# Some Referenced Pointing Problems.

- Data from 17B-053 were taken Saturday morning.

- Referenced pointing was done at Ku-band.

- Two troublesome features were identified:
  - The data taken during the motion between the five pointing positions were incompletely flagged.  This is only seen on New-ACU antennas.  For some antennas, and some positions, there were  no flags at all.
  - The antennas – both new ACU and old ACU, show considerable overshoot and oscillations, sometimes lasting up to 20 seconds (the length of the time spent at each position).  None of these data are flagged.

- Because of the lack of flags, these off-source data are being used for the referenced pointing solution.  This is BAD.

- **Suggestion:  Utilize only the last 10 seconds of data from each 20-second position.**

- The following two slides show typical visibilities from these data.

# Old ACU – ea15 x ea18 Visibility Amplitudes

Old Antennas are getting proper flags.  The only issue is the antenna overshoot and subsequent oscillations – not detected by encoders.
Easiest thing to do is to utilize only the last 10 – 12 seconds of each position.



**Unflagged Data**
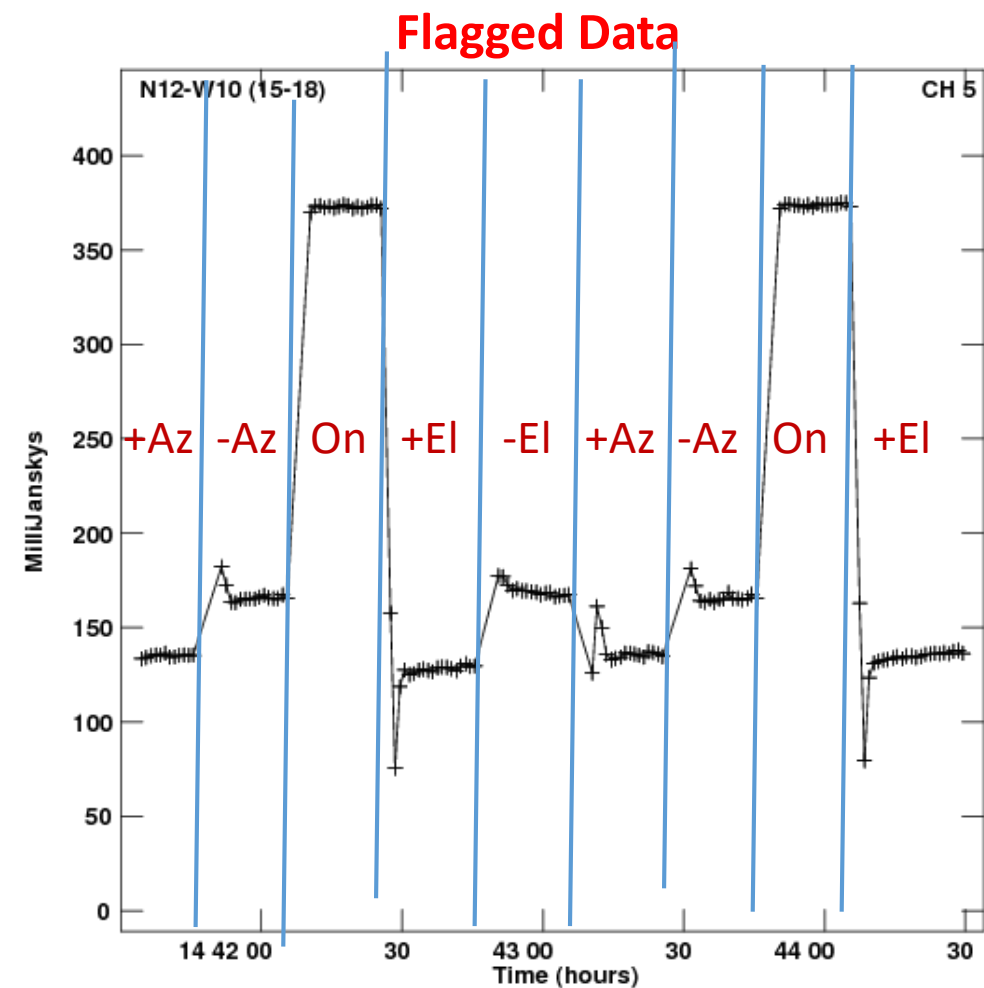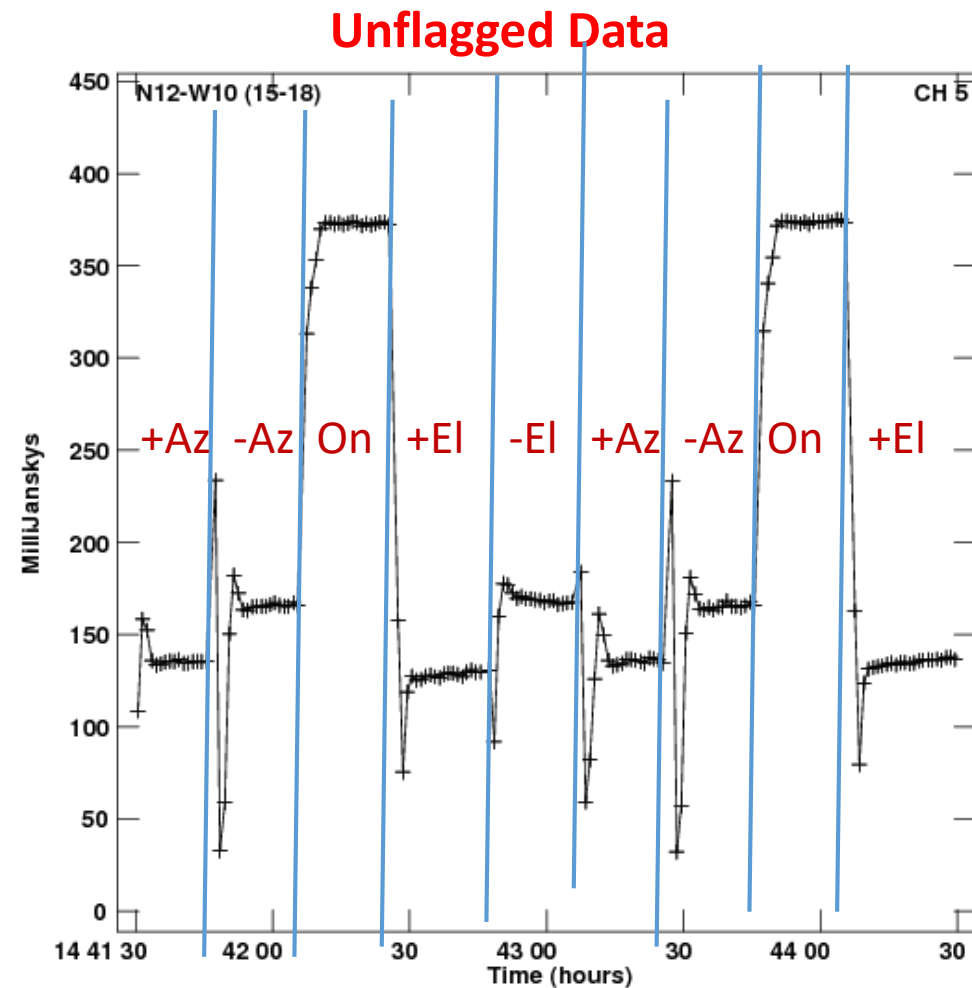
**Flagged Data**

# New ACU – ea02 x ea07  Az=196, El = 57.
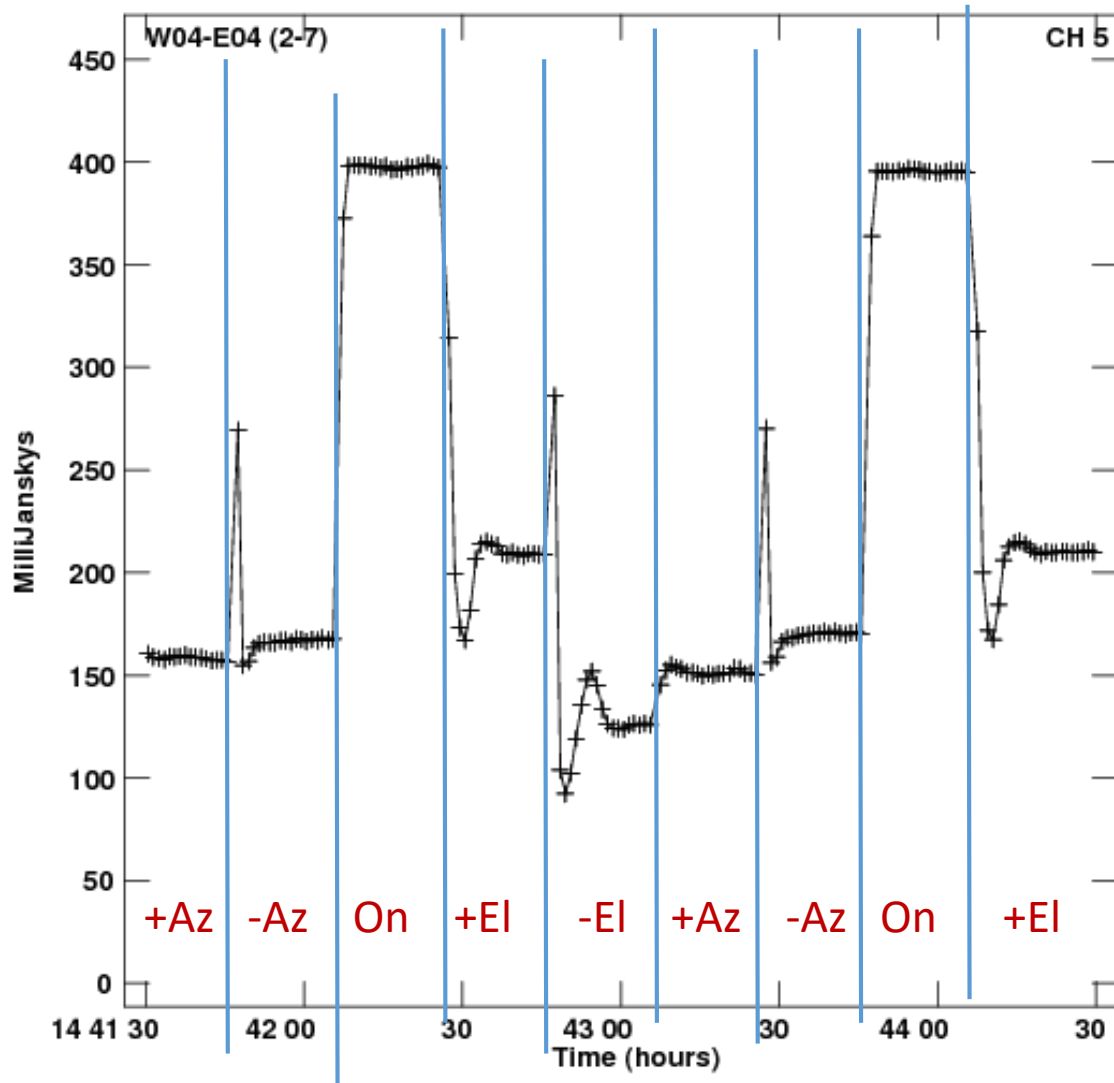


- Only one plot here, as there were no system flags to apply.
- Most baselines look like this.
- For other baselines, some of the data taken during antenna motion were flagged.
- There are two issues:
1. The high single values (when the antenna goes through the beam) are not being flagged.  These data are then being used for the pointing solution.
2. There is a large overshoot between +El and –El positions, with a 10-second period.  This is unique to the New ACUs – and all of them show it.
- For some observations, the entire 20 seconds at the --El position is dominated by these slow oscillations.
- This oscillation is a new-ACU feature – should be able to remove it.
- Effects of this are much reduced if we utilize the last 10 – 12 seconds of data from each position.