```
% sandw5.m  15-apr-08
% modified david sandwell code for focusing ers level 0 data

%*************************************************************
% matlab script to focus ERS-2 signal data
%
% set some constants for e2_10001_2925
%
% range parameters
%
diary sandw.txt
rng_samp_rate = 1.896e+07;
pulse_dur = 3.71e-05;
chirp_slope = 4.1779e+11;
%
% azimuth parameters
%
PRF=1679.902394;
radar_wavelength=0.0566666;
SC_vel=7125.;
%
% range to the scene - from orbit data
%
near_range=829924.366;

dr=3.e08/(2.*rng_samp_rate);
range=near_range+2700*dr;
%
% use the doppler centroid estimated from the data
% and the
% doppler rate from the spacecraft velocity and
% range
%
fdc=248;
fr=2*SC_vel*SC_vel/(range*radar_wavelength);
%
% get some sar data
%
disp('call read rawsar');
[cdata,nrow,ncol] = read_rawsar('I:\share\bethel\research\data1\sar\ers-↙
2\crop2.raw');
disp('return from read rawsar');
```

```
nrow
ncol
%
% generate the range reference function
%
[rpha,cref,fcref]=rng_ref(ncol,rng_samp_rate,pulse_dur,chirp_slope);
%
% take the fft of the SAR data for cross correlation
%
fcdata=fft(cdata);
%
% multiply by the range reference function
%
cout=0.*fcdata;
for k=1:nrow;
  ctmp=fcdata(:,k);
  ctmp=fcref.*ctmp;
  cout(:,k)=ctmp;
  end
clear cdata
%
% now take the inverse fft
%
odata=ifft(cout);
clear cout
%
% generate the azimuth reference function
%
[apha,cazi,fcazi]=azi_ref(nrow,PRF,fdc,fr);
%
% take the column-wise fft of the range-compressed
% data
%
fcdata=fft(odata');
%
% multiply by the azimuth reference function
%
cout=0.*fcdata;
for k=1:ncol;
  ctmp=fcdata(:,k);
  ctmp=fcazi.*ctmp;
  cout(:,k)=ctmp;
```

```
  end
%
% now take the inverse fft and plot the data
%
odata=ifft(cout);

save od odata
diary off
```