

- Artificial satellites  
Mike McCants' Satellite Tracking web pages (alldat.tle file). The file includes orbital elements supplied by OIG (NASA/GSFC Orbital Information Group) and data on other satellites obtained primarily by amateur visual observations.  
( <http://oig1.gsfc.nasa.gov/> )  
( <http://users2.ev1.net/~mmccants/tles/index.html> )
- Hubble Space Telescope location  
Alan Patterson & Davin Workman (Science and Mission Scheduling Branch, Operations and Data Management Division, Space Telescope Science Institute), private communication
- Chandra X-ray Observatory location  
Rob Cameron (CXO Science Operations Team), private communication
- Asteroid catalog  
Lowell Observatory Asteroid Database (ASTORB), 2003/04/19 snapshot, with ephemeris calculated for Aug 12, 2003  
<ftp://ftp.lowell.edu/pub/elgb/astorb.html>
- Minor bodies' ephemeris  
Ephemeris computed using an adapted version of the OrbFit software package.  
OrbFit is written by the OrbFit consortium: Dept. of Mathematics, Univ. of Pisa (Andrea Milani, Steven R. Chesley), Astronomical Observatory of Brera, Milan (Mario Carpino), Astronomical Observatory, Belgrade (Zoran Knežević), CNR Institute for Space Astrophysics, Rome (Giovanni B. Valsecchi).  
( <http://newton.dm.unipi.it/~neodys/astinfo/orbfit/> )
- Quaoar and Sedna information  
( <http://www.gps.caltech.edu/~chad> )
- Comet, Sun, Moon and planet ephemeris  
Generated using JPL HORIZONS On-line Solar System Data and Ephemeris Computation Service.  
( <http://ssd.jpl.nasa.gov/horizons.html> )
- Space probes  
Voyager 1, Voyager 2, Pioneer 10, Ulysses positions obtained from NASA HeloWeb webpage at NSSDC (National Space Science Data Center)  
( <http://nssdc.gsfc.nasa.gov/space/helios/heli.html> )

- Heliopause  
Distance taken to be approximately 110 AU in the direction of approximately 18h RA.
- Oort Cloud  
Taken to extend from 8,000 AU to 100,000 AU
- 10 brightest stars  
Source for positions and parallaxes: SIMBAD Reference database, Centre de Donnees astronomiques de Strasbourg  
( <http://simbad.u-strasbg.fr/sim-fid.pl> )
- 10 nearest stars  
Source for positions and parallaxes: Research Consortium on Nearby Stars, list as of July 1, 2004  
( <http://www.chara.gsu.edu/RECONS/TOP100.htm> )
- Extra-solar planets  
IAU “Working Group on Extrasolar Planets” list of planets, the ”Extrasolar Planets Catalog” of the ”Extrasolar Planets Encyclopedia” maintained by Jean Schneider at CNRS – Paris Observatory  
( <http://www.ciw.deu/IAU/div3/wgesp/planets.shtml> )  
( <http://www.obspm.fr/encycl/encycl.html> )  
( <http://cfa-www.harvard.edu/planets/OGLE-TR-56.html> )
- Hipparcos stars  
ESA, 1997, The Hipparcos and Tycho Catalogues, ESA SP-1200  
( <http://tdc-www.harvard.edu/software/catalogs/hipparcos.html> )
- Selected Messier objects  
Distances and common names taken from the Students for the Exploration and Development of Space (SEDS) Messier Catalog pages. Positions taken from the SIMBAD reference database  
( <http://www.seds.org/messier/> )
- Milky Way  
Disk radius taken to be 15kpc. Distance to galactic center taken to be 8kpc.
- Local Group  
Data taken from a list of Local Group Member Galaxies maintained by SEDS  
( <http://www.seds.org/~spider/spider/LG/lg.html> )

- Great Attractor  
Location data from SIMBAD, redshift distance:  $cz = 4,350 \text{ km s}^{-1}$
- Great Wall  
Contours based on CfA2 redshift Catalog, subset CfA2. The contours are based on galaxies satisfying  $-8.5^\circ < \delta < 42.5^\circ$ ,  $120^\circ < \alpha < 255^\circ$ , and  $0.01 < z < 0.05$  comprising the CfA2's first 6 slices (Geller and Huchra (1989)).  
( <http://cfa-www.harvard.edu/~huchra> )
- SDSS data  
Plotted from raw SDSS spectroscopy data obtained using David Schlegel's SPECTRO pipeline – spALL.dat file – dated 2003/01/15 with a  $z < 5$  inclusion cut applied. SDSS quasar data with  $z > 5$  provided by Michael Strauss, private communication.  
( <http://spectro.princeton.edu/> )
- Plotting  
Plotted using SM software by Robert H. Lupton.  
( <http://astro.princeton.edu/~rhl/sm> )
- Individual quasar data  
SIMBAD database
- Cosmological data  
WMAP Collaboration publications ( Bennett et al. (2003) )
- WMAP location in space at the time of the map  
Dale Fink, Gary Hinshaw, Hiranya Peiris (2003), personal communication

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Table 1. Co-moving radii for different redshifts

$z$	$r(z)$ (Mpc)	Note
$\infty$	14,283	Big Bang (end of inflationary period)
3233	14,165	Equal matter and radiation density epoch
1089	14,000	Recombination
6	8,422	
5	7,933	
4	7,305	
3	6,461	
2	5,245	
1	3,317	
0.5	1,882	
0.2	809	
0.1	413	