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clear all;close all;clc
% 國立中山大學 曾若玄老師 實驗室 提供 分機:5033
%%%%%%%%%% 路徑設定 %%%%%%%%%%%
path = 'E:\ek500\raw\';
cd(path);
%%%%%%%%%%

%%%%%%%%% 讀取 EK 資料 %%%%%%%%%
files = dir('0603*.q2'); % q1 為 38Khz q2 為 120Khz
%%%%%%%%%%
str = ['EK60 38kHz OR3-1541'];
ek11 = []; ek22 = [];
for i = 1:length(files)
    %%%%%%%%% EK 資料 %%%%%%%%%
    ek = load(files(i).name);
    ek(:,1) = fix(ek(:,1)/100);
    ek11 = [ek];
    ek22 = [ek22;ek11];
end
%%%%%%%%%% 時間部分 %%%%%%%%%%%
ss= mod(ek22(:,1),100);
mm=(mod(ek22(:,1),10000)-ss)/100;
hh= fix(ek22(:,1)/10000);
time11 =
datenum(2011,str2num(files(1).name(1:2)),str2num(files(1).name(3:4)),hh,mm,ss);
%%%%%%%%%%
s = size(ek22);
max_x = num2str(s(1));
disp(['Time: ' num2str(ek22(1,1)) ' - ' num2str(ek22(end,1))]);
disp(['Size: ' num2str(s(1)) ' x ' num2str(s(2))]);
%%%%%%%%%% 輸入畫圖範圍 %%%%%%%%%%%
a = input('輸入起始資料點：');
b = input('輸入結尾資料點：');

%%%%%%%%%% 畫圖 %%%%%%%%%%%

tt=(hh)+(mm/60)+(ss/3600);
zi=ek22(a:b,3:252)';

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[m n]=size(zi);
xi=tt(a:b);
yi=linspace(0,250,m);

[xx yy]=meshgrid(xi,yi);

figure;
subplot(1,1,1,'fontsize',14);
    pcolor(xx,yy,ek22(a:b,3:252));
    shading interp;axis ij;
    caxis([-90 -70]);
    h = colorbar('horizontal');
    cmap = colormap;
    cmap(1,1:3) = [0.5 0.5 0.5];
    colormap(cmap);
%     set(gca,'ytick',[50 100 150 200 250],'YTickLabel',{'100','200','300','400','500'});
%     set(gca,'xtick',[a b],'XTickLabel',{num2str(ek22(a,1),'%06.0f'),...
%     num2str(ek22(b,1),'%06.0f')});

%     set(gca,'xtick',[a floor((a+b)/2)
b],'XTickLabel',{datestr(time11(a,1),'HH:MM'),datestr(time11(floor((a+b)/2),1),'HH:MM')
,datestr(time11(b,1),'HH:MM')});
%     set(gca,'xtick',[a
b],'XTickLabel',{datestr(time11(a,1),'HH:MM'),datestr(time11(b,1),'HH:MM')});
% set(gca,'YGrid','off','XGrid','off','TickDir','out');
    title(str);
    xlabel('Time(hour)');
    ylabel('Depth(m)');
    str111 = ['EK60 38kHz'];
    set(get(h,'ylabel'),'String','Backscatter(dB)','fontsize',14)
%     print('-r720', '-dpng', str111)

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