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Interactive comment on "On the treatment of discordant detrital zircon U–Pb data" *by* Pieter Vermeesch

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The manuscript is potentially an important scientific contribution that will be of wide interest to broad geological audience. Despite the increasingly widespread use of the detrital zircon U-Pb geochronology for provenance signature, there are some ambiguities that may have strong effects on data interpretation, such as "discordance". The author presents six definitions of the discordance and make a novel comparison using age spectrum of real samples. The result seems clear and provide useful implications for future application. I suggest the manuscript should be accepted after minor revision.

Some comments:

Line 35: I think the superscript "204" is not necessary.

Line 94: It requires another equation for the concordia age with 6/8 and 7/6 ratios.

Line 101: It will be much clearer if you can list the six definitions for different discordance filters in a table.

Figure 2: Is the concorida age (tc) calculated by 6/8 and 7/6 ratios or 6/8 and 7/5 ratios?

Figure 3: The top figure is good! But it will be better if you can give an envelope (above and below the concordia line) for each discordance filter because the discordance can be negative in nature. In contrast, the bottom figure is confusing in its present form. The absolute age filter (dt) may not be the best filter but it looks like a robust one in the figure.

Figure 5: Are 0.84, 0.85 and 0.87 the intersections for the three lines? What do the arrows mean?

Figure 6: The axis values may not be in logarithmic space. The log (7/6) should be negative value as shown in Figure 3. It's better to add the label dx and dy for the dash lines.

Equation 7: exp(lambda235t)-1 and exp(lambda238t)-1 should be in parentheses.

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