***Geological Magazine***

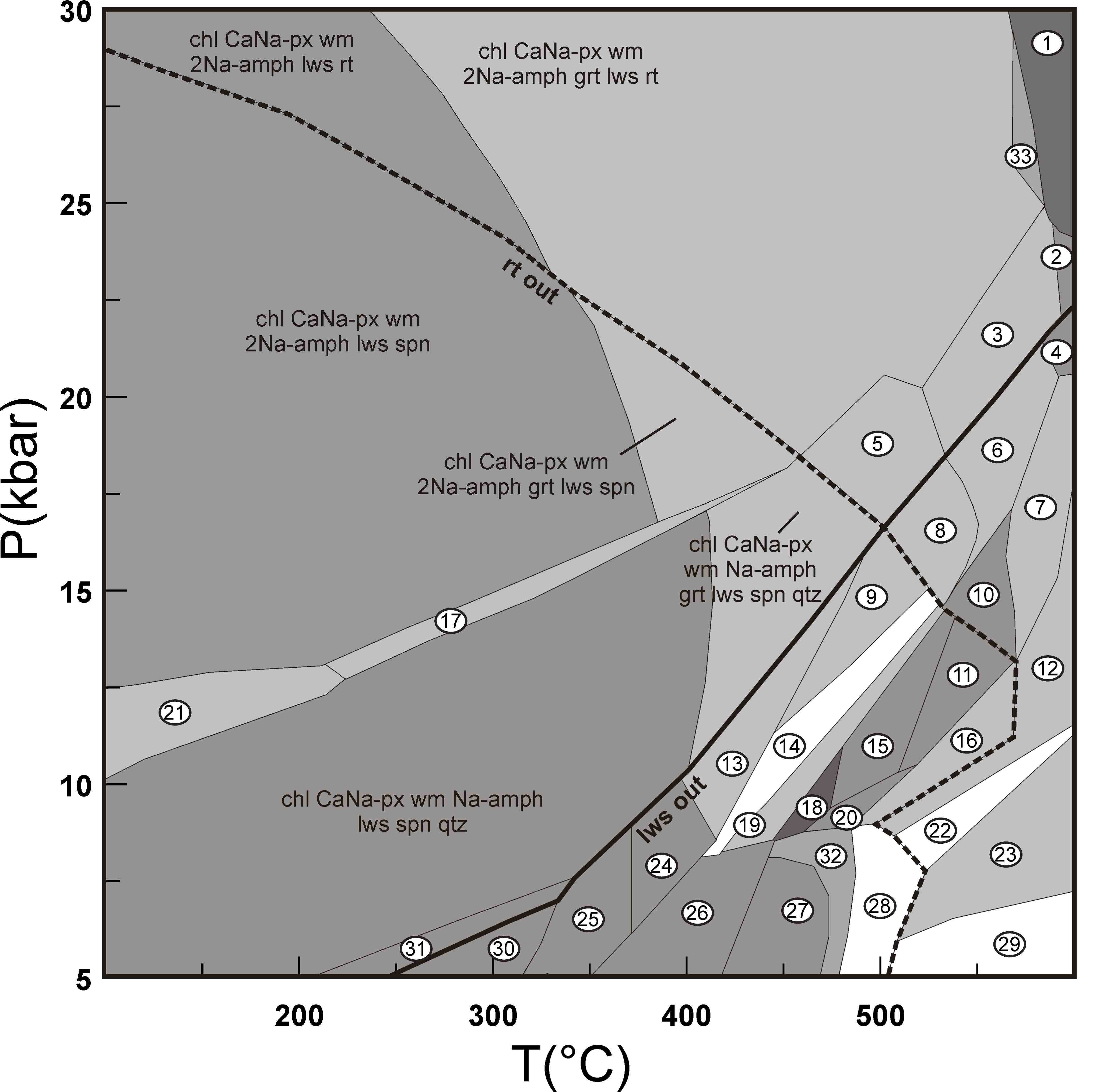
**Lawsonite-bearing eclogite from a tectonic mélange in the Ligurian Alps: new constraints for the subduction plate-interface evolution.**

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*Supplementary Material*

**SUPPLEMENTARY FIGURES**

**Figure S1**. P-T pseudosection (Figure 9 in the text) in the KMnTiNCFMASH system and H2O in excess. The mineral abbreviations are after Kretz (1983) except for: cpx (clinopyroxene), Na-amph (Na-amphibole), Ca-amph (Ca-amphibole), wm (white mica), CaNa-px (CaNa-pyroxene) and Na-px (Na-pyroxene). Narrow and small fields have been neglected for the sake of clarity. The fields variance goes from three (i.e. 9 phases, white fields) to six (i.e. 6 phases, dark grey). Numbers in the white circles are the assemblages listed in the following:



1. CaNa-px wm Na-amph grt lws rt

2. CaNa-px wm Ca-amph Na-amph grt lws rt

3. chl CaNa-px wm Ca-amph Na-amph grt lws rt

4. CaNa-px wm Ca-amph Na-amph grt zo rt

5. chl CaNa-px wm Na-amph grt cpx lws rt

6. chl CaNa-px wm Ca-amph Na-amph grt zo rt

7. CaNa-px wm Ca-amph Na-amph grt cpx zo rt

8. chl CaNa-px wm Na-amph grt cpx zo rt

9 chl CaNa-px wm Na-amph grt cpx zo spn

10. wm Ca-amph Na-amph grt cpx zo rt

11. wm Ca-amph Na-amph grt cpx zo spn

12. wm Ca-amph Na-amph grt cpx zo qtz spn

13. chl CaNa-px wm Na-amph grt zo spn qtz

14. chl CaNa-px wm  Ca-amph Na-amph grt cpx zo spn

15. CaNa-px wm Ca-amph Na-amph grt zo spn

16. wm Ca-amph Na-amph grt zo spn ab qtz

17. chl CaNa-px wm Ca-amph Na-amph lws spn qtz

18. wm Ca-amph Na-amph grt zo spn

19. chl CaNa-px wm Ca-amph Na-amph grt zo spn

20. wm Ca-amph Na-amph grt zo spn ab

21. chl CaNa-px wm Na-amph Na-amph lws spn qtz

22. wm Ca-amph Na-amph grt zo pg ab qtz rt

23. wm Ca-amph Na-amph grt zo ab qtz rt

24. chl CaNa-px wm Na-amph zo spn qtz

25. chl wm cpx czo spn ab qtz

26. chl wm Ca-amph cpx zo spn ab

27. chl wm Ca-amph grt zo spn ab

28. chl wm Ca-amph Na-amph grt zo spn ab qtz

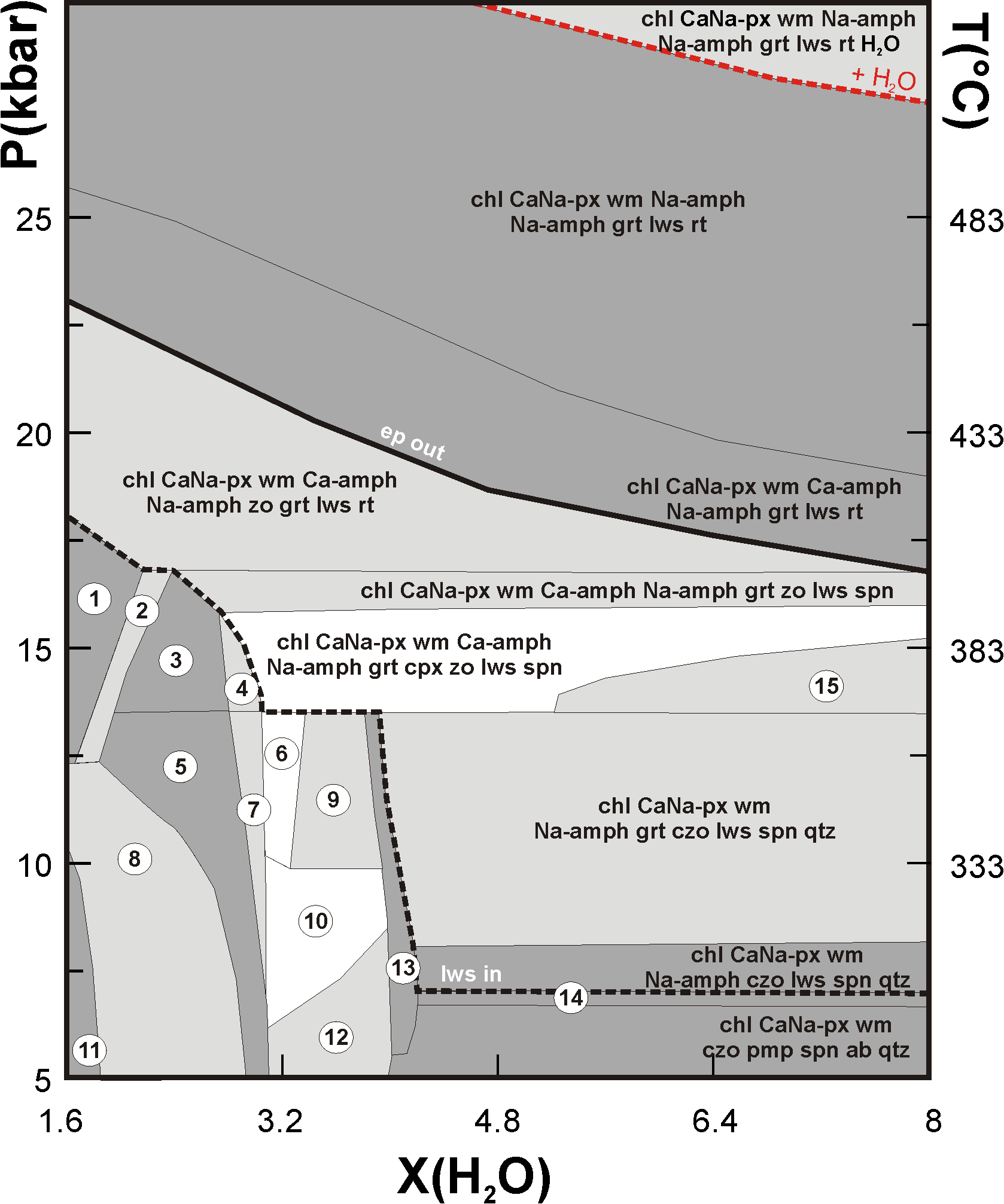
29. wm Ca-amph Na-amph grt zo spn ab qtz rt

30. chl CaNa-px wm pmp spn ab qtz

31. chl CaNa-px wm lws spn ab qtz

32. chl wm Ca-amph Na-amph grt zo spn ab

33. chl CaNa-px wm Na-amph grt lws rt



**Figure S2**. P/T - X(H2O) pseudosection calculated along a 3°C/km geotherm (see text for explanation), in the KMnTiNCFMASH system. The fields variance goes from 1 (i.e. 10 phases, white fields) to three (i.e. 8 phases, dark grey). The dashed red line depicts the H2O-saturation surface of the system; the great part of the pseudosection shows H2O-undersaturated conditions. The black solid and dashed line highlight the epidote-out and lawsonite-in reactions, respectively. Lawsonite and epidote coexist in H2O-undersaturated conditions. The mineral abbreviations are after Kretz (1983) except for: cpx (clinopyroxene), Na-amph (Na-amphibole), Ca-amph (Ca-amphibole), wm (white mica) and Na-px (Na-pyroxene). Narrow and small fields have been neglected for the sake of clarity. Numbers in the white circles are the assemblages listed in the following:

1. chl CaNa-px wm Ca-amph Na-amph grt zo rt

2. chl CaNa-px wm Ca-amph Na-amph grt zo spn rt

3. chl CaNa-px wm Ca-amph Na-amph grt zo spn

4. chl CaNa-px wm Ca-amph Na-amph grt cpx zo spn

5. chl CaNa-px wm Ca-amph Na-amph grt czo spn

6. chl CaNa-px CaNa-px wm Ca-amph Na-amph grt czo spn qtz

7. chl CaNa-px wm Ca-amph Na-amph grt cpx czo spn qtz

8. chl CaNa-px wm Ca-amph Ca-amph Na-amph grt czo spn

9. chl CaNa-px wm Na-amph grt cpx czo spn qtz

10. chl CaNa-px wm Ca-amph Na-amph grt cpx czo spn qtz

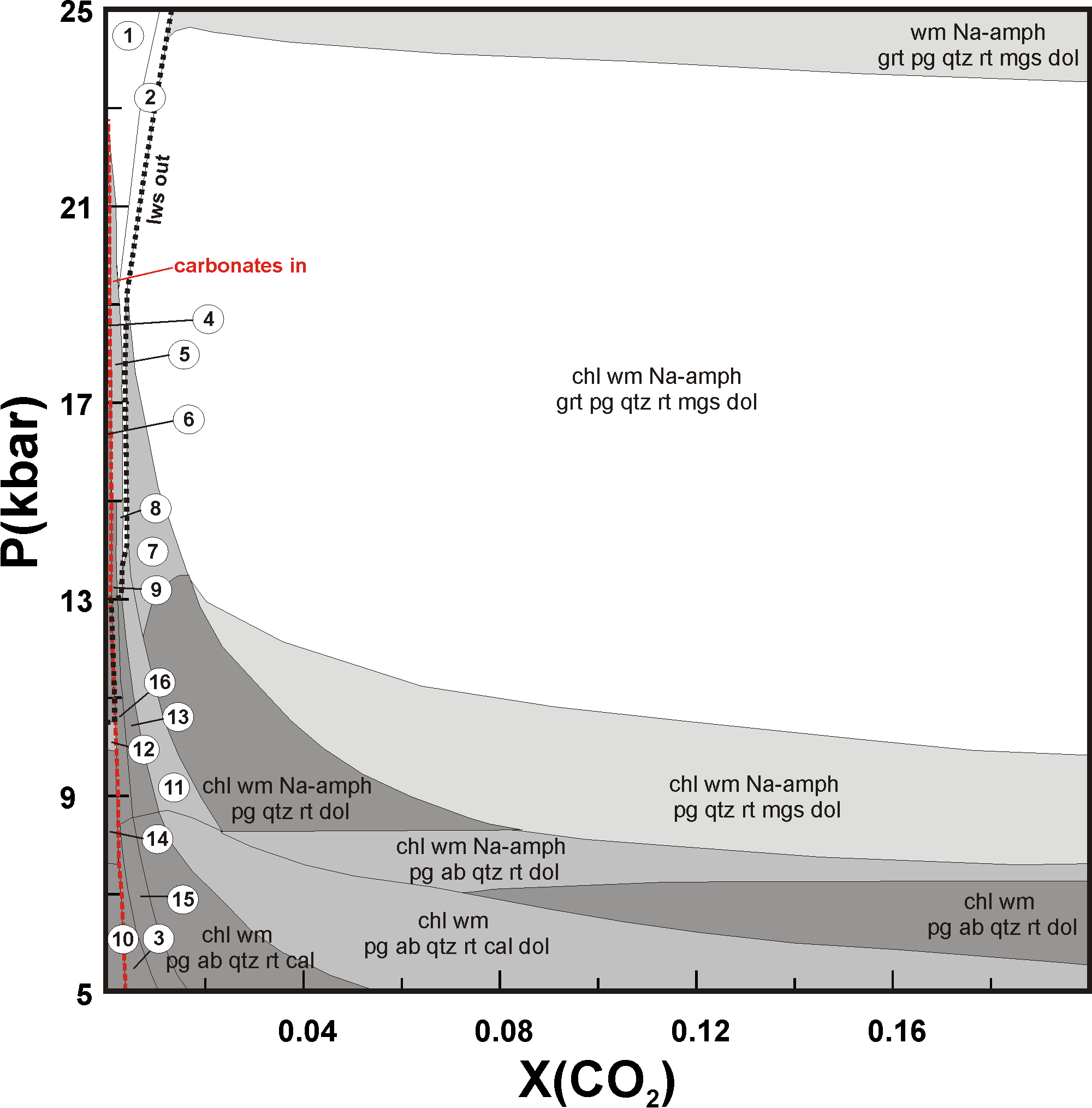
11. chl wm Ca-amph  Ca-amph Na-amph grt czo spn

12. chl CaNa-px wm Ca-amph Na-amph grt czo spn qtz

13. chl CaNa-px wm Na-amph grt czo spn qtz

14. chl CaNa-px wm Na-amph czo pmp spn qtz

15. chl CaNa-px wm Na-amph grt cpx czo lws spn



**Figure S3**. P- X(CO2) pseudosection, at T= 400°C, in the KMnTiNCFMASHC system (see text for explanation). Narrow and small fields have been neglected for the sake of clarity. The fields variance goes from three (i.e. 9 phases, white fields) to five (i.e. 7 phases, dark grey).  Numbers in the white circles are the assemblages listed in the following:

1. wm Na-amph grt cpx lws qtz rt mgs dol

2. wm Na-amph grt lws pg qtz rt mgs dol

3. chl wm zo spn ab qtz cal

4. chl CaNa-cpx wm 2Na-amph grt lws spn

5. chl wm Na-amph grt lws qtz rt dol

6. chl CaNa-px wm Na-amph lws spn qtz

7. chl wm Na-amph grt pg qtz rt dol

8. chl wm Na-amph grt lws qtz rt cal dol

9. chl wm Na-amph lws spn qtz cal

10. chl wm Ca-amph cpx zo spn ab

11. chl wm Na-amph pg qtz rt cal dol

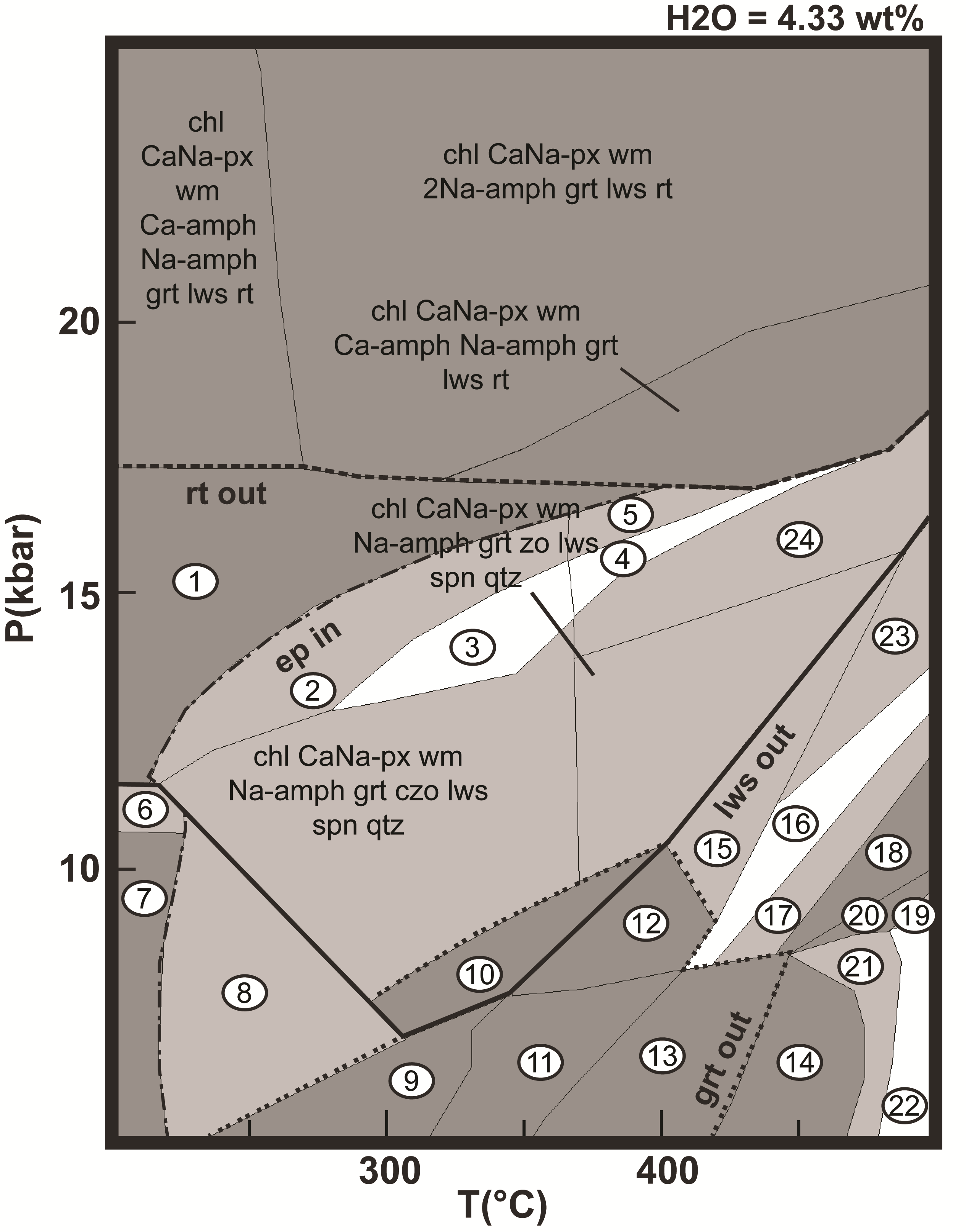
12. chl CaNa-px wm Na-amph grt zo spn qtz

13. chl wm Na-amph pg qtz rt cal

14. chl CaNa-px wm Na-amph zo spn qtz

15. chl wm spn pg ab qtz cal

16. chl wm Na-amph spn pg qtz cal



**Figure S4**. P-T pseudosection with under-saturated conditions (H2O= LOI) in the KMnTiNCFMASH system (see text for explanation). Numbers in the white circles are the assemblages listed in the following:

1. chl CaNa-px wm Ca-amph Na-amph grt lws spn

2. chl CaNa-px wm Ca-amph Na-amph grt czo lws spn

3. chl CaNa-px Na-px wm Ca-amph Na-amph grt czo lws spn

4. chl CaNa-px wm Ca-amph Na-amph grt cpx zo lws spn

5. chl CaNa-px wm Ca-amph Na-amph grt zo lws spn

6. chl CaNa-px wm Na-amph grt lws pmp spn qtz

7. chl CaNa-px wm Na-amph grt pmp spn qtz

8. chl CaNa-px wm Na-amph grt czo pmp spn qtz

9. chl CaNa-px wm czo pmp spn ab qtz

10. chl CaNa-px wm Na-amph czo lws spn qtz

11. chl wm cpx czo spn ab qtz H2O

12. chl CaNa-px wm Na-amph zo spn qtz H2O

13. chl wm Ca-amph cpx zo spn ab H2O

14. chl wm Ca-amph grt zo spn ab H2O

15. chl CaNa-px wm Na-amph grt zo spn qtz H2O

16. chl CaNa-px wm Ca-amph Na-amph grt cpx czo spn H2O

17. chl CaNa-px wm Ca-amph Na-amph grt zo spn H2O

18. CaNa-px wm Ca-amph Na-amph grt zo spn H2O

19. wm Ca-amph Na-amph grt zo spn ab qtz H2O

20. wm Ca-amph Na-amph grt zo spn ab H2O

21. chl wm Ca-amph Na-amph grt zo spn ab H2O

22. chl wm Ca-amph Na-amph grt zo spn ab qtz H2O

23. chl CaNa-px wm Na-amph grt cpx zo spn H2O

24. chl CaNa-px wm Na-amph cpx grt zo lws spn