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A = importdata('mariana_depth.csv');
lon = importdata('mariana_longitude.csv');
lat = importdata('mariana_latitude.csv');

%2.1.1
figure(4)
grid = meshgrid(lat,lon);
mesh(lon,lat,A',A'); %creates 3d rendering of mariana trench
%s = pcolor(lon,lat,A'); %this and the next line create the 2d color mapping
    of the mariana's trench
%set(s, 'EdgeColor', 'none');
xlabel('Longitude (°)', 'FontSize',16);
ylabel('Latitude (°)', 'FontSize',16);
zlabel('Depth (m)', 'FontSize',16);
title('The Mariana Trench From Full Data Set')

%%2.1.2 find the deepest point (lat, long, depth)

maxDepthArr1 = min(A); %finds minimum in each column
maxDepth= min(maxDepthArr1); %-10930 finds minimum

latIndexofMaxD = find(maxDepthArr1==maxDepth); %161
lonIndexofMaxD = find( A(:,latIndexofMaxD)==maxDepth);%385

latOfMaxDepth = lat(latIndexofMaxD,1); %finds latitude of deepest point:
    11.333000
lonOfMaxDepth = lon(lonIndexofMaxD,1); %finds longitude of deepest point:
    142.200000

fprintf('OUTPUT: \n',latOfMaxDepth,lonOfMaxDepth,maxDepth/1000);%Lat:
    11.333000 , Long: 142.200000 , Depth: -10930
fprintf('MAX DEPTH: Lat: %f , Long: %f , Depth : %f km
    \n',latOfMaxDepth,lonOfMaxDepth,maxDepth/1000);%Lat: 11.333000 , Long:
    142.200000 , Depth: -10930

%2.1.3 what is the average of all points deeper than 6km

count=0; %used to count the number of points below 6km
currentTotal=0; %used to keep track of the sum of the depths below 6km
numRows=1320;
numCol = 1440;%numRows adn numCol are used as upperbounds and are based on the
    dimensions of A

for i = 1:numRows
    for j = 1:numCol
        if(A(i,j)<-6000) %if the point is deeper than 6km, then update our
            variables that keep track
                count = count+1;
                currentTotal = currentTotal+A(i,j);
        end
    end
end

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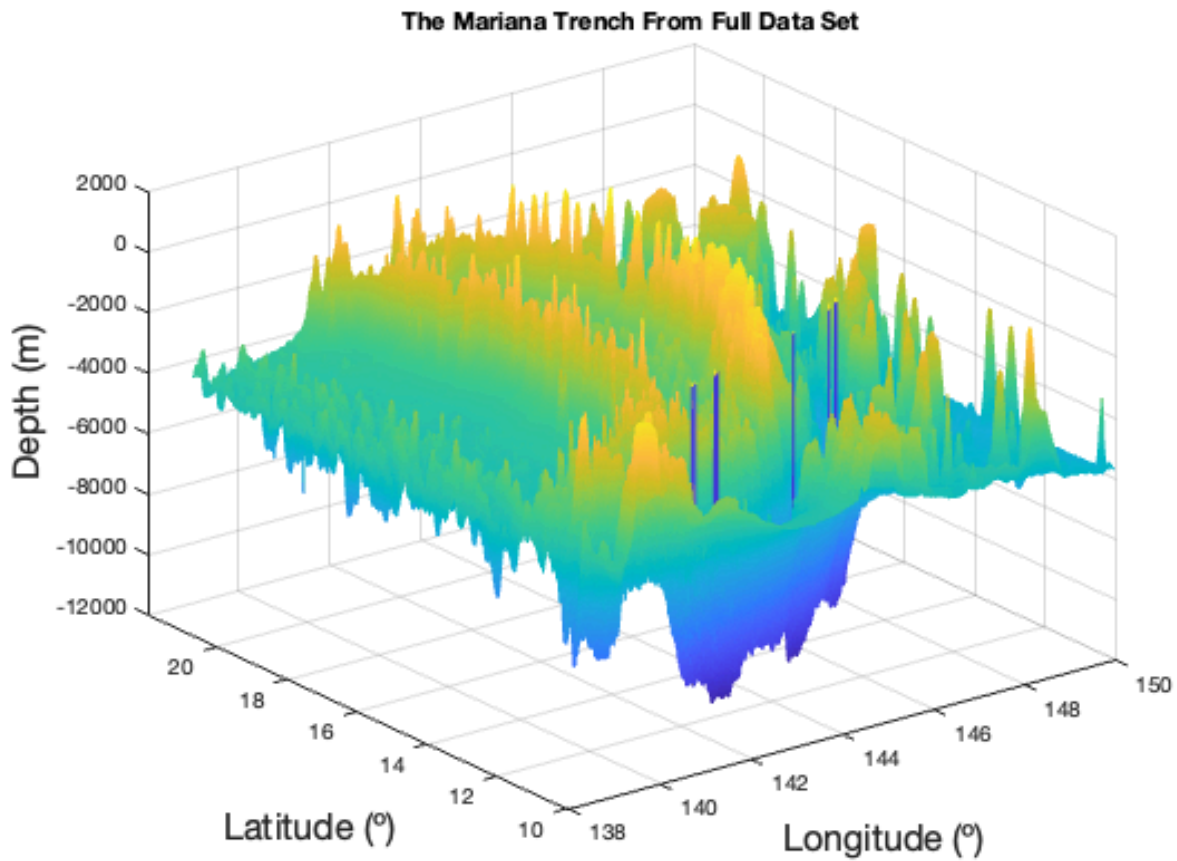
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end
averageDepthUnder6km = currentTotal/count; %arithmetic mean
fprintf('Average Depth of the trench: %f (km)
\n',averageDepthUnder6km/1000);%Average Depth of the trench: -7204.636665
```

OUTPUT:

MAX DEPTH: Lat: 11.333000 , Long: 142.200000 , Depth : -10.930000 km

Average Depth of the trench: -7.204637 (km)



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