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## Spatial distribution of GRBs with respect to redshift

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In considering spatial distributions of Gamma ray bursts (GRBs), angular distribution is isotropic (Meegan et al. 1992). For understanding the radial distribution of GRBs, the flux table of BATSE 4Br catalog is available, assuming that GRBs are standard candle and that the accelerating rate of universe expansion is increasing with constants,  $\Omega_m = 0.3$ ,  $\Omega_\Lambda = 0.7$ . In using the standard candle assumption, I take the GRB010222, which is of  $z = 1.477$ , peak flux  $F = 19$  ( $\text{photon s}^{-1} \text{cm}^{-2}$ ) (Jha et al. 2001, Frontera et al. 2001), as a standard candle. As a result, the radial distribution of GRB can be approximated to the normal distribution and the peak is around  $z = 4$ . More work is needed about the relation between this result and other properties of cosmological objects.