Astronomical Surveys and Data

- a practical approach to astronomy

- What is Astronomy?

  Study of astronomical objects

- Where is it pursued?

  Observatories (optical), radio telescopes, space telescopes.

- What is it pursued for?

  Starting with distinguishing various types of objects, the science driving stellar, galactic objects and so on.

How do telescopes distinguish b/w objects?

- Solar and extra-Solar
  - By studying their motion across the skies i.e astrometry.
- Stellar and non-stellar
  - By looking at the shape/structure of objects i.e imaging.
- Galactic and extra-galactic
  - Studying color-color diagrams i.e through photometry.
  - Spectroscopic study and by determining distance.

    - We'll be looking at these in detail later on

- What limitations do telescopes face while observing?
  - Physical constraints in moving i.e RA, Dec limits.
  - Sky brightness limit on the app. Magnitude observable and due to sensitivity of detectors.
  - Resolution limits due to atmospheric diffraction and due to detector limits.

- How are observations made?
  - Telescope structural design i.e alt-az mounts & equatorial mounts
  - Telescope optical design i.e newtonian, cassegrain, ... and detector design i.e photographic plates, ccds & filters, bolarimeters or microbolarimeters, antennae, photomultiplier tubes and so on.