1106-L5-2857 **Ricardo L. Diaz*** (ricardo.diaz@unco.edu). *The Bermuda Triangle and Geometric Visualization of Complex Path Integrals.* Preliminary report.

As a pedagogical tool for explaining the key properties of complex path integrals in an undergraduate course, we relate them to a problem in navigation. What happens if we attempt to reconstruct a ship's trajectory from knowledge of its instantaneous velocity vector, in a situation where the ship's compass and pendulum clock are affected by local magnetic and gravitational anomalies? The velocity vector computed using the unreliable instruments is a rotated, dilated copy of the true velocity vector. The relation between these two velocity vectors has the conformal form $dw/dt = f(z(t))(dz/dt)$, where $z(t)$ is the true path and $w(t)$ is the falsely reconstructed path. Here $f(z)$ is a local complex factor that represents the local rotation and time dilation. Indefinite integration of this relation produces a reconstructed curve $w(t) = \int_0^t f(z(s))(dz/ds)ds$ that can differ dramatically from the true path. Several major topics in complex analysis can be explored visually using this geometrical model, such as necessary and sufficient conditions for path independence of integrals, special cases of the Cauchy Integral formula, and the Argument Principle. (Received September 16, 2014)