Current GBT Performance
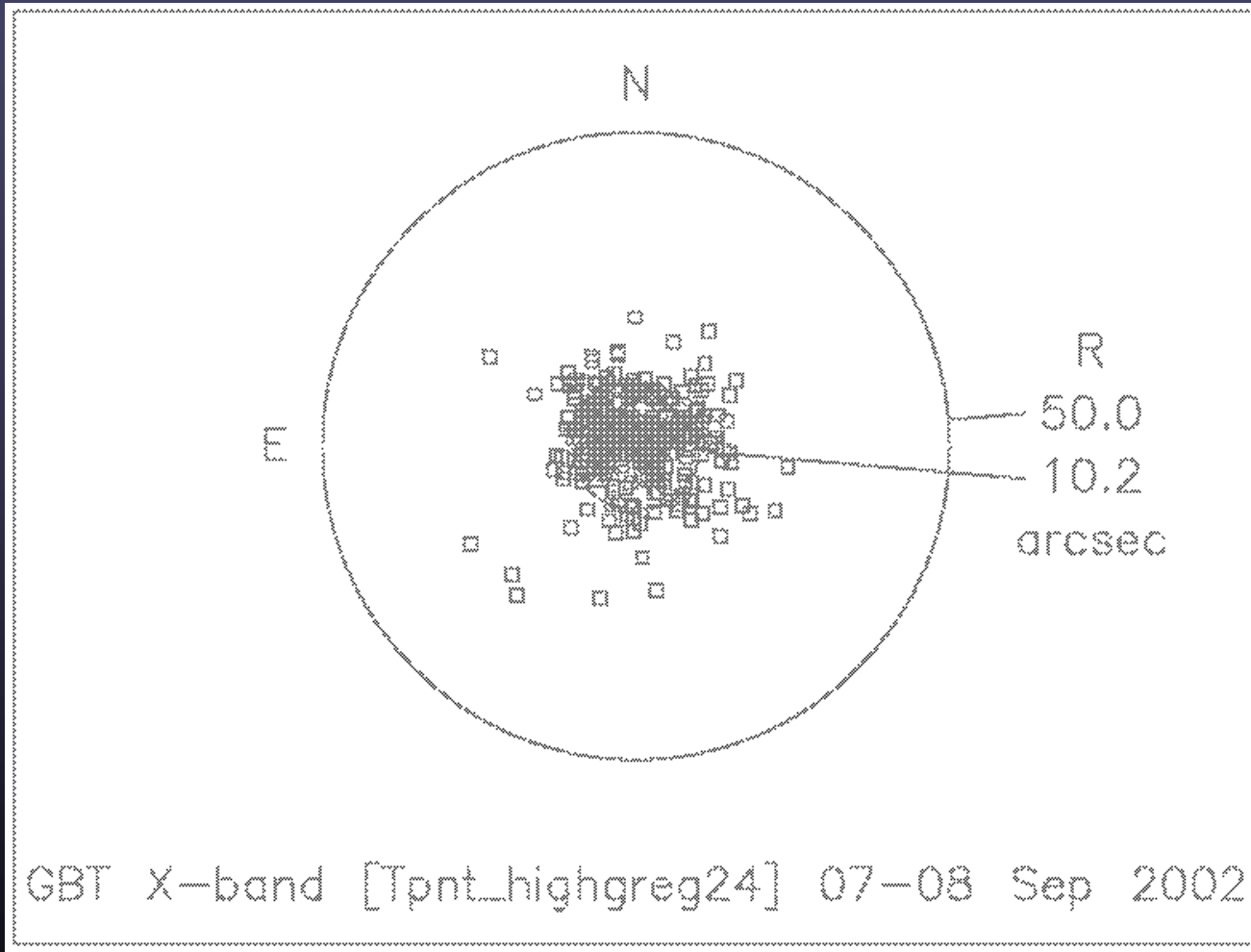
Focus Tracking

Empirical Model (gravity only):

$$A + B\cos(E) + C\sin(E)$$

Current model adequate up to K-band (20 GHz), but:

No thermal compensation
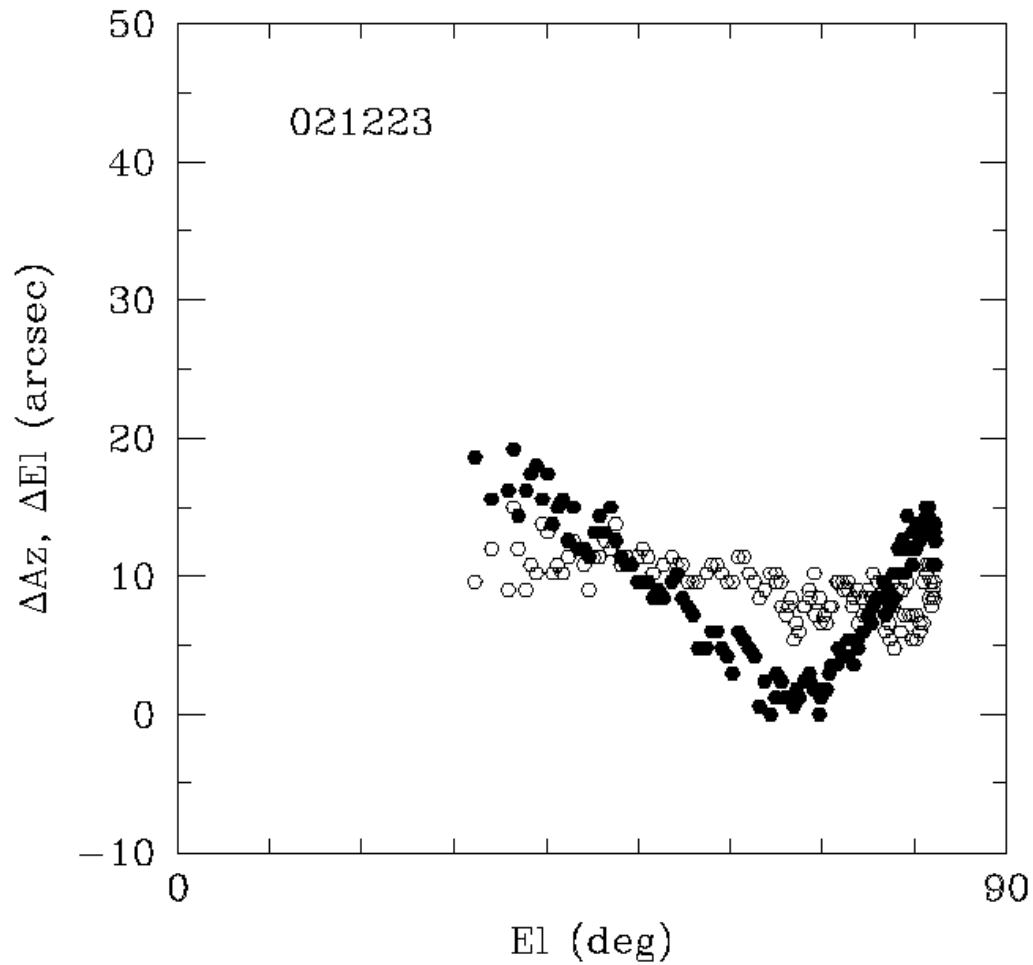
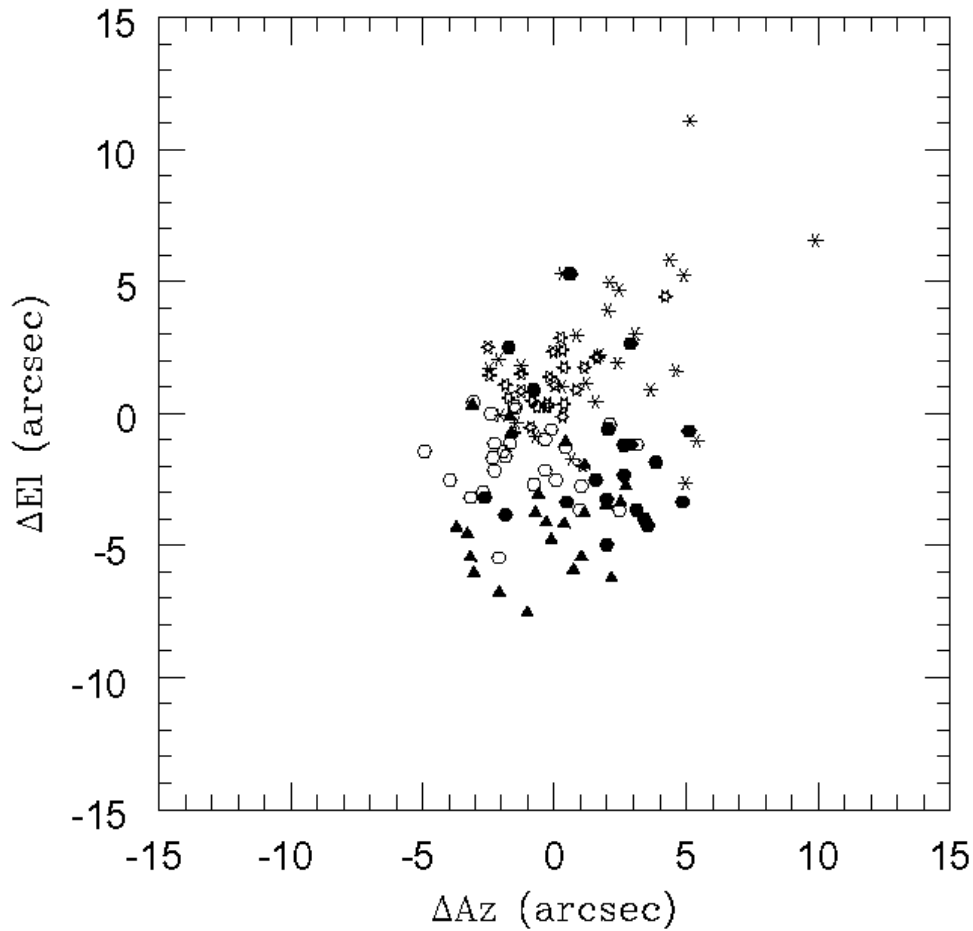Some residual errors (which primarily affect pointing)

Blind Pointing

$$\sigma_2 = 10.''2$$
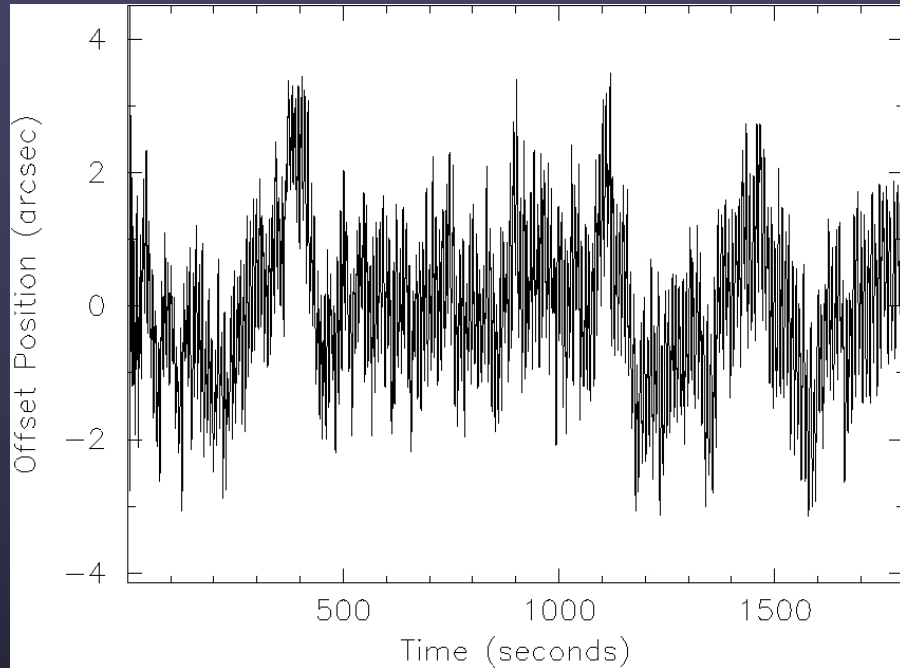
Blind Pointing - residual errors
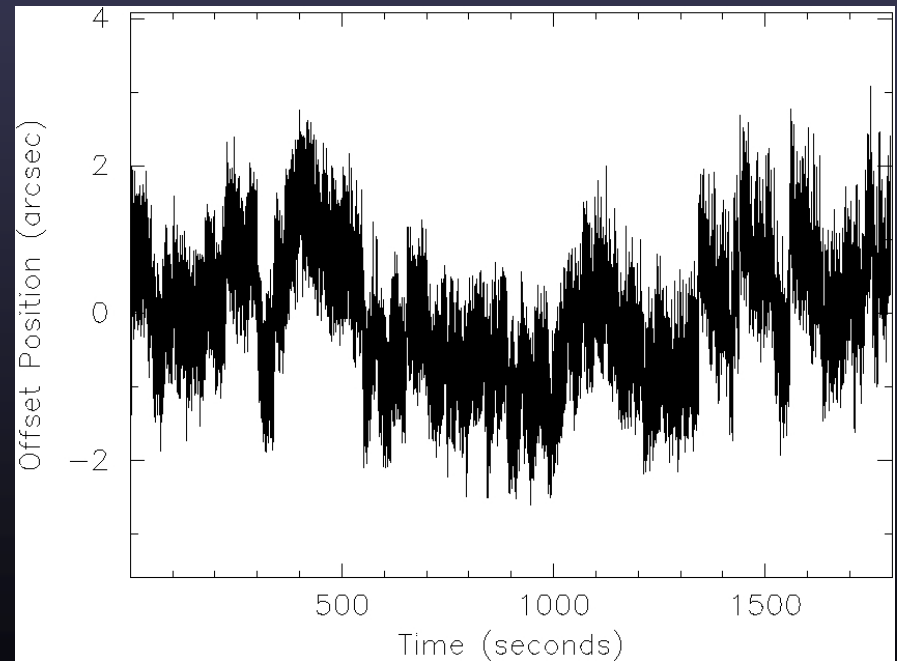
Offset Pointing

$$\sigma_2 = 3.''1$$

Half-power Tracking

$$\sigma_1 < 2''$$

Cross-elevation

Elevation

Surface Accuracy

$$\nu = 20 GHz$$

- ▲ Surface Control - On
- ● Surface Control - Off
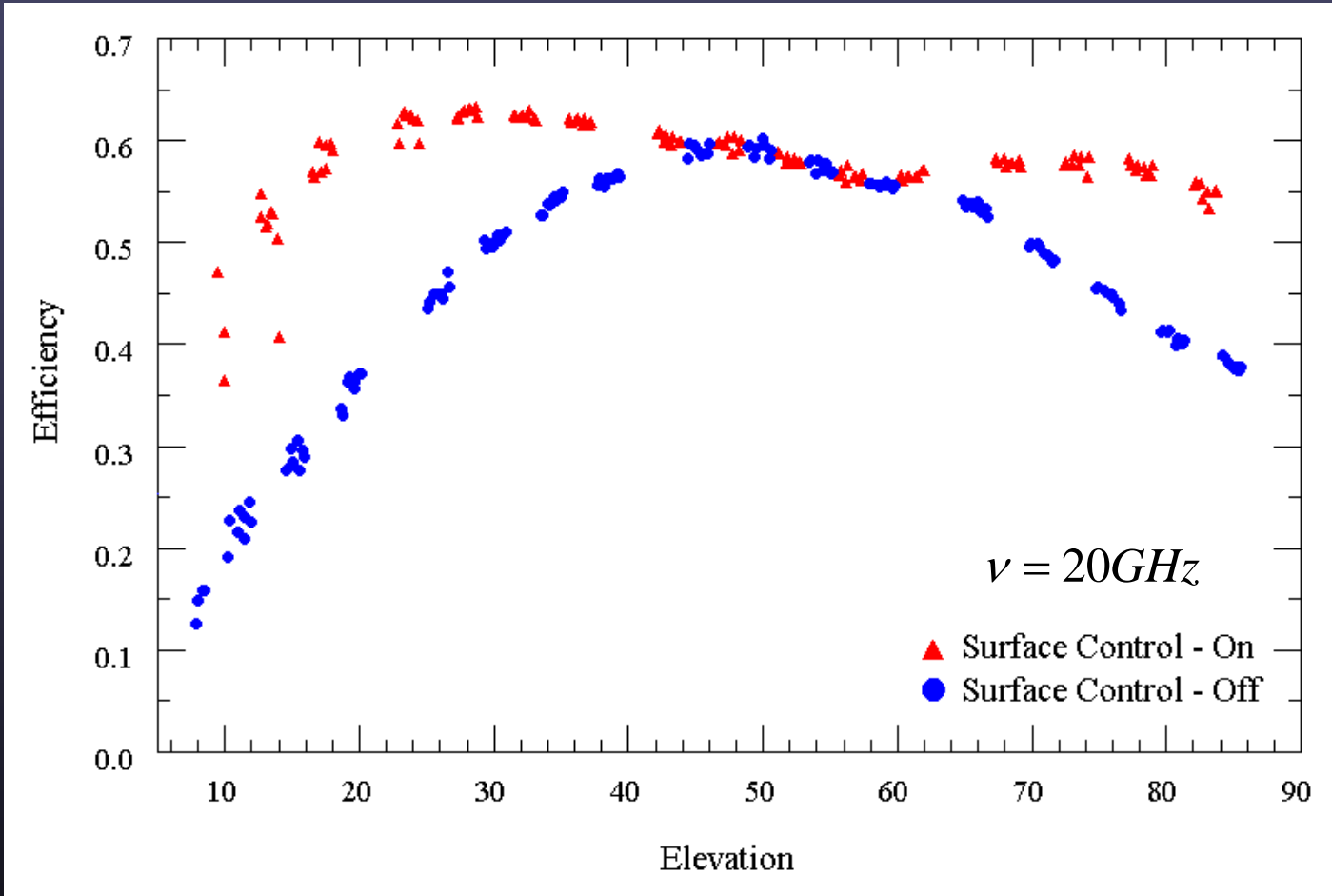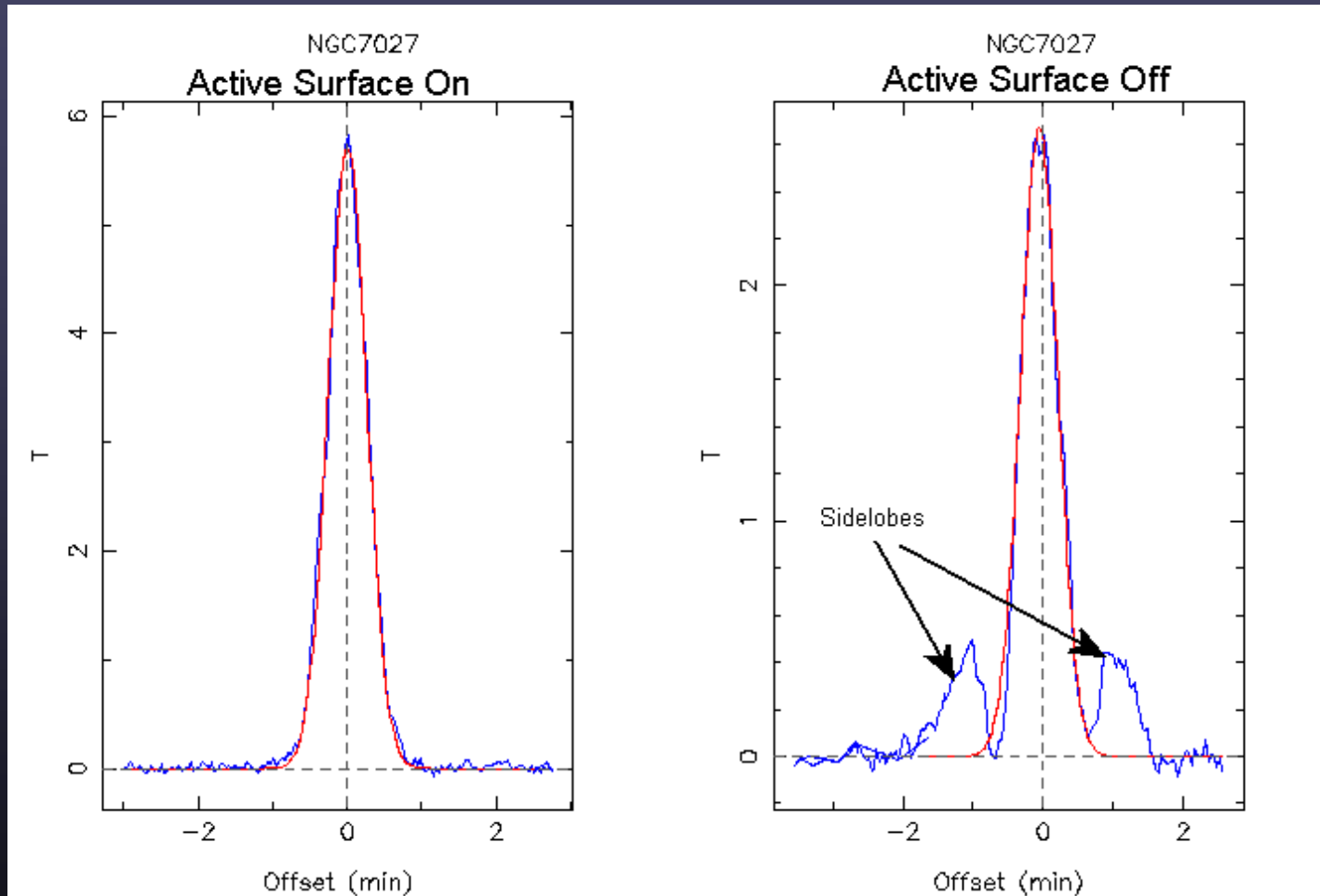
Note: ~35% efficiency at 43 GHz ➔ Effective rss error = 0.47 mm

Surface Accuracy – side lobes

20GHz side lobes