The Bouguer anomaly concept is extensively used in geophysical interpretation to investigate the density distributions in the Earth's interior. The complete Bouguer anomaly (including terrain effects) is usually computed at regional scales by integrating the gravity attraction of topography elements over and beyond a given area. Here, a worldwide Bouguer anomaly grid derived from the EGM2008 gravity model and the ETOPO1 Earth's topography-bathymetry, has been computed using a spherical harmonic's approach. Following Balmino (Clef. Mech. & Dyn. Astr., 1994), the present work has established and used expansions up to degree and order 10800, allowing to handle topography and gravity information at very high resolution. The terrain corrections have thus been computed through spherical analysis of the global topography taking into account the characteristics (precise boundaries and densities) of major lakes, inner seas, polar caps (with bedrock information) and of land areas below sea level. EGM2008 and ETOPO1 models were used to rigorously compute the surface gravity anomalies. Therefore all analyses were performed up to degree and order 10800 with the aim to provide a 1x1’ grid of worldwide surface gravity disturbances. The complete spherical Bouguer anomaly map presented here corresponds to a 2.5’ x 2.5’ grid, being understood that the terrain effect is actually computed at each node with the degree 10800 harmonic series. This EGM2008 derived complete Bouguer anomaly map is proposed as a contribution to the global geophysical digital maps published by the Commission for the Geological Map of the World (CGMW) with supports of UNESCO and IAG.