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Analytical study of the Bjerhammar sphere

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Bjerhammar sphere as the best-fit spherical body to the geoid, has been analytically studied and its radius has been computed based on the current best estimates of the fundamental geodetic parameters $\{GM, \omega, W_0\}$ as R = $6,370,991.248 \pm 0.053\ m$. It has been proved that such a sphere besides the welcomed property of being an equipotential surface is a static equilibrium figure of a spherical Earth.