One of the areas of interest highlighted at this weeks group meeting was the calibration data acquisition methods in place at other telescopes, with specific reference to the PI’s role in planning these observations. The queue observing employed at SALT, in combination with certain physical characteristics of the observatory, make planning for this more difficult. This document gives an outline of calibration methods used at other observatories, and calibration data available to the astronomer. Since the majority of facilities and instrument teams do not include this information within their PI tools (or even in their observing guides in some cases), I have kept this document separate from the main PI tool comparison.

In an attempt to continue to make comparison useful, two observatories with queue based observing were chosen – the Gemini telescopes and WIYN. In both cases, calibration information required more involved searching to find – the PI tools have no links to this, and in the case of Gemini, the material outlining calibration is completely separate from the instrumentation handbooks. Despite this the information Gemini supply is comprehensive, and clear about requirements from the PI. At Gemini, a single set of standard calibrations are taken, and shared amongst the various instruments. A description of the basic calibration dataset is provided for each instrument, as not everything is included for each instrument. It is specified that PIs should not include time for these basic calibrations in their proposal. However, any further calibration data required beyond this basic set must be planned for and included in the phase 1 and 2 proposals.

For GMOS, calibration is outlined for both imaging and spectroscopic modes. In imaging mode, the PI is supplied with twilight flat fields taken each morning (about 14 depending on the length of observing run). Dome flats are available, but are non-standard and must be specified within the proposal. Standard stars can be selected from Landolt, A.U., 1992 AJ 104 340. Each observation field contains approximately 5 standard stars, but they must be observed using the filters available at any given time, which is of course dictated by the specific observation run being carried out. Gemini does not supply stellar PSFs, or atmospheric extinction data – the astronomer must determine these during their run time.

In spectroscopy mode, GCAL (Gemini facility CALibration unit) sky flats are provided in the basic dataset. The flats are obtained during science observations at a rate of one per hour of open shutter time – a minimum of two are provided in the dataset. Twilight flats are not included as standard. Wavelength calibration data is obtained using CuAr lamps with the instrument in the appropriate configuration – this is not included in the basic dataset and must be requested. Also
available, but again non-standard, are slit images, which are taken regularly to verify the condition of the slits.

The calibration information at WIYN is less detailed, but a default calibration outline is described. The basic data set provides a bias frame, comparison lamp exposures (with Hydra) and dome flats. The bias frame is actually the median of 9 individual frames, taken at the start of each night. The lamp exposures are taken before and after any Hydra run, and the dome flats are obtained once per Hydra run. Other data are available – spectrophotometric standards or radial velocity for instance, but these are taken during observing time and so must be planned for by the PI in their proposals.