

# New Geochronological Results from the Slave Metallogeny Project

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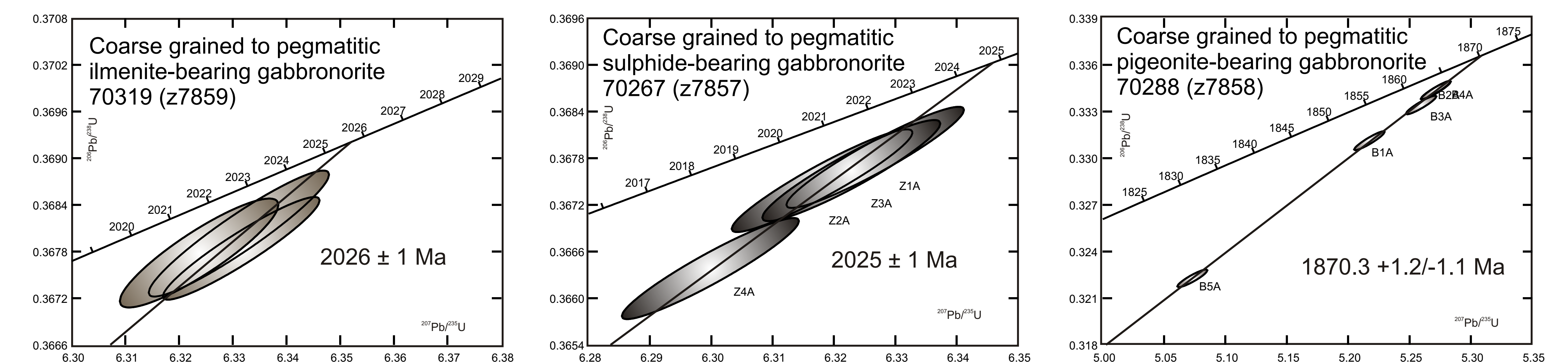
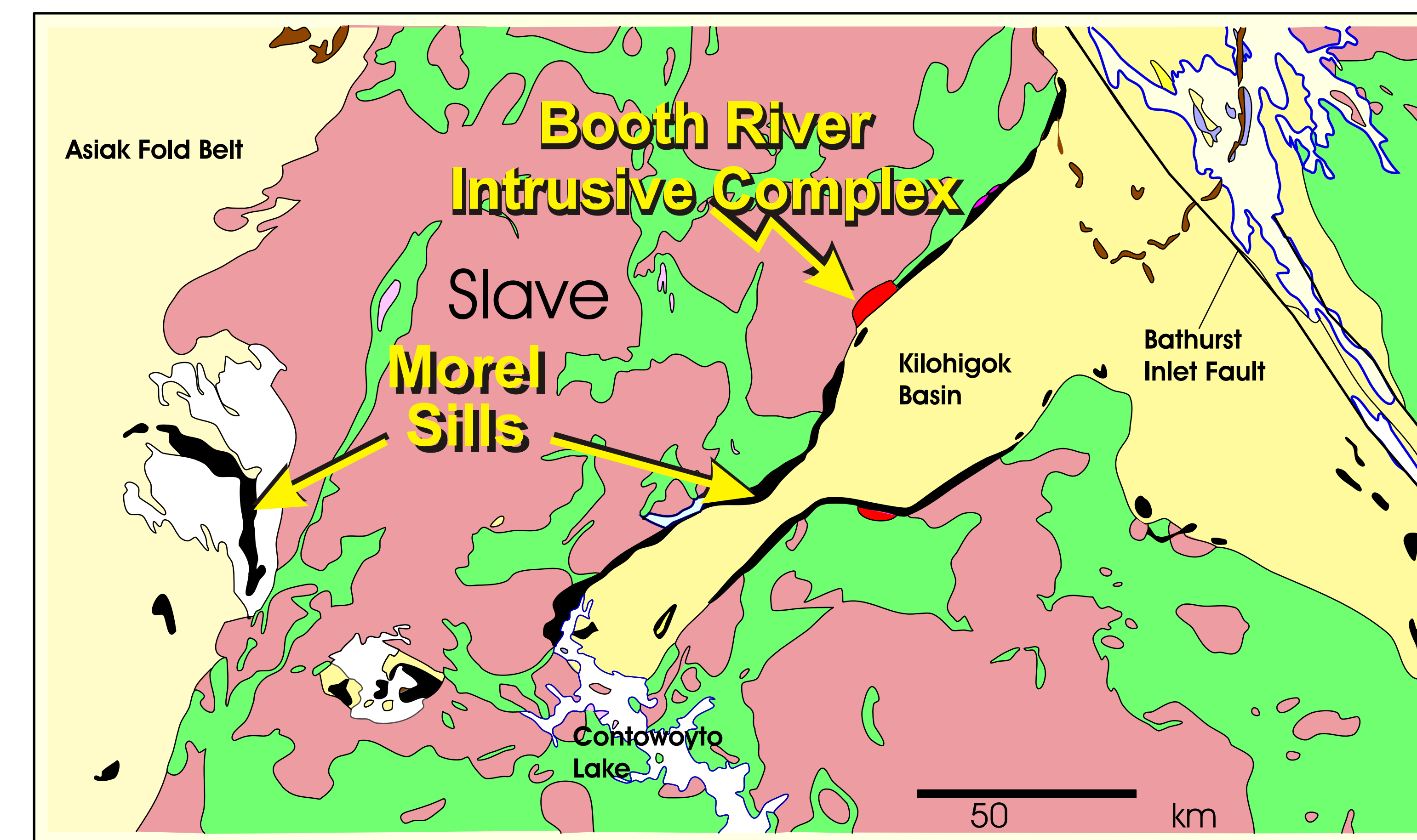
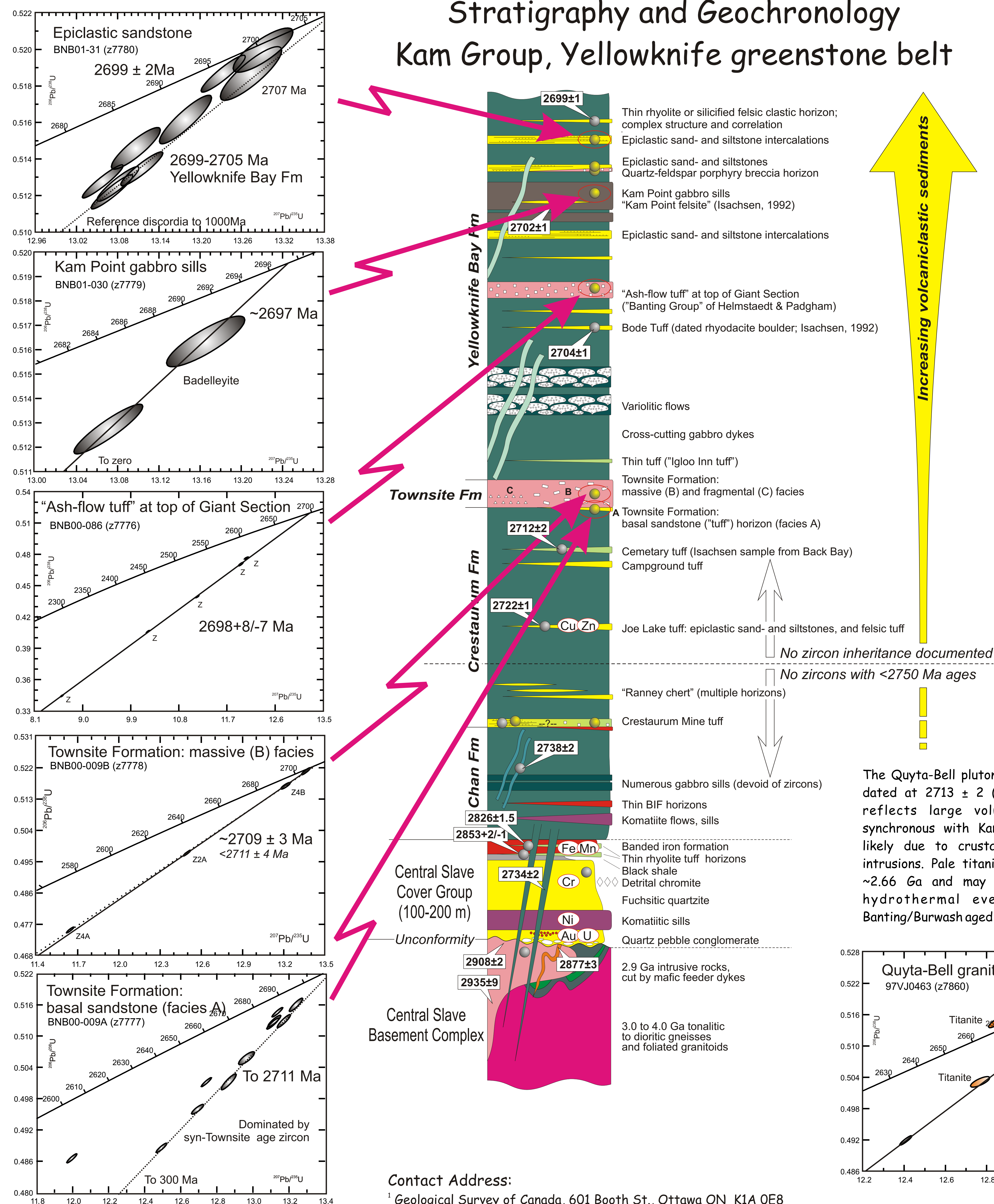
### New Age Results from the Yellowknife Greenstone Belt

New dating in the Yellowknife greenstone belt was focused on several key units in the Kam Group to resolve stratigraphic questions. A preliminary zircon age of ~2709 Ma is reported for a fragmental volcanic unit of the Townsite Formation. This age is conformable with ages of 2712 Ma and 2704 Ma for underlying and overlying units respectively, and resolves the stratigraphic inconsistency of a previously reported, ~2685 Ma age for a massive porphyry unit in the Townsite Fm. (Isachsen et al, J. Geol. 1991). The latter represents a younger intrusive phase. Sandstone within the Townsite Fm. contains zircon with syn-volcanic ages consistent with its stratigraphic position, and no evidence of zircon derived from the Mesoproterozoic Central Slave Basement complex. An age of 2698 ± 8/-7 Ma for a quartz-feldspar porphyritic tuff at the top of the Giant section confirms that this unit is Kam Group. Detrital zircons from an epiclastic sandstone near the top of the Kam contain zircons as young as 2699 Ma, similar to the age of felsic volcanic rocks in the section. The Kam Point gabbro sill, yields two slightly discordant baddeleyite analyses of ~2697 Ma, and represents a syn-volcanic mafic intrusion. The Bell Lake pluton, north of Yellowknife, is dated at 2713 ± 2 Ma (zircon and titanite), and represents a large volume of felsic magma generated at the time of Kam Group volcanism, most likely due to crustal heating due to mafic intrusions. Increasing proportions of epiclastic sediments in the upper Kam Group most likely sourced from these felsic centers.

### New Ages of Proterozoic Mafic Intrusions, central Slave Province

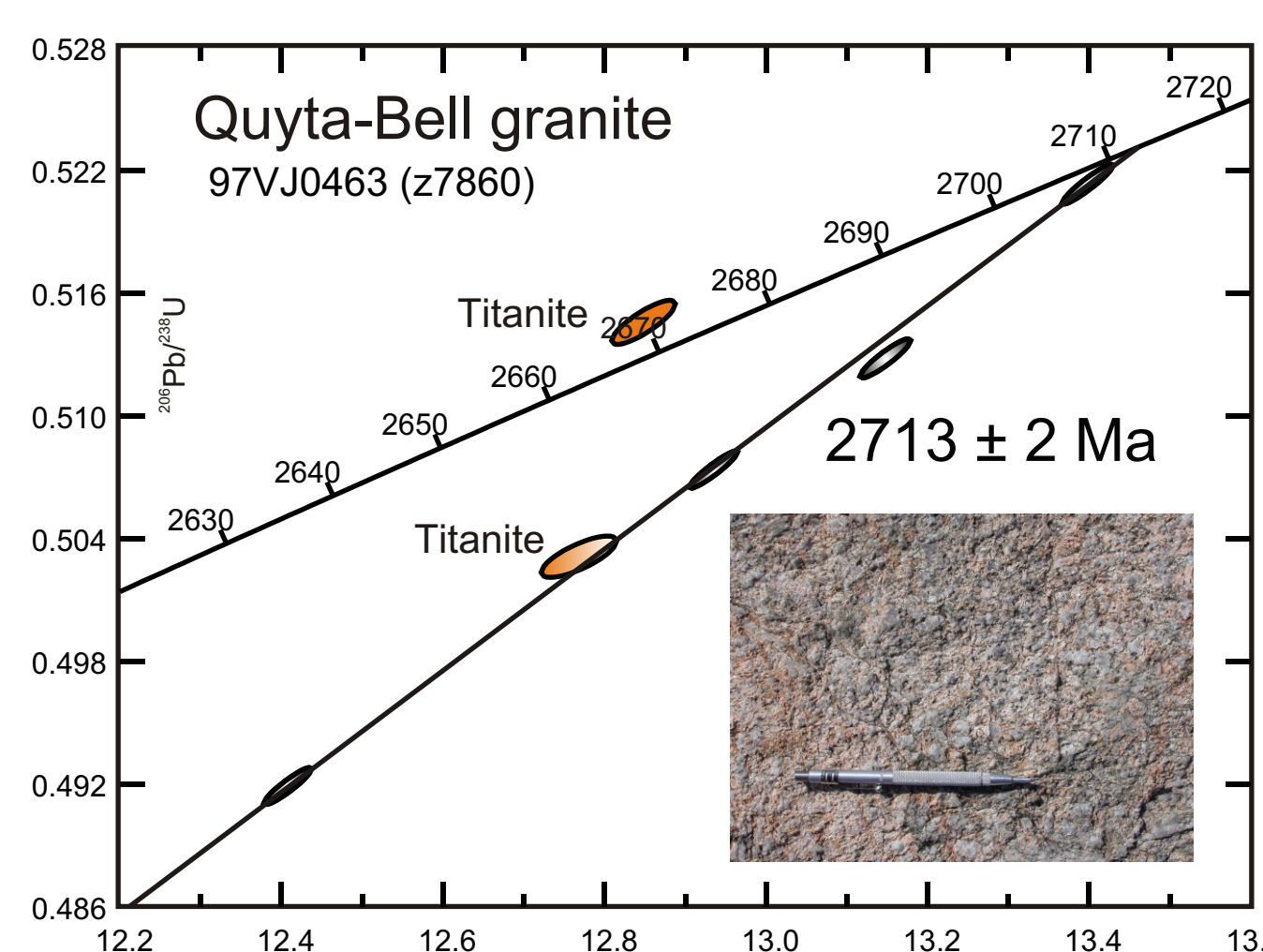
New U-Pb ages for Paleoproterozoic mafic intrusions from the Booth River complex, NE of Contwoyto Lake, yield ages of 2026 ± 1 Ma and 2025 ± 1 Ma. A U-Pb baddeleyite age was obtained from a sample of the Mara River sheets (correlated with Morel Sills) from the base of the Kilohigok Basin.

### Stratigraphy and Geochronology Kam Group, Yellowknife greenstone belt



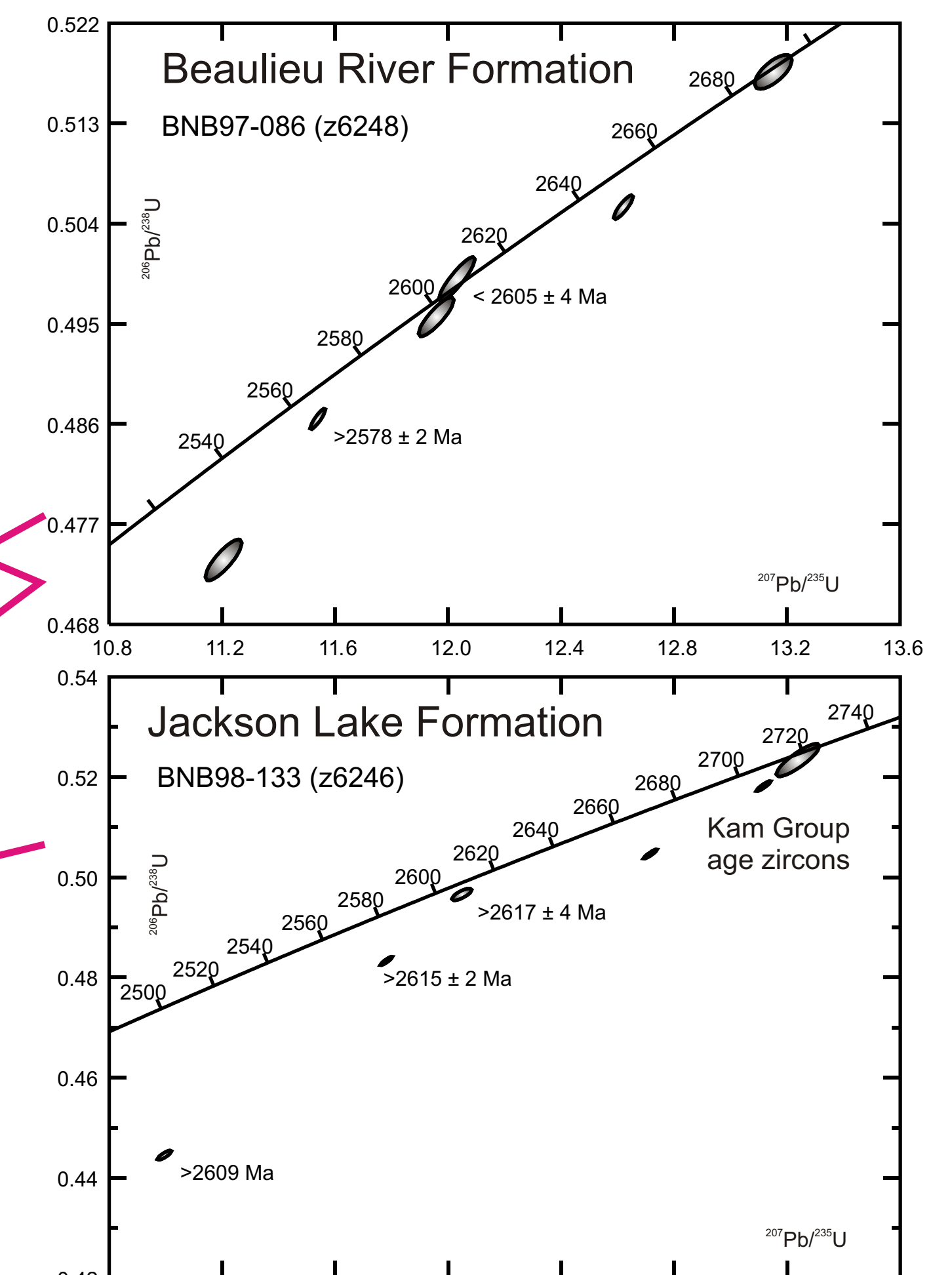
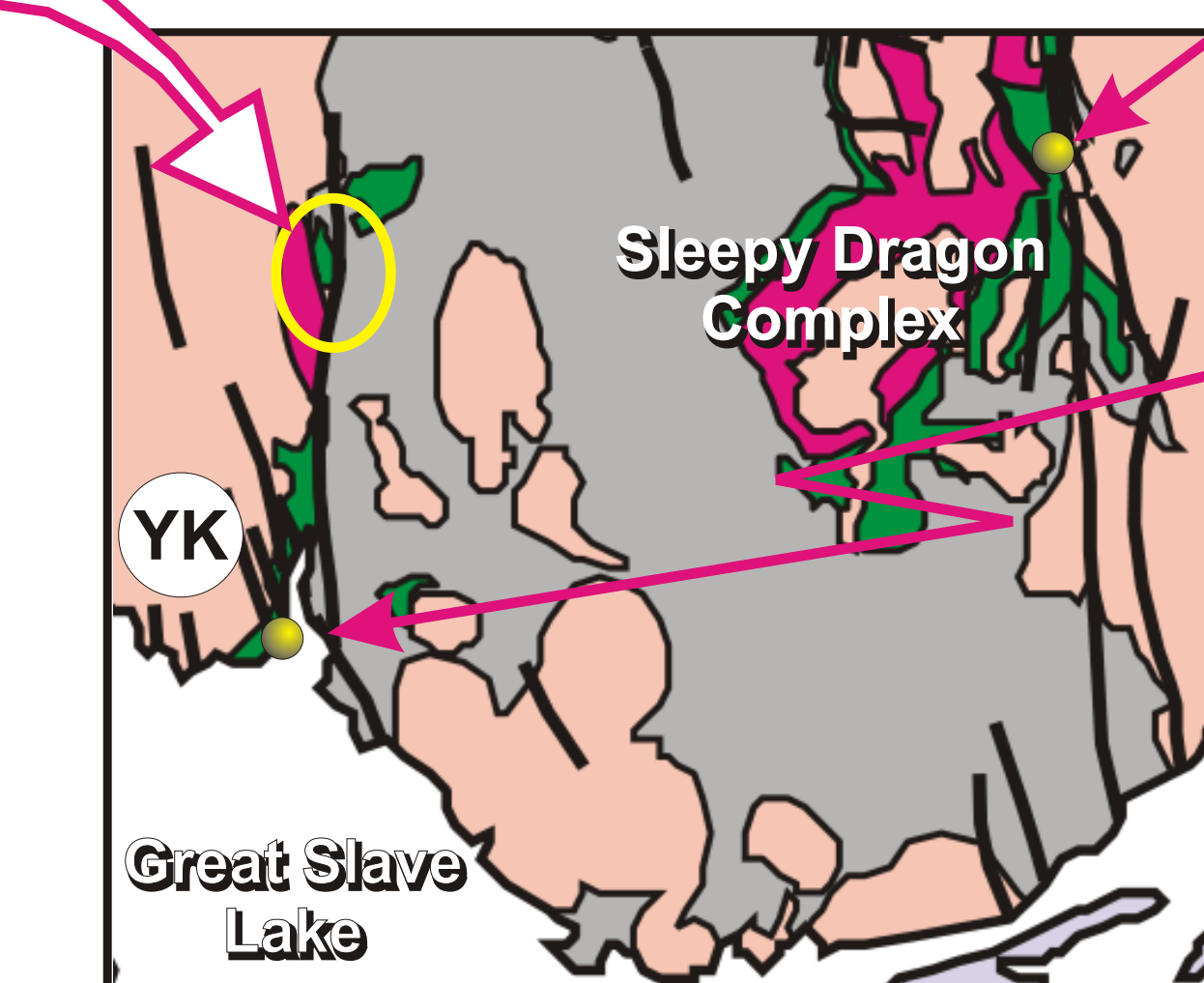
### Syn-Kam Group Felsic Plutonism at Quya-Bell

The Quya-Bell pluton, north of Yellowknife, is dated at 2713 ± 2 (zircon and titanite), and reflects large volume felsic magmatism synchronous with Kam Group volcanism, most likely due to crustal heating due to mafic intrusions. Pale titanite has a younger age of ~2.66 Ga and may be recrystallized during hydrothermal events associated with Banting/Burwash aged magmatism.



### Detrital Zircon Ages Jackson Lake and Beaulieu River Fm.

Deposition of conglomerates and arkose of the Jackson Lake and Beaulieu River Formations are known to post-date ~2.6 Ga. Recent ion microprobe dating (Sircombe et al, unpublished) allows for the possibility that these sequences are post-2590 Ma. In order to evaluate this possibility, additional high-precision dating was carried out on single zircon crystals. A small data set has not yet revealed post-2.6 Ga zircon.



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