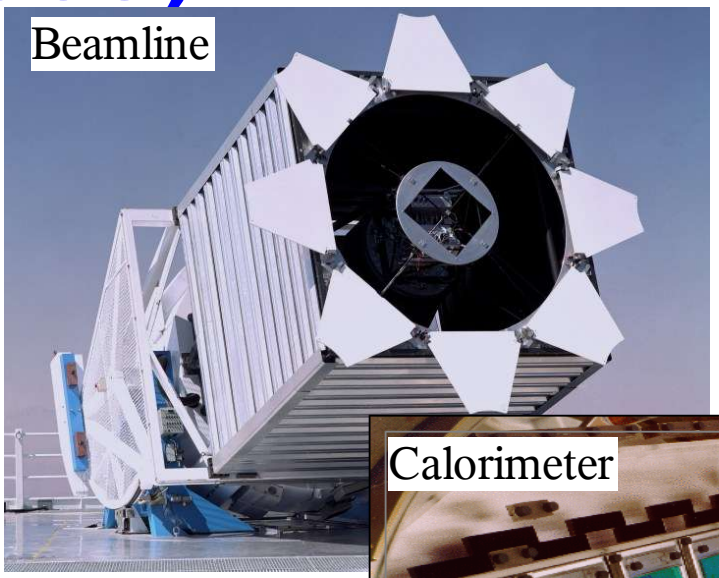
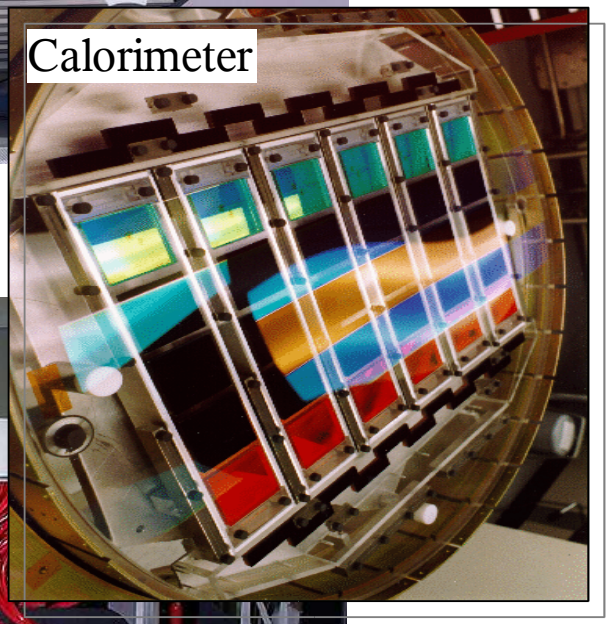
Sloan Digital Sky Survey (E885)

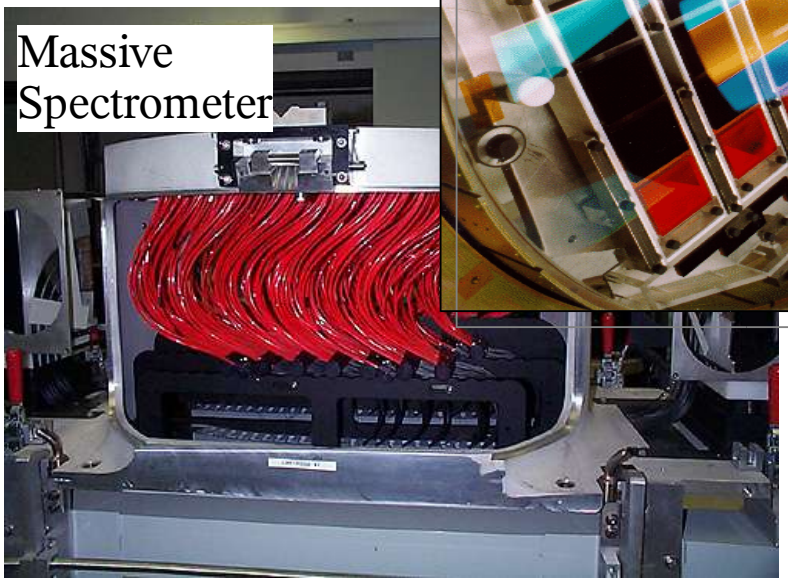
Goal:
Conduct fundamental research in cosmology, particularly formation & evolution of galaxies and large scale structure

Approach:
Digital map of ¼ of sky in 5 bands
Spectra of 1 million galaxies, 100,000 quasars

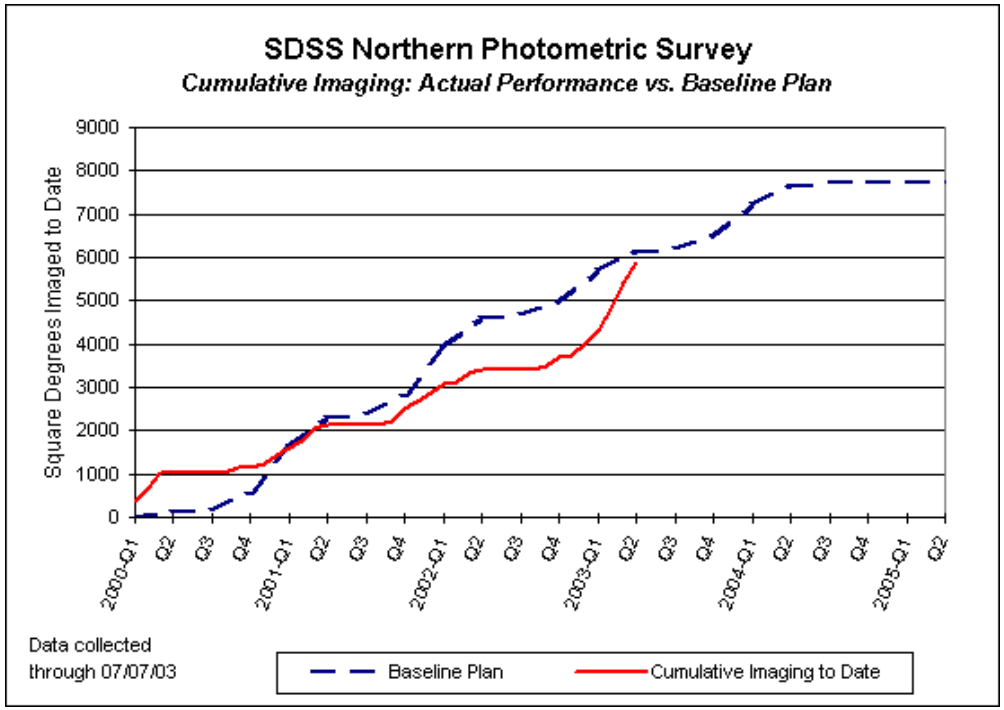
Resources:
- 2.5 m telescope in New Mexico
- Large CCD camera
- 640 fiber spectrograph
- 11 partner institutions

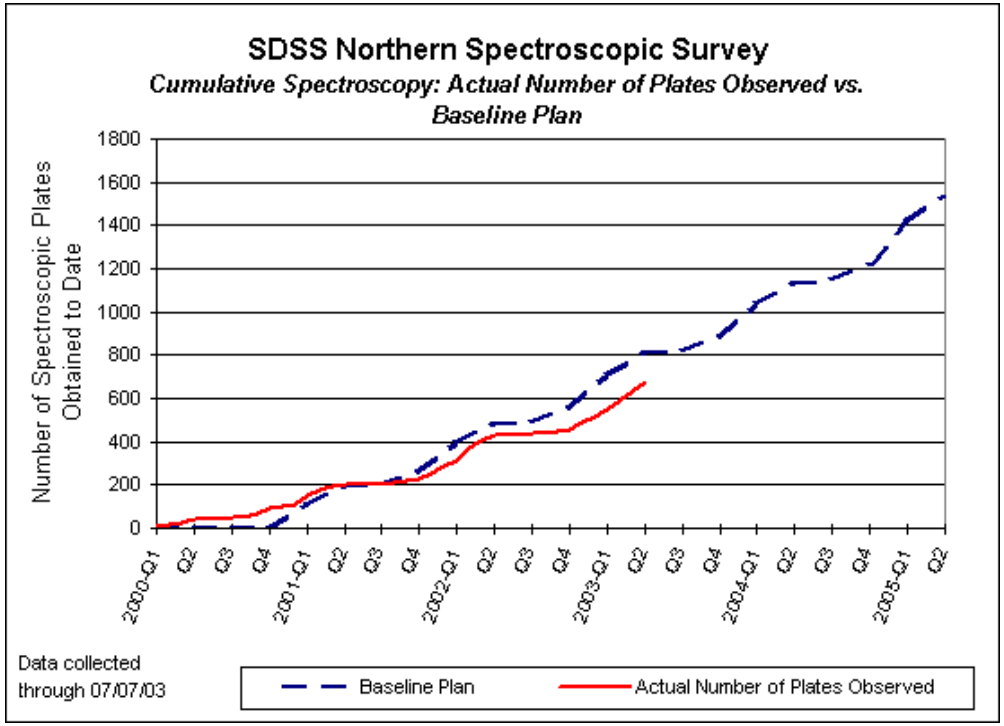






Delivered "beam" vs. 5 yr. baseline





Status (Aug 2003)
(North survey only)

IMAGING

Baseline:
8452 sq. deg.

78% as of Aug 6, 2003

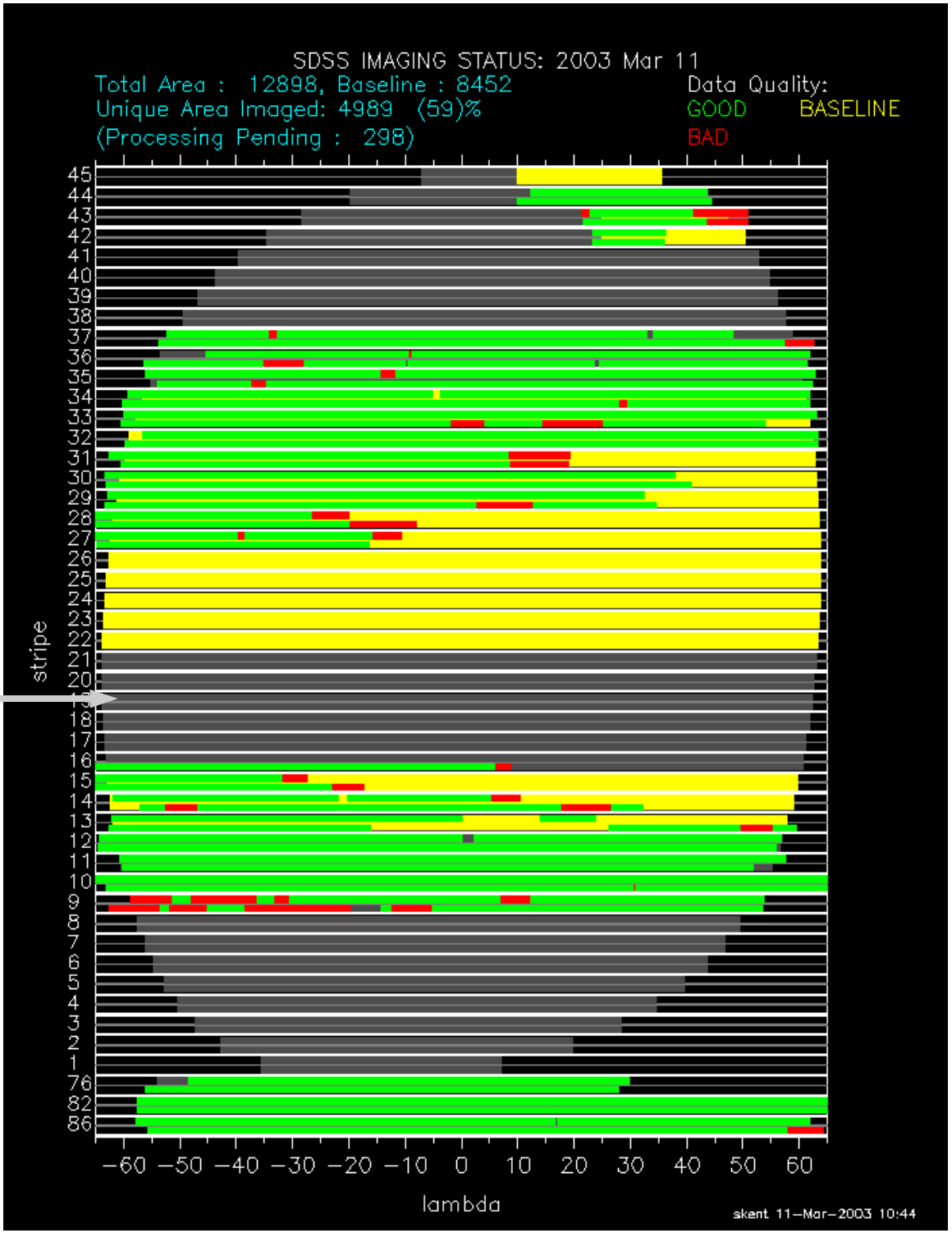
SPECTROSCOPY

Baseline:
1688 tiles

48% as of Aug 6, 2003

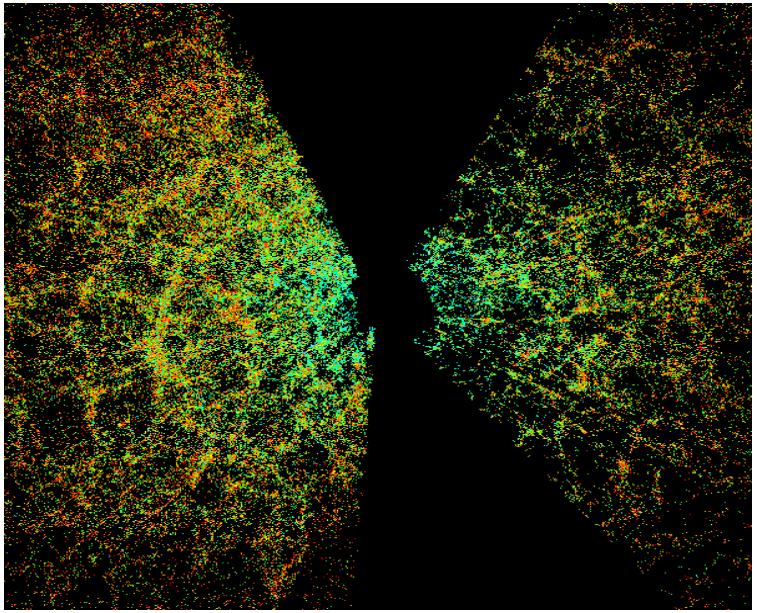
Current operations funded through June, 2005

A proposal is being developed to continue operations for another 2 or more years (fill the gap).



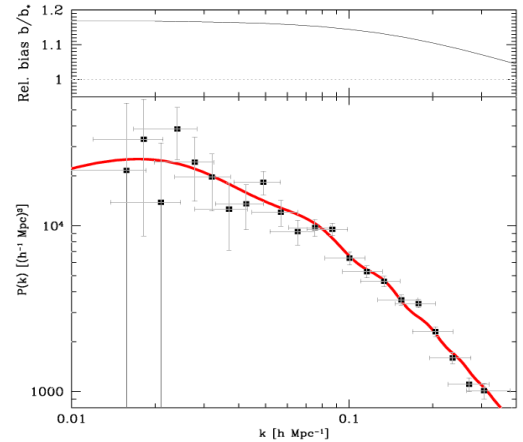
Data Distribution

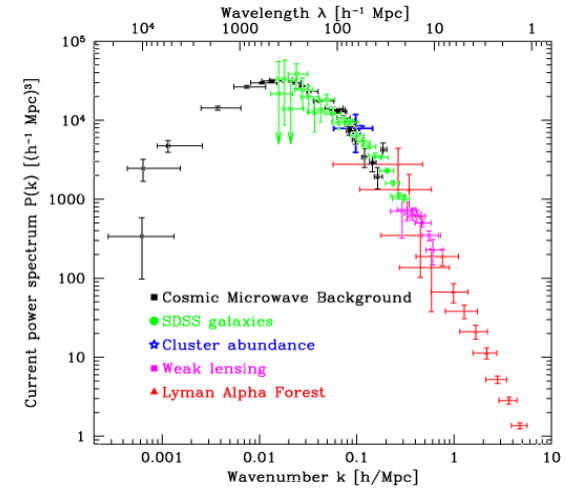
- **Data Release 1 to public**
  - March 2003
  - www.sdss.org
  - 2000 sq. deg. of sky
  - 9 terabytes downloaded by public so far
  - Science publications:
    - 141 by SDSS collab
    - 59 by public
- **Data release 2**
  - Scheduled for early 2004
  - 4000 sq. deg
  - *Need more disk space!*



Distribution of Galaxies around Sun to z=0.15

(Blanton 2003)





ΛCDM adjusted to L* galaxy

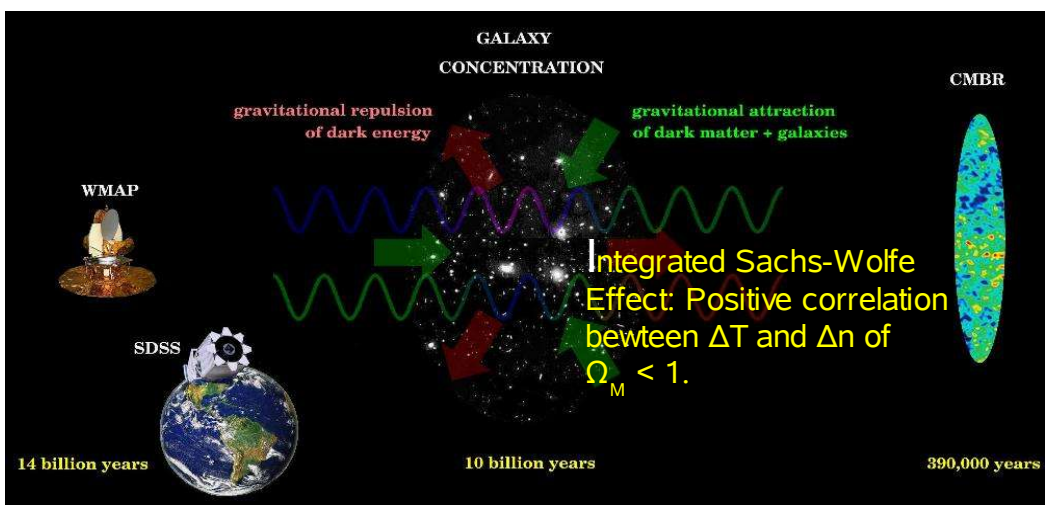
$\Omega_M h = 0.213 \pm .023$

σ_8 (gal) = 0.96 ± .02

$n = 0.995$

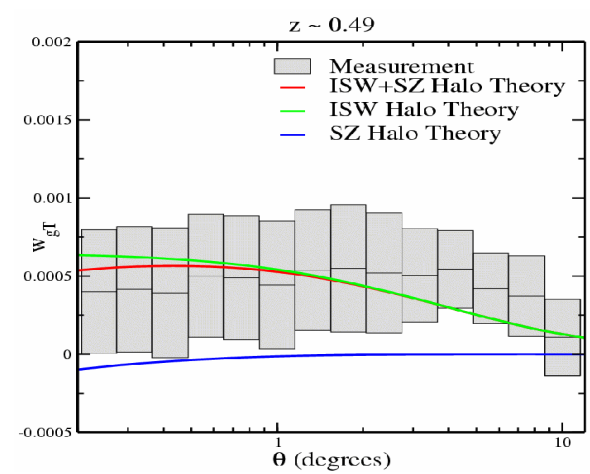
Three-dimensional Power Spectrum

(Tegmark et al 2003)



SDSS vs WMAP: Correlation of temp. fluctuations with galaxy counts

(Scranton et al. 2003)



Strong evidence for dark energy dominated universe (ΛCDM)