

High-pressure oxide phases: Mineralogy, crystallography and implications for the deep Earth and other planetary interiors

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It has been 10 years since the discovery of Fe_4O_5 . Since then a surprisingly large variety of different Fe-oxides have been found to be stable at high pressures above about 10 GPa, some with particular properties, like Fe peroxide, (FeO_2) which can also incorporate hydrogen. Such “exotic” stoichiometries and crystal structures occur in other oxide systems as well, and the investigation of more complex solid solutions is well underway. In addition, even “traditional” oxide phases like $(\text{Mg,Fe})\text{O}$ are revealing important new secrets in terms of their crystal chemistry and polymorphism. The purpose of this session is to bring together researchers to discuss the most recent advances in our understanding of simple oxide systems at high pressures and what implications these findings have for the deep Earth as well as for the interior of larger exoplanets.