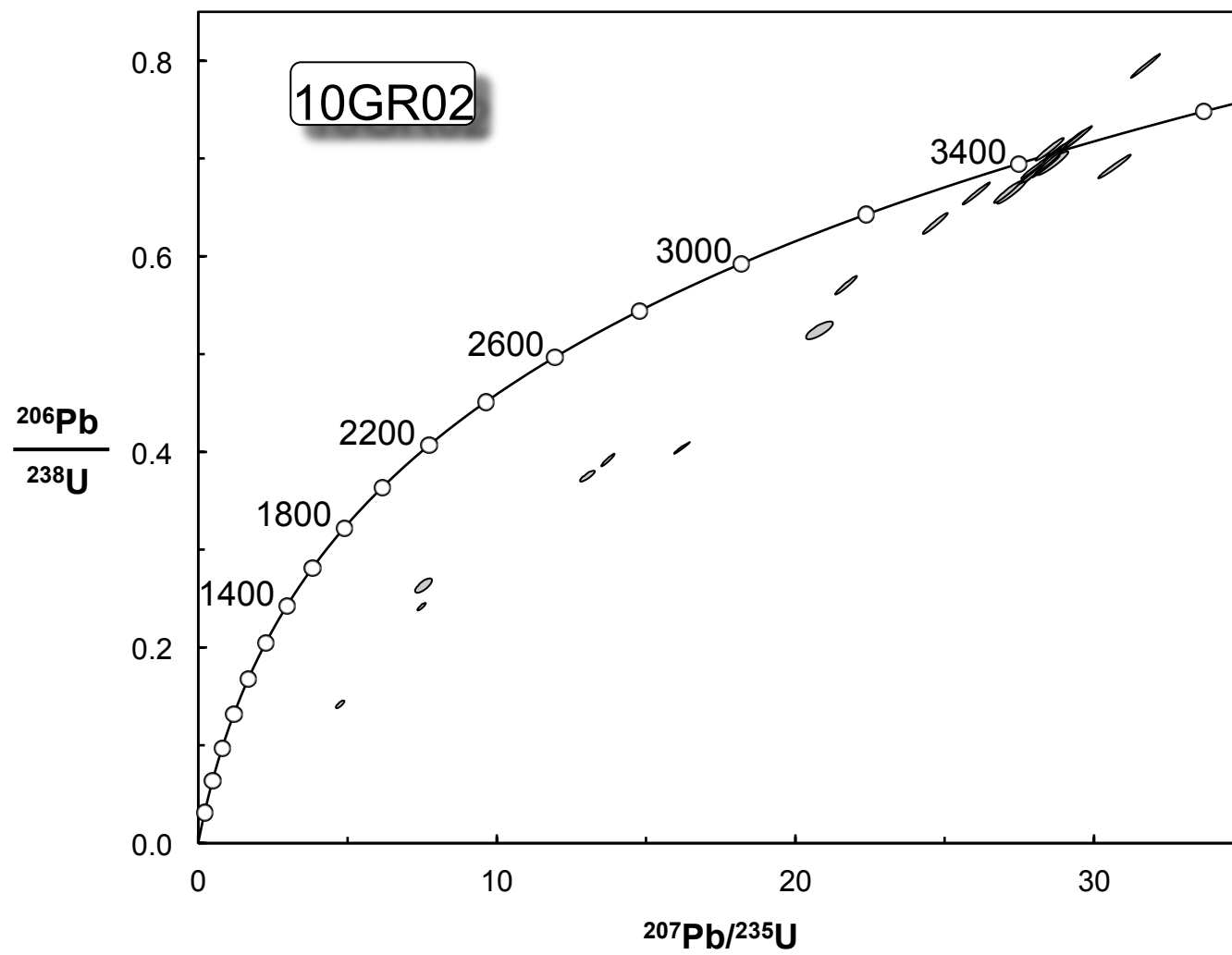
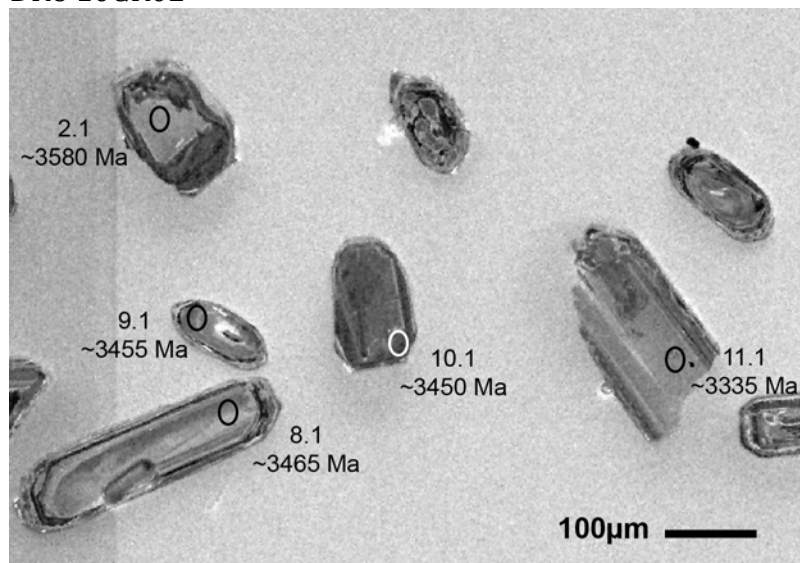
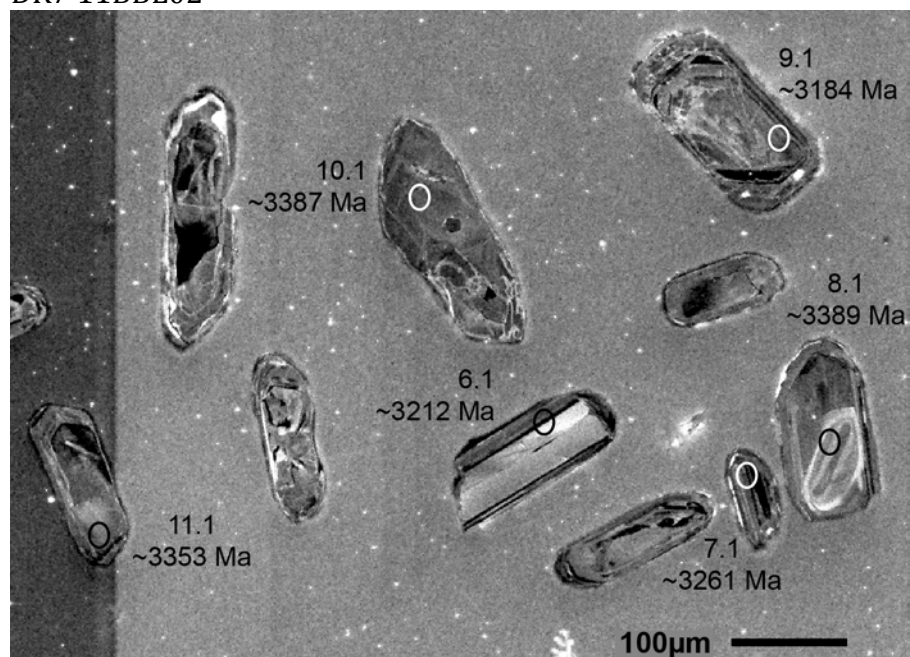


Fig DR5

DR6 10GR02



DR7 11BBL02



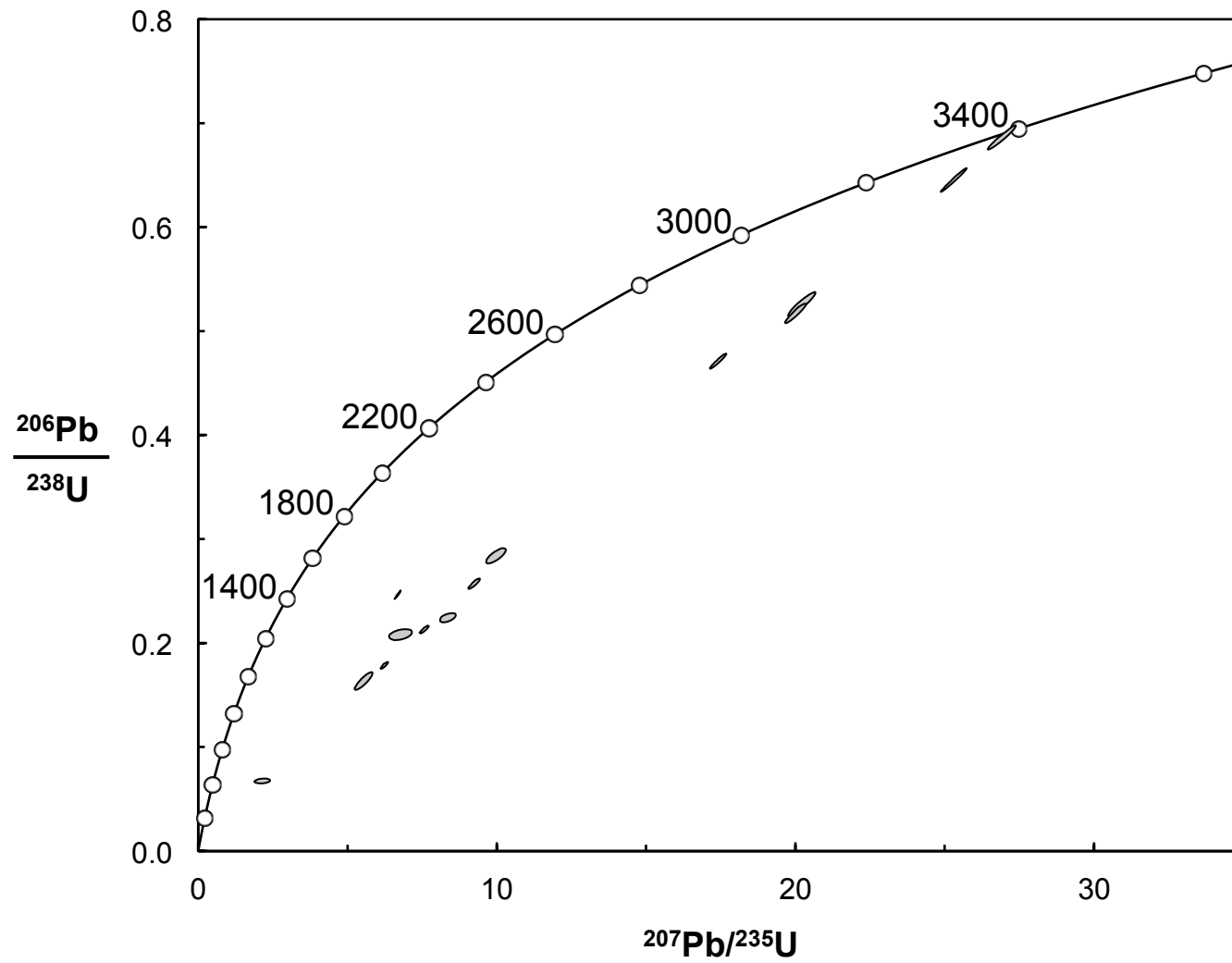
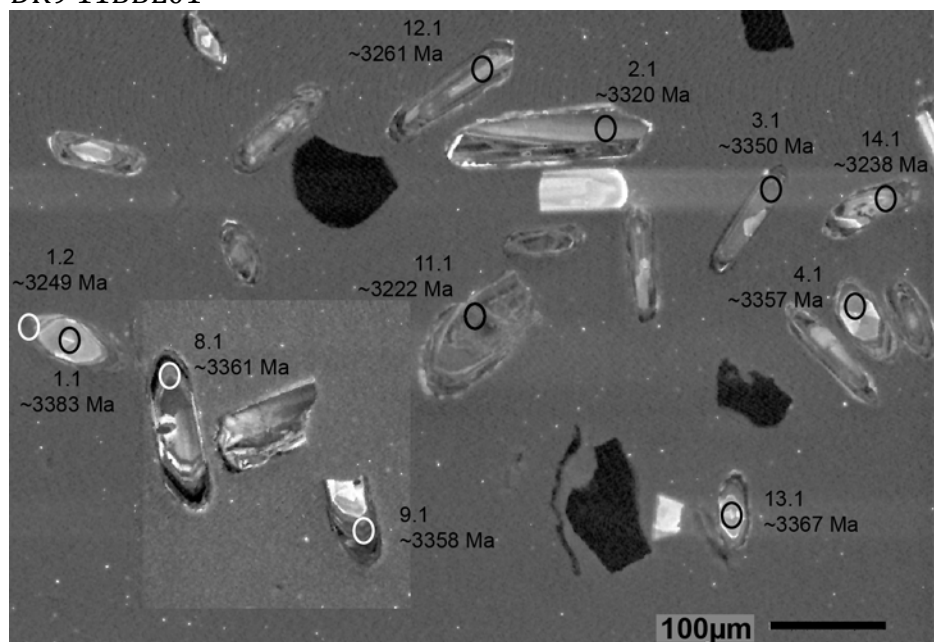


Fig DR8

DR9 11BBL01



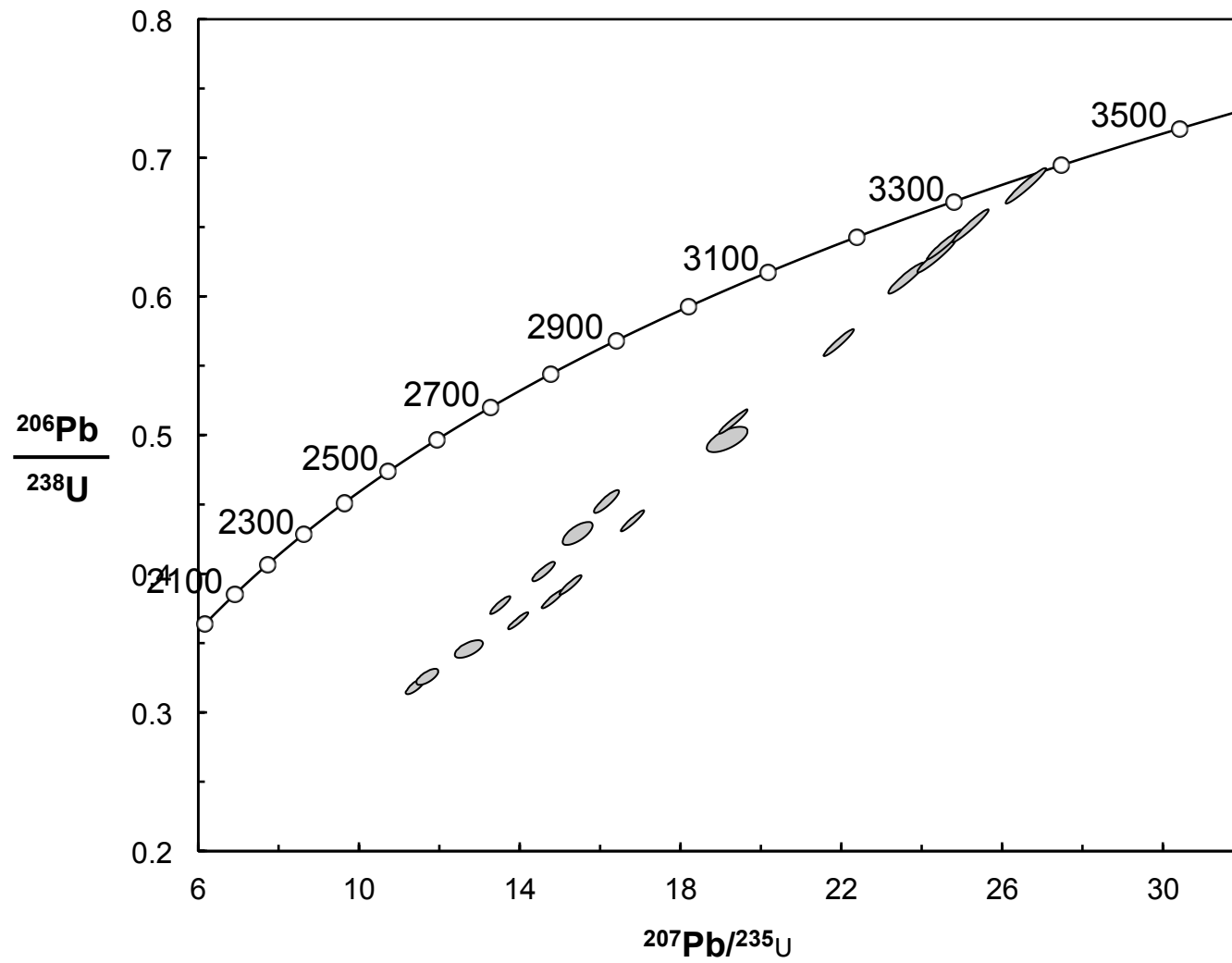
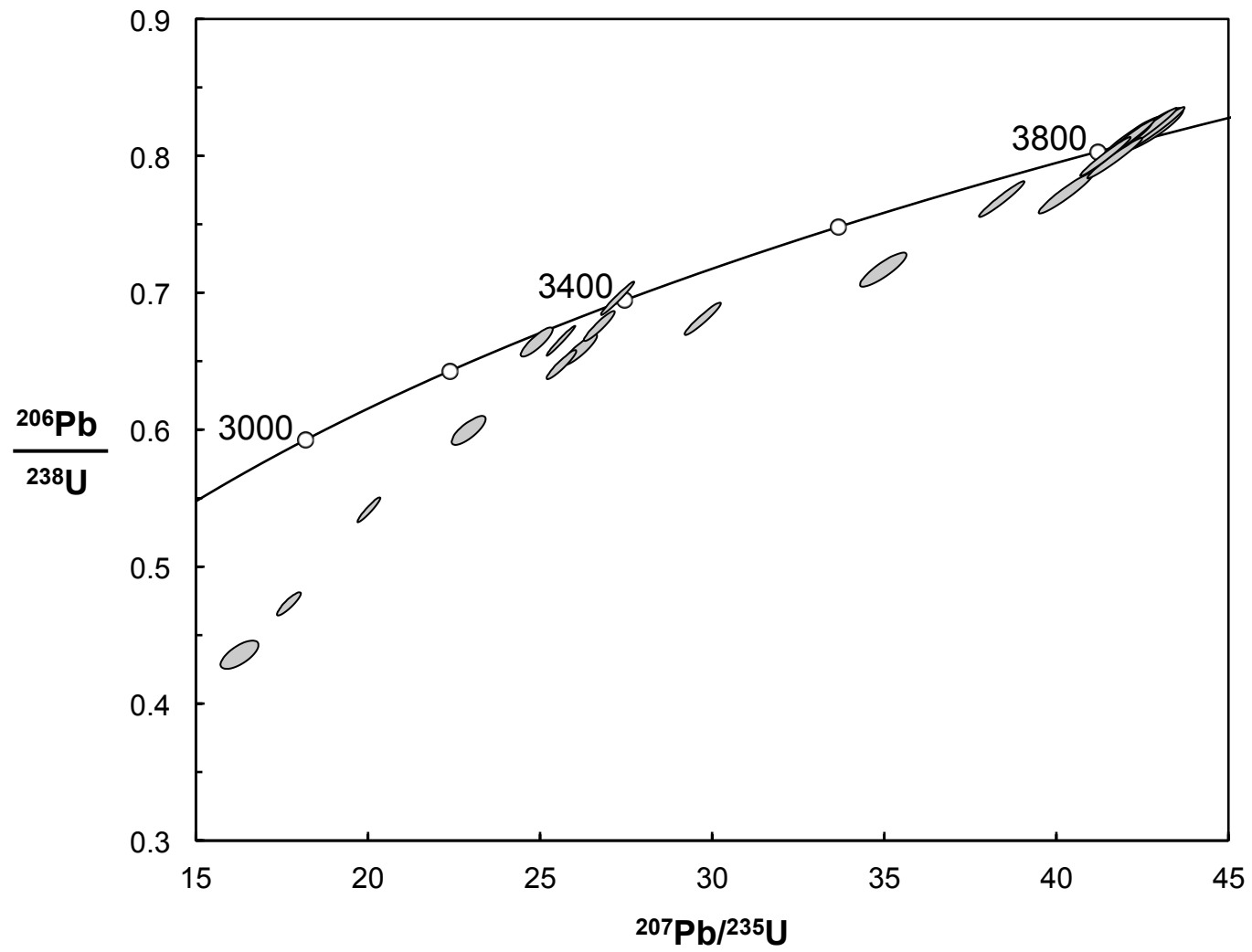
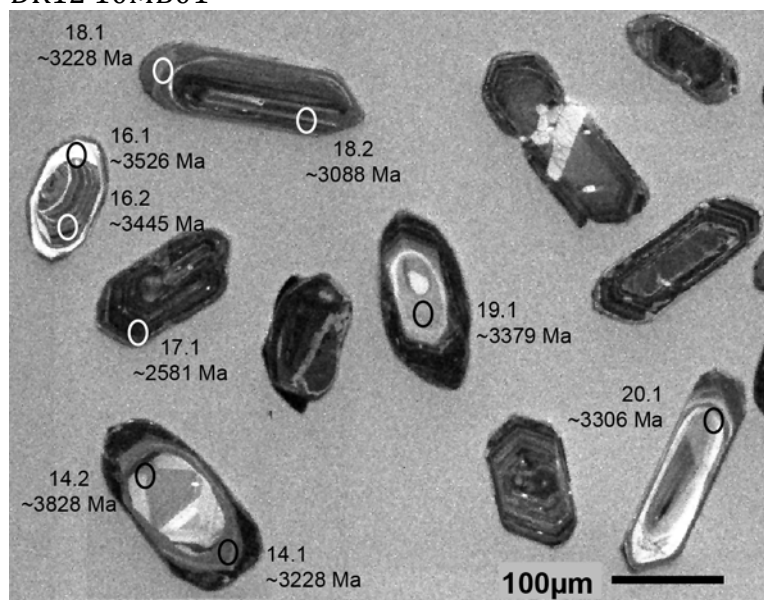


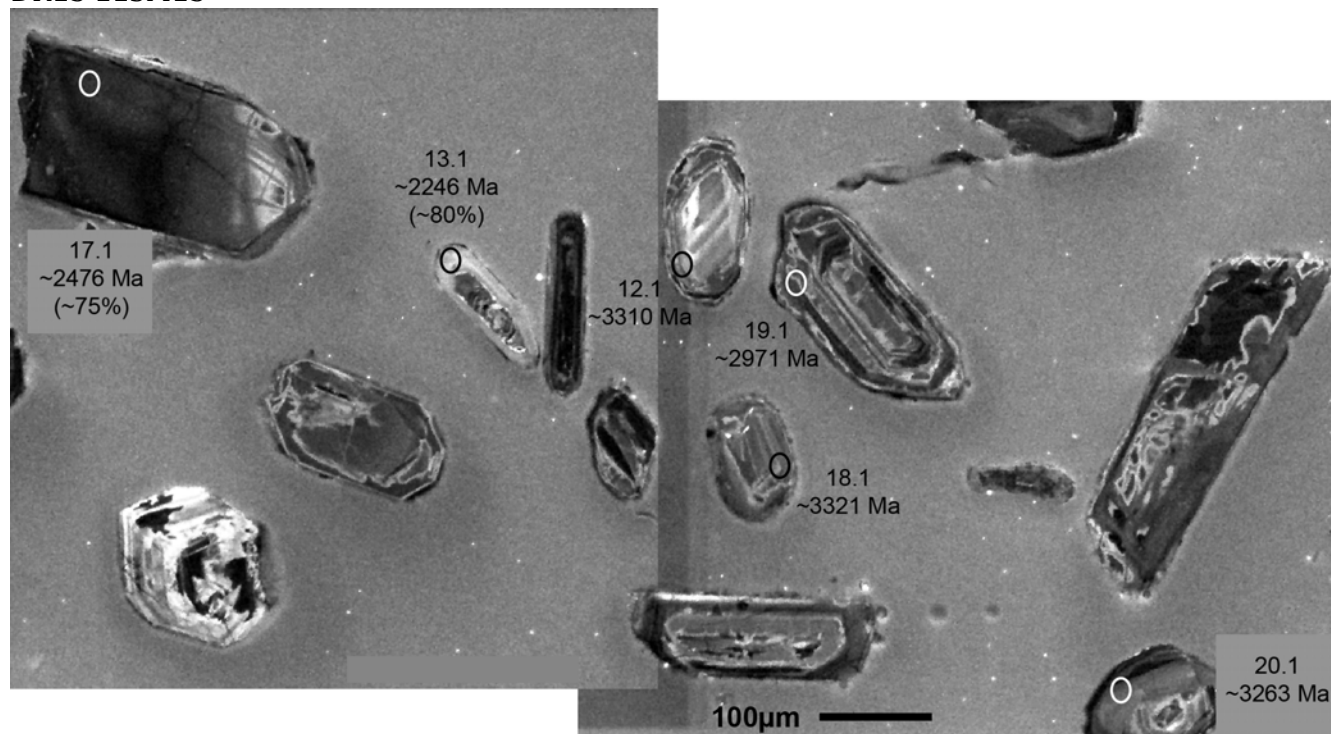
Fig DR10



DR12 10MB01



DR13 11SM13



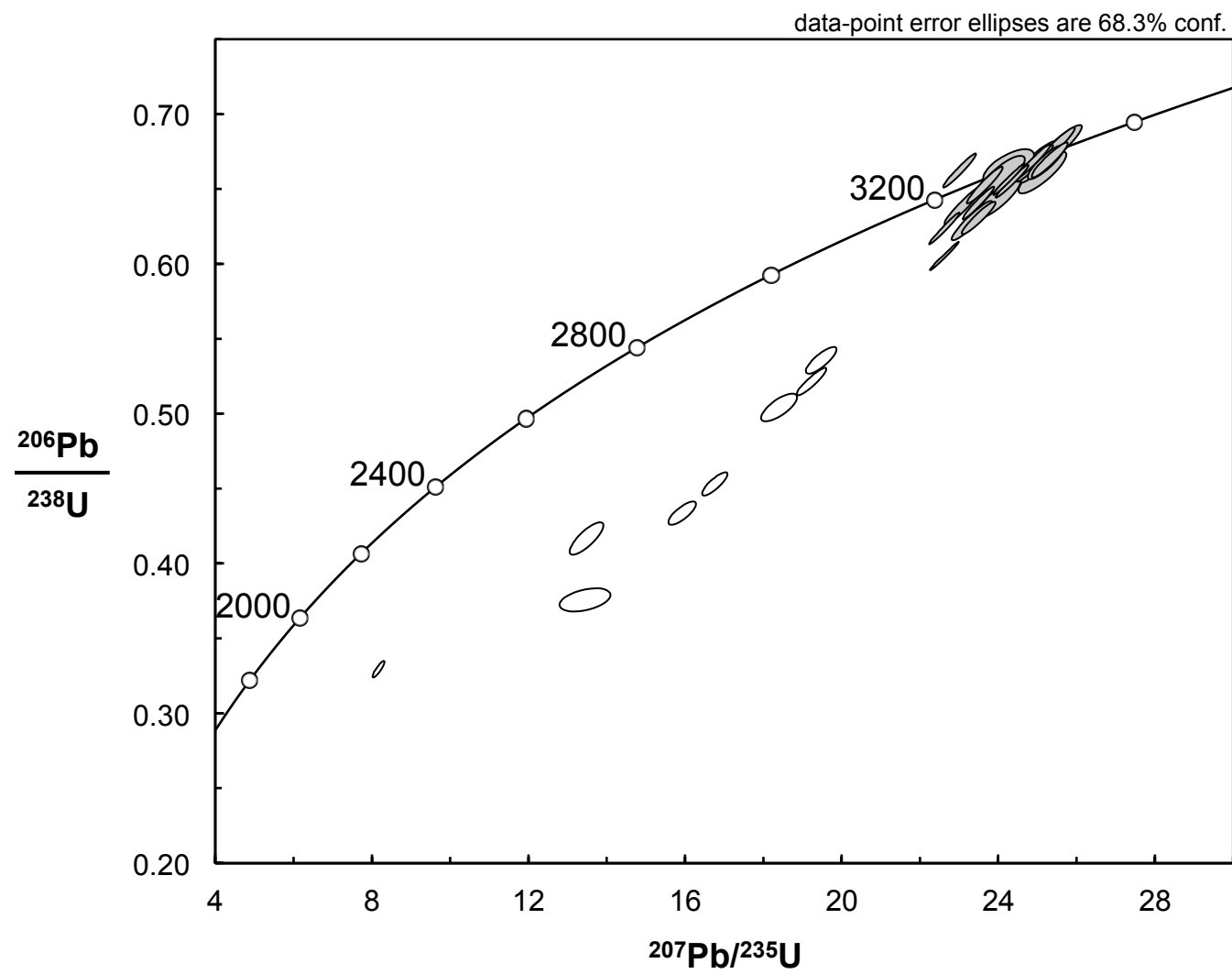
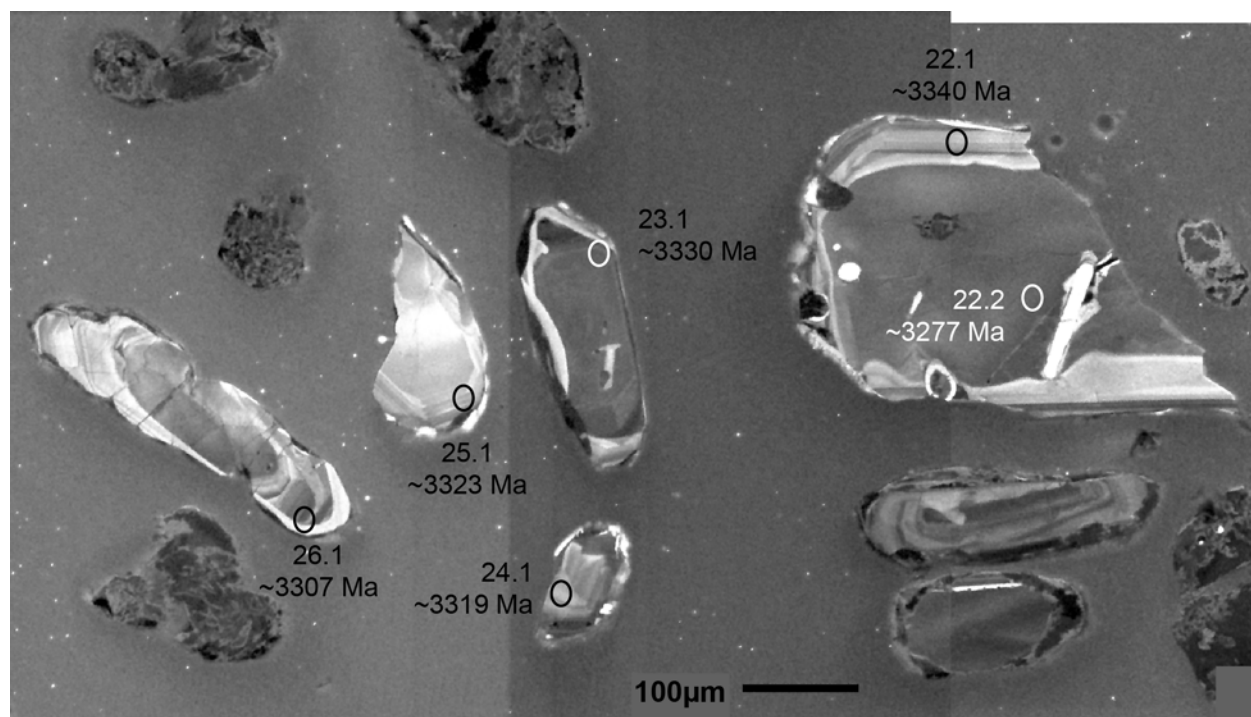
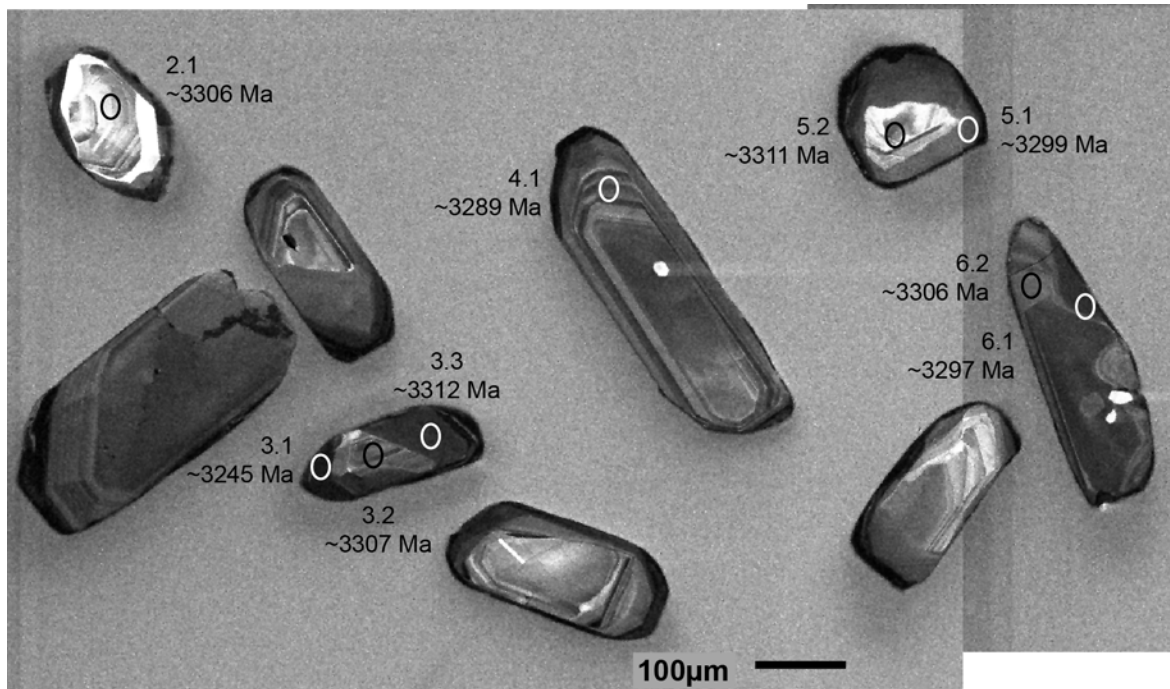


Fig DR14

DR15 11SM07



DR16 10SM10



DR17 00BG05

