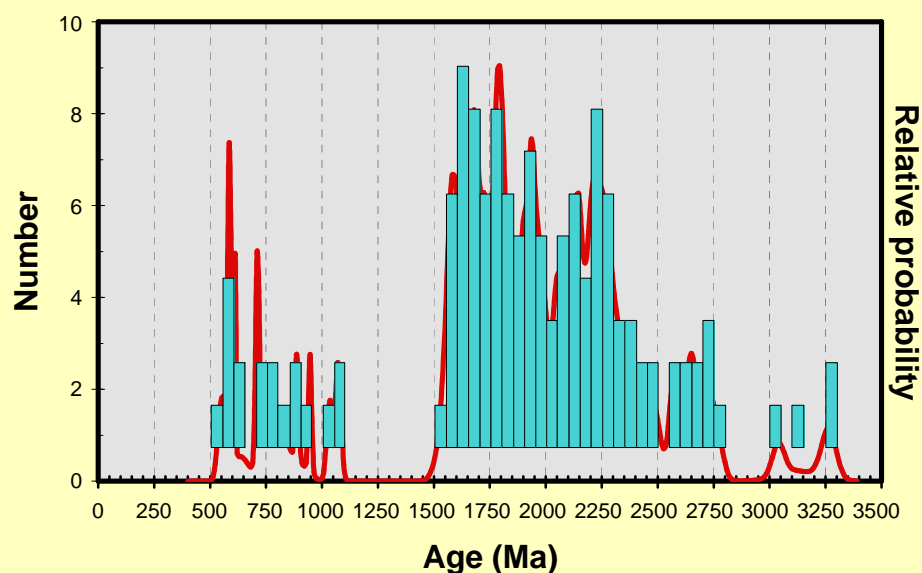


Detrital zircon ages from the Yukon-Tanana terrane – a one page discussion.

Nicholas Van Wyck, Sisyphus Consulting Anchorage, AK
nvw@sisyphus-consulting.com

Mineral exploration in the Fortymile District allowed the collection of a metamorphosed arkosic-quartzite from which detrital zircon grains were collected and dated using an ICP laser ablation system (Van Wyck, 2007). The location of this sample is well within the mapped extent of the Yukon-Tanana terrane (Y-T). The data on all 135 grains is presented below and is best compared with the recently available larger dataset of other detrital zircon ages published earlier this year in the AGS Newsletter (Bradley and others, 2008).



The range of ages from the Fortymile sample contain a typical cratonic North American signature with well developed populations at 2.55 Ga to 2.8 Ga, a broad Paleoproterozoic population (n=102) from 2.5 Ga to 1.5 Ga, a distinct break in ages between 1.5 Ga and 1050 Ma and a population from 1050 to 550 Ma (n=18). The significance of these ages are that they all have linkage to North American/Laurentian crust forming events. The detrital zircon “barcode” from the Fortymile sample in comparison to the data of Bradley and others (2008) show similarities to both their Wickersham Grit and Y-T composite data. Although the data permit several alternatives, the preferred interpretation is that basement to part of the Y-T terrane consists of a Wickersham Grit correlative (represented by the Fortymile sample) and that the Devonian-Mississippian arc characteristic of Y-T was developed in places on top of this basement. Potentially this basement is correlative with the Snowcap Complex in the Yukon, but it is predicted the defining characteristic of the basement will be the presence of detrital zircons with a Laurentian affinity and likely deposition during the Neoproterozoic to Cambrian.