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Fulton B Gonzalez* (fulton.gonzalez@tufts.edu), Department of Mathematics, Tufts University, Medford, MA 02155. *The Midpoint Locus Transform on a Compact Symmetric Space*. Preliminary report.

Let $X = U/K$ be a simply connected compact symmetric space. For each point $p \in X$, the set A_p of all midpoints of shortest closed geodesics through p is called the *midpoint locus* of p . The set A_p is both a totally geodesic submanifold and a compact symmetric space. When $\text{rank}(X) = 1$, the midpoint locus A_p is the set of all points at maximum distance from p . We consider the transform that integrates any continuous function on X over all midpoint loci A_p of X , including questions of injectivity and inversion. (Received February 07, 2014)