Flux calibration: Measure fluxes of passband cal. and report (write down on the white board)
Start from "test.cs017.4.lc.bl" -- David's data, after linelength & baseline calibrations
see "http://carma.astro.umd.edu/carma/summerschool/2008/jin_datareduction3.pdf"

1. Separate calibrators data
% uvlist vis=test.cs017.4.lc.bl options=spec ; find 500MHz bands --> WIndow 1&4 are 500MHz
; find flux calibrator, passband calibrator, and phase calibrator = MWC349 & 3C279 & 1625-254
% uvcat vis=test.cs017.4.lc.bl out=test.cs017.4.lc.bl.w4
"select=window(4),source(MWC349,3C279,1625-254),-auto" options=nocal,nopass ; save only calibrators
% smauvplt device=/xs vis=test.cs017.4.lc.bl.w4 axis=time,phase
% smauvspec device=/xs vis=test.cs017.4.lc.bl.w4 axis=chan,both interval=20 nxy=5,5 ; data look good

2. Passband calibration
% mfcal vis=test.cs017.4.lc.bl.w4 "select=source(3C279)" interval=1 refant=8
% smauvspec device=/xs vis=test.cs017.4.lc.bl.w4 axis=chan,both interval=20 nxy=5,5 ; plot range is too narrow
% smauvspec device=/xs vis=test.cs017.4.lc.bl.w4 axis=chan,both interval=20 nxy=5,5 yrange=0,15
% uvcat vis=test.cs017.4.lc.bl.w4 out=test.cs017.4.lc.bl.w4.pb options=nocal ; apply passband calibration, but not gain

3. Flagging if there are bad data
Skip this now. Look at "http://carma.astro.umd.edu/carma/summerschool/2008/jin_datareduction3.pdf"

4. Derive gain solutions for flux calibration
Note: BOOTFLUX command uses gain solutions to derive flux. So, we need to derive gain solutions
% mselfcal vis=test.cs017.4.lc.bl.w4.pb interval=1.0 options=apriori,phase,noscale refant=8 line=chan,1,1,15,15

5. Measure fluxes
% bootflux vis=test.cs017.4.lc.bl.w4.pb taver=5.0 select=source"(3C279,1625-254,MWC349)" primary=MWC349 line=chan,1,1,15,15 > test.cs017.4.lc.bl.w4.pb.flux.dat
% emacs test.cs017.4.lc.bl.w4.pb.flux.dat

SUMMARY OF FLUX MEASUREMENTS

Source	UT	Freq(GHz)	Elev	Calib	Tsys	Flux	Error
3C279	08JUN24:05:09:35	110.010	32.5	MWC349	288	10.648	0.400
3C279	08JUN24:05:14:25	110.010	31.8	MWC349	288	11.239	0.415
3C279	08JUN24:05:19:15	110.010	31.1	MWC349	288	11.381	0.418
3C279	08JUN24:05:24:17	110.010	30.4	MWC349	303	11.483	0.427
1625-254	08JUN24:05:27:17	110.010	23.8	MWC349	342	1.033	0.041
1625-254	08JUN24:05:53:31	110.010	24.4	MWC349	328	1.125	0.040
1625-254	08JUN24:06:19:42	110.010	24.5	MWC349	329	1.157	0.040
1625-254	08JUN24:06:46:00	110.010	23.9	MWC349	333	1.123	0.040
1625-254	08JUN24:07:12:20	110.010	22.8	MWC349	344	1.133	0.041

```
1625-254    08JUN24:07:38:36 110.010   21.2  MWC349    362    1.163  0.041
1625-254    08JUN24:08:04:50 110.010   19.1  MWC349    386    1.136  0.038  <-- elev. too low
1625-254    08JUN24:08:31:05 110.010   16.5  MWC349    439    1.035  0.038  <-- elev. too low
1625-254    08JUN24:08:58:06 110.009   13.4  MWC349    524    0.827  0.039  <-- elev. too low

Average Flux:     1.121  0.013      Median Flux:     1.133

   SUMMARY OF JY/K MEASUREMENTS FROM CALIBRATOR
 Source          UT          Elev    JY/K   Error
------------------------------------------------------------------------
MWC349       08JUN24:05:00:52  32.3    0.965  0.014
MWC349       08JUN24:05:05:42  33.2    0.778  0.030
```

6. Apply flux to the data we calibrated yesterday "test.cs017.4.lc.bl.pb.w4.gn"

Let's assume the flux of 1625-254 is 3000.0Jy (to see the change clearly)

```
% smauvplt device=/xs vis=test.cs017.4.lc.bl.pb.w4.gn axis=time,amp "select=source(1625-254)"  ; flux is roughly 2Jy before flux cal.
% selfcal vis=test.cs017.4.lc.bl.pb.w4.gn refant=8 interval=99999 "select=source(1625-254)" options=noscale,amplitude flux=3000.0
% smauvplt device=/xs vis=test.cs017.4.lc.bl.pb.w4.gn axis=time,amp "select=source(1625-254)" ; flux is roughly 3000Jy after flux cal.
```
