

## FAME Grid List

For this talk, term “grid list” is the same group for on-board rotation AND on-ground attitude determination

Needs:

- Can we get uniform distribution in desired magnitude range?
- List characteristics
- Develop software for list revision

Desired number of stars:

- Focal plane sweeps out:

$$\frac{2 \text{ FOV} \times 1.1^\circ \times 360^\circ}{40 \text{ min} \times 60} = .33 \text{ deg}^2/\text{sec}. \quad (1)$$

- For 1 star/sec through focal plane, need 3 stars/sq. deg,  $\approx 125,000$  stars

# FAME Grid List

## Candidate Stars:

- Use Tycho-2
  - 99% complete at  $V=11.0$
  - good astrometry and photometry
  - cross-references to other catalogs
- Limit stars to  $8.0 \leq V \leq 11.0$
- Remove star w/ indication of multiplicity or variability
- 672,555 stars remain

# FAME Grid List

## Selection of uniform distribution

- Separate sky into  $\approx 65000$  regions
- Select two best in each region
  - highest priority given to HIP stars
  - next highest to brighter magnitude
  - generally none closer than 540 arcsec
  - none closer than 300 arcsec
- Remove lowest priority stars in adjacent areas if closer than 300 arcsec
- Locate and fill holes in sparse areas

# FAME Grid List Results

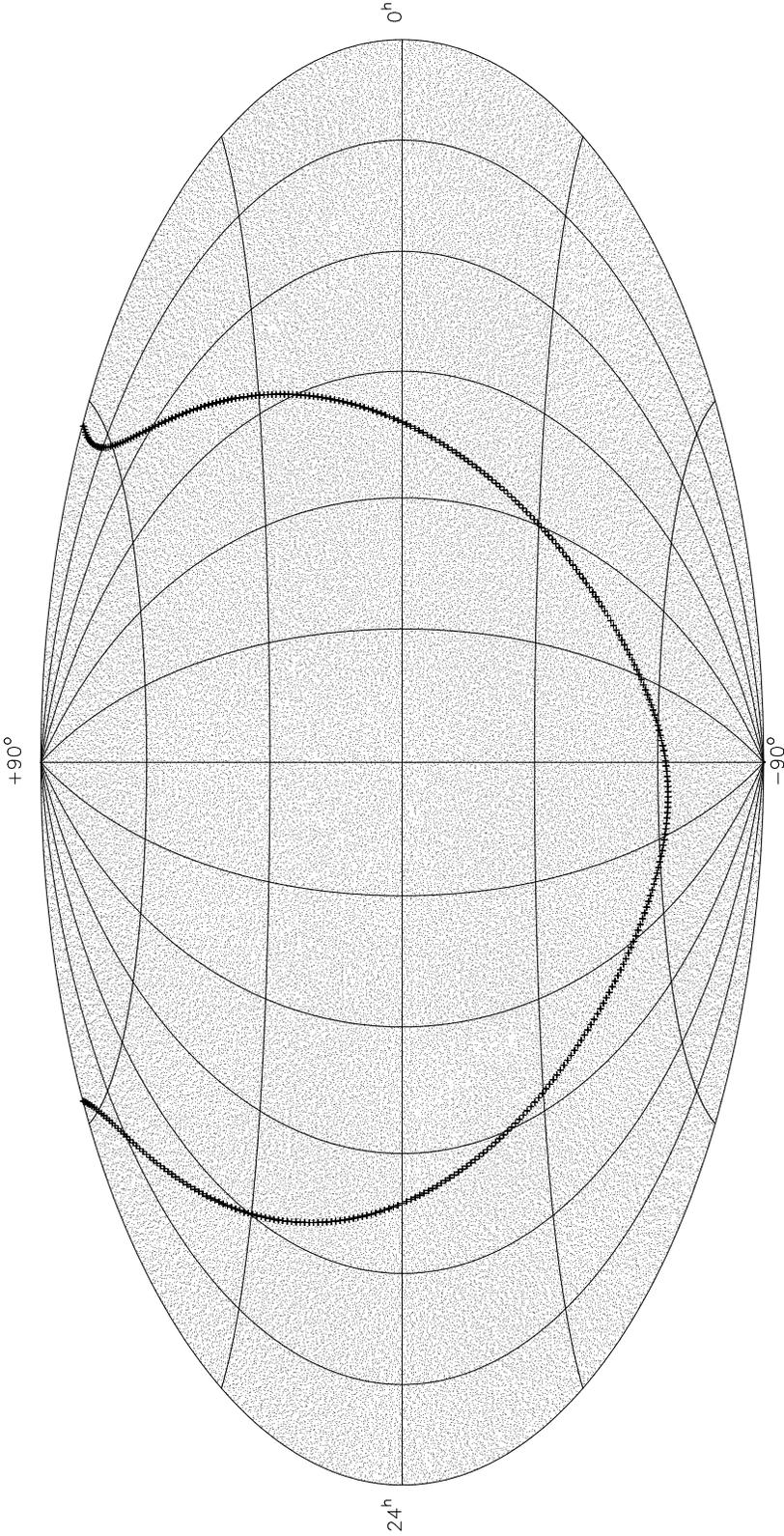
## Characteristics:

- Uniformly distributed list made (see plot)
- 126,000 stars selected;  $\approx 48,000$  from HIP
- Very few sparse areas, may improve (see plot)
- Magnitude distribution peaks between 9.0 and 9.5 (see plot)

## Still to do:

- Fill in holes (software, fainter?)
- Run list through simulator to analyze frequency of transit
- More limits on candidate list
  - WDS, proper motion, UCAC, 2MASS

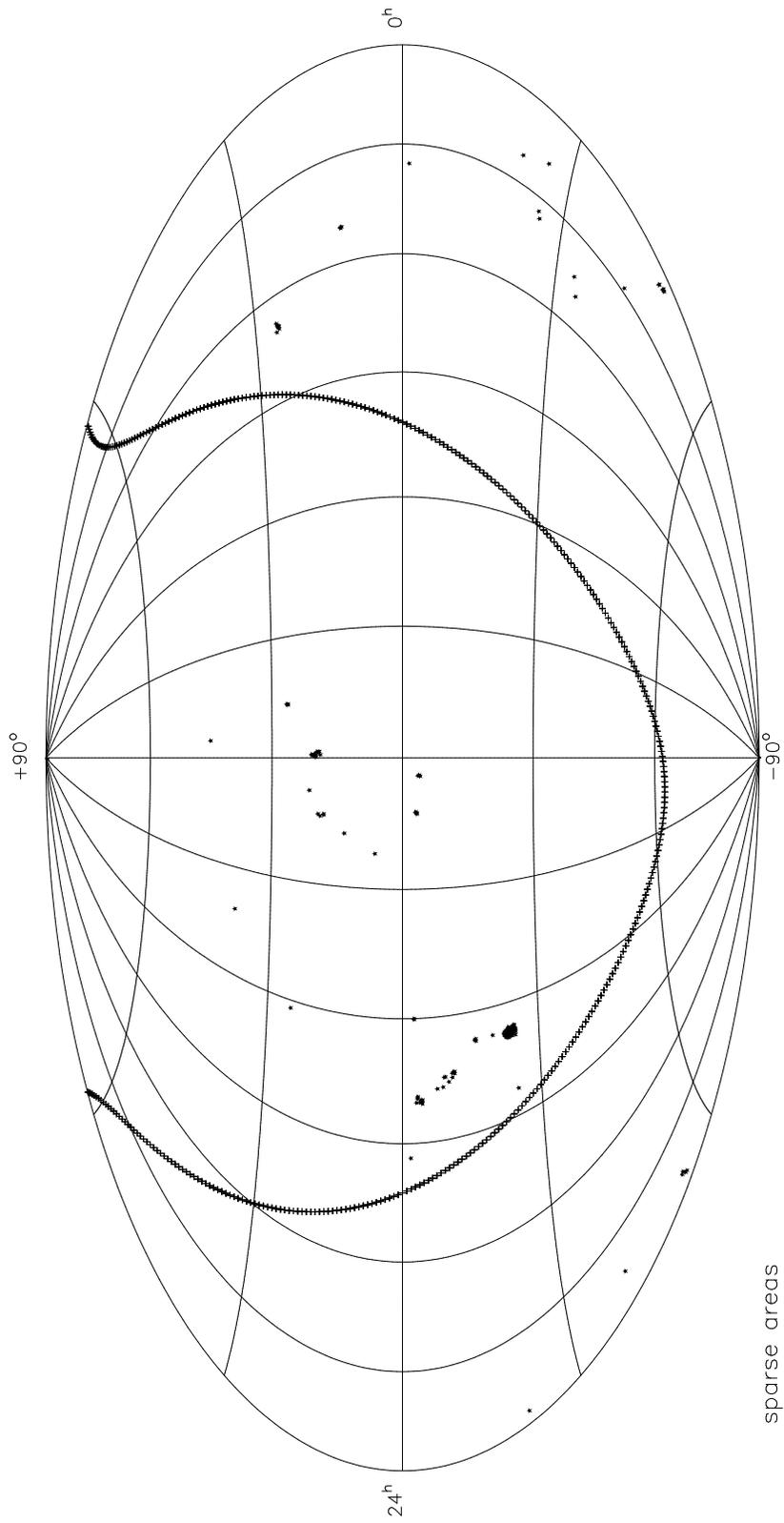
FAME grid stars



Galactic Plane is shown for reference

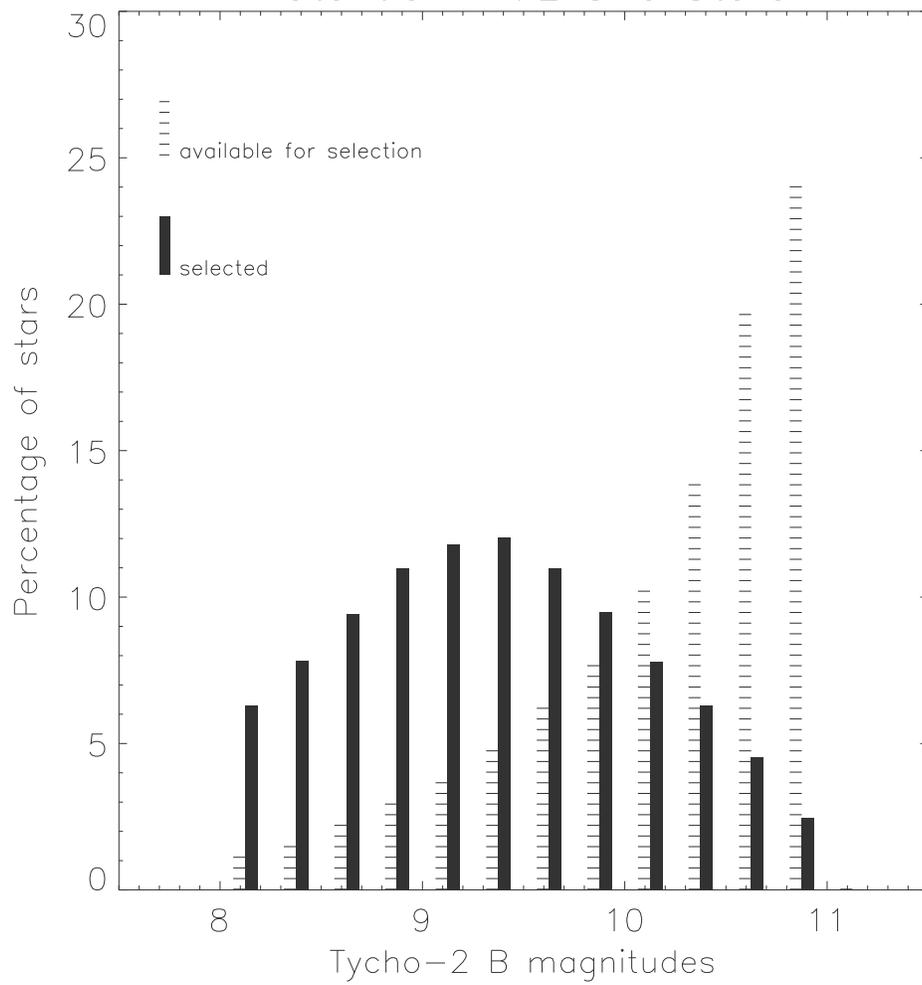
# FAME Grid star sparse areas

20 or fewer stars in an area of 1.8 degree radius.



sparse areas

# Potential FAME Grid Stars



### Selected FAME Grid Stars

