Geophysical Research Abstracts, Vol. 7, 00913, 2005 SRef-ID: 1607-7962/gra/EGU05-A-00913 © European Geosciences Union 2005



## DEM analysis employed to contrast debris flow transmission properties of differing stream network topologies.

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We seek to contrast debris flow generating and transmission properties of watersheds with differing network morphologies in Western Oregon. We develop a methodology to utilize current 10 meter DEMs to extract stream network topologic features that govern debris flows runout lengths. Predicted runout lengths based on tributary junction angles, changes in stream gradient, valley width and contributing area are generated and tested against a collection of field surveys. We will take advantage of debris flow surveys in select watersheds and the resultant GIS databases by comparing corresponding watershed and network metrics. The river network structure interacts with stochastic disturbances to form patches of physical heterogeneity in the stream channel environment. Debris flows create unique erosional and depositional environments with consequent changes in channel morphology. An increased understanding of stream network dynamics may well be useful in predicting hotspots for in stream habitat, assisting in road placement and hazard risk analysis.