Penzias & Wilson (Bell-Labs)
Cosmic Microwave Background

$T = 2.728 \text{ K}$
Cosmic Microwave Background

$T = 2.728 \, \text{K}$
Subtracting off the mean level leaves us with a “dipole” pattern... what is this??

\[ \Delta T = 3.353 \text{ mK} \]
Subtracting off the dipole finally reveals the emission from the Galaxy

$\Delta T = 18 \, \mu K$
Subtracting contribution from Galaxy reveals fluctuations in the CMB
Higher resolution view with WMAP...
Even higher resolution view with Planck...
Hubble’s Data (1929)
Hubble & Humason (1931)

![Graph showing recession velocity vs. distance (Mpc)](graph.png)

- Y-axis: Recession Velocity (km/sec)
- X-axis: Distance (Mpc)
- Data points and line indicate a linear relationship between recession velocity and distance.