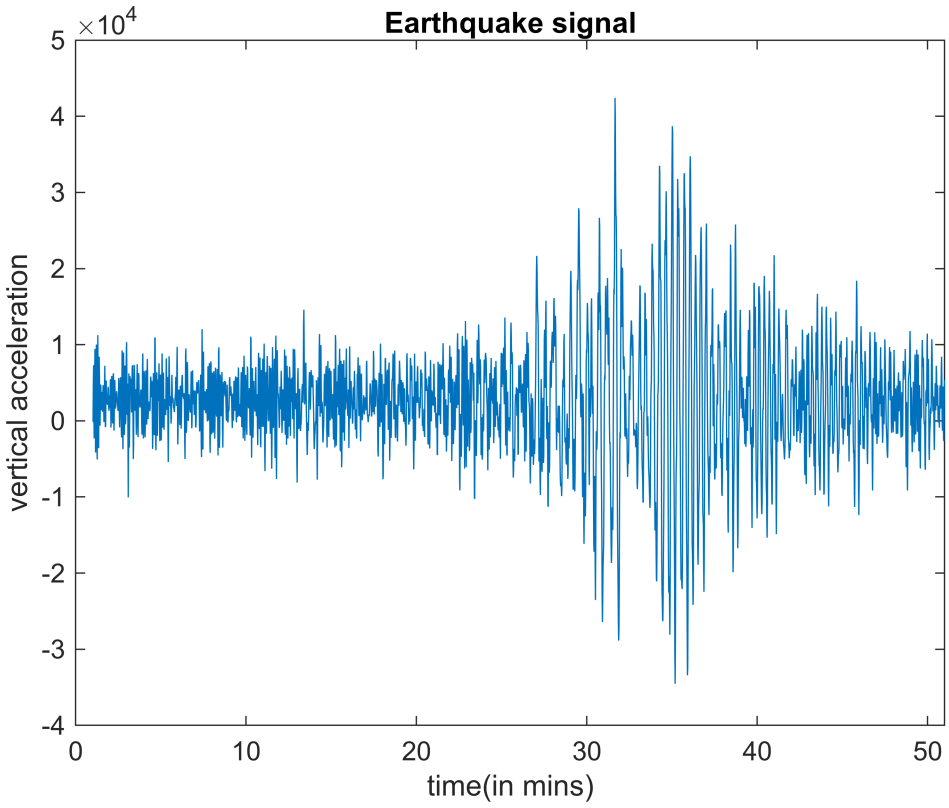
Using Continuous Wavelet transform

We are using this filter the earthquake signal

```
load kobe.mat
k = linspace(1,51,length(kobe));
plot(k,kobe)
xlim([0,51])
title('Earthquake signal')
xlabel('time(in mins)')
ylabel('vertical acceleration')
```

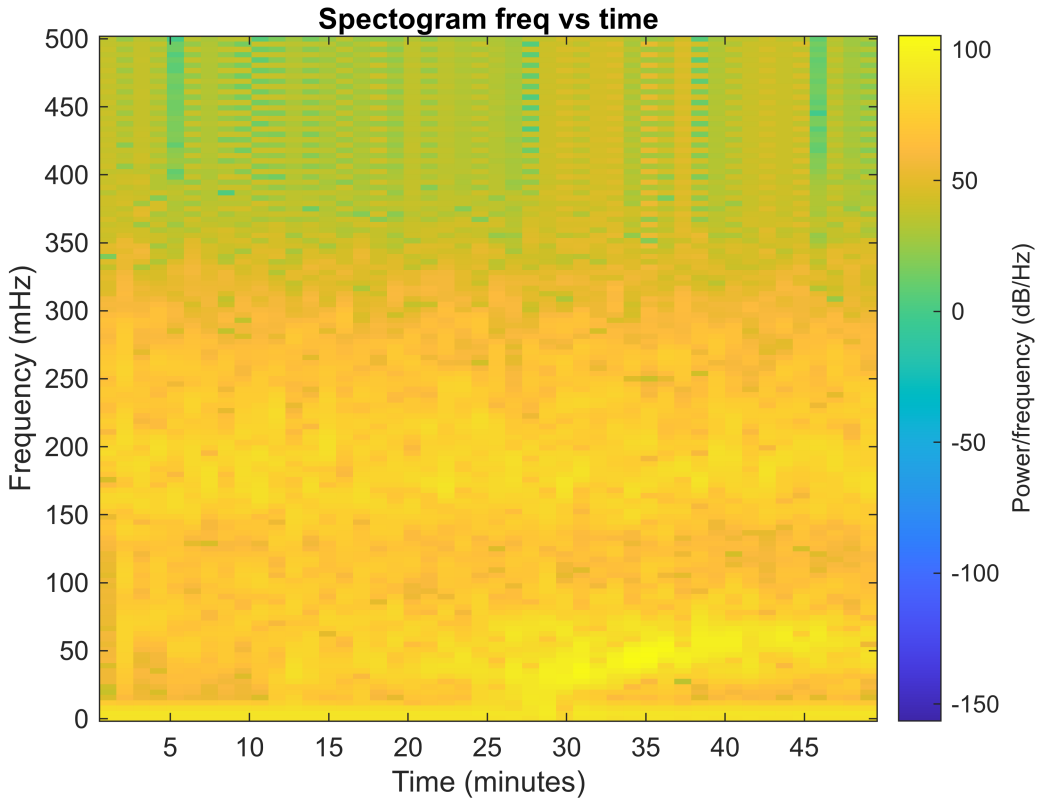


Spectogram using Fourier Transform

```
Fs = 1
```

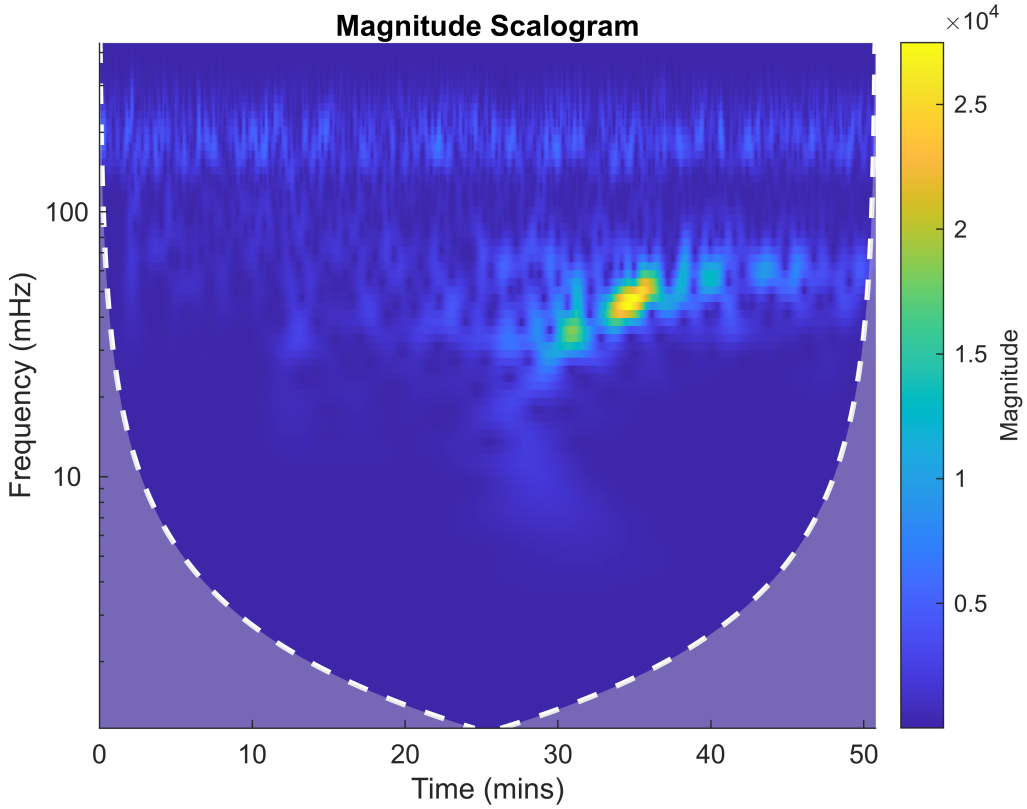
```
Fs = 1
```

```
clf
spectrogram(kobe,128,[],[],1,'yaxis')
title('Spectogram freq vs time')
```



CWT

```
cwt(kobe,Fs)
```




```
[continuous_wt,freq] = cwt(kobe,Fs);
```

ICWT

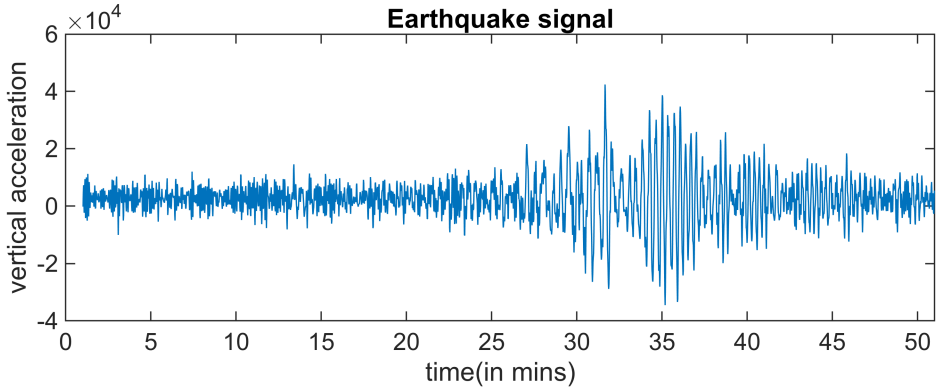
considering only the large magnitude portion and doing inverse wavelet transform of it.

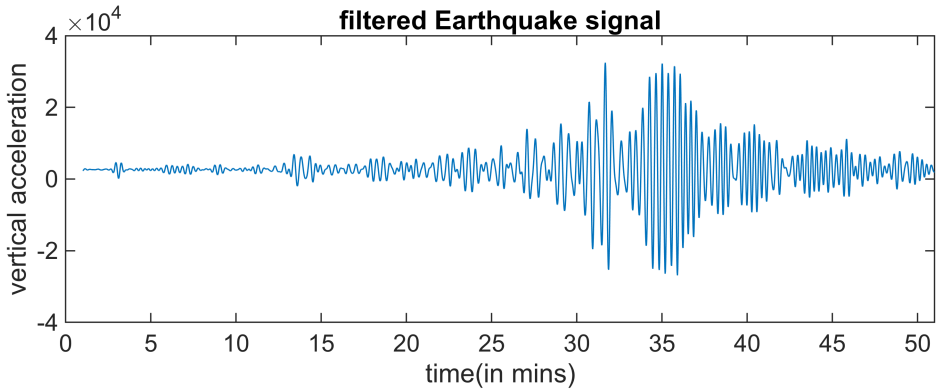
```
x_time_domain = icwt(continuous_wt,[],freq,[0.03 0.06],SignalMean=mean(kobe));
```

Compare

```
subplot(2,1,1)
plot(k,kobe)
xlim([0,51])
title('Earthquake signal')
xlabel('time(in mins)')
ylabel('vertical acceleration')

subplot(2,1,2)
plot(k,x_time_domain)
xlim([0,51])
title('filtered Earthquake signal')
xlabel('time(in mins)')
ylabel('vertical acceleration')
```


Earthquake signal
×10^4
6
4
2
0
-2
-4
vertical acceleration
0
5
10
15
20
25
30
35
40
45
50
time(in mins)


filtered Earthquake signal
×10^4
4
2
0
-2
-4
vertical acceleration
0
5
10
15
20
25
30
35
40
45
50
time(in mins)