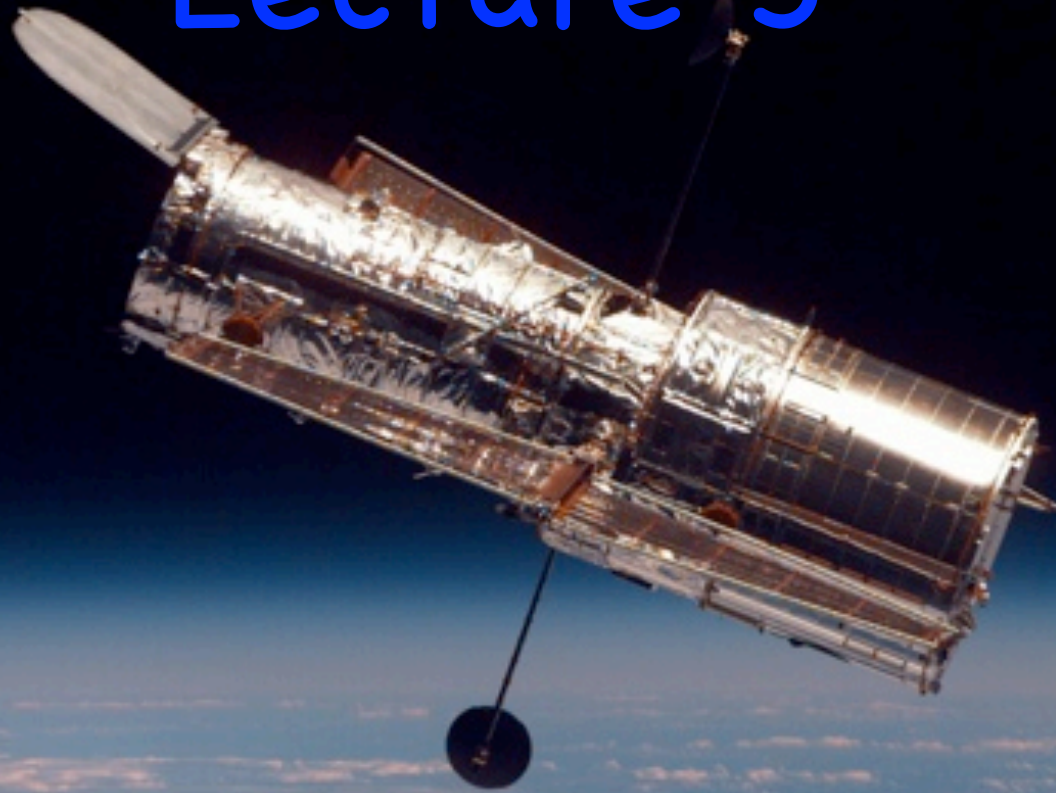
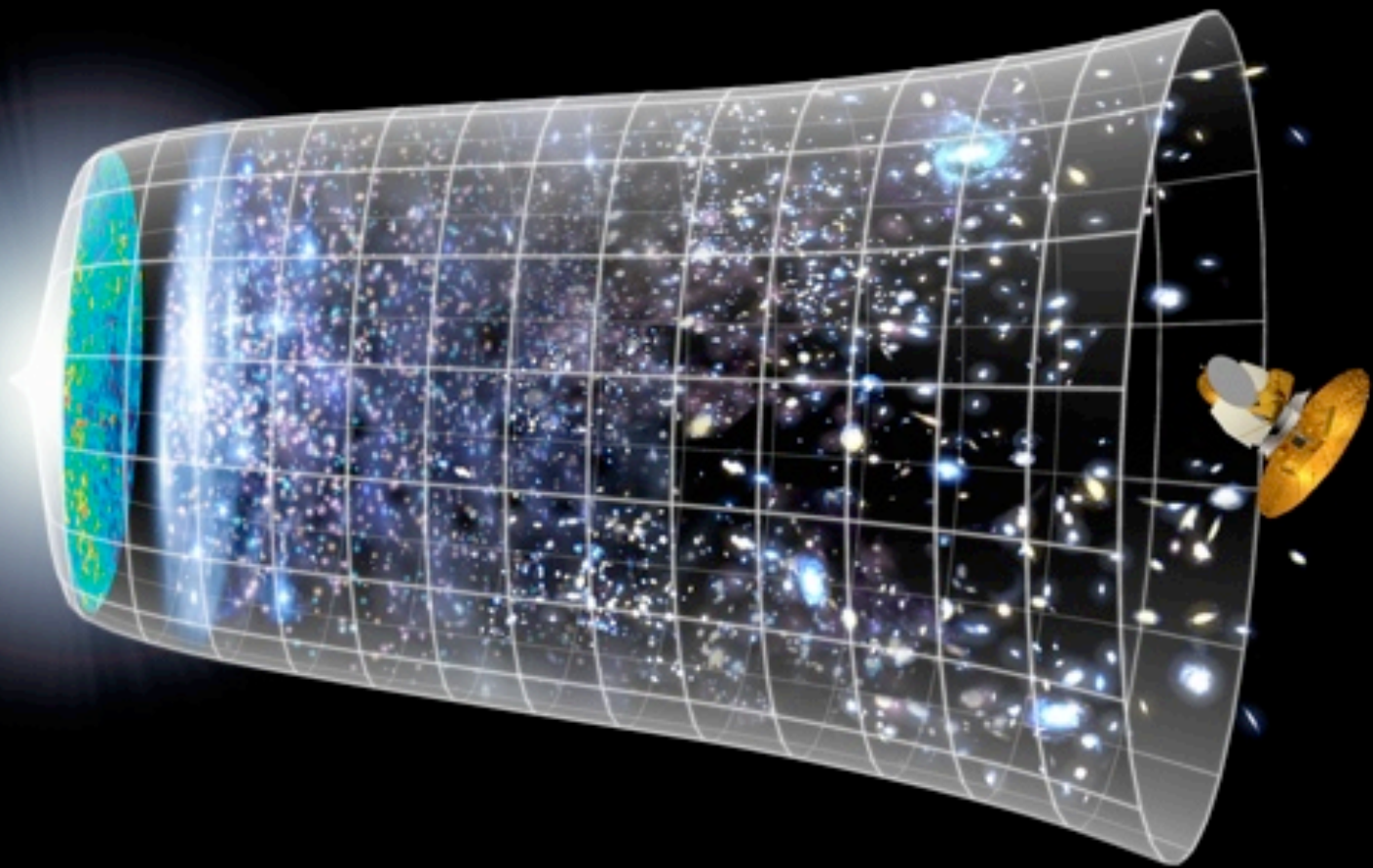


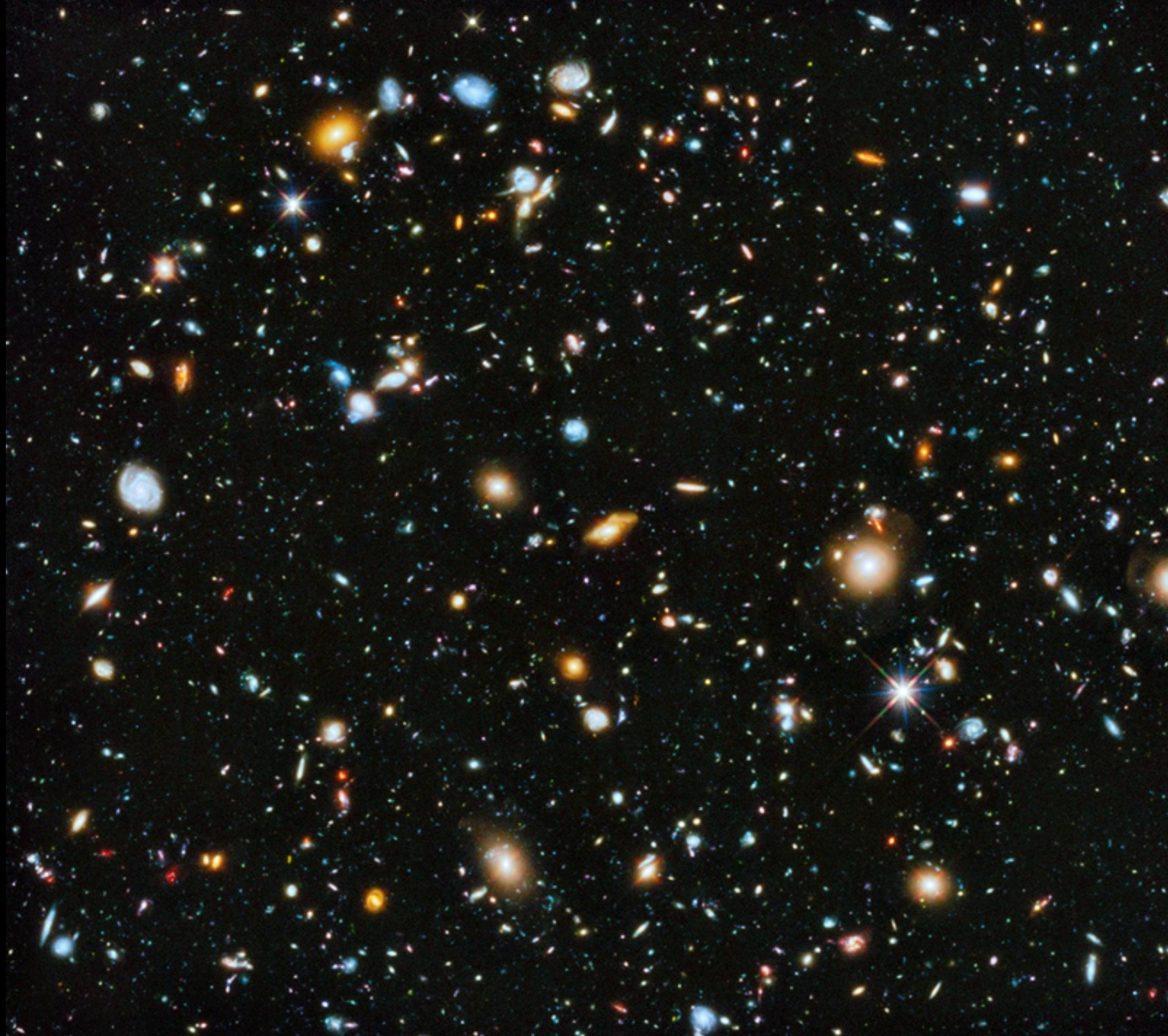
# Introduction to Cosmology

## Lecture 5



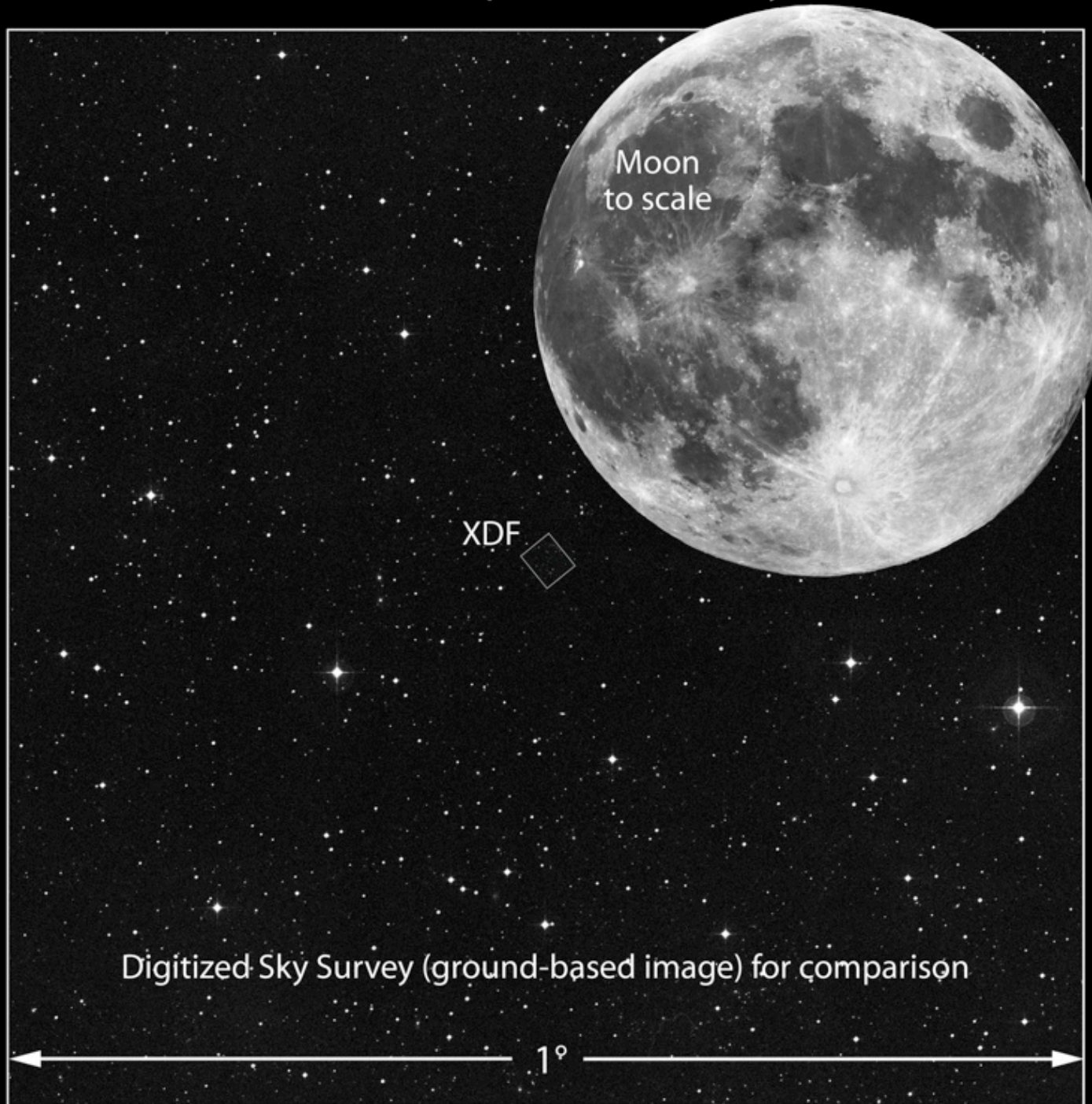




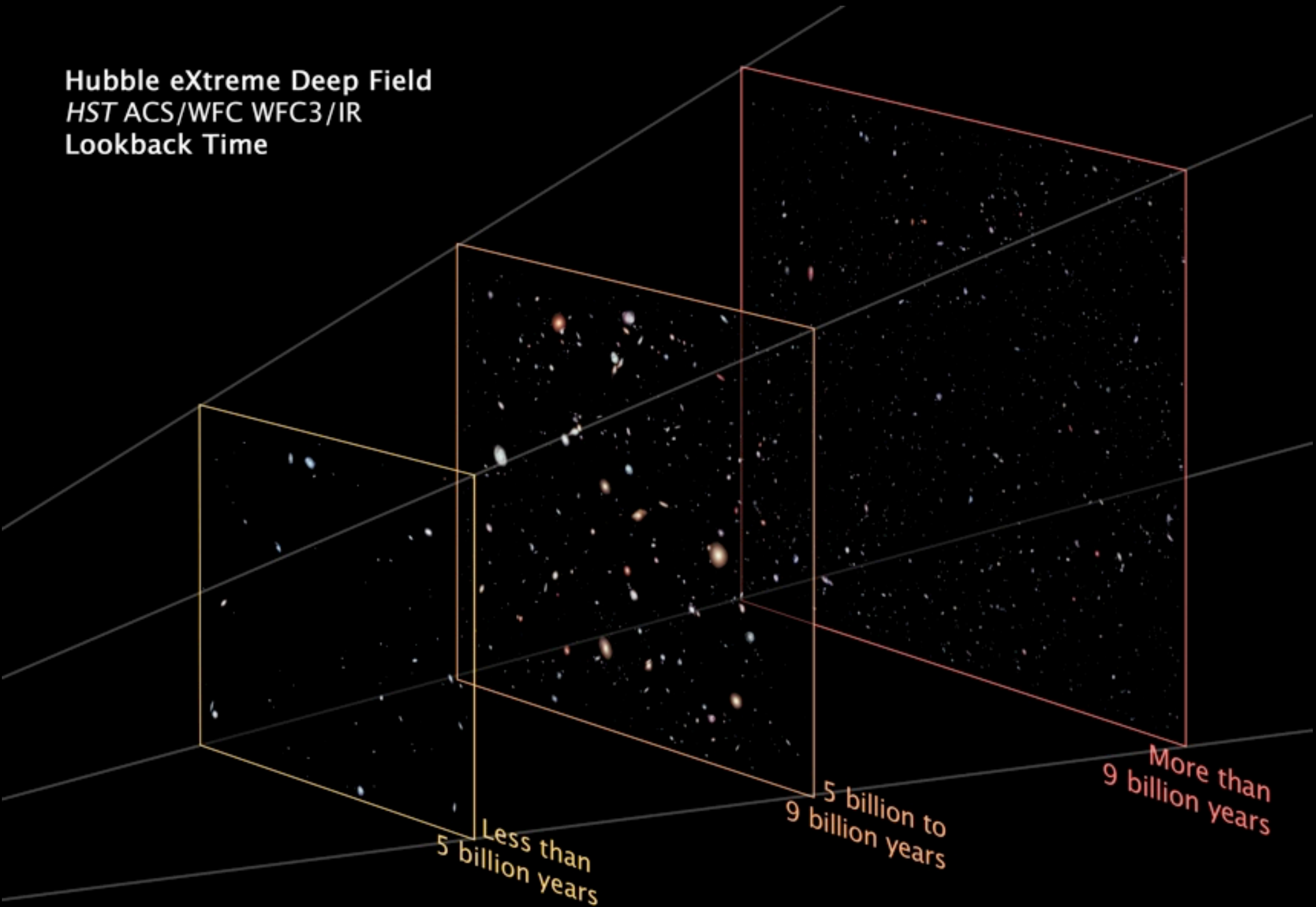




# Size of Hubble eXtreme Deep Field on the Sky



Hubble eXtreme Deep Field  
HST ACS/WFC WFC3/IR  
Lookback Time



Less than  
5 billion years

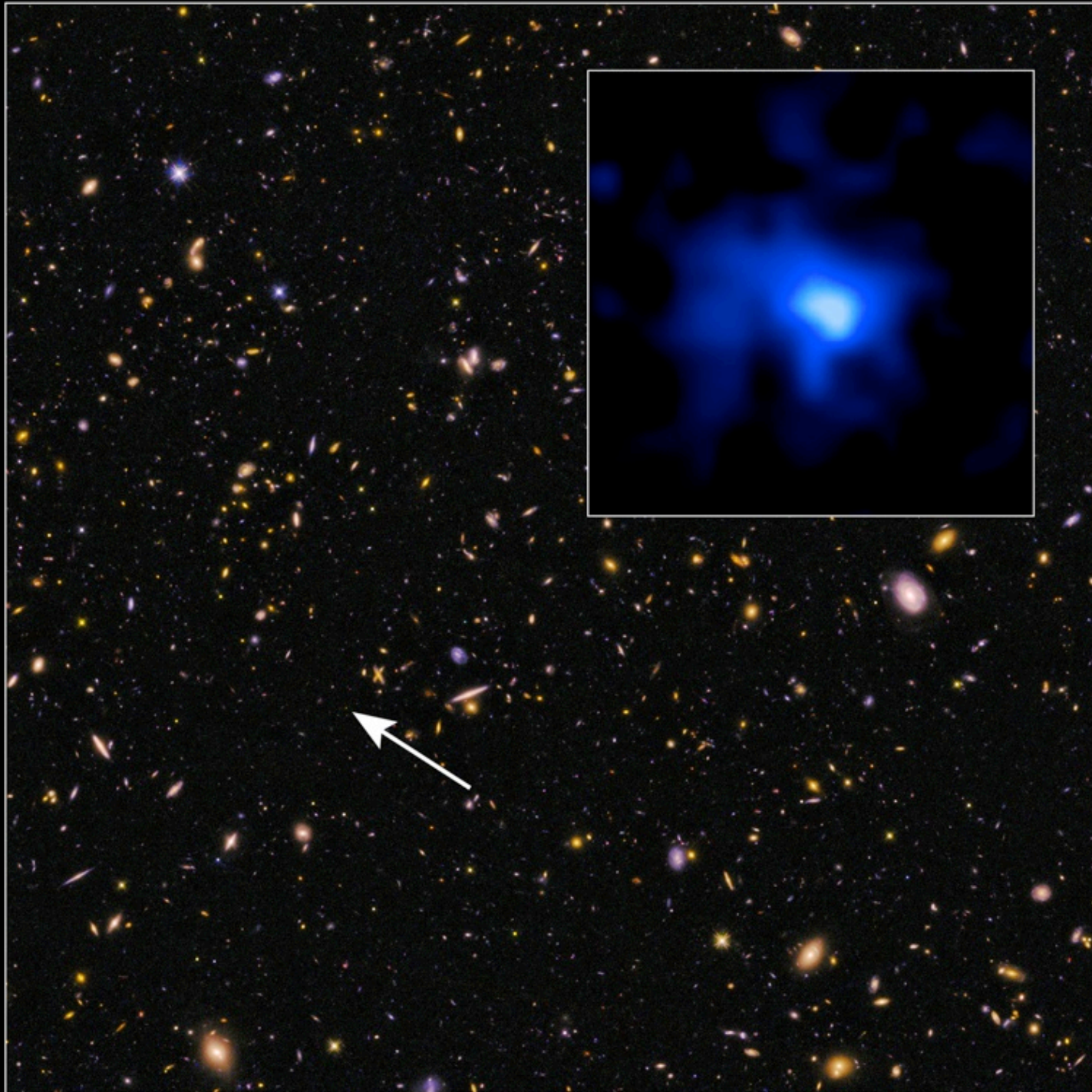
5 billion to  
9 billion years

More than  
9 billion years



Distant Galaxy

Hubble Space Telescope ■ ACS/WFC ■ WFC3/IR







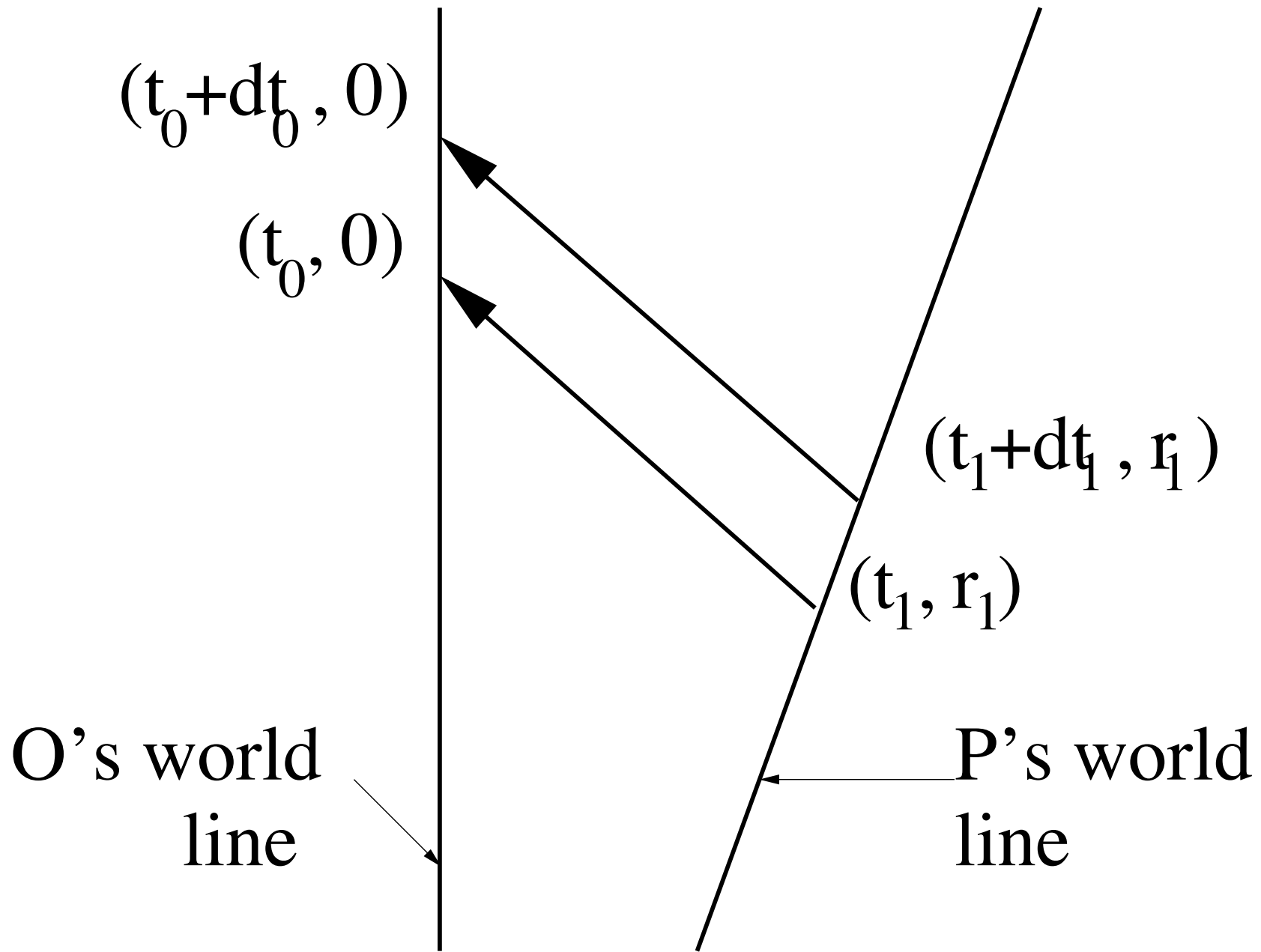
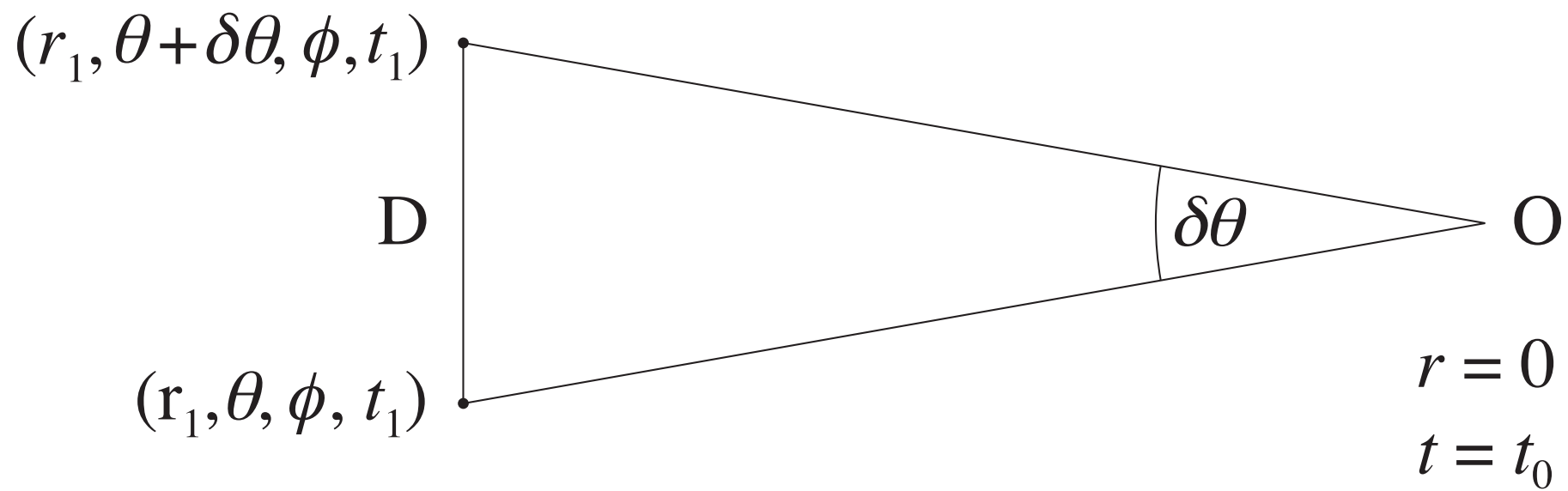


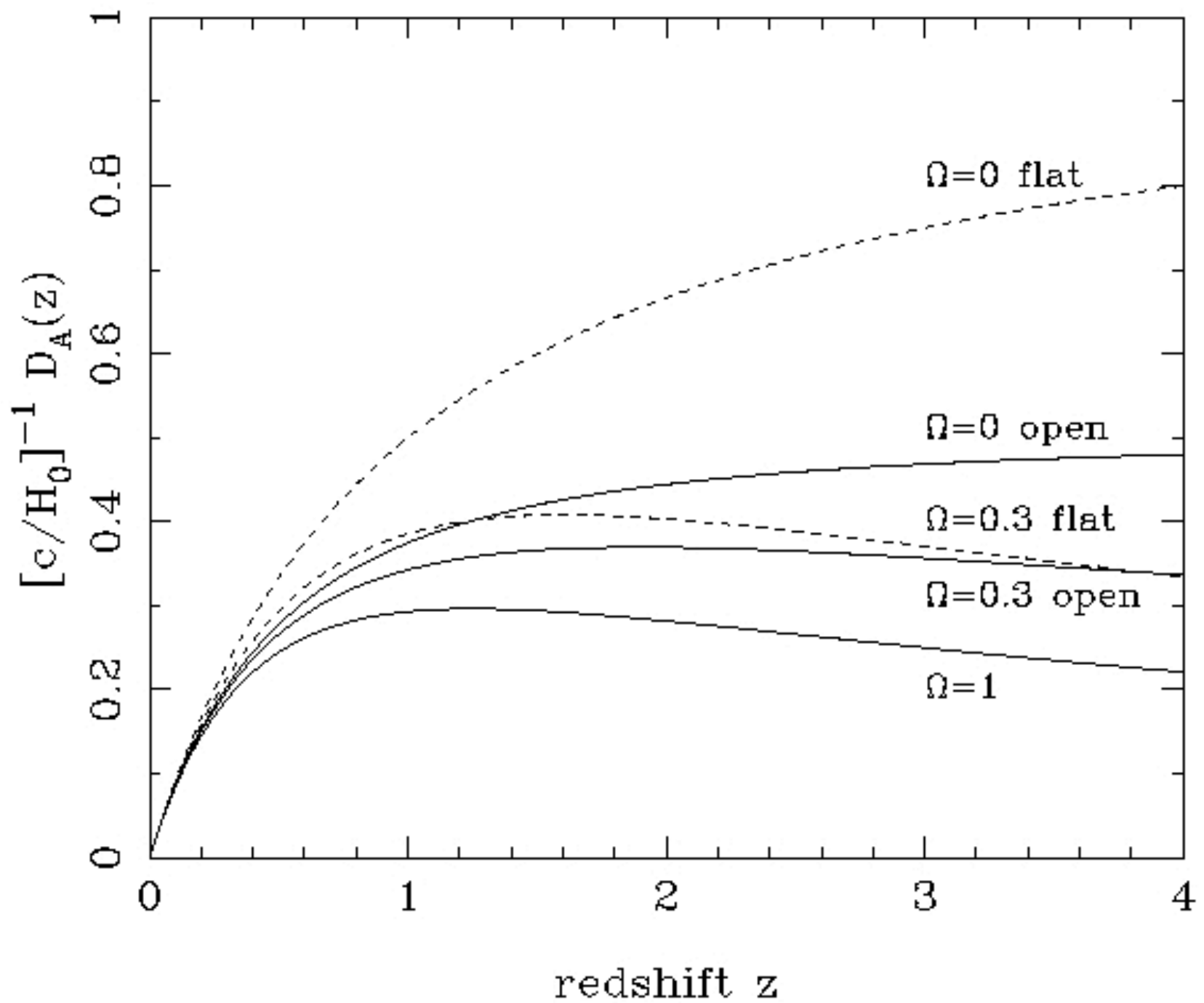


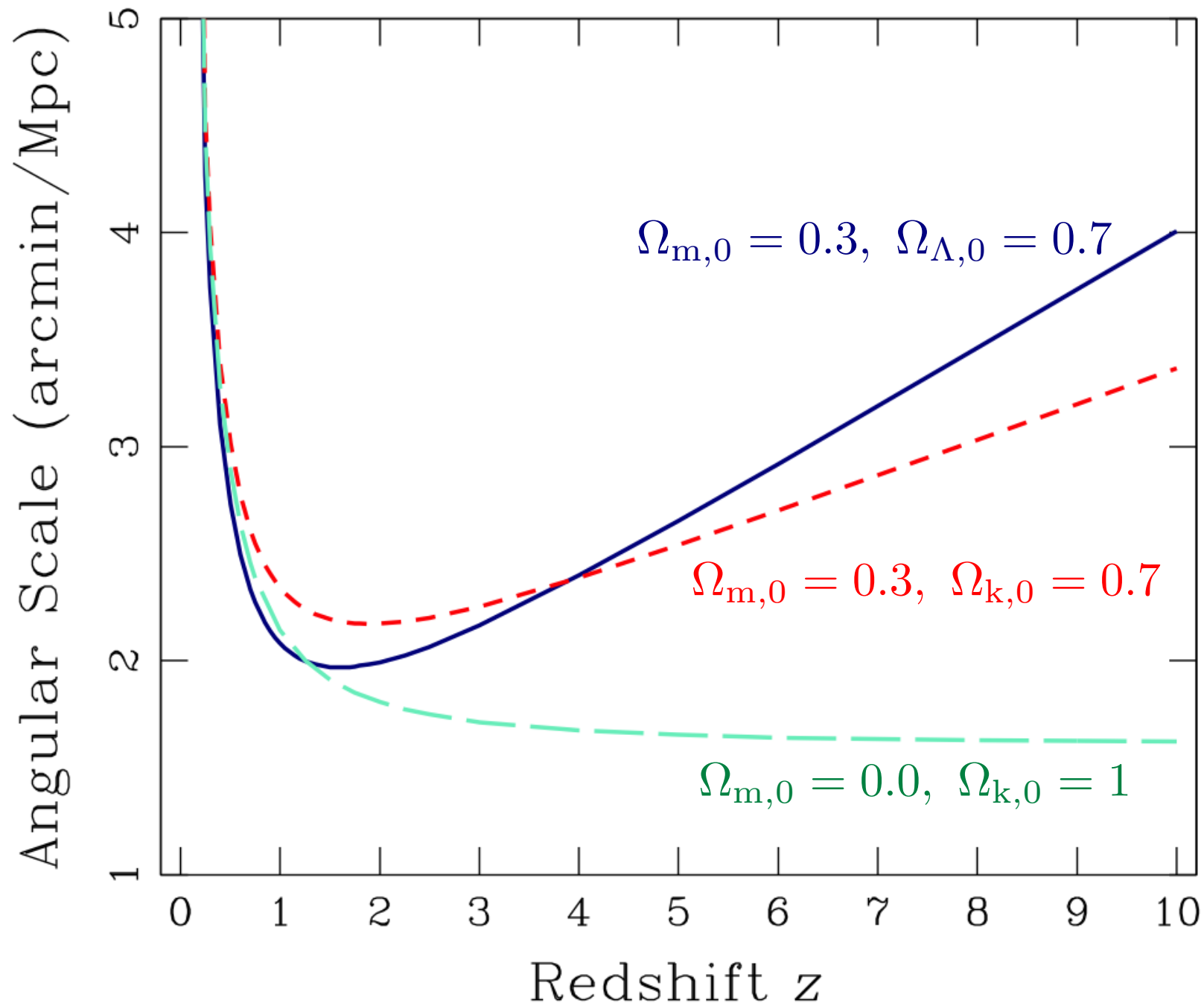
Table 1.1: COSMIC INVENTORY

Component	$\Omega$ ( $\rho/\rho_c$ )
Dark Energy	$0.691 \pm 0.006$
Matter (baryonic and non-baryonic)	$0.312 \pm 0.009$
Baryons (Total)	$0.0488 \pm 0.0004$
Baryons in stars and stellar remnants	$\sim 0.003$
Neutrinos	$\sim 0.001$
Photons (CMB)	$5 \times 10^{-5}$

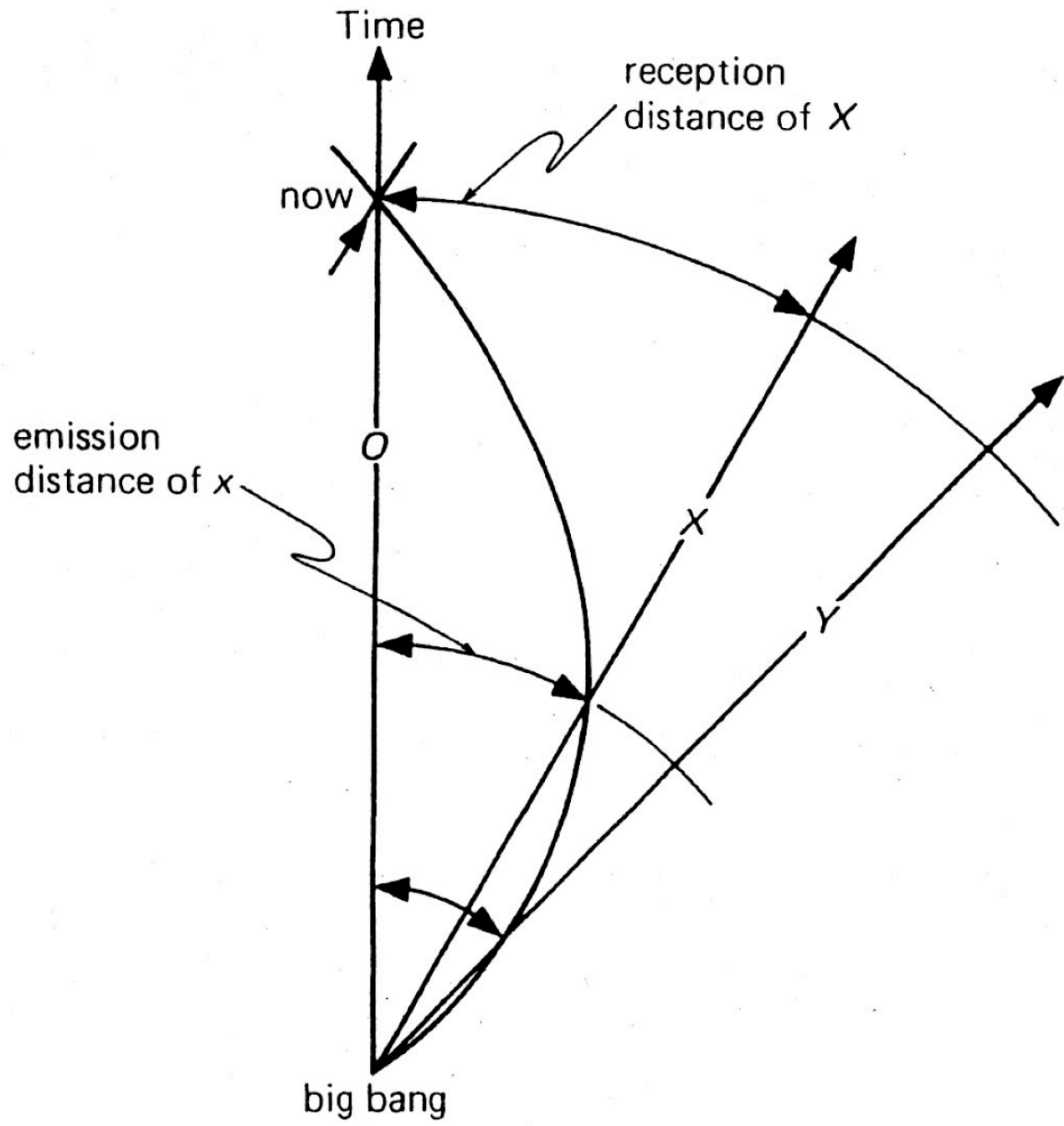


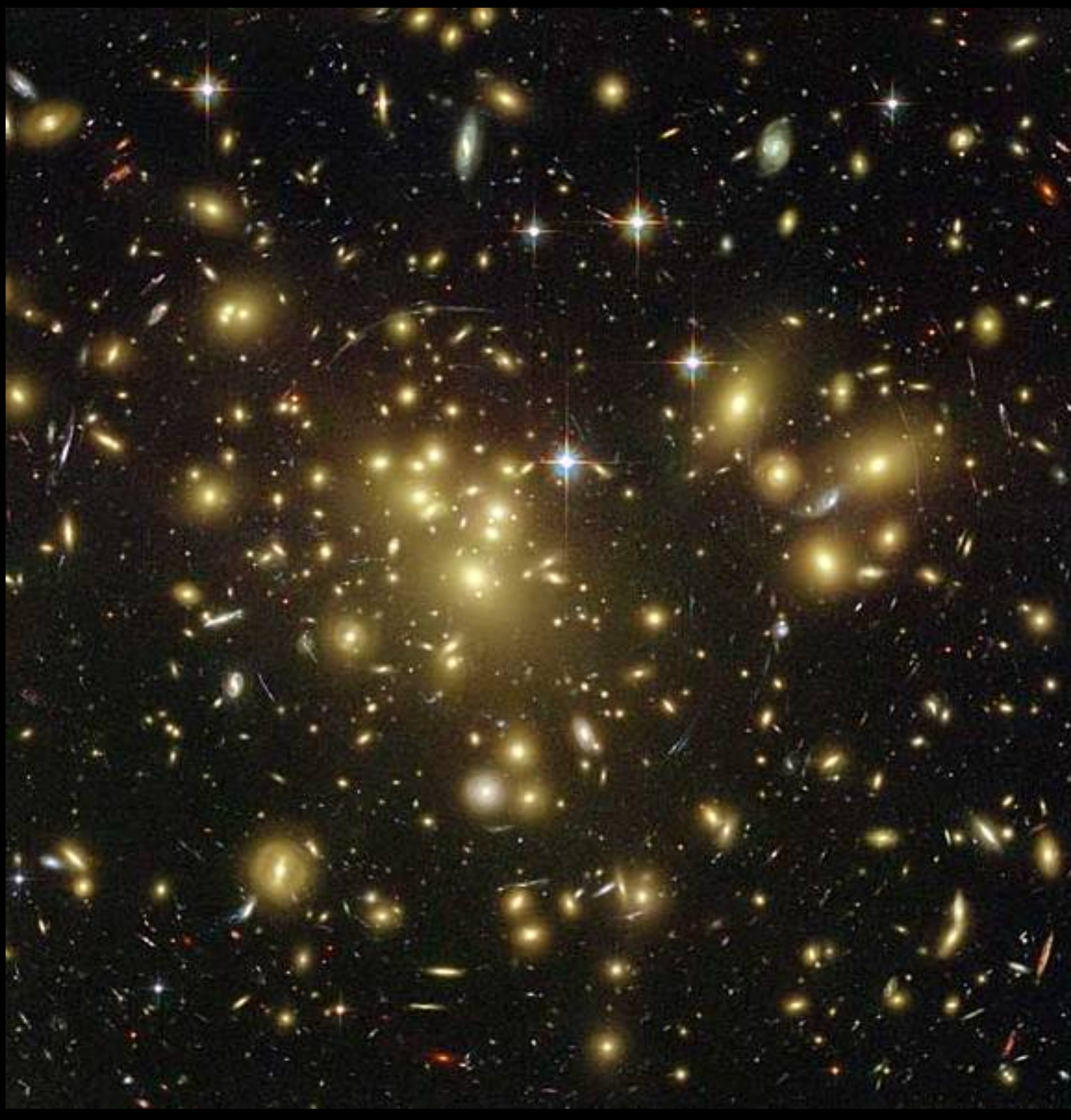




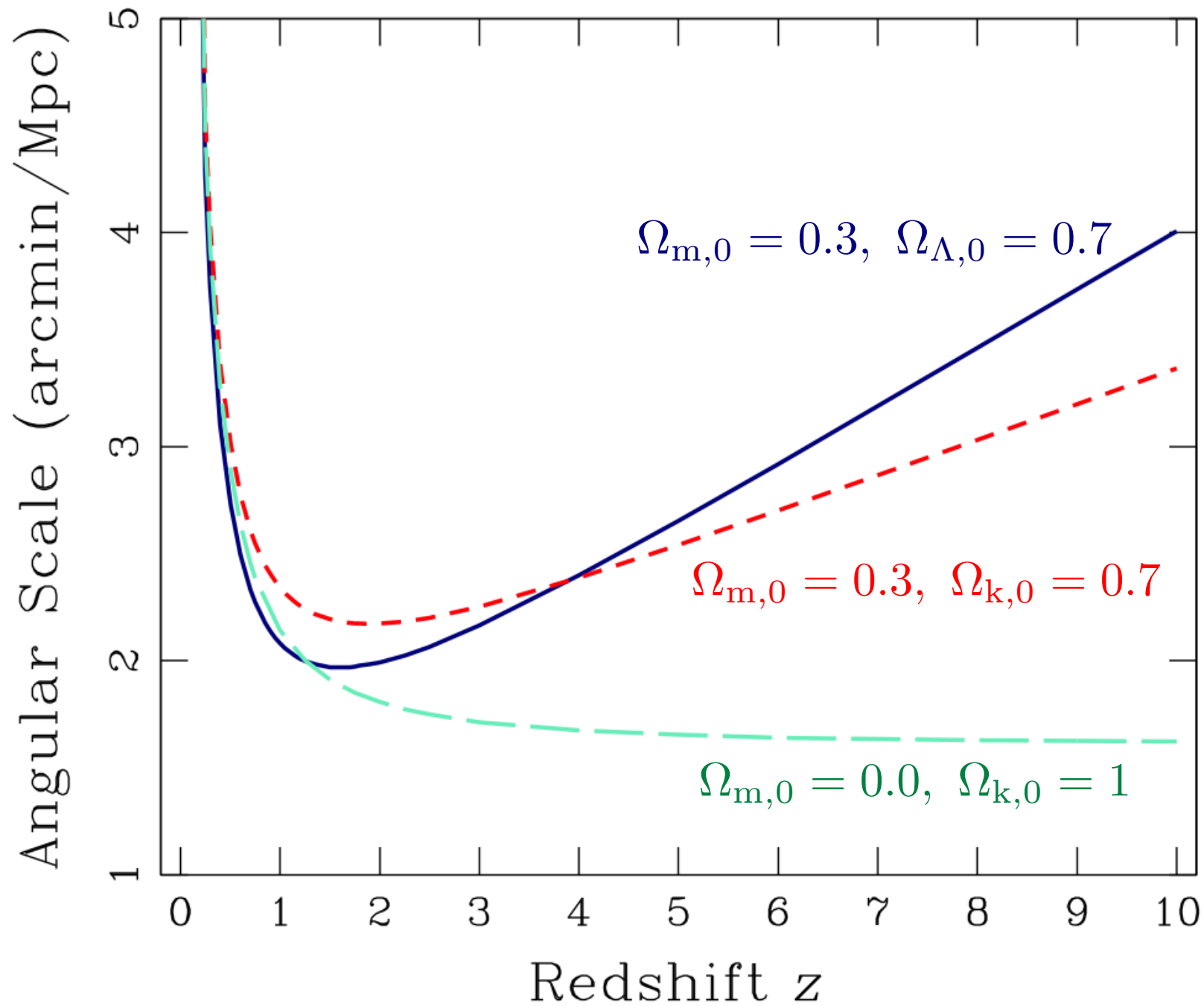


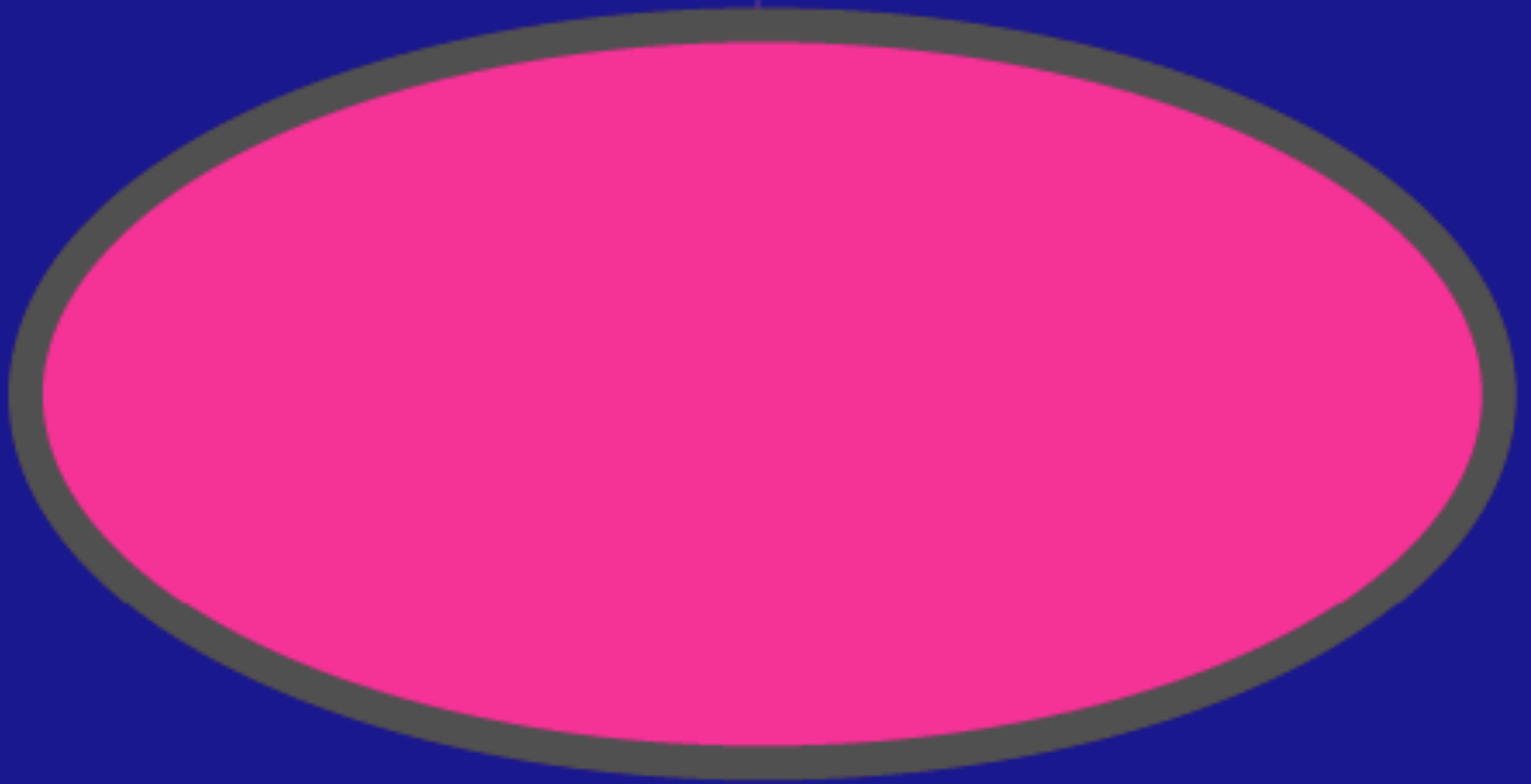




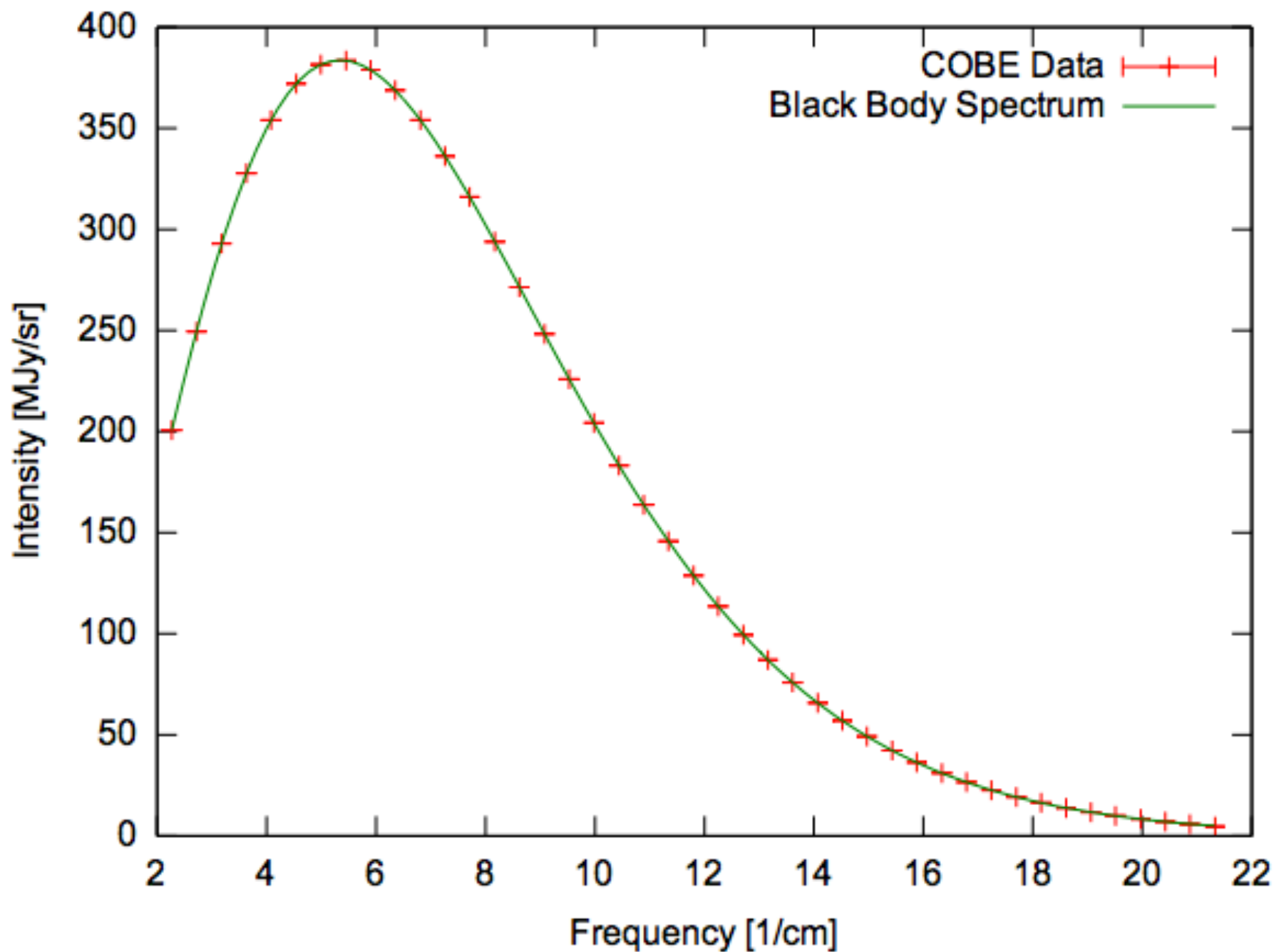




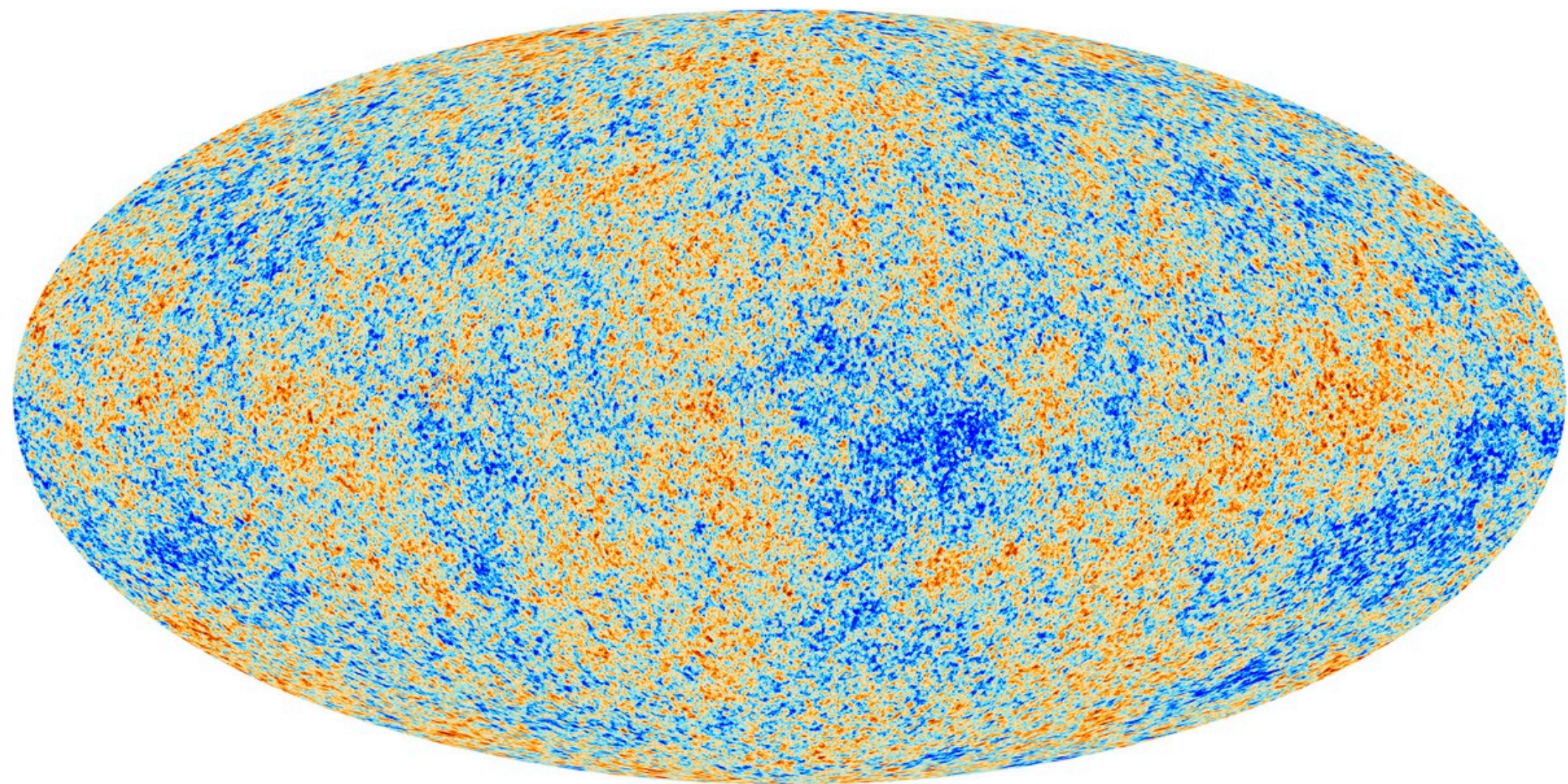




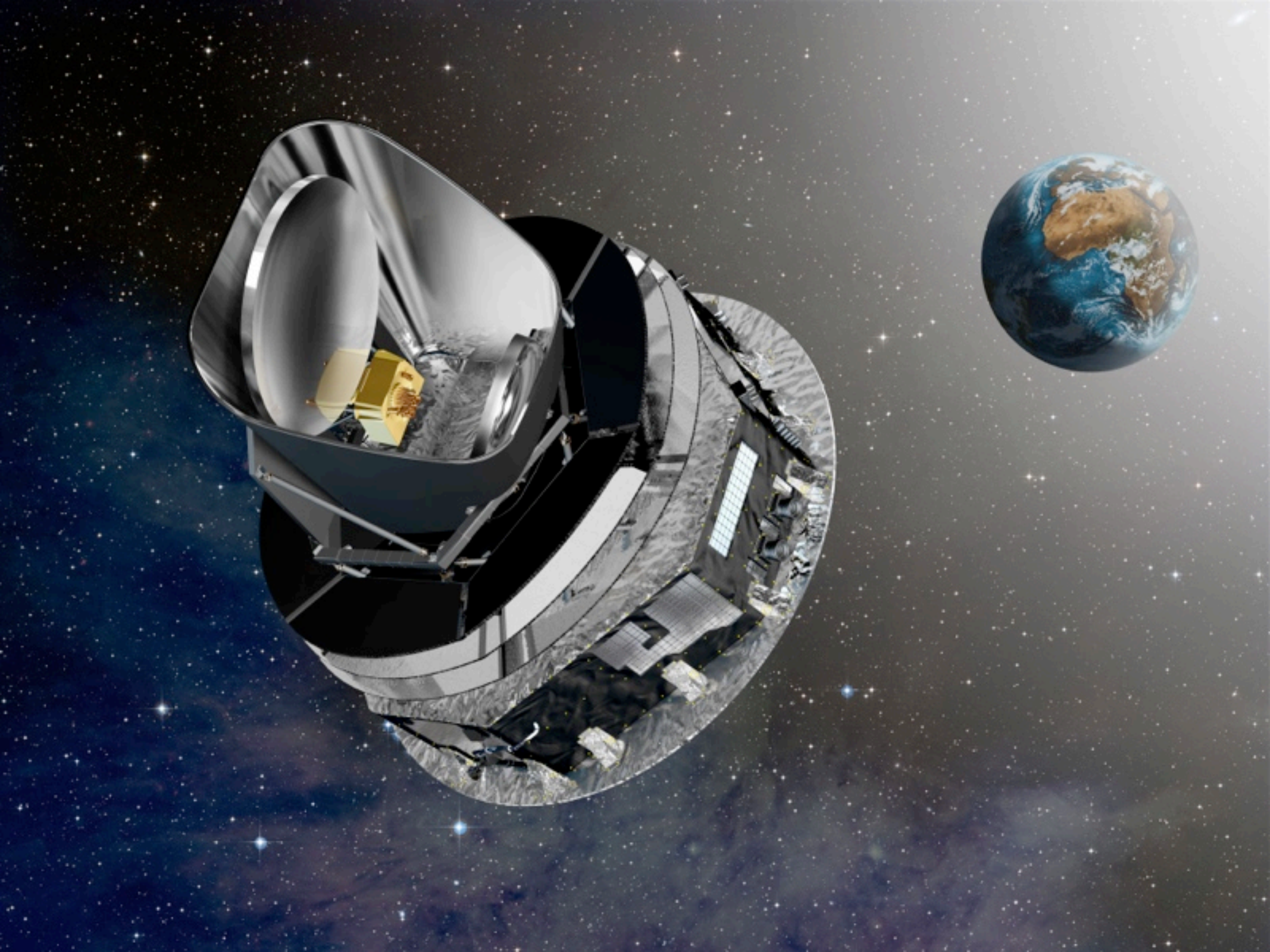
Cosmic Microwave Background Spectrum from COBE



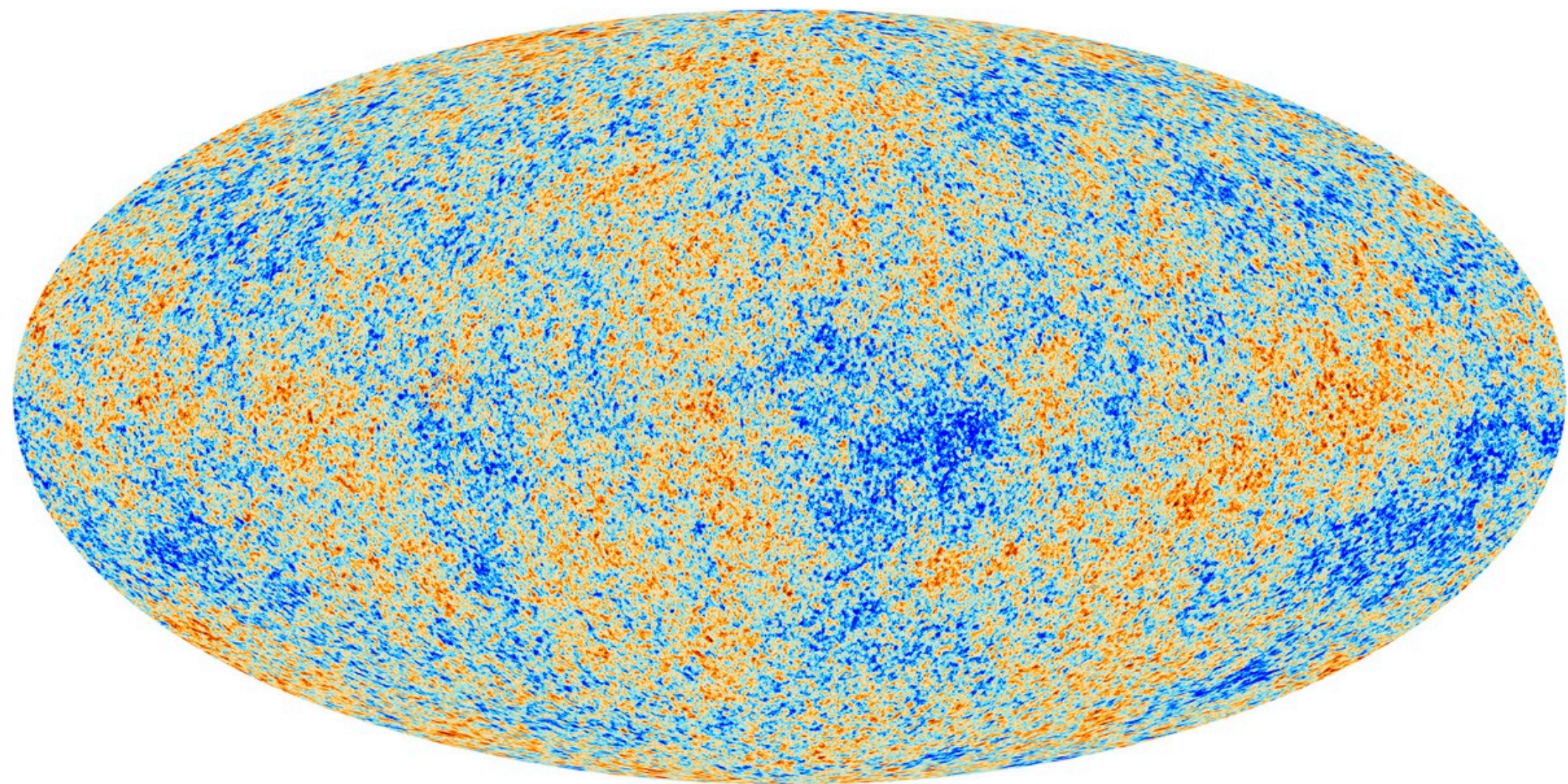














Angular size of typical CMB patch

