1073-05-207　　　　　**Matthew T. Stamps*** (`mtstamps@math.ucdavis.edu`), University of California, Davis. *On weak maps and Whitney numbers of matroids.*

We give a topological proof that for any matroid M, the Whitney numbers of the first kind of M are greater than or equal to those of any weak map image of M, a result previously shown by Kung using algebraic techniques. This work utilizes a recent construction of Engström for obtaining topological representations of matroids via diagrams of spaces. In particular, we show that the Whitney numbers of the first kind of M are encoded in the Betti numbers of the codimension two homotopy sphere arrangement of M and that every surjective weak map between matroids induces a surjective cellular mapping between their topological representations. (Received August 01, 2011)