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Christopher R Godbout* (cgodbout@ursinus.edu), Collegeville, PA 19426. *Chern-Simons classes and the Ricci flow on 3-manifolds.*

In 1974, S.-S. Chern and J. Simons published a paper where they defined a new type of characteristic class - one that depends not just on the topology of a manifold but also on the geometry. The goal of this paper is to investigate what kinds of geometric information is contained in these classes by studying their behavior under the Ricci flow. In particular, it is shown that the Chern-Simons class corresponding to the first Pontryagin class is invariant under the Ricci flow on the warped products $S^2 \times_f S^1$ and $S^1 \times_f S^2$ but that this class is not invariant under the Ricci flow on a generalized Berger sphere. (Received September 07, 2012)