

## BOSS/eBOSS Plates

BOSS (Baryon Oscillation Spectroscopic Survey) and eBOSS (Extended Baryon Oscillation Spectroscopic Survey) plates are used to survey stars, galaxies and quasars. The goal of these surveys is to catalogue galaxies and their redshift in order to learn more about the evolution of our galaxy and its expansion history.



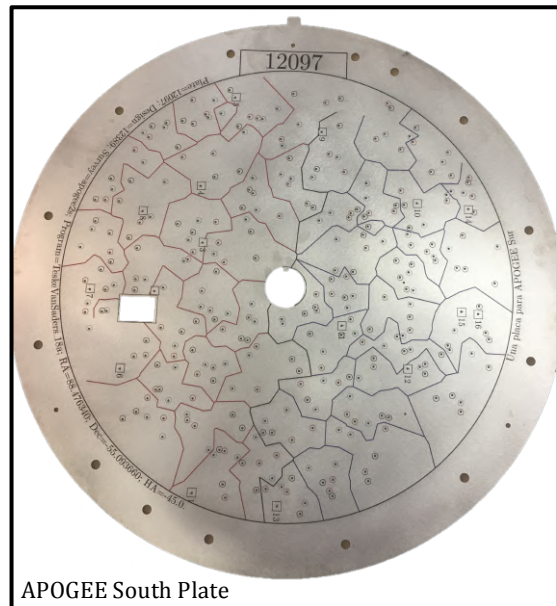
BOSS and eBOSS plates have holes on them that correspond to the positions of galaxies, quasars and stars. These objects span a huge range of distances and allow observers to create a 3D map of the Universe far beyond our own galaxy.

For more information about either of the plates and how they are used, the plate introduction documents for both BOSS/eBOSS and APOGEE can be found at

<https://voyages.sdss.org/for-educators/ground-control/sdss-plates-for-education/plate-workshop-resources/>

## APOGEE Plates

APOGEE (Apache Point Observatory Galaxy Evolution Experiment) plates are used to survey stars in our Galaxy. The goal of this is to learn more about the formation, age, chemical composition, and motions of stars in the Milky Way. APOGEE is also investigating the properties of planet hosting stars versus non-planet hosting stars.



APOGEE has plates for the observatories in both the northern and southern hemisphere. These plates look different as they are for different telescopes. Above is shown a plate from the telescope in the Southern hemisphere. Having telescopes on two hemispheres allows astronomers to map more of the Milky Way.

The holes in APOGEE plates correspond to stars in our galaxy. The spectra created from these stars tell astronomers about the chemical composition of the stars and their radial velocities. From this information, astronomers can deduce the age and motion of these stars. This helps build a clearer view of the Milky Way.