

## Observing Planning Resources

Planning an observing run requires figuring out what size telescope and what kind of instruments is required to acquire the desired data. E.g., do you need a 1-m class telescope with a direct imaging camera to do photometry, or a large telescope with an echelle spectrometer to gather high resolution spectra of fainter targets? Lick Observatory has a number of telescopes and instruments available, as summarized on the following web sites.

Summary of available telescopes and their instruments:

<http://mtham.ucolick.org/techdocs/telescopes/synopsis.html>

Summary of the available direct imaging cameras:

[http://mtham.ucolick.org/techdocs/instruments/synopsis\\_cams.html](http://mtham.ucolick.org/techdocs/instruments/synopsis_cams.html)

Summary of the available spectrometers:

[http://mtham.ucolick.org/techdocs/instruments/synopsis\\_spects.html](http://mtham.ucolick.org/techdocs/instruments/synopsis_spects.html)

Knowing which targets will be visible when from the selected telescope is also necessary for observing planning. This ranges from determining whether the object can be observed during nautical (12 degree) twilight or needs to wait until after astronomical (18 degree) twilight, what is an acceptable airmass for acquiring the data, the time of year, and what the individual telescope pointing limits are. Here are some references for Lick Observatory to help you with planning observations.

Lick Observatory latitude =  $37^{\circ} 20'$

$HA = LST - RA$

Lick Observatory Astronomical Calendars:

[http://mtham.ucolick.org/cgi-bin/lick\\_calendar\\_form.pl/](http://mtham.ucolick.org/cgi-bin/lick_calendar_form.pl/)

Telescope Pointing Limits:

Shane: <http://mtham.ucolick.org/techdocs/telescopes/Shane/pointing/>

Nickel: [http://mtham.ucolick.org/techdocs/telescopes/Nickel/limits\\_pointing/](http://mtham.ucolick.org/techdocs/telescopes/Nickel/limits_pointing/)

CAT: [http://mtham.ucolick.org/techdocs/telescopes/CAT/limits\\_pointing/](http://mtham.ucolick.org/techdocs/telescopes/CAT/limits_pointing/)

Exposure time calculation can be complicated, though if you are lucky the instrument you wish to use has an exposure time calculator. More details on exposure time calculation is available in the LimitingMagExposureTime.pdf (available in the provided Workshop materials). Lick Observatory lacks exposure time calculators for most of its instruments, however the Kast Spectrograph does have an exposure time calculator for some instrumental setups at [http://etc.ucolick.org/web\\_s2n/kast](http://etc.ucolick.org/web_s2n/kast)