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**Supporting information for article:** 

In situ monitoring of phase transformation microstructures at Earth's mantle pressure and temperature using multi-grain XRD

## Supplementary

**Table S1**Grainspotter results for Exp#1.

P/T data point	G-vectors	indexed G-vectors (%)	indexed grains	Average numb. of reflections per grain
		(α-phase)		
1	12357	57	260	28
2	12855	57	269	27
3	8511	45	124	31
4	5306	30	76	27
5	5293	56	225	13

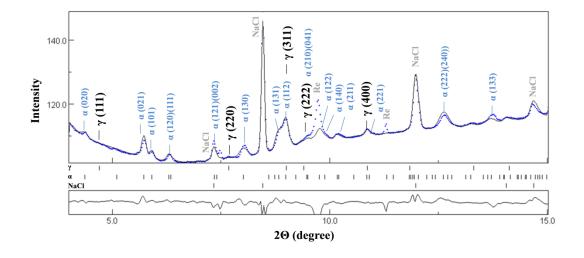


Figure S1

MAUD refinement of panoramic diffraction image at P/T-point 15 of Exp#3. Intense peaks corresponding to the  $\alpha$  and  $\gamma$ -phase are labeled together with their Miller indexes. Peaks corresponding to sodium chloride and rhenium are labeled as NaCl and Re, respectively. The peak at a 2theta angles of 7.5° originate from the Mylar windows.