The Maritime Appalachian Transect (MAT): a new proposal to Lithoprobe

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A new Lithoprobe transect is proposed that will cross the Gaspé Peninsula, New Brunswick and Nova Scotia. The main theme of the transect is to unravel the three-dimensional geometry of the northern Appalachian Orogen. The transect will fill a gap between existing deep seismic lines. It lies between the Quebec-Maine transect where thin-skinned tectonics dominate to the Lithoprobe-East lines in the Gulf of St. Lawrence and in Newfoundland where steeply dipping boundaries cut across the crust. As a part of consistent data set, this new profile will address the generic problem of reentrant-promontory pairs in orogens. Other main themes include: (1) the development of successor basins within orogens (e.g., the Gaspé Synclinorium and the Maritimes Basin); (2) the relationship between surface geology (terranes) and the deeper parts of the crust; and (3) mantle tectonic and sub-Moho reflectors. The considerable economic potential in the rocks at middle to upper crustal levels will be investigated by high resolution seismic profiling and controlled source electromagnetic studies, in cooperation with industry in selected areas. The broad range of scientific problems and the diversity of Earth Sciences disciplines involved in the MAT proposal suggest that it will reap a rich harvest of scientific results.