

Email from Dr.Massod Ahmad, Chief Geoscientist, NTGS, Darwin  
Dated 21/9/2011

Dear John

It was a great opportunity to accompany you to various outcrops of the Mount Dean Volcanics and the question marked Zamu Dolerite. On behalf of Andrew, Linda and Mazhar I thank you for your time and knowledgeable discussions.

This short trip has added significantly to our understanding of the mafic/ultramafic magmatism in the older succession (>2000 Ma) of the Pine Creek Orogen. The Mount Dean Volcanics are therefore equivalent to the Stag Creek Volcanics in the South Alligator Region. You are right that the dolerite exposed to the west of Acacia Gap quartzite is not Zamu but possibly an intrusive equivalent of the Mount Dean Volcanics.

I looked in our geochemical database; a few ultramafic rocks with Ni above 500 ppm in the Pine Creek Orogen are present in the Litchfield Province and in the East Alligator Region but none in the Central or Rum Jungle regions. Nickel values in the Zamu Dolerite (38 analyses) average around 84 ppm while those in the Stag Creek Volcanics average at 66 ppm (8 analyses). Your discovery of nickeliferous mafic/ultramafic rocks in the Batchelor area with over a 1000 ppm Ni is certainly interesting and need to be followed up as it may have bearings on the Cu-Ni-Co in the Browns area and Au-Pt-Pd in some occurrences east and south of the Waterhouse dome. These rocks may have some affinities with the lamprophyre dykes in the Woodcutter Mine area. But Ni values in these are also low; around 100 ppm. I will keep thinking.

Good luck

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