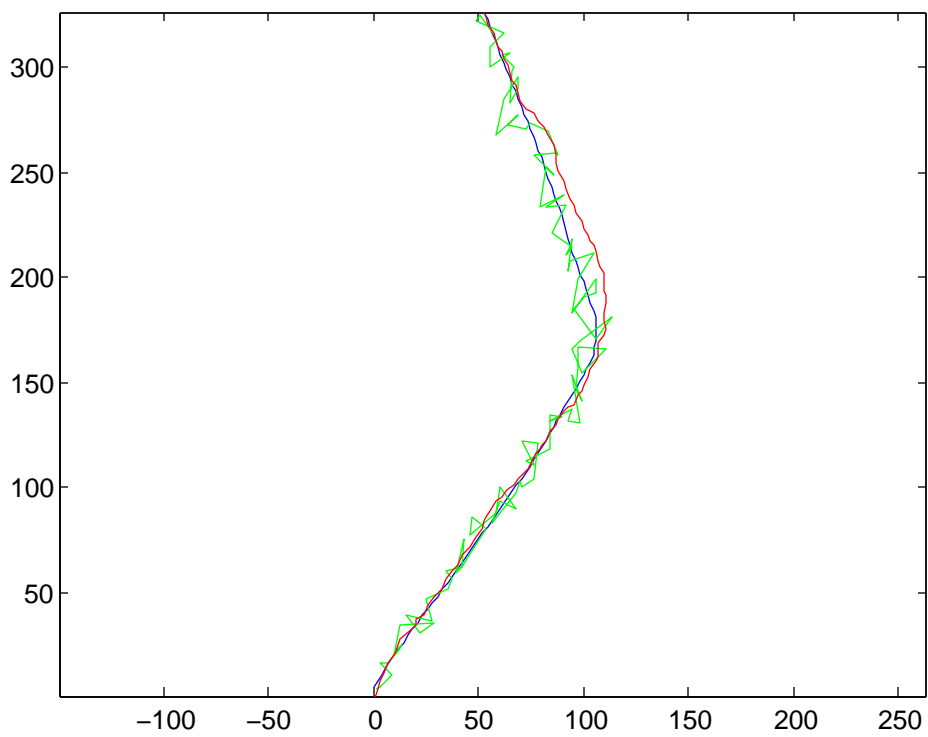


KF trajectory estimate blue=true, green=obs, red=KF



hw8

```
% hw8.m 1-dec-2011
% solve hw8 KF problem
% C.R. Dane, Positioning Systems, p. 113

load hw8
% xact,yact,xobs,yobs,t

T=1.0;
SIGw=[0.0025 0;0 0.0025];
PHI=[1 T 0 0; 0 1 0 0; 0 0 1 T; 0 0 0 1];
G=[T/2 0; 1 0; 0 T/2; 0 1];
H=[1 0 0 0;0 0 1 0];
SIGv=[25 0;0 25];

Q=G*SIGw*G';
R=SIGv;
Xm=[0;0;0;0];
Pm=[5 0 0 0;0 1 0 0;0 0 5 0;0 0 0 1];
xest=zeros(100,1);
yest=zeros(100,1);

for i=1:100
    Z=[xobs(i);yobs(i)];
    K=Pm*H'*inv(H*Pm*H' + R);
    X=Xm + K*(Z-H*Xm);
    xest(i)=X(1);
    yest(i)=X(3);
    I4=eye(4);
    P=(I4 - K*H)*Pm;
    Xm=PHI*X;
    Pm=PHI*P*PHI' + Q;
end

plot(xact,yact,'b-');
hold on
plot(xobs,yobs,'g-');
plot(xest,yest,'r-');

axis equal
```