

Q.)

Step 1: is it a PC wave? (what we want)

1) test for coherence

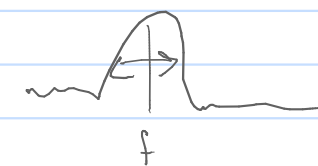
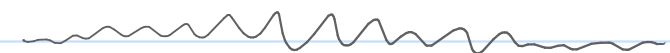
Real-world signal is like a sine wave times  $\square$  (window to make it finite)

$$\rightarrow p_{ideal}(f) * w(f)$$

convolve      window  
Fourier space

time-frequency  
as window gets bigger, spread gets smaller

main problem with real-world data is that it's finite, but theory is for infinite



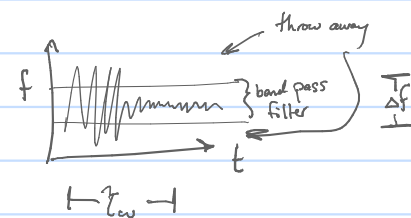
so only get wiggles  
window, detrend  
option • cross-corr between N, E, Z to determine coherence  
↳ could also do other things to measure coherence

visualization of cross-corr on map

1a) model before using data

(Nyquist  $\Delta t$  data - 1 minute  
 $T_{window}$  - choose to match time scale of overall event  
 $\gamma_{wave}$  - resolve the wiggles per osc is much smaller than window time  
\*optimize timescales - job

2) do we want to filter out everything but the PC wave?  
- band pass filter (spectrogram)



how to choose  $\Delta f$ ;  $\gamma_w$  - job  
could also do cross-corr

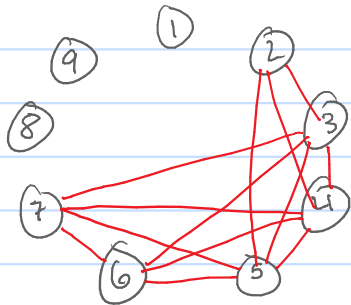
3) coherence measures - between stations

maybe normalize out amplitude and just do coherence on phase  
- phase coherence (for PC waves)

4) network (thresholding)  
like in paper

maybe it would get rid of the thresholding issues

TEST OUT PHASE CORRELATION



Sum over row & column