**Script to obtain peak orbital velocity and wave periods of ADV data used for model calibration**

This script converts the raw ADV datafiles into two textfiles containing the significant peak orbital velocity and significant wave period.

**Clear all variables and figures, and load the data.**

close all

clear variables

cd('folder with ADV data');

data = load('Bok-V101.dat');

sensor = load('Bok-V101.sen');

**Setting up filtering**

freq = 8;

Lowpass = 1;

[A,B] = butter(5,Lowpass/(freq/2),'low');

**Filtering data for each burst and getting the significant peak orbital velocity and wave period**

numburst = 332; % number of bursts

h = waitbar(0);

for i = 1:numburst

X\_filt = filtfilt(A,B,data(data(:,1) == i,3));

Y\_filt = filtfilt(A,B,data(data(:,1) == i,4));

Z\_filt = filtfilt(A,B,data(data(:,1) == i,5));

for j = 1:length(X\_filt)

if X\_filt(j) <= 0

U(j) = -sqrt(X\_filt(j).^2+Y\_filt(j).^2);

elseif X\_filt(j) > 0

U(j) = sqrt(X\_filt(j).^2+Y\_filt(j).^2);

end

end

U = sqrt(X\_filt.^2+Y\_filt.^2);

datasel = data(data(:,1) == i,[12:14]);

for j = 1:length(datasel)

if datasel(j,1) < 50 || datasel(j,2) < 50

U(j) = NaN;

end

end

if sum(isnan(U)) > 0.33\*length(U)

Upeak(i) = NaN;

else

[peaks, locs] = findpeaks(U);

for j = 2:length(locs)

T(j) = locs(j)-locs(j-1);

end

Tp(i) = mean(T)/(0.5\*freq);

Upeak(i) = mean(peaks(peaks > prctile(peaks,66)));

end

waitbar(i/numburst,h)

clear U X\_filt Y\_filt Z\_filt datasel peaks

end

close(h)

Final check of results

figure;

plot(Upeak)

xlabel('burst #')

ylabel('u\_{peak} (m s^{-1})')

Write result to textfiles

dlmwrite('Uwaves\_ADV.txt',[Upeak]');

dlmwrite('Tpwaves\_ADV.txt',[Tp]');