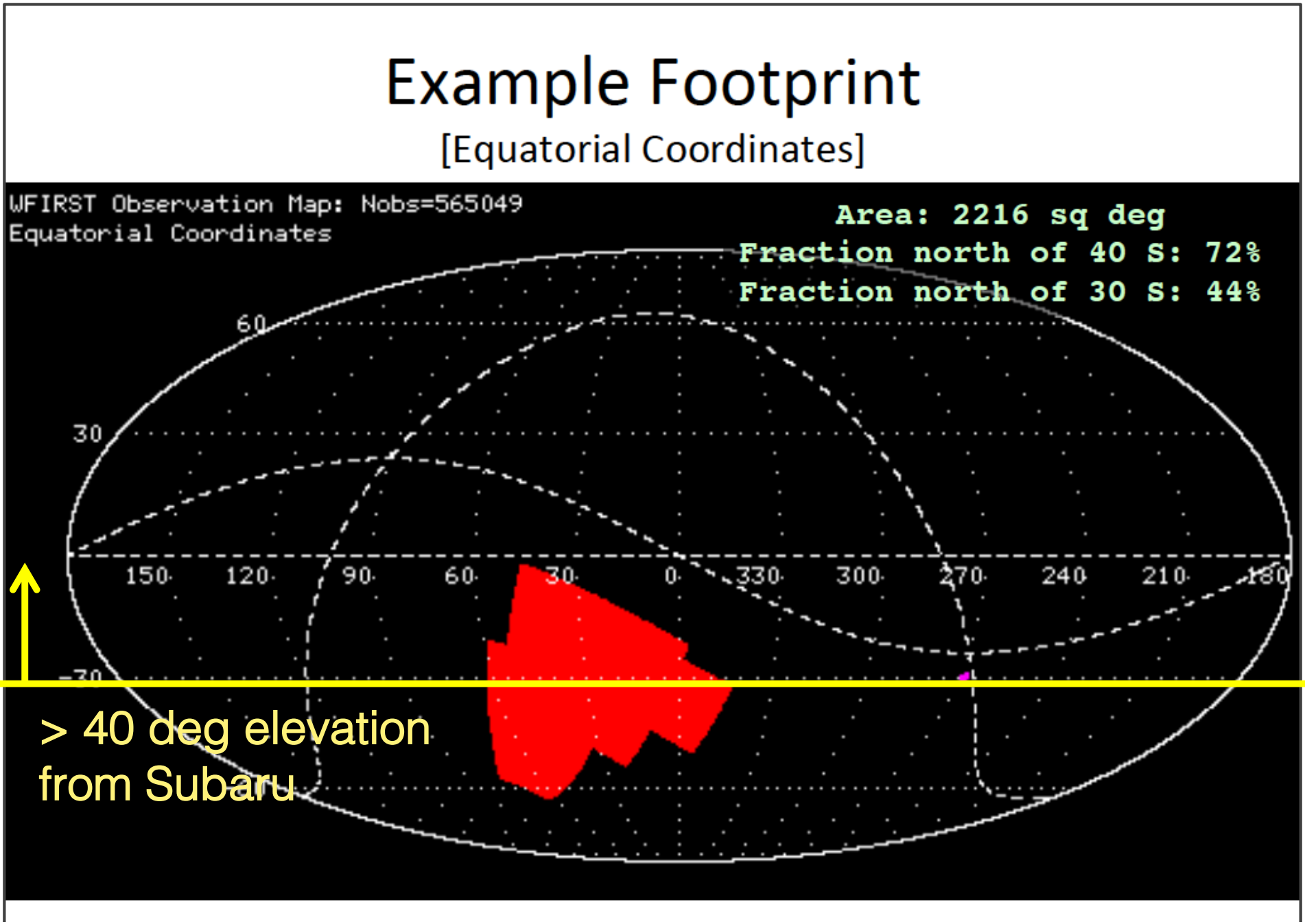
WFIRST-HLS area

From Chris (Hirata)'s talk slide
at WFIRST meeting @Pasadena, Nov 2014



Uniqueness of Subaru

- Collecting power, Wide FoV & Image quality (obs. conditions): a nice match to WFIRST-NIR space-data
- Imaging ⇔ LSST (southern hemisphere)
  - Note: Subaru/LSST much deeper than Euclid; narrow-band filters
- Prime Focus Spectrograph: multi-object spectrograph
  - Wide field view: ~1.25 sq. deg. (WFIRST: 0.28 sq. deg.)
  - High multiplex (~2000 fibers per sq. degrees)
  - 380-1260nm: a nice synergy with WFIRST (1000-1890nm)?
  - R~3000 at red, 4000 at NIR (R~461)
  - High throughput (compared to 4m-class instrument)
- What else?

Potential PFS+WFIST+LSST synergies

Overlapping area btw PFS & WFIRST	Observables	Science	Remarks
~10 sq. degs.	• Photo-z calibration for WFIRST	• Galaxy evolution	• Requires deep PFS observation. • Different survey fields • Narrow-band filters?
~100 sq. degs.	• RSD • Stacked velocity structure around clusters • WFIRST-WL of PFS galaxies/clusters • Cross-correlations	• Cosmological parameters • Test of gravity • CGM/IGM • +Galaxy science (if HSC NBs are added)?	• High redshift • Advantage of PFS high-density • More in the linear regime • +Narrow-band filters (Subaru time)?
> A few 100 sq. deg.	• RSD & BAO • Clustering + WFIRST-WL of PFS galaxies + CMB lensing • Stacked velocity profiles • Cross-correlations	• Cosmological paras (DE, neutrino mass, curvature) • Test of gravity • Non-gaussianity • CGM/IGM	• Needs to study an optimal survey design • Survey fields are low in their elevation for Subaru? • Expensive? • PFS+WFIRST+LSST