

**FIGURE S1.** Backscattered electron (BSE) images showing morphology, texture and mineral assemblage of the discovered PGM, BMS and silicates in Luobusa chromitites.

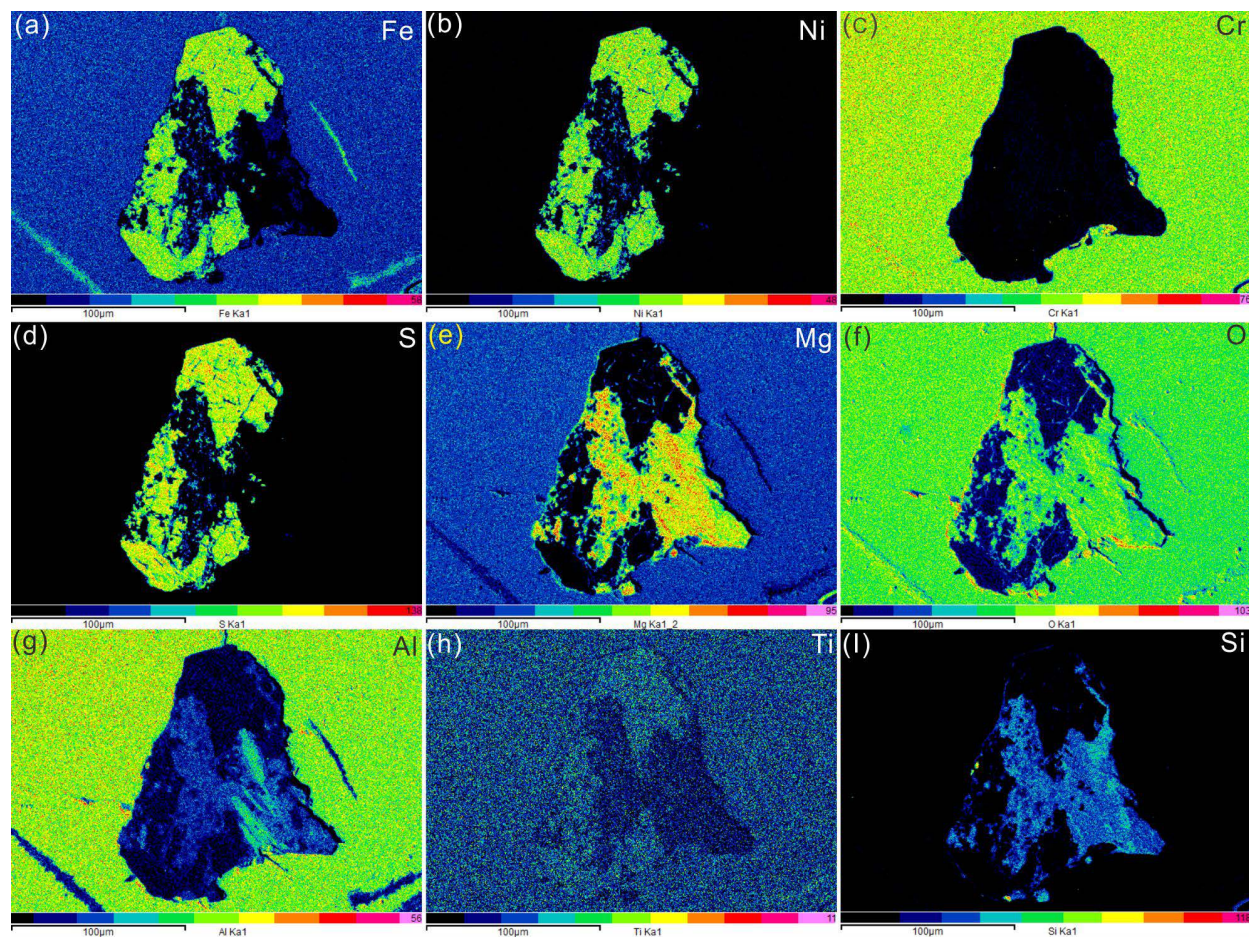
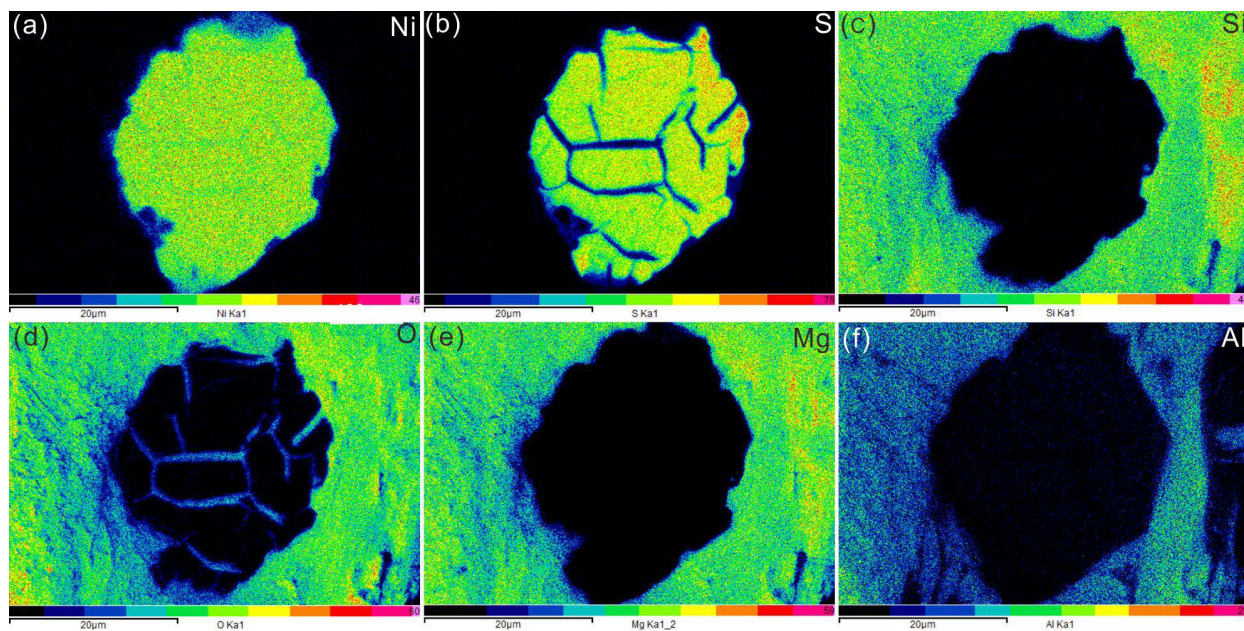


FIGURE S2. Mapping of millerite intergrown with serpentine in chromite (Fig. 3j).



**FIGURE S3.** Millerite intergrowth with serpentine in chromite (Fig. 3k).



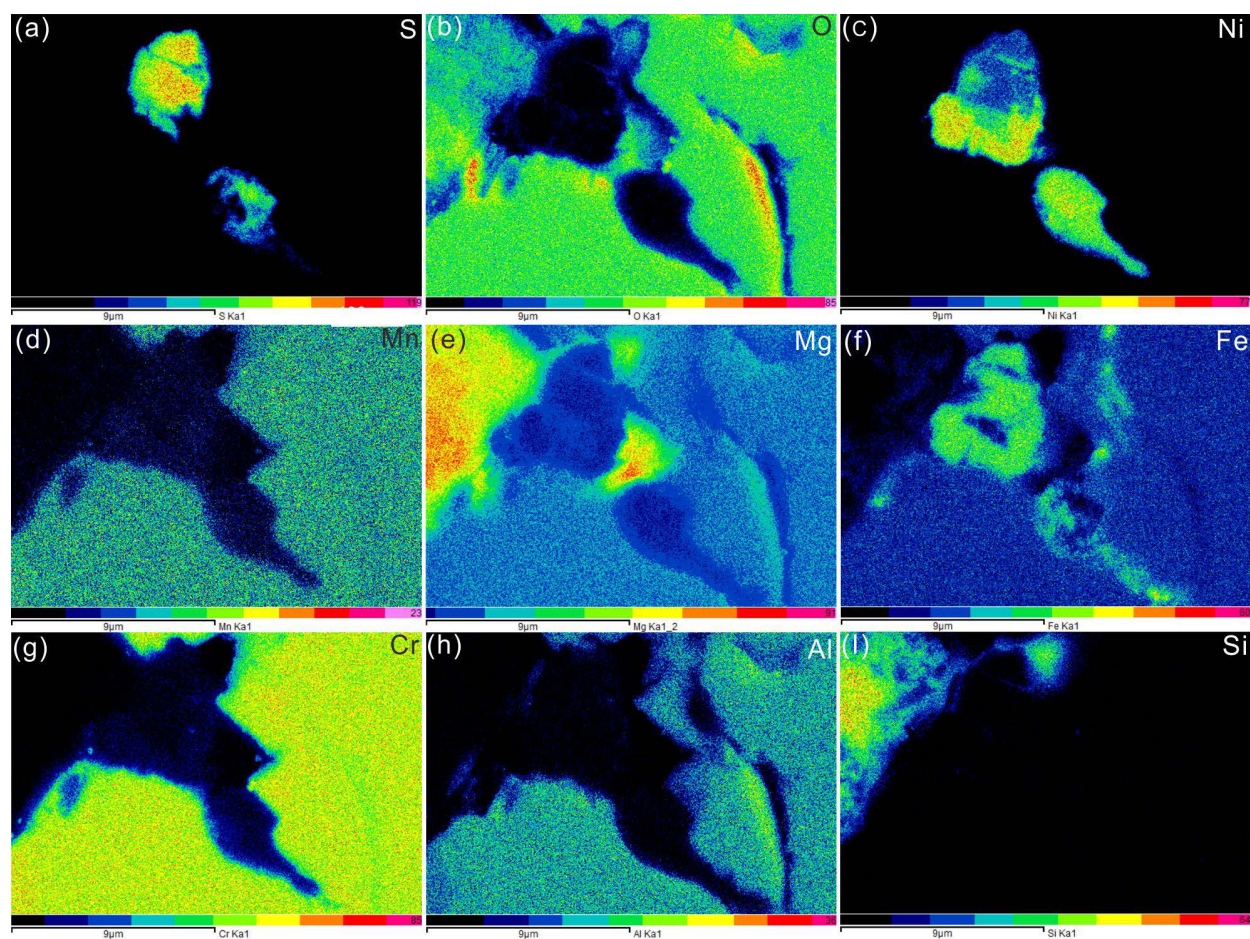
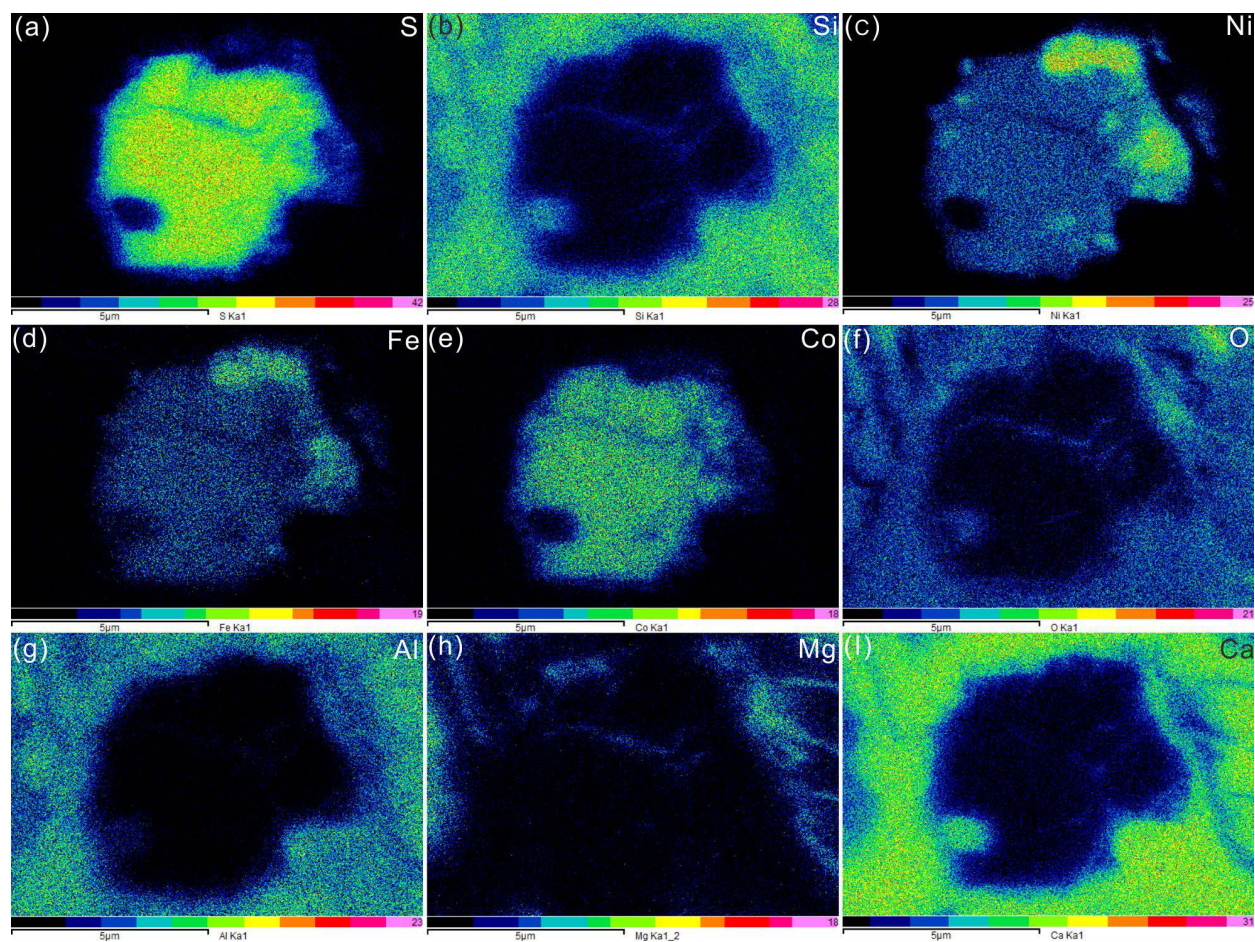


FIGURE S4. Awaruite intergrowth with millerite in chromite (Fig. 3n).



**FIGURE S5.** Co-Fe-Ni-S intergrowths with millerite in chromite (Fig. 3o).



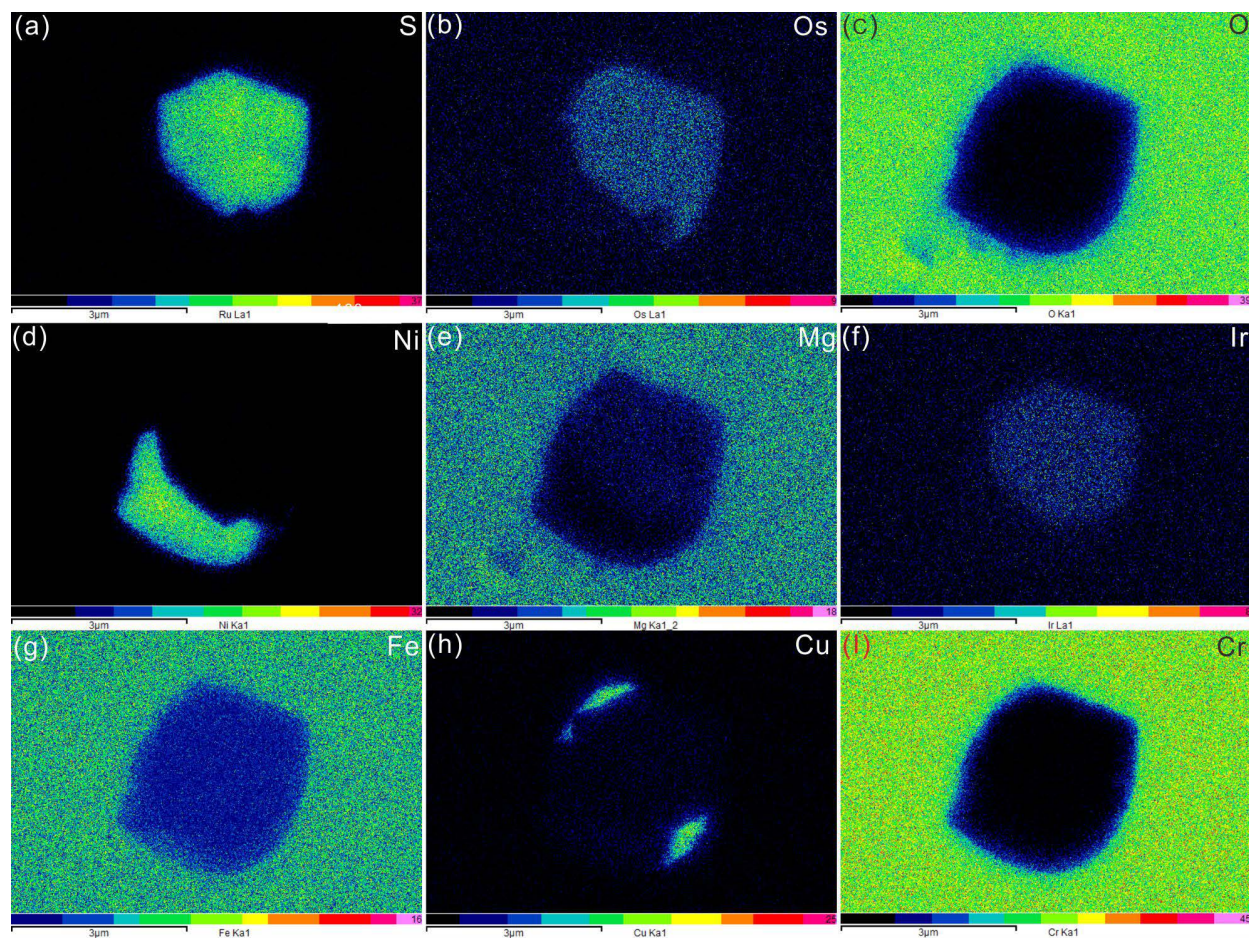


FIGURE S6. Millerite intergrowth with PGM in the chromite.

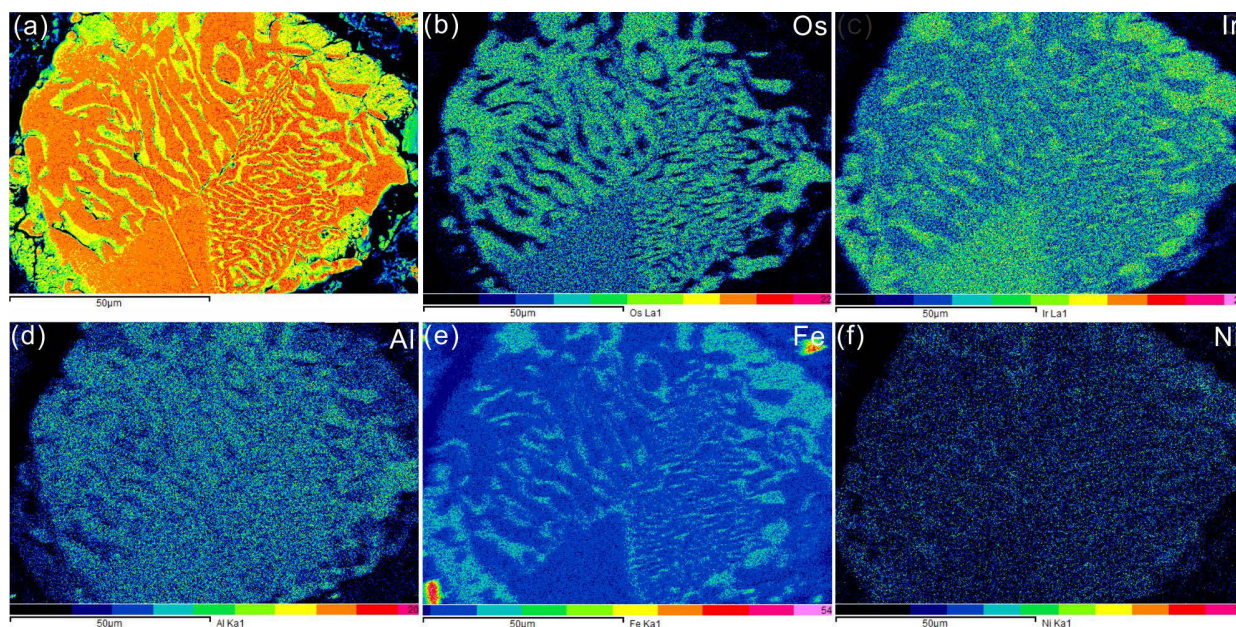
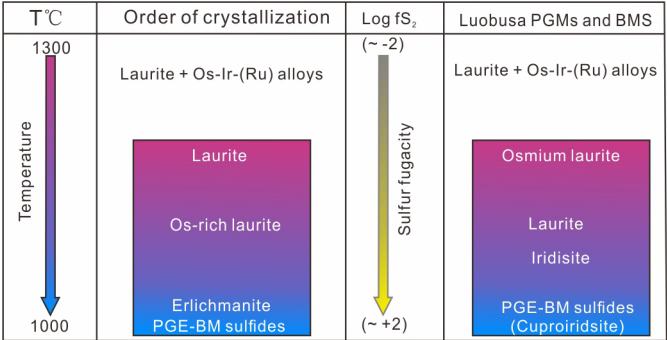


FIGURE S7. PGE-bearing alloys in chromite (Fig. 5f).



**FIGURE S8.** The thermodynamic context of crystallization conditions for melt-sulfide (after Uysal et al. 2015).