



Chemical & Physical Sciences
UNIVERSITY OF TORONTO
MISSISSAUGA

COLLOQUIUM

TUESDAY, MARCH 26TH, 2013
12:00 P.M. (**SHARP**) – 1:00 P.M.
IB270

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The “Vertical Tectonics” of Western Anatolia



The Western Anatolian-Aegean region demonstrates some intriguing geologic curiosities. Locally, the tectonic plate is being actively pulled apart by stretching from what could be a number of causes. The present-day topography is also enigmatic. Our analyses show that the topography of Western Anatolia is considerably higher (i.e., by up to ~1 km) than it should be given normal isostatic buoyancy considerations of the lithosphere. In addition, spectral analyses of the gravity and topography signals in the region support these findings for an anomalously elevated Western Anatolia. Using computational geodynamic models, we demonstrate that active "vertical tectonics" may be responsible for the anomalous topography of the region. Namely, hot rising mantle material--inferred from seismic tomographic imaging beneath the area--may be pushing up the surface to support the high topography. We propose that the mantle flow is associated with active lithosphere delamination beneath the region; a process that would also explain the ongoing crustal extension.