The Centre for Exploration Targeting (CET) is pleased to invite you to a Guest Lecture in the CET Seminar Series given by CET’s Professor Marco Fiorentini “Sulfur dioxide degassing during Archean and the genesis of komatiite-hosted nickel-sulfide mineralisation”.

ABSTRACT

Komatiites are ancient submarine lavas that erupted over 2.5 billion years ago. These hot and highly turbulent flows entrained discrete sulfide liquids that concentrated nickel, copper and the platinum group elements locally to economic proportions. However, the current mineralizing model does not explain the observed large range of metal concentrations. Our multiple sulfur isotope measurements on sulfides from komatiites and local volcanogenic and sedimentary country rocks indicate that sulfur degassing during volcanism may have played a key role in the mineralizing process. Data from variably mineralized komatiite units in the north Eastern Goldfields, Western Australia, indicate pervasive (>90%) sulfur loss from sulfide-saturated komatiite lavas, dominantly in the form of SO2 gas. This komatiite ‘redox filter’, whereby reduced sulfur in the sulfide liquid was exchanged for oxidized sulfur in the fugitive gas, had the potential to influence the geochemical evolution of the atmosphere and ocean on Archean Earth. Rapid sulfur degassing associated with such voluminous and cataclysmic eruptions was most likely a contributing factor for economic mineralization.

BIOGRAPHY

Professor Marco Fiorentini received his PhD from the University of Western Australia in 2005. The focus of his current work is on the genesis of Ni-Cu-PGE deposits and more broadly on emplacement dynamics of magmatic mineral systems. The implications of his studies for understanding the evolution of the early Earth’s mantle, lithosphere, and hydrosphere-atmosphere, have been recognised and published in prestigious international journals.

VENUE

Woolnough Lecture Theatre (1.07), Geography and Geology Building
University of Western Australia, 35 Stirling Hwy, Crawley 6009
Pay parking is available along Fairway (approx. $1.50 per hour)

TIME

4:00 - 4:45pm Thursday 29th May 2014

You are invited to join us afterwards for refreshments provided by our local SEG Student Charter in the Resource Room, Robert Street Building.