Questions for M33 Discussion with Cindy Blaha

1. How many particles are there in a cubic centimeter of air outside? (Assume an ideal gas under STP conditions \(T=273 \text{ K} \) and \(p=1.103 \times 10^5 \text{ N/m}^2\))

Given the diagram provided, how big is NGC 604? Each pixel is 0.258 arc seconds in size and M33 is 2.7 million light years away. Express your answer in meters, light years. How many times bigger than our solar system is it?