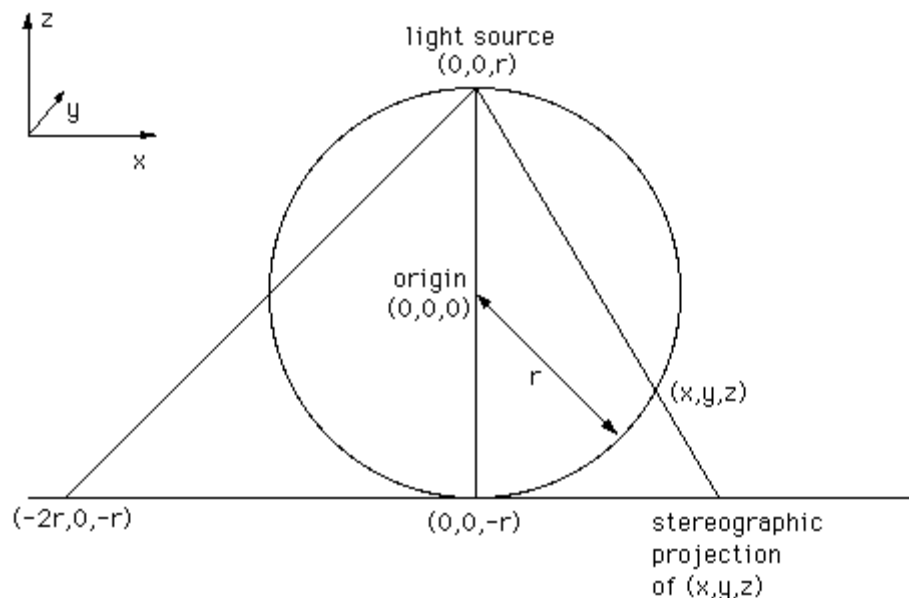Stereographic projection

This map is a one-to-one correspondence between all the points on the sphere except the North Pole N and the tangent plane to the sphere at the South Pole S. The points P and P' correspond under stereographic projection in this picture, and the South Pole S is sent to itself. Another illustration of stereographic projection is given below.

This map, also known as planimetric projection, was known to Hipparchus of Nicaea (also known as Hipparchus of of Rhodes, c. 190 B.C.E. -- c. 120 B.C.E.), Claudius Ptolemy, and probably also the Egyptians. A stereographic projection of the Northern Hemisphere is shown in the file **http://math.ucr.edu/~res/math153-2019/projstereo.pdf** , and an important property of this map (preserving angles at which intersecting curves meet) was known to Hipparchus and is proved in **http://math.ucr.edu/~res/math153-2019/stereo-conformal.pdf**.