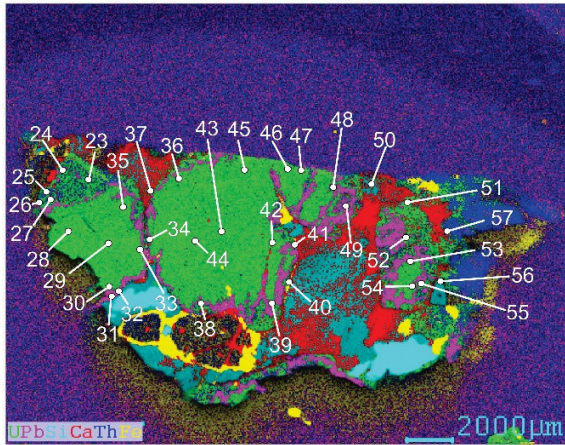
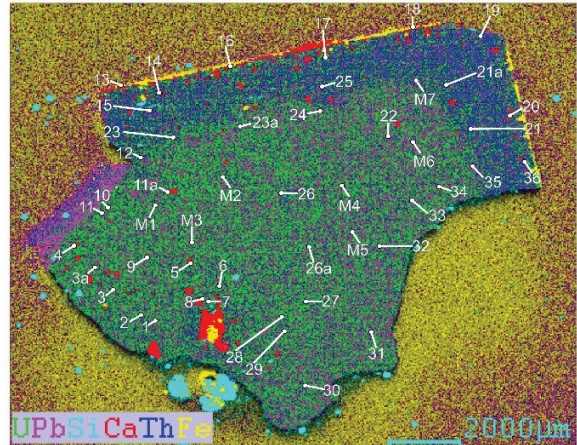


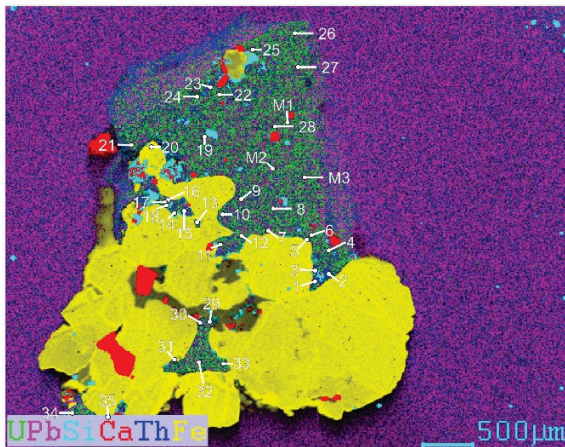
Figure S1. XRF elemental maps



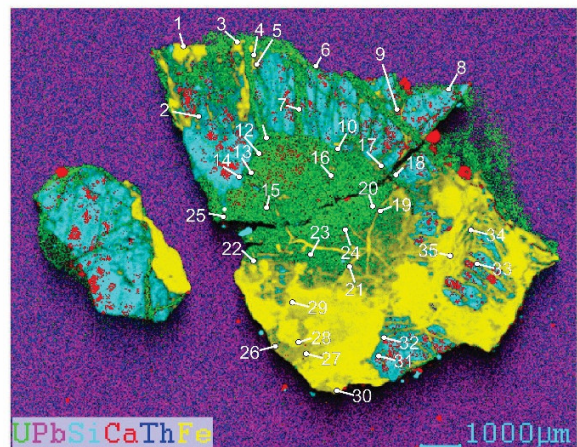
Yancey County, North Carolina



Bancroft, Ontario, Canada

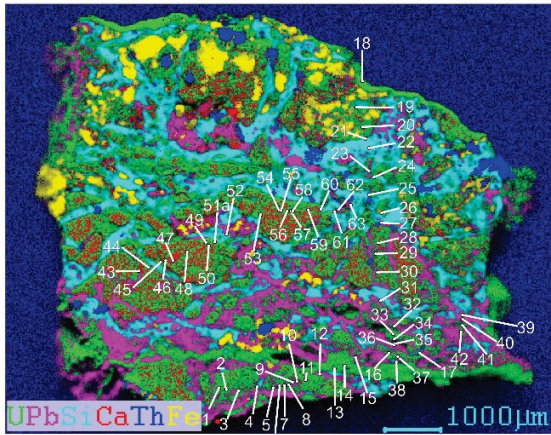


Cardiff Township, Ontario, Canada

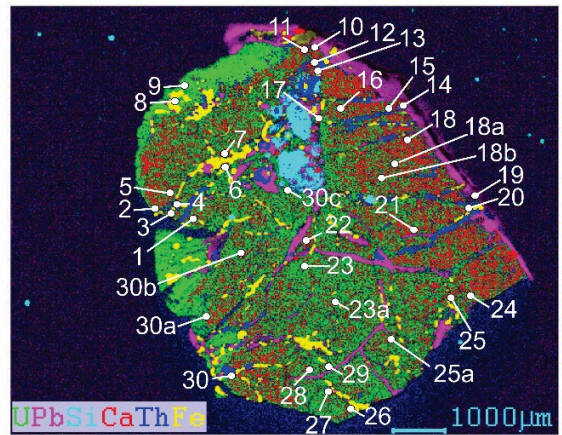


Foster Lake, Saskatchewan, Canada

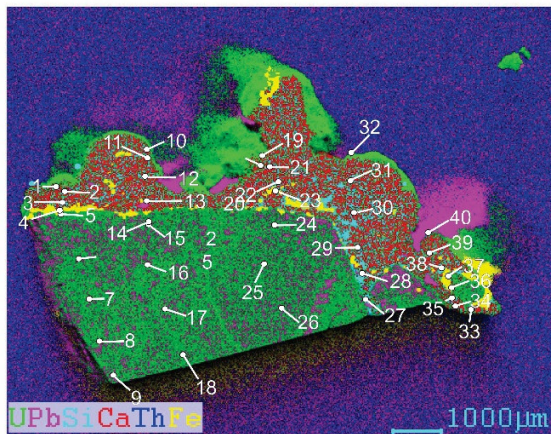
Figure S1. XRF elemental maps



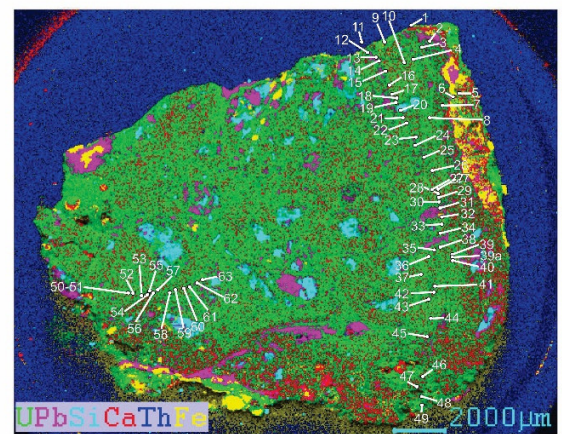
Jachymov, Czech Republic



Great Bear Lake, Canada



Shinkolobwe, DR Congo

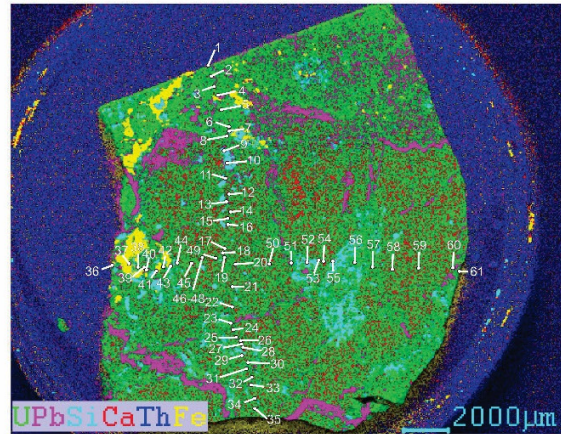


Marshall Pass, Colorado

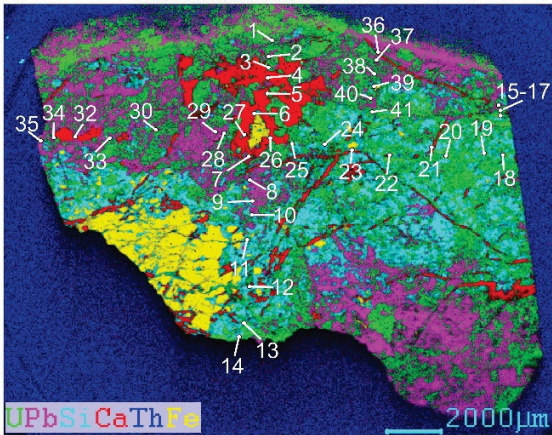
Figure S1. XRF elemental maps



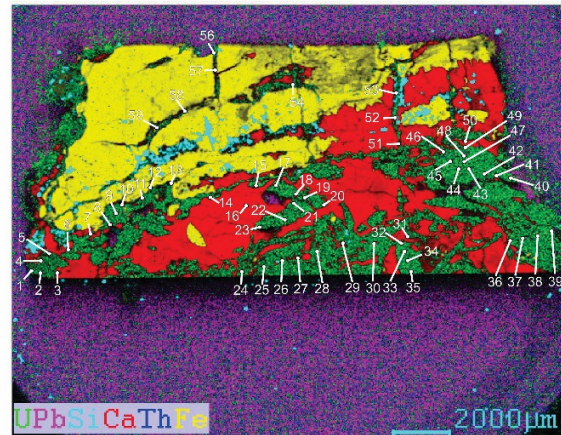
Northern Territory, Australia (top)



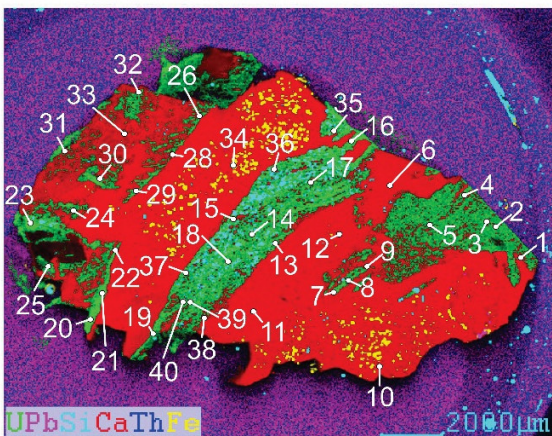
Northern Territory, Australia (bottom)



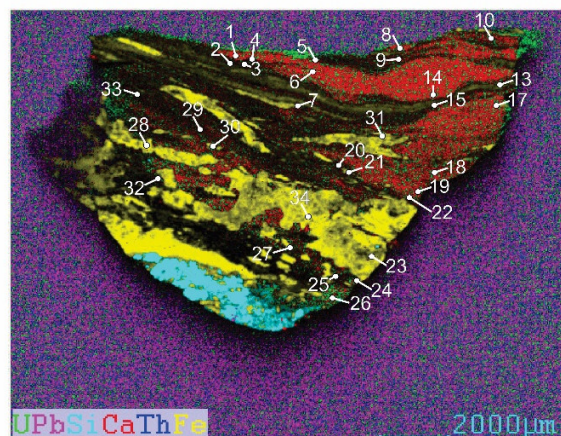
Rabbit Lake, Saskatchewan, Canada



Adair Mine, Cane Spring Canyon, Utah



Big Indian Wash, Utah



Happy Jack, Utah

Figure S2. CN-REE Patterns

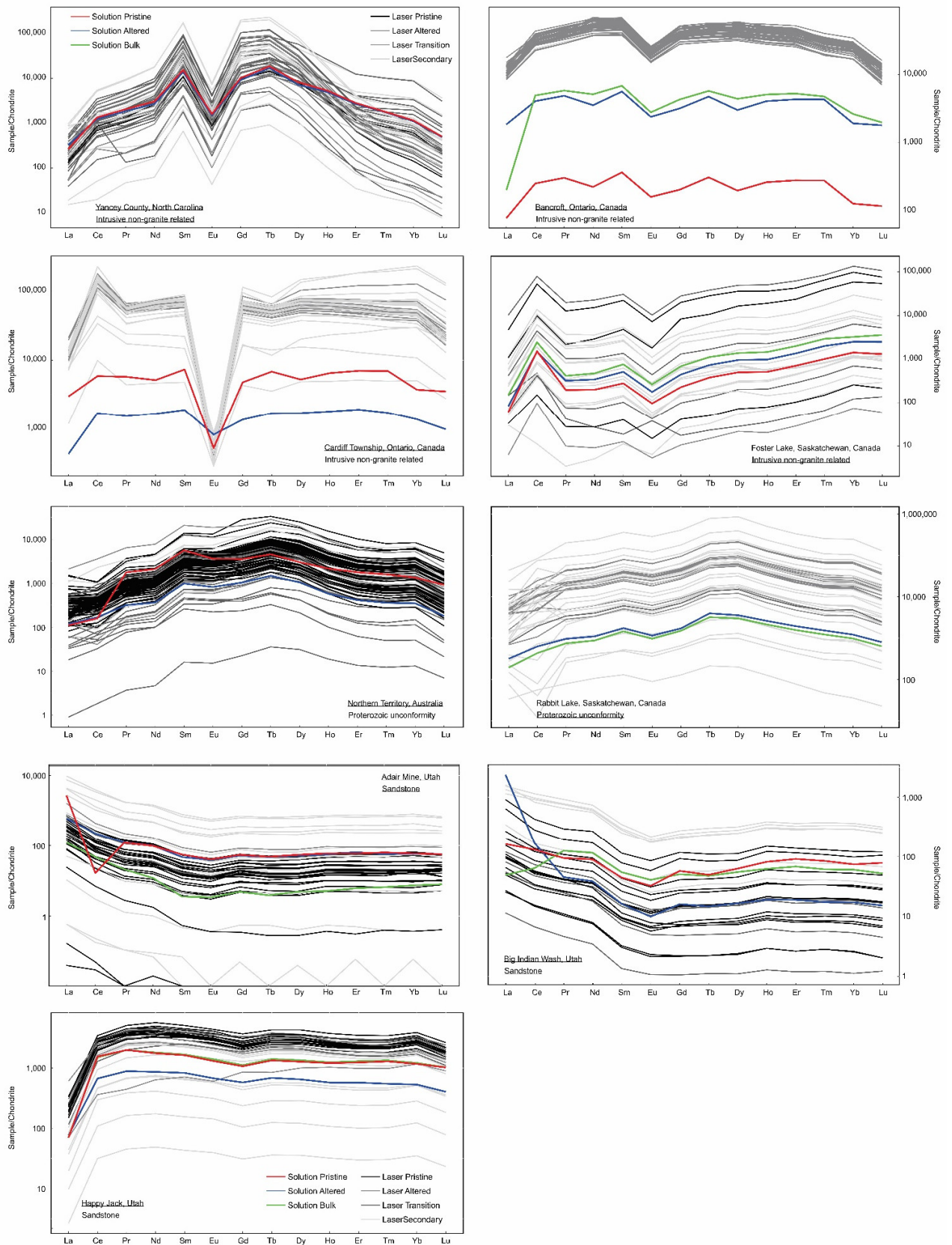


Figure S3. U-Pb concordia diagrams

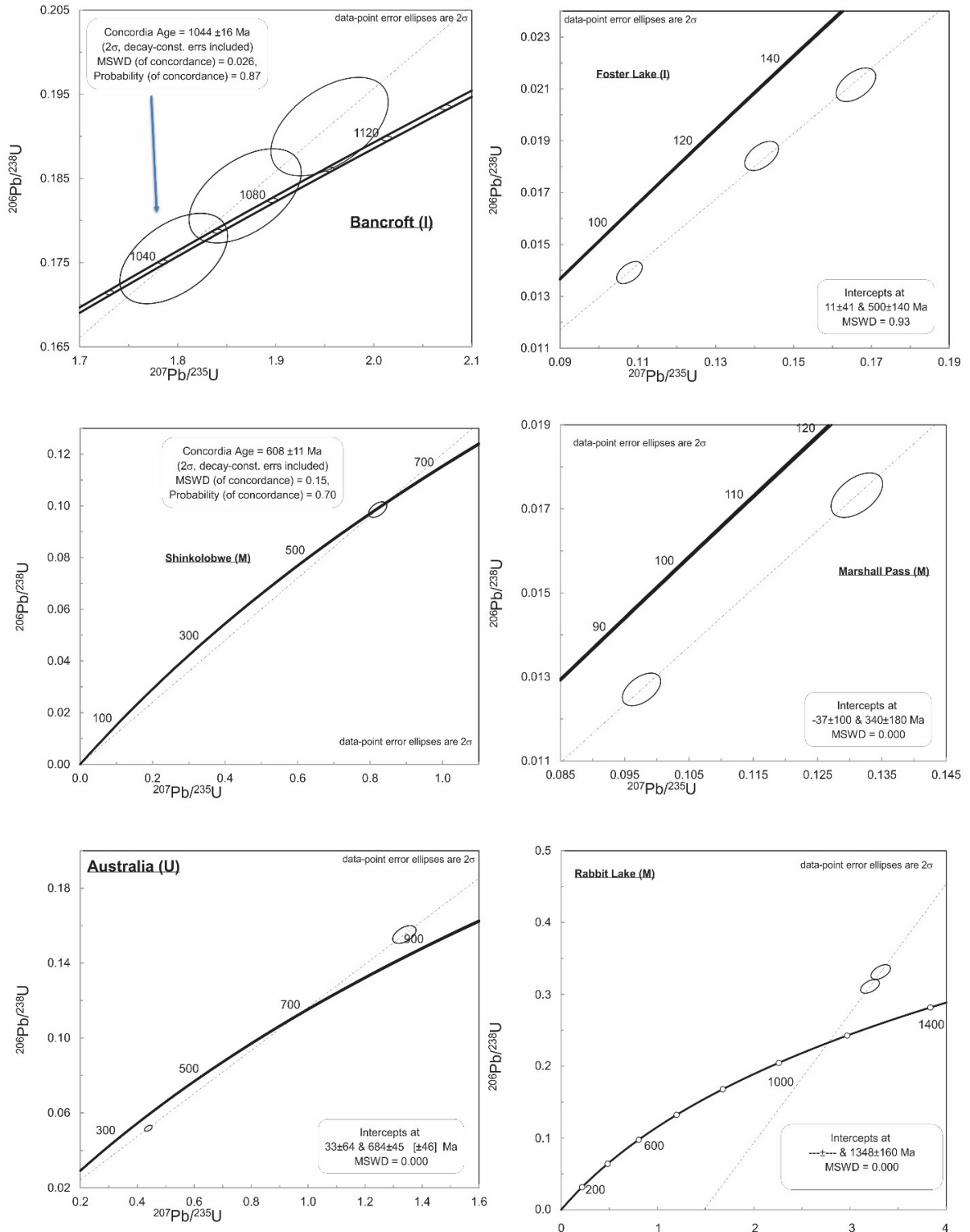


Figure S3. U-Pb concordia diagrams

