Errors in drawing phase diagrams, Fe-C vs. Fe-Fe$_3$C phase diagram

Questions:

1. Why do intermetallic compounds melt and solidify at fixed temperatures?
2. Why does a pure metal melt at a fixed temperature?
3. Why does the extension of a phase boundary need to be extended only into a two phase field?
4. What are the differences in the Fe-C and Fe-Fe$_3$C phase diagrams?
5. Fe-C and Fe-Fe$_3$C phase diagrams are different?