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## The volume conjugate in progressive metamorphism

Timothy Chapman<sup>1</sup>, Geoffrey Clarke<sup>2</sup>, Luke Milan<sup>1</sup>, and Julie Vry<sup>3</sup>

<sup>1</sup>Earth Science, University of New England, Armidale, Australia (timothy.chapman@une.edu.au)

<sup>2</sup>School of Geoscience, The University of Sydney, Sydney, Australia

<sup>3</sup>School of Geography, Environment and Earth Sciences, Victoria University of Wellington, New Zealand

Volume changes during metamorphic reactions are key contributors to the physical changes of crystalline rocks. Assessing dehydration or hydration reactions in terms of conjugate  $V$ - $T$  pseudosections provides indicators of transient departures in hydrostatic pressure and their impact on observed mineral equilibria. The expansion in volume of major dehydration events such as the breakdown of lawsonite or chlorite delineate zones of fluid overpressure that generate connectivity via fracturing. Net compressional reactions represent sinks for fluid consumption and the focussing of strain. The capacity of metamorphic rocks to generate or consume fluid along portions of the  $P$ - $T$ - $V$  path exerts a fundamental control on the distribution of stresses in the crust and the observed mineral assemblages. Coupling a phase equilibria approach to mechanical modelling provides a quantitative framework to assess these changes in fluid pressure that can be compared to prominent case studies in rocks from New Caledonia and New Zealand.