

Probing Metallicity across the Galactic Disk with the GBT

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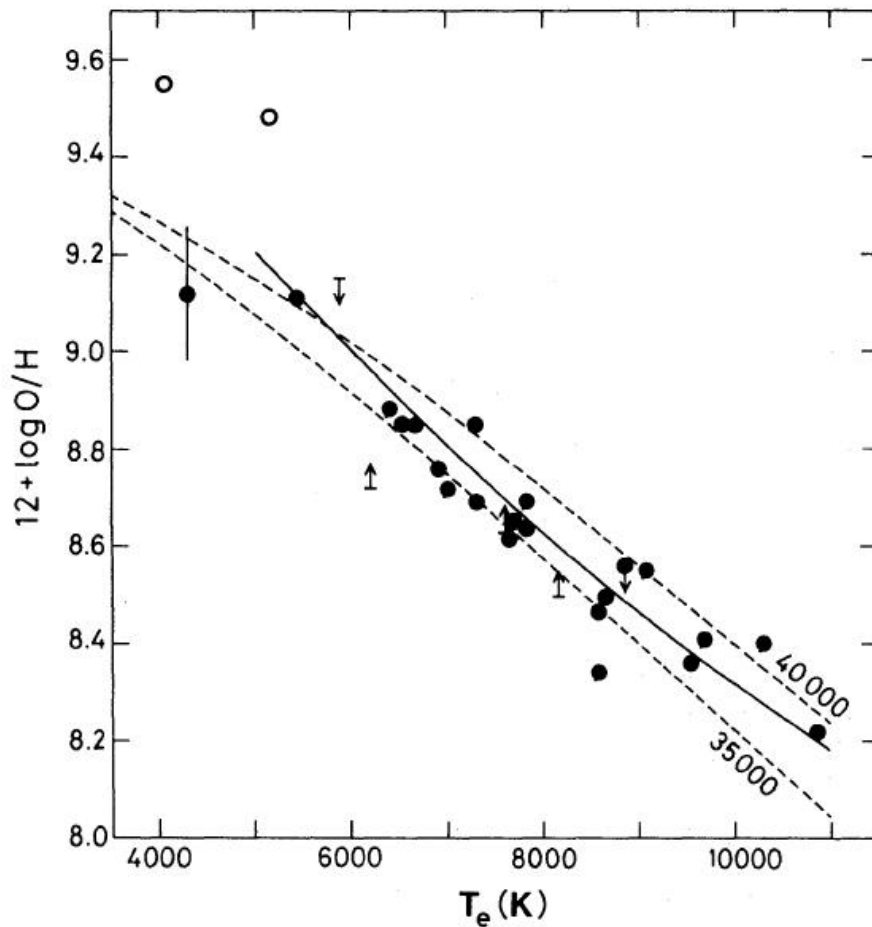
L.D. Anderson (WVU), T.M. Bania (BU), & T.V. Wenger (BU)



Photo: Harry Morton



HII Region Electron Temperature and Metallicity



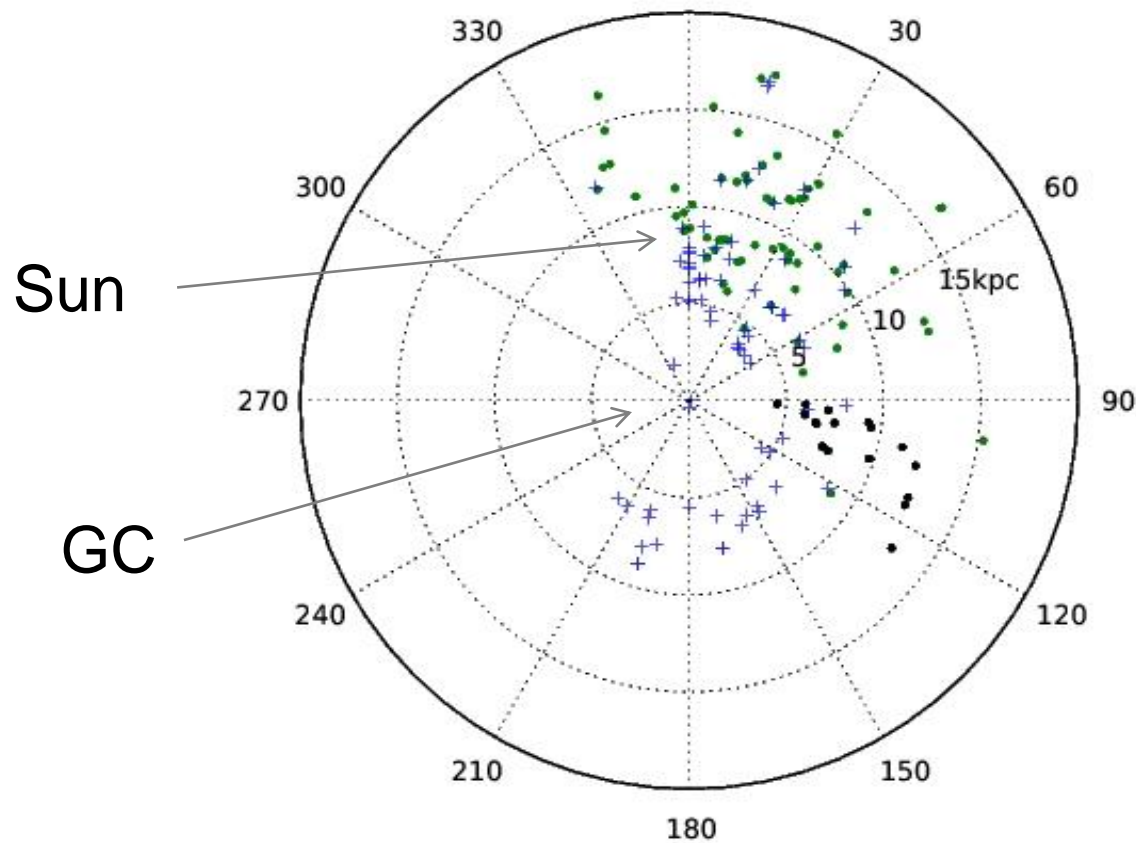
Shaver+ (1983)

$$\frac{T_L}{T_C} \propto T_e^{-1.15}$$

RRL and free-free
continuum emission
in LTE at 3 cm.

HII Region Sample

Galactic Distribution (Green Bank Sample)

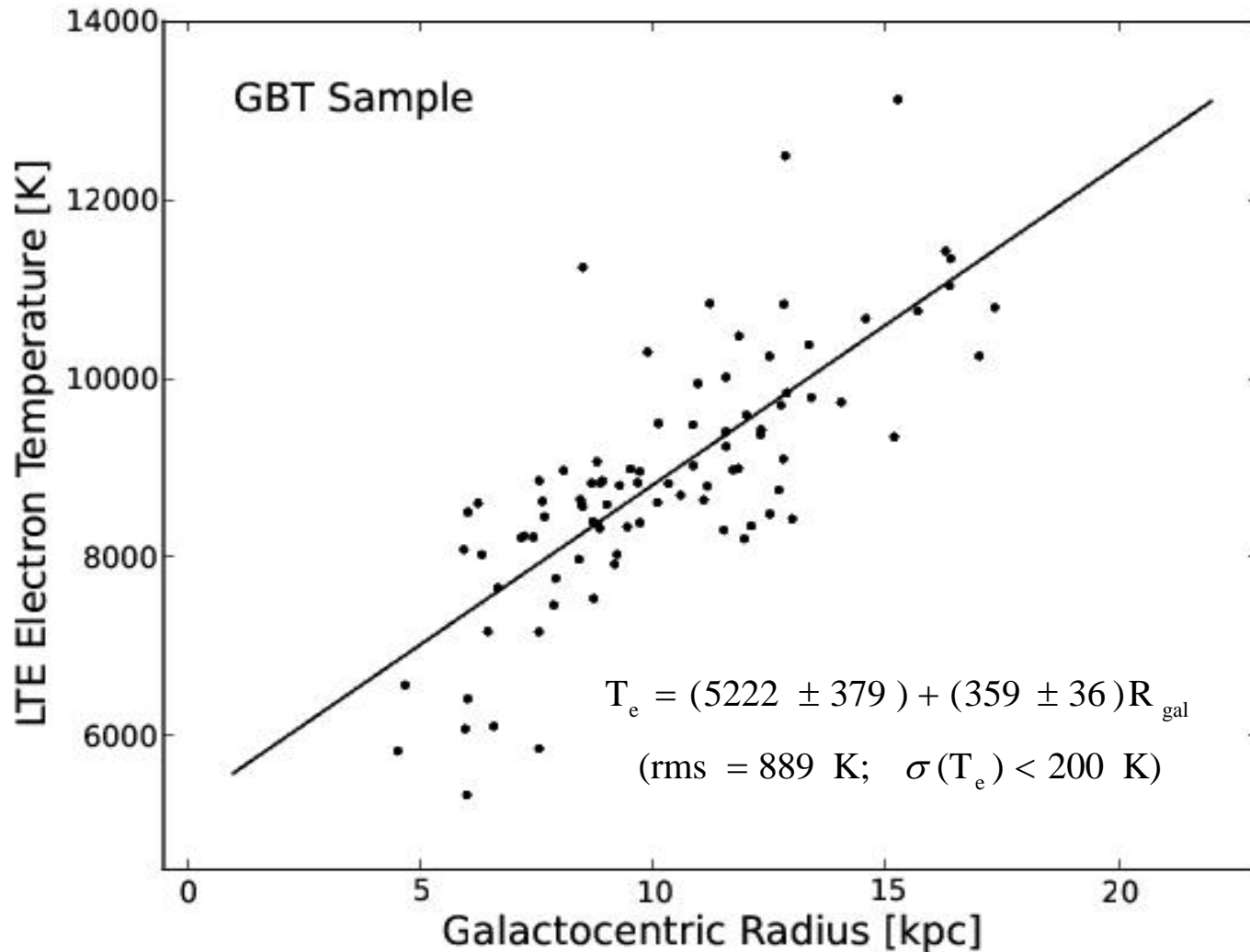


18 HRDS

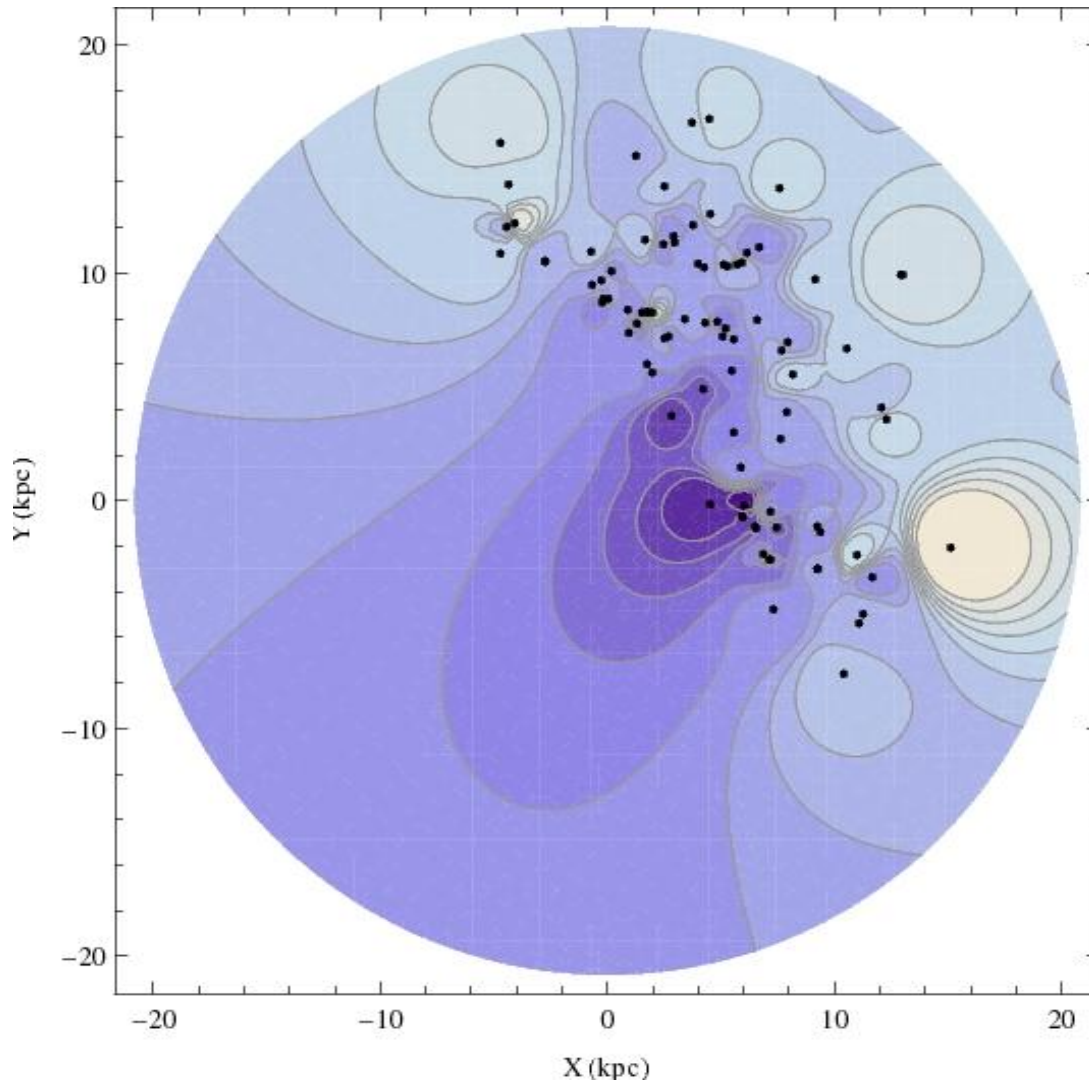
- GBT
- + 140 Foot

Quiroza+ (2006); Balser+ (2011)

Electron Temperature Radial Gradient



Electron Temperature Azimuthal Structure



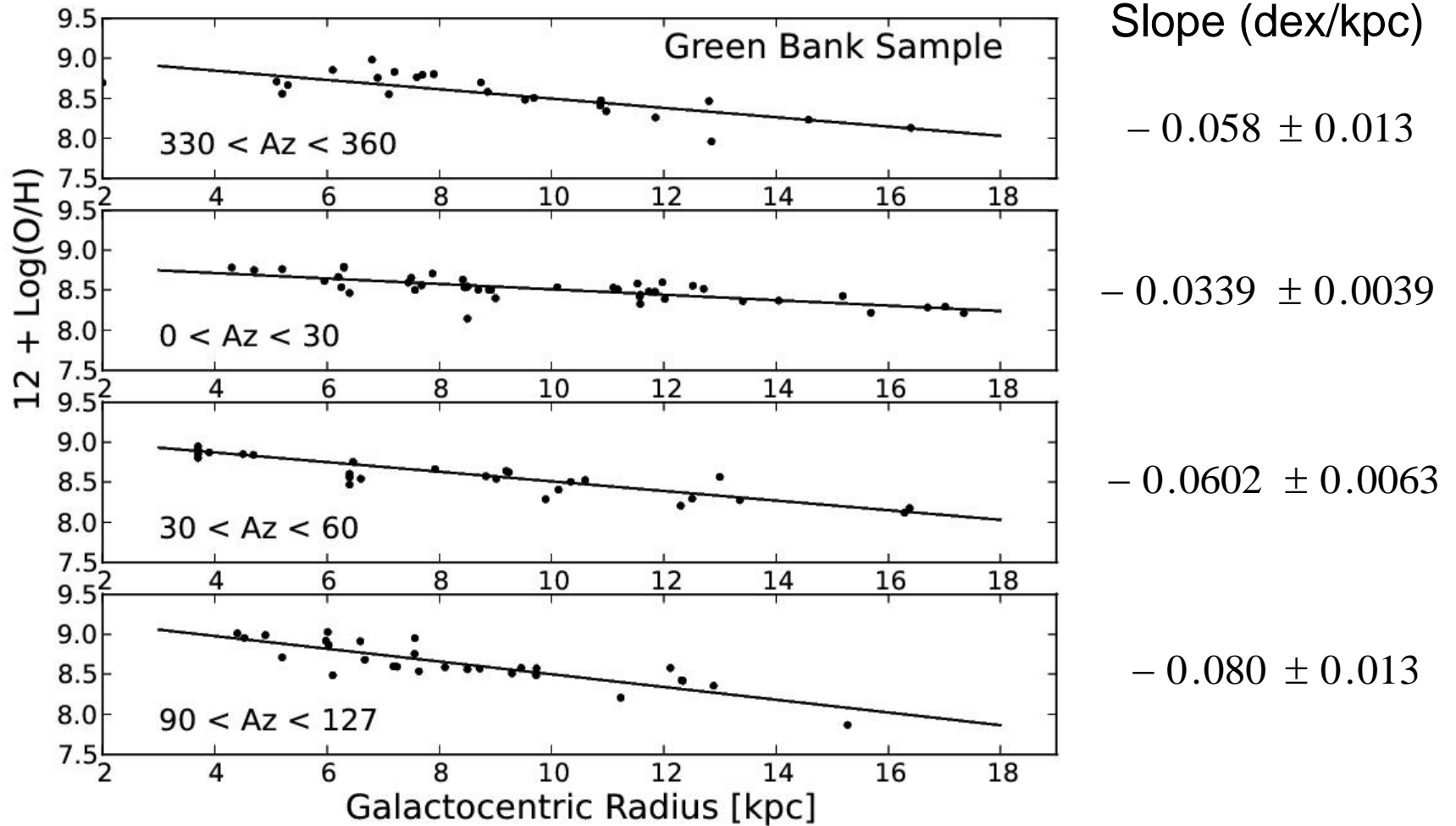
GBT Sample

Contours :

Range : 6240 – 12480 K

Interval : 480 K

O/H Radial Gradient



Summary

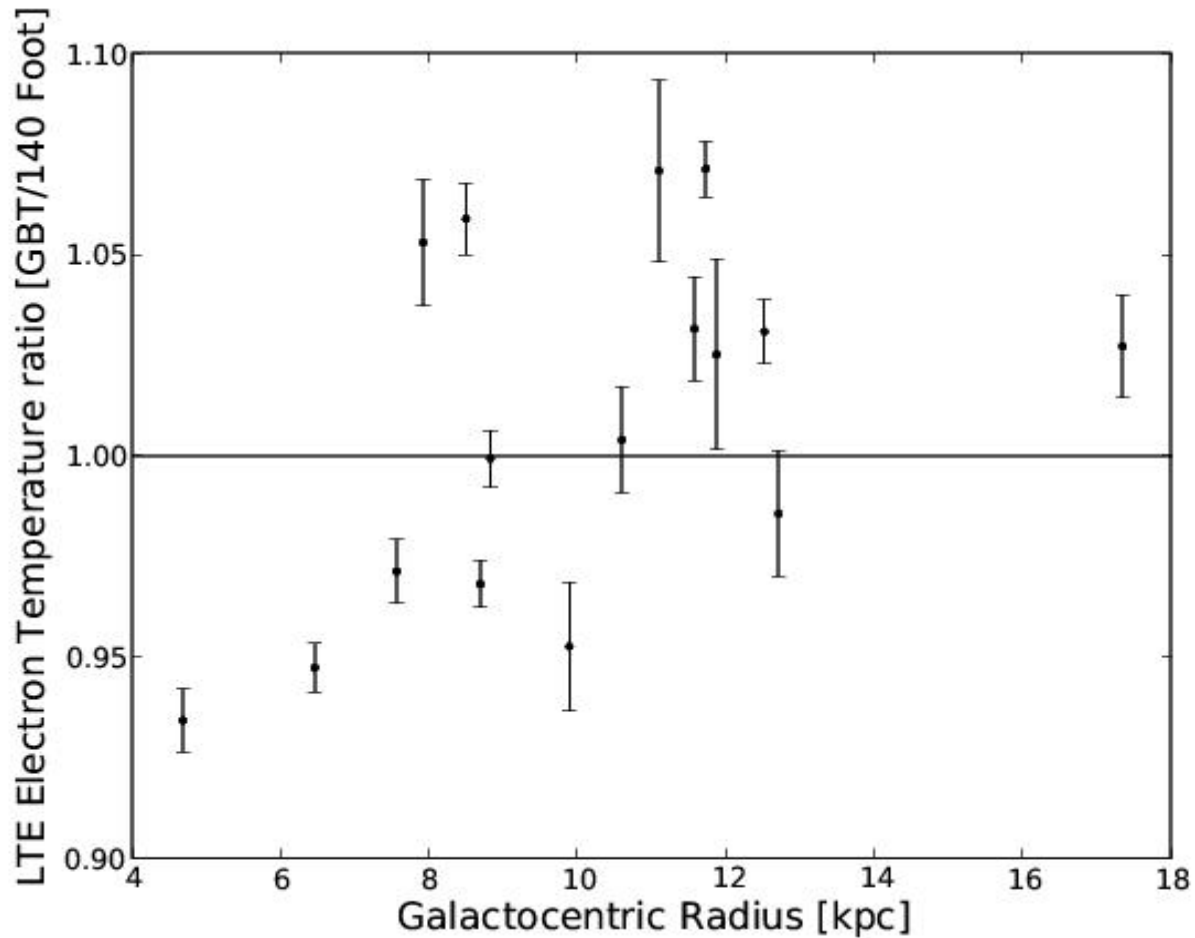
- HRDS Probes Metallicity Across the Galaxy
- Azimuthal Structure
- O/H radial gradients: -0.03 to -0.08 dex/kpc

Questions



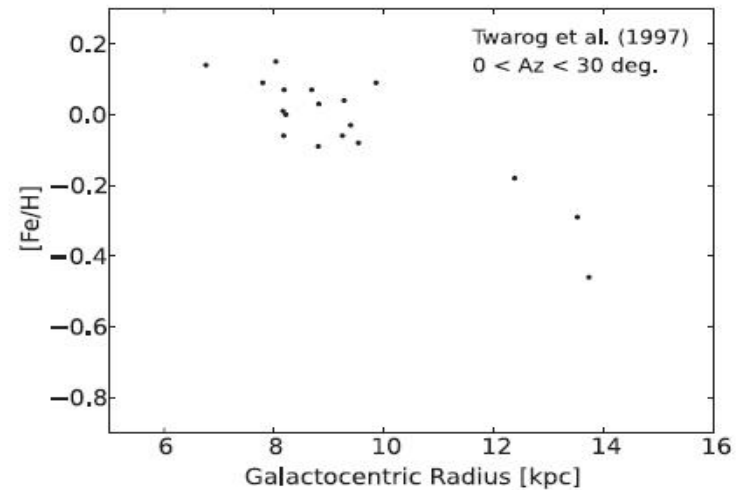
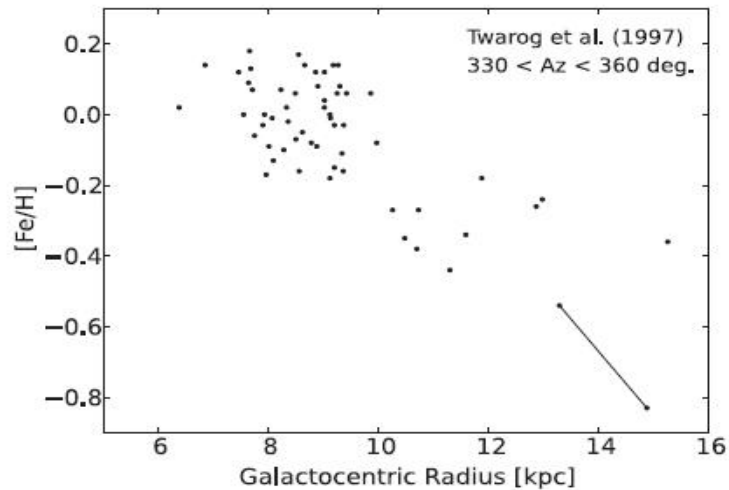
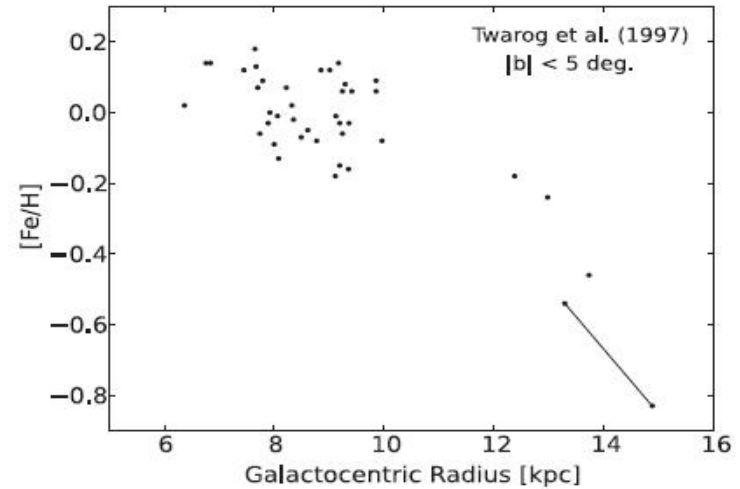
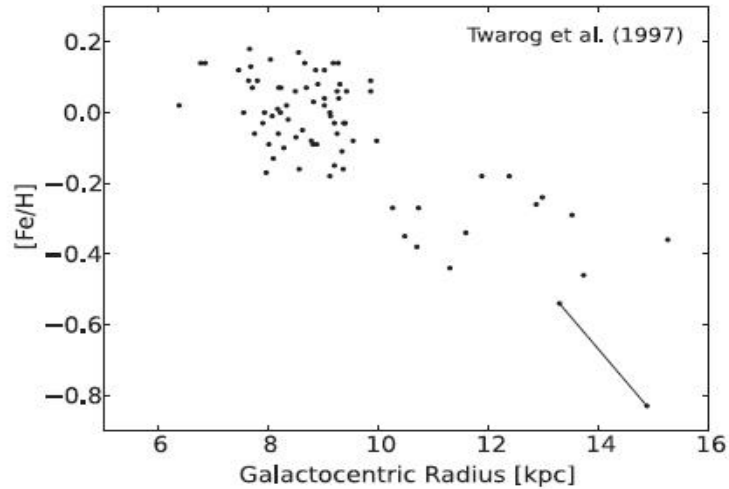
Extra Slides

GBT/140 Foot Cross Calibration



Balser+ (2011)

Open Cluster Data



O/H Radial Gradient - GBT

