

```
clear all
close all
clc

format short g

% question 1

fid=fopen('data_gufm.txt');

for i=1:4
dum=fgetl(fid);
end

g10=fscanf(fid,'%f',401);
g11=fscanf(fid,'%f',401);
h11=fscanf(fid,'%f',401);

fclose(fid);

% question 2

t=(1590:1990)';
f=sqrt(g10.^2+g11.^2+h11.^2);

figure
subplot(2,1,1)
plot(t,f,'k')
xlabel('temps (années)')
ylabel('champ dipolaire total')

% question 3

fp=nan(size(f));
fp(2:end-1)=(f(3:end)-f(1:end-2))./(t(3:end)-t(1:end-2));

subplot(2,1,2)
plot(t,fp,'k')
xlabel('temps (années)')
ylabel('dérivée du champ dipolaire')

% question 4

A=[0*t+1 t];
coeff=A\f
fmodele=A*coeff;

subplot(2,1,1)
hold on
plot(t,fmodele,'r')
hold off
legend('données','modèle')

coeff =

    58113
   -13.758
```

exercice2

