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Gary R Jensen* (gary@math.wustl.edu), Math. Dept., Campus Box 1146, Washington University, St. Louis, MO 63130, and **Emilio Musso**. *A global result for the Bonnet problem*. Preliminary report.

Bonnet's problem is to find connected immersed surfaces in Euclidean space that admit another noncongruent immersion with the same first fundamental form and the same mean curvature. Such a deformation is called a Bonnet mate of the given immersion. If an immersion has at least two noncongruent mates, and the mean curvature is nonconstant, then it is called properly Bonnet. We prove that if a surface M has a proper Bonnet immersion, then there exists a nonconstant holomorphic function $w = u+iv$ of M into the Poincare' right half space that satisfies the differential equation $dw = -u\rho$, where ρ is a 1-form on M determined by the derivative of the mean curvature. Results of Bonnet, Lawson-Tribuzy, and Chern follow as simple corollaries. (Received September 08, 2010)