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## testes

```
clear all
close all
```

```
addpath 'C:\Users\Diego\Dropbox\Cirrus Prog'
```

## blacktel - Dark Current

```
%
teste_id_ant = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_de
teste_id_novo = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_D

% teste_id_ant = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_
% teste_id_novo = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24

teste_id_ant =

C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash

teste_id_novo =

C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\

clear a
pasta = [teste_id_ant 'Dark_Current\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end
clear pasta

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_DC_ant, chphy_DC_ant, chraw_DC_ant] = profile_read_many(filelist, 0, 0, 0, 0

pasta =
```

---

```
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash
```

```
ans =
```

```
READING 20 files
```

```
clear a
pasta = [teste_id_novo 'Dark_Current\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end
clear pasta

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
% [head_DC_novo, chphy_DC_novo, chraw_DC_novo] = profile_read_many(filelist, 0, 0,
[head_DC_novo, chphy_DC_novo, chraw_DC_novo] = profile_read_many(filelist, 10, 0.
```

```
pasta =
```

```
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\D
```

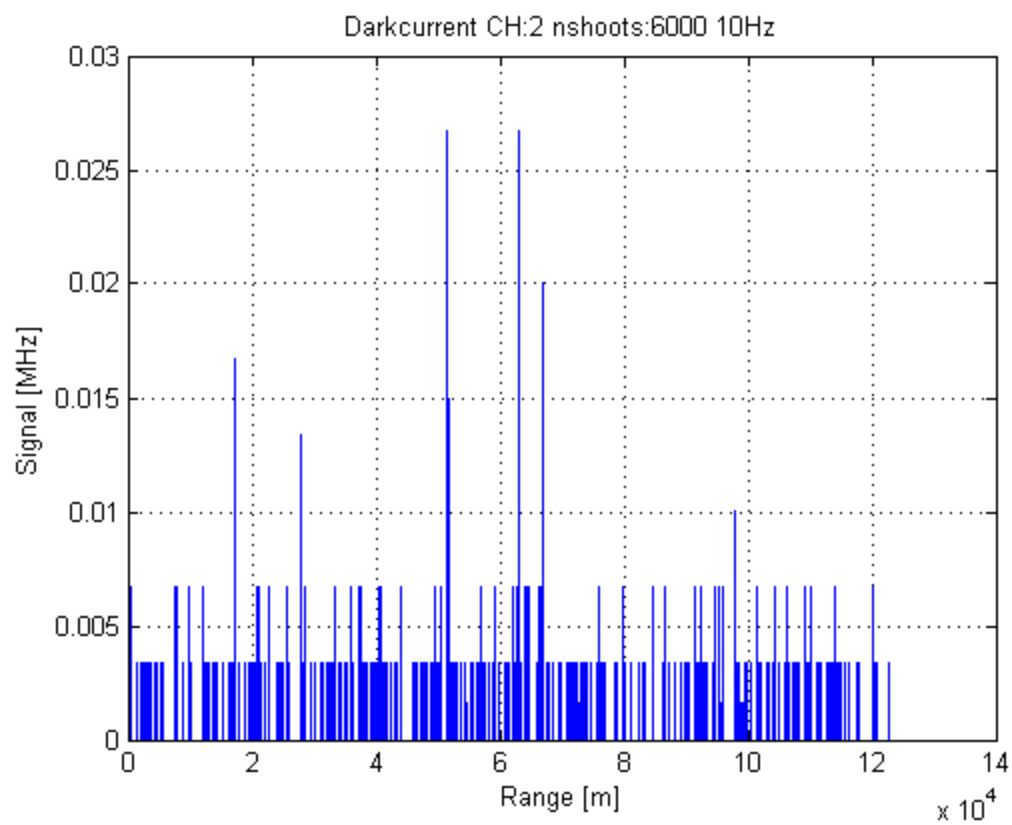
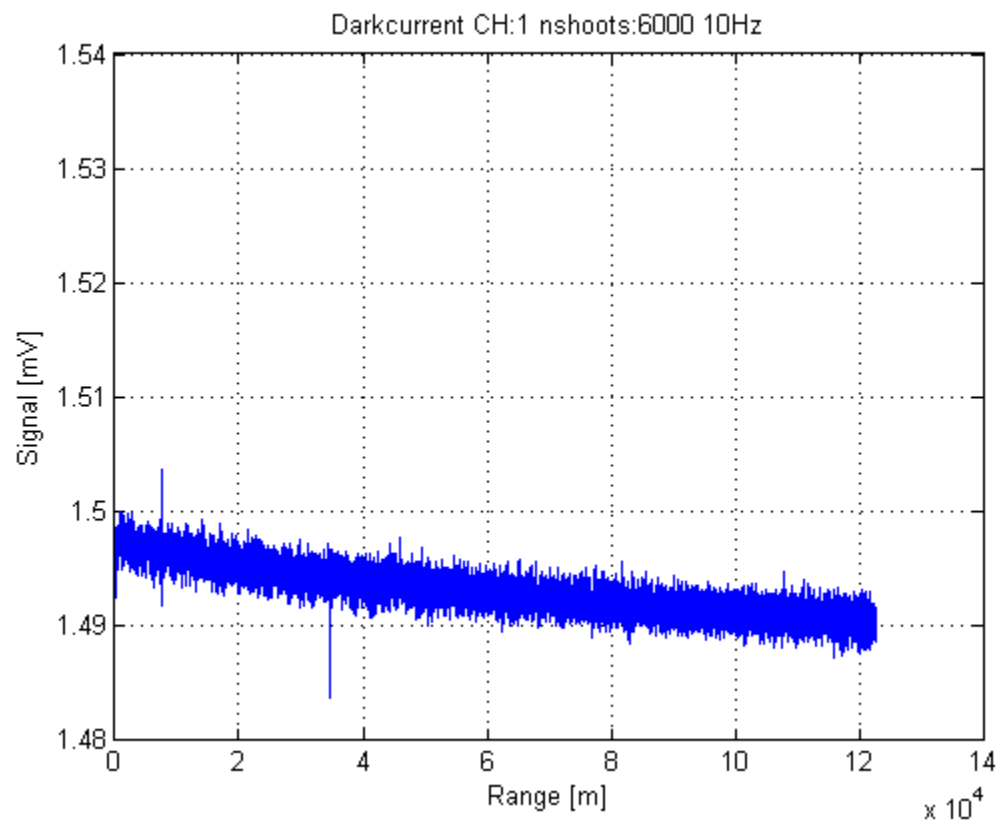
```
ans =
```

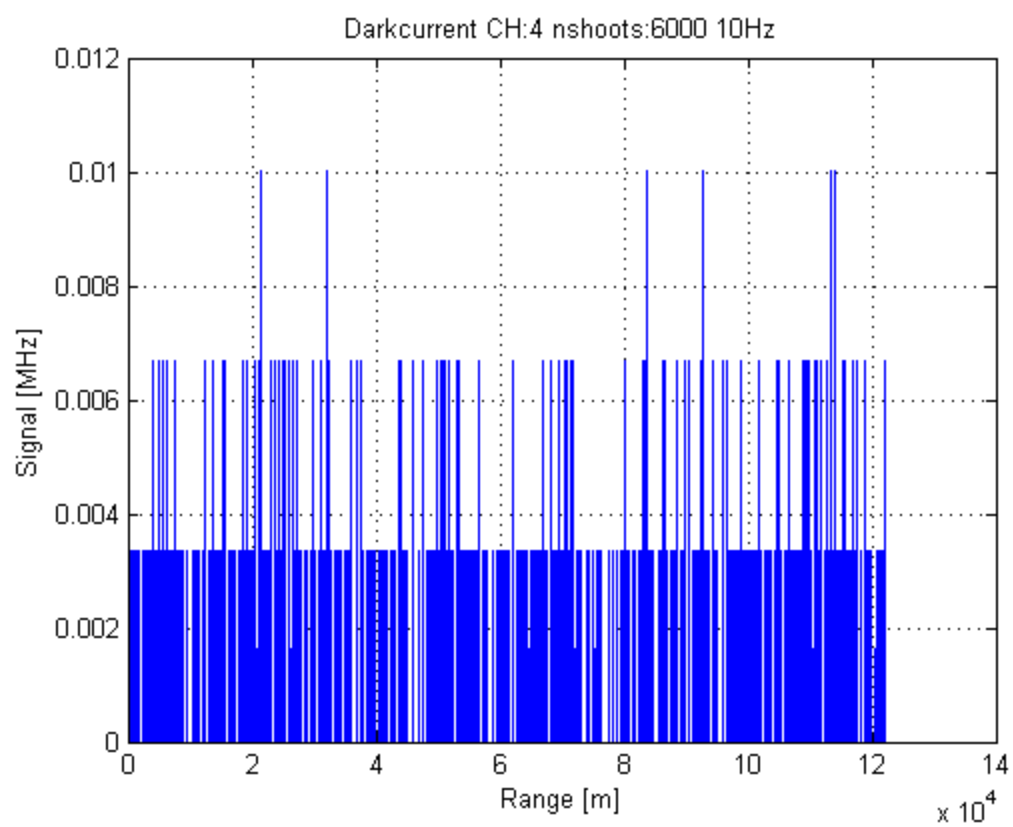
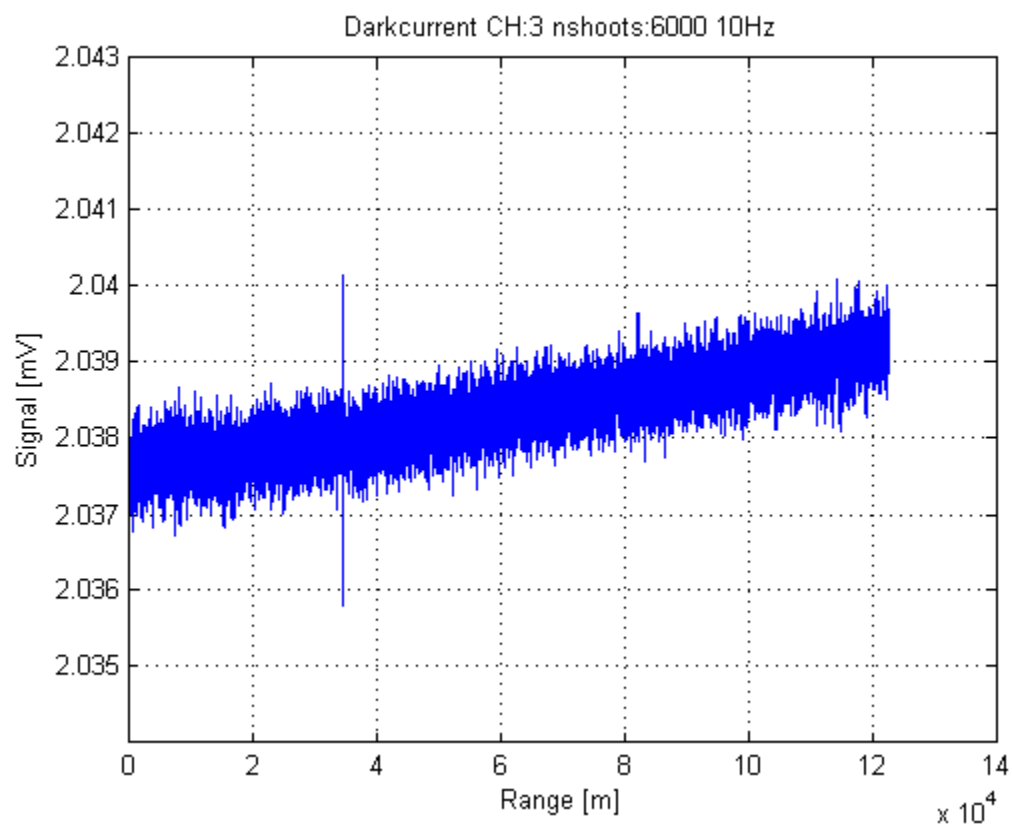
```
READING 26 files
```

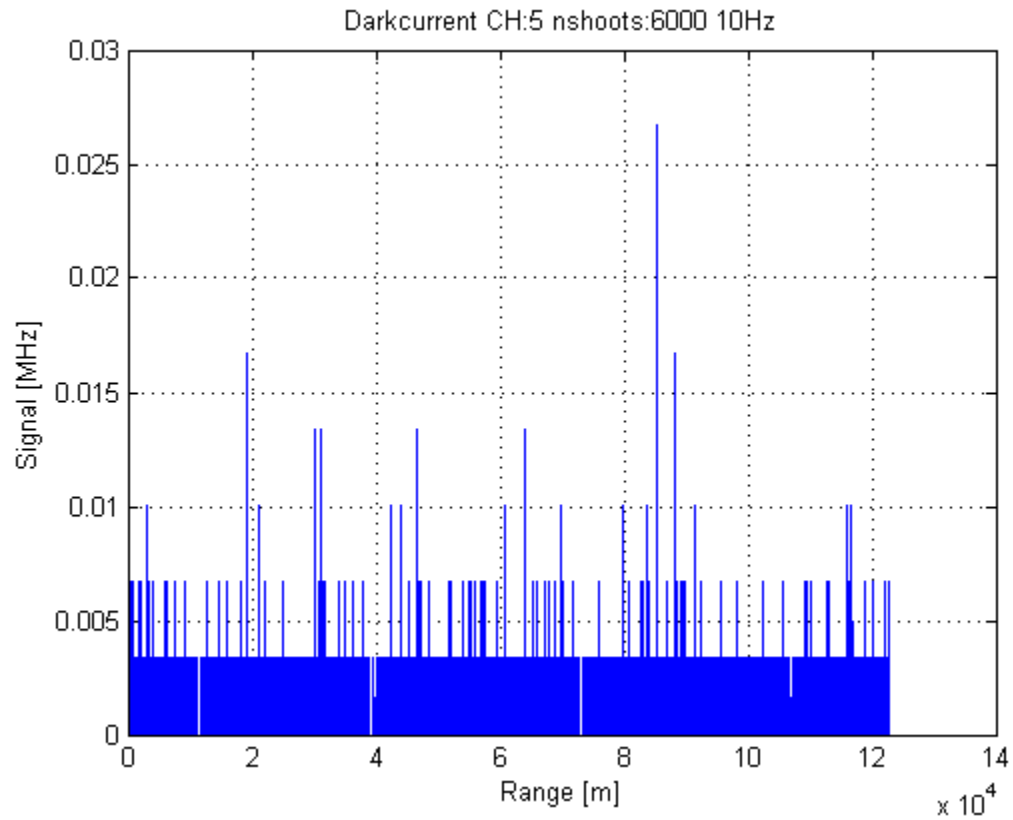
```
zh = [1:length(chphy_DC_novo(1).data(:,1))]'*.7.5;
% jdi_novo = [head_DC_novo(:).jdi]

for ch=1:5

%     r = 1;
    r = 1:20;
    % r = 1:length(a);
    P = mean(chphy_DC_novo(ch).data(:,r),2);
%     P = chphy_DC_novo(ch).data(:,r);
    figure(1)
    plot(zh,P)
    % ylim(mean(P) + 10.*std(P).*[-1 1])
    title(['Darkcurrent CH:' num2str(ch) ' nshoots:' num2str(sum([head_DC_novo(r).
    if ch == 1 | ch == 3
        ylabel('Signal [mV]')
    else
        ylabel('Signal [MHz]')
    end
    xlabel('Range [m]')
    grid on
%     pause
```





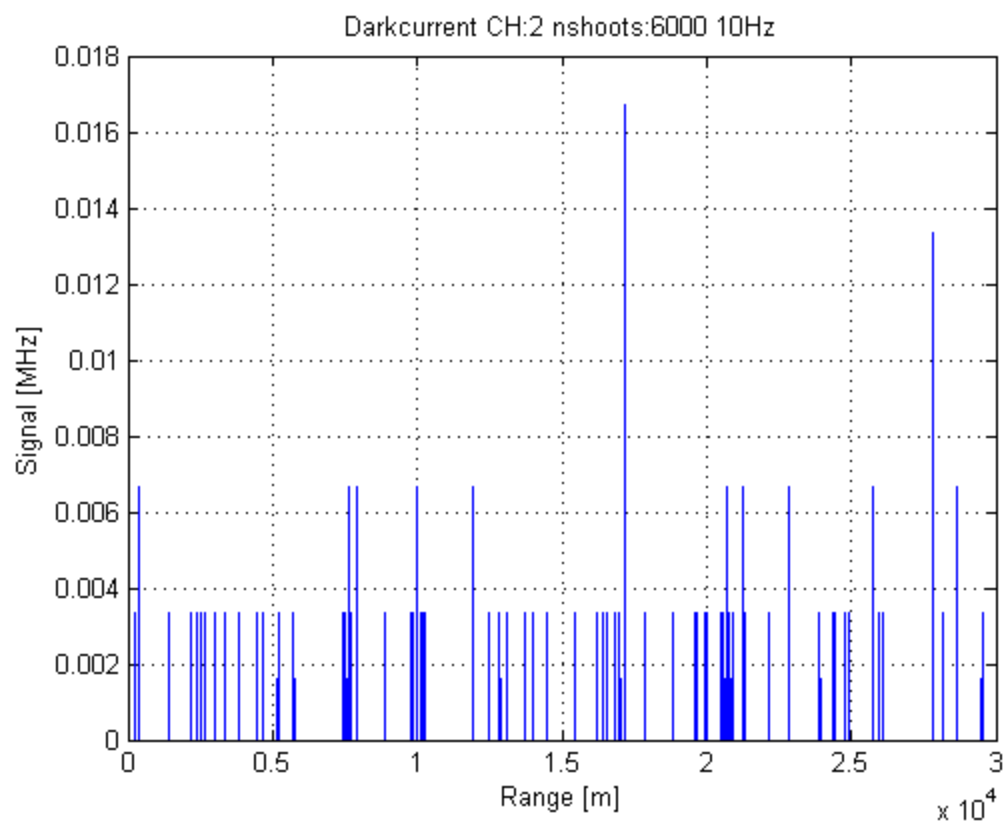
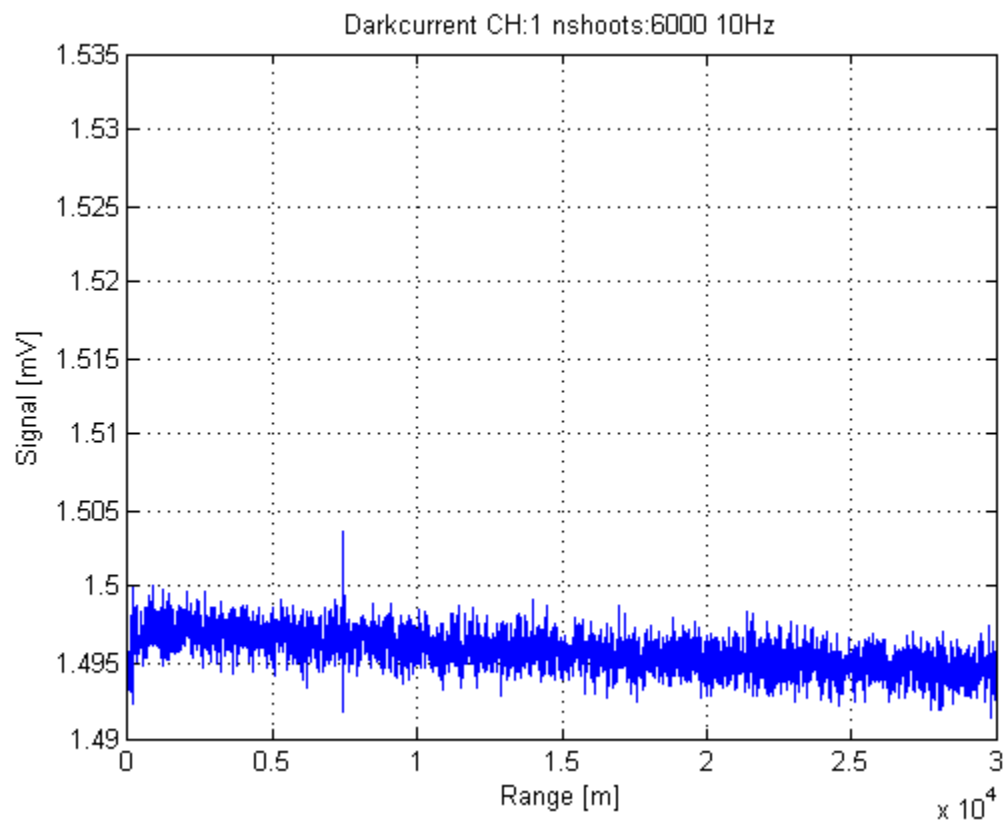


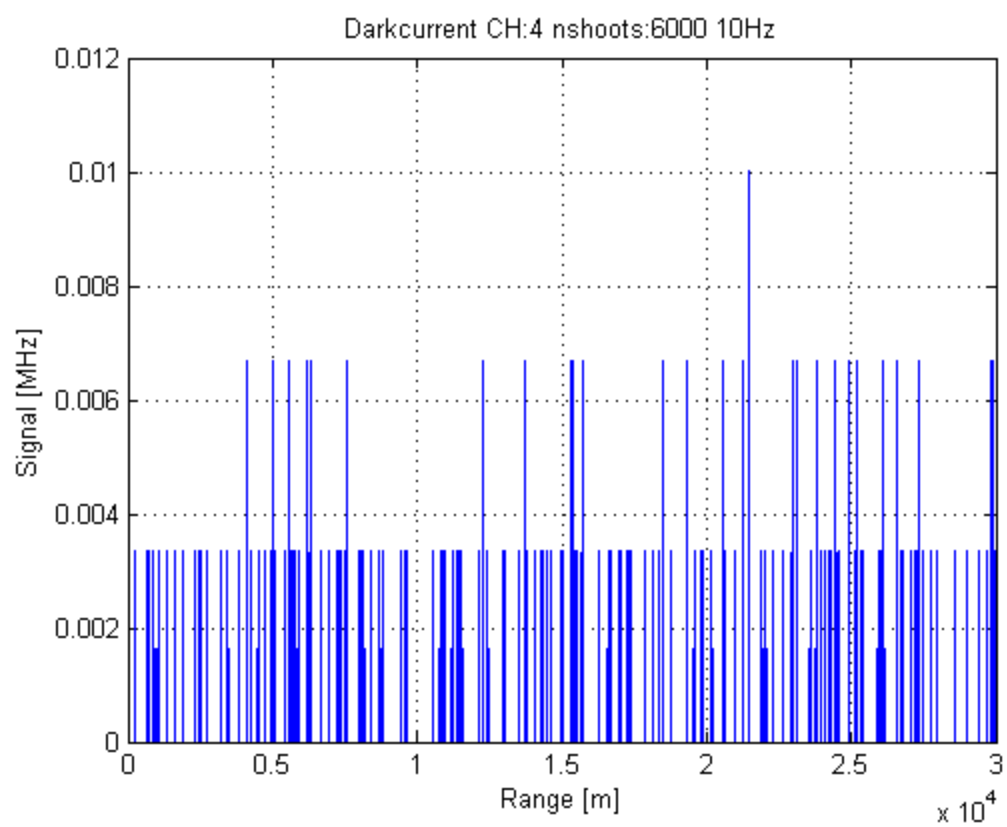
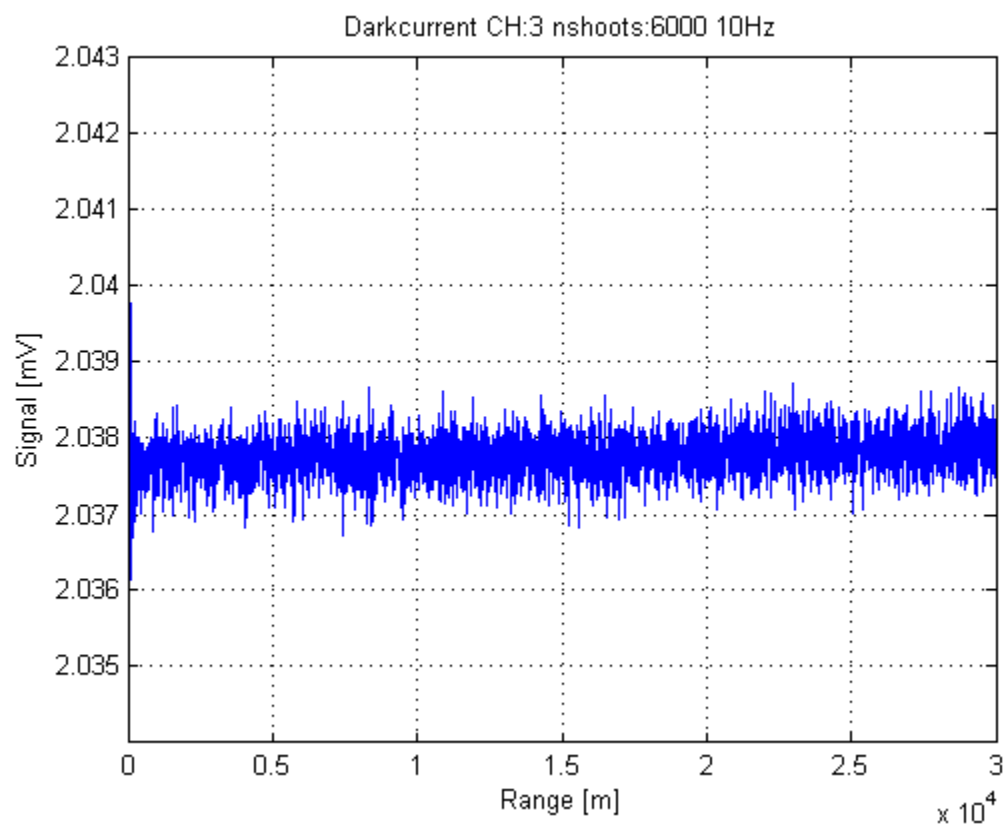
end

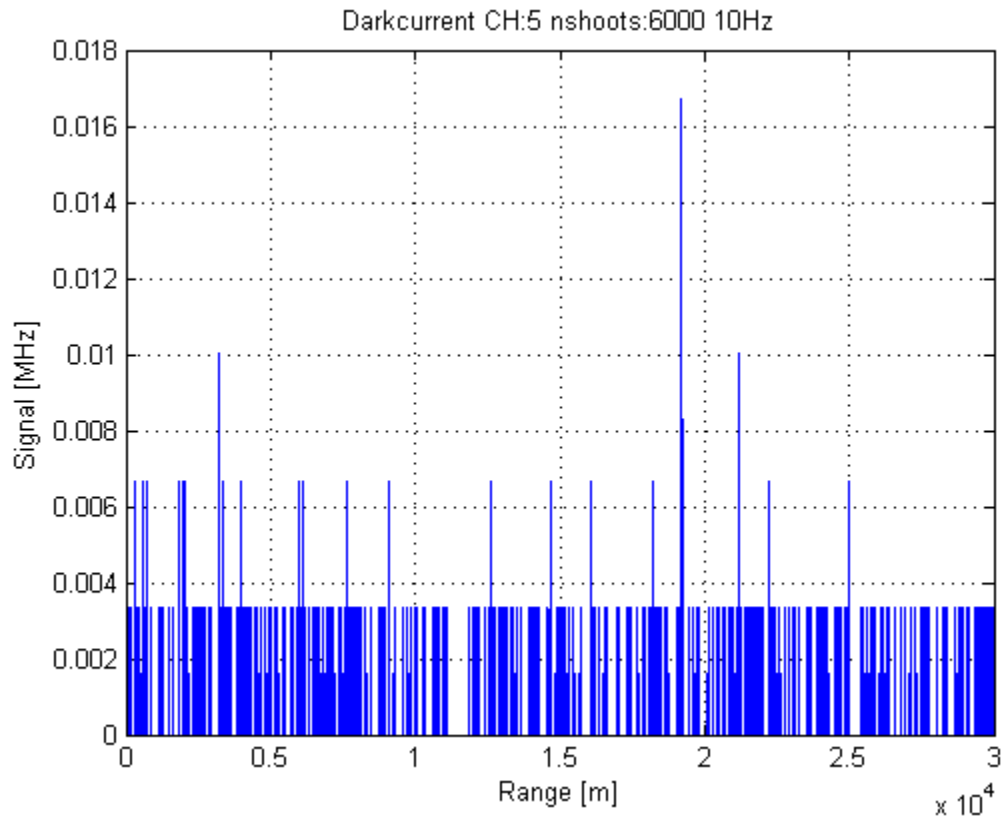
for ch=1:5

```
%
    r = 1;
    r = 1:20;
    % r = 1:length(a);
    P = mean(chphy_DC_novo(ch).data(:,r),2);
%
    P = chphy_DC_novo(ch).data(:,r);
    figure(1)
    plot(zh,P)
    % ylim(mean(P) + 10.*std(P).*[-1 1])
    title(['Darkcurrent CH:' num2str(ch) ' nshoots:' num2str(sum([head_DC_novo(r).
    if ch == 1 | ch == 3
        ylabel('Signal [mV]')
    else
        ylabel('Signal [MHz]')
    end
    xlabel('Range [m]')

    xlim([0 30000])
    grid on
%
    pause
```







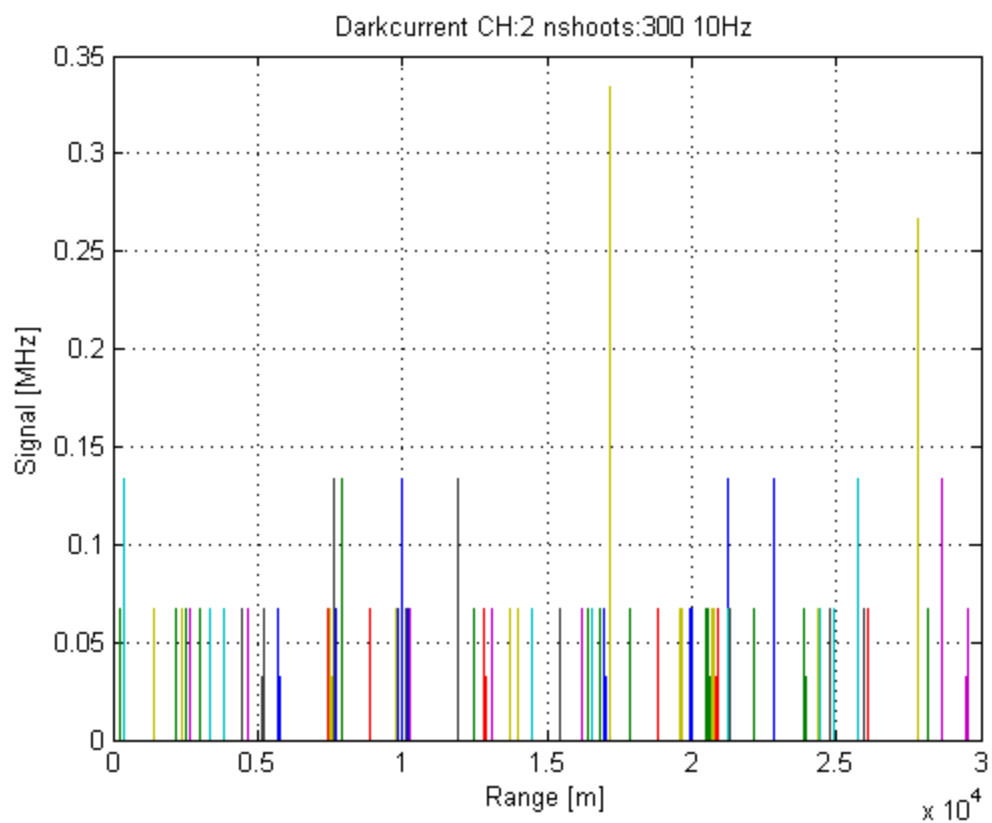
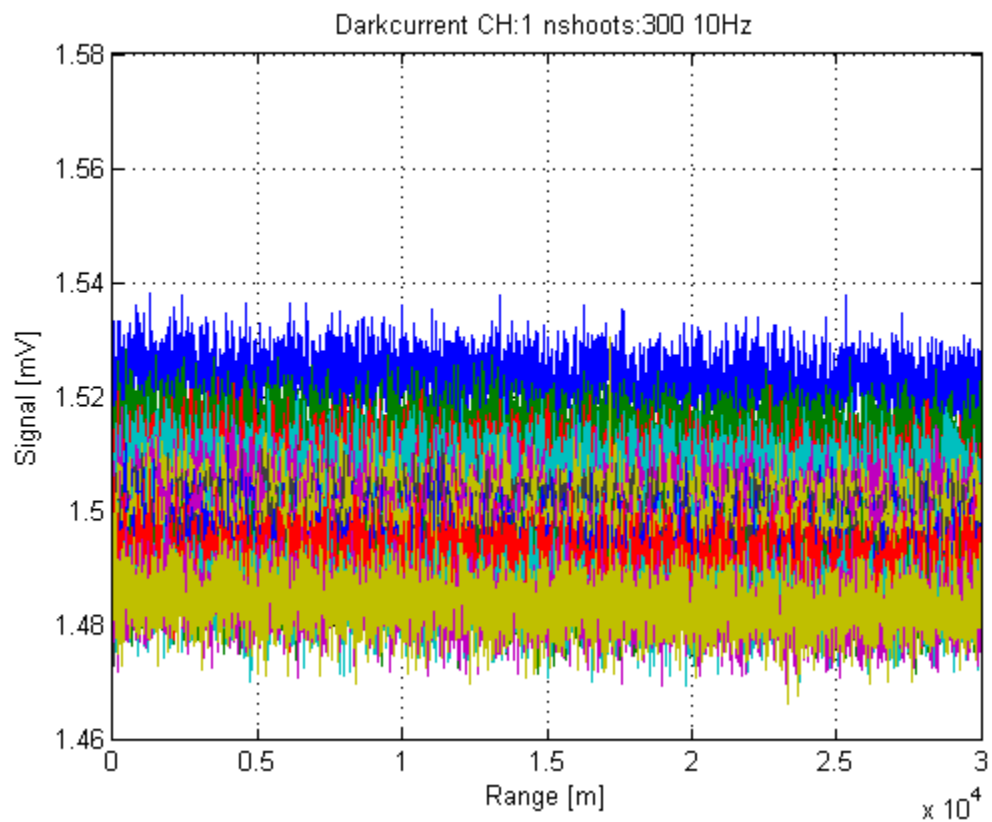
end

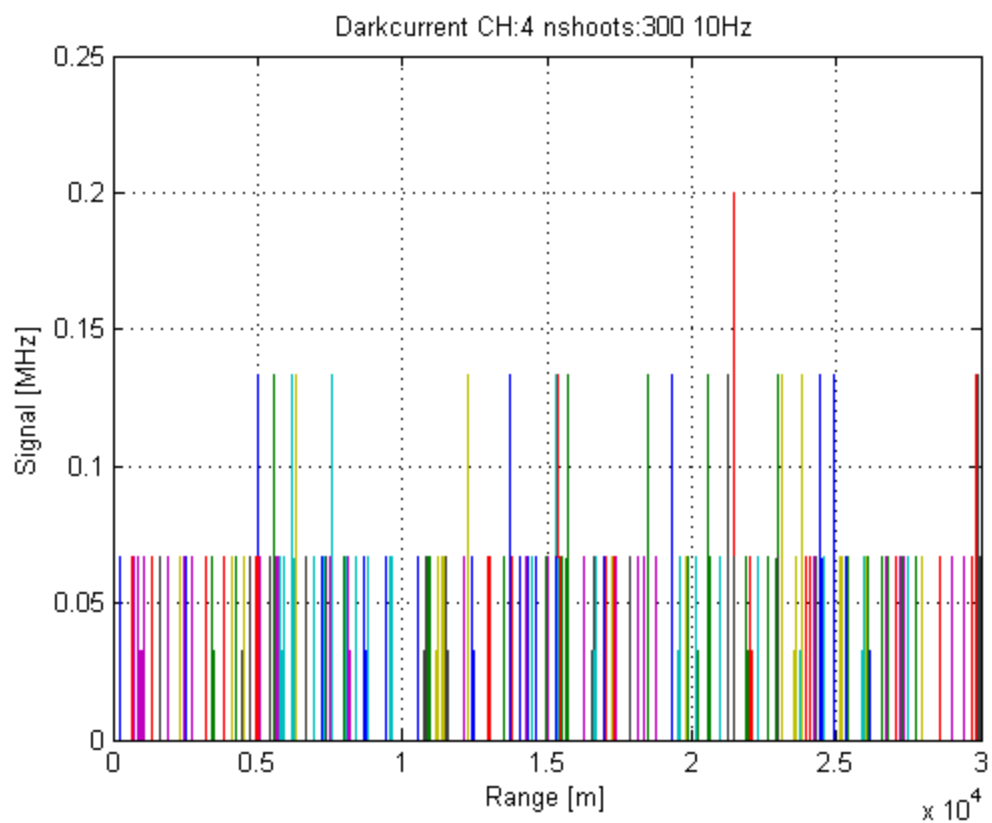
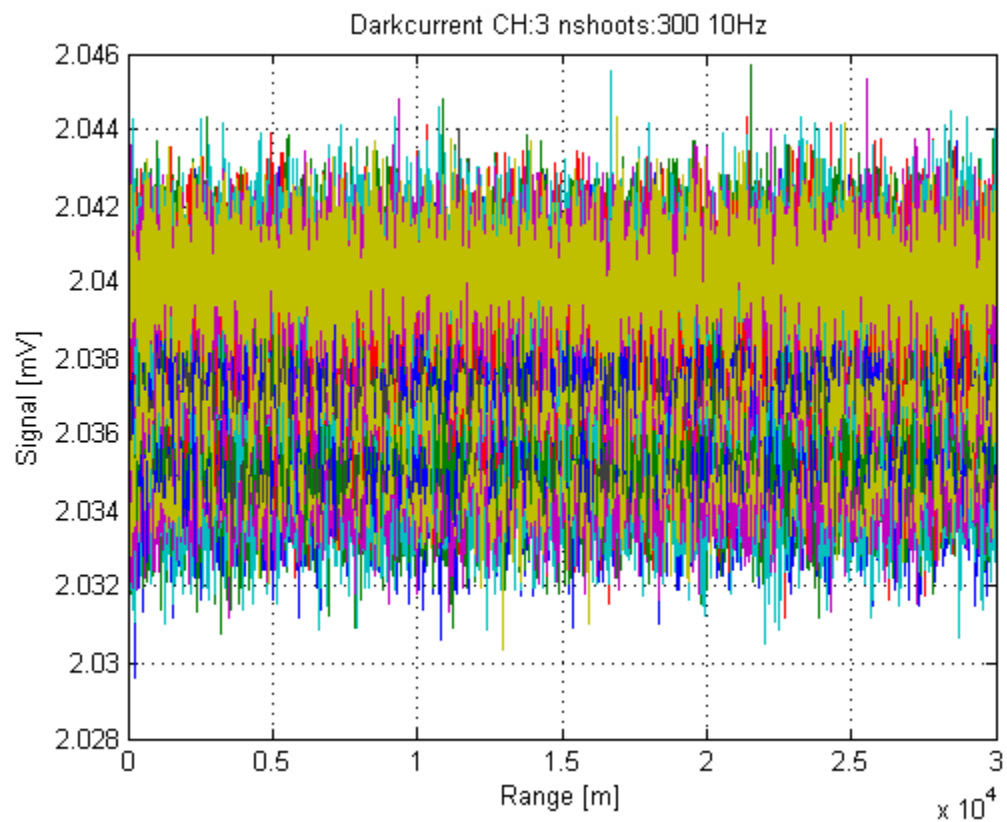
for ch=1:5

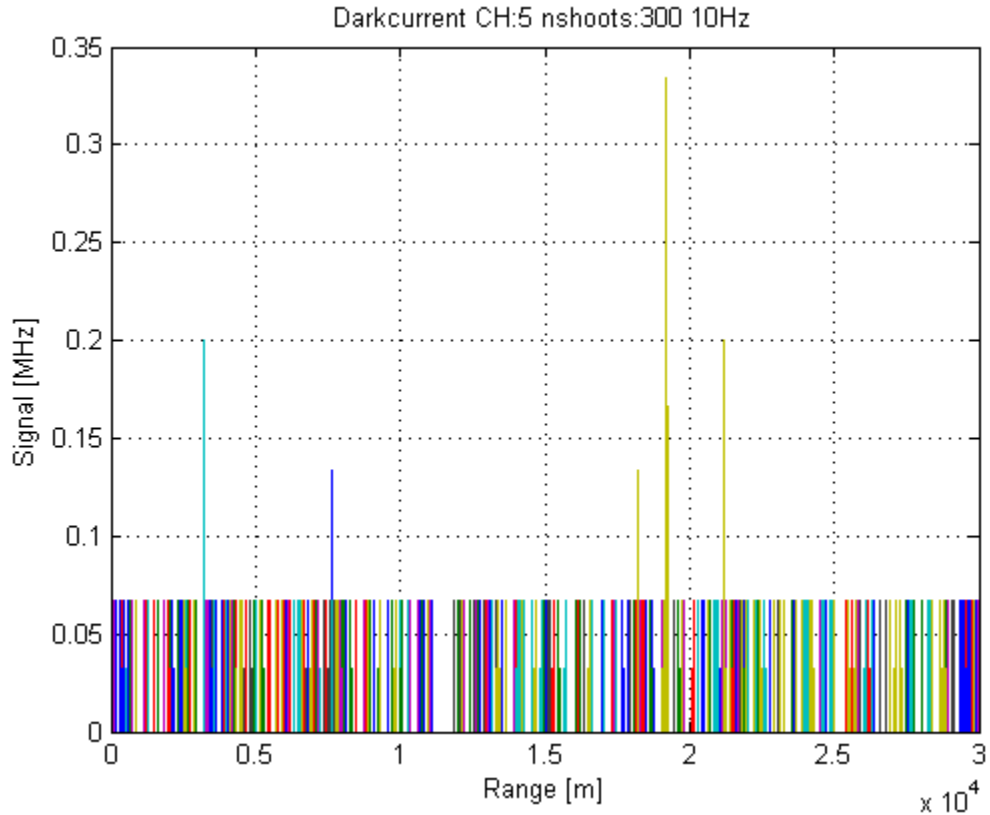
```
%
    r = 1;
    r = 1:20;
    % r = 1:length(a);
    % P = mean(chphy_DC_novo(ch).data(:,r),2);
    P = chphy_DC_novo(ch).data(:,r);
    figure(1)
    plot(zh,P)
    % ylim(mean(P) + 10.*std(P).*[-1 1])
    title(['Darkcurrent CH:' num2str(ch) ' nshoots:' num2str(sum([head_DC_novo(1).
    if ch == 1 | ch == 3
        ylabel('Signal [mV]')
    else
        ylabel('Signal [MHz]')
    end
    xlabel('Range [m]')

    xlim([0 30000])
    grid on
    pause
%%
%%
```









end

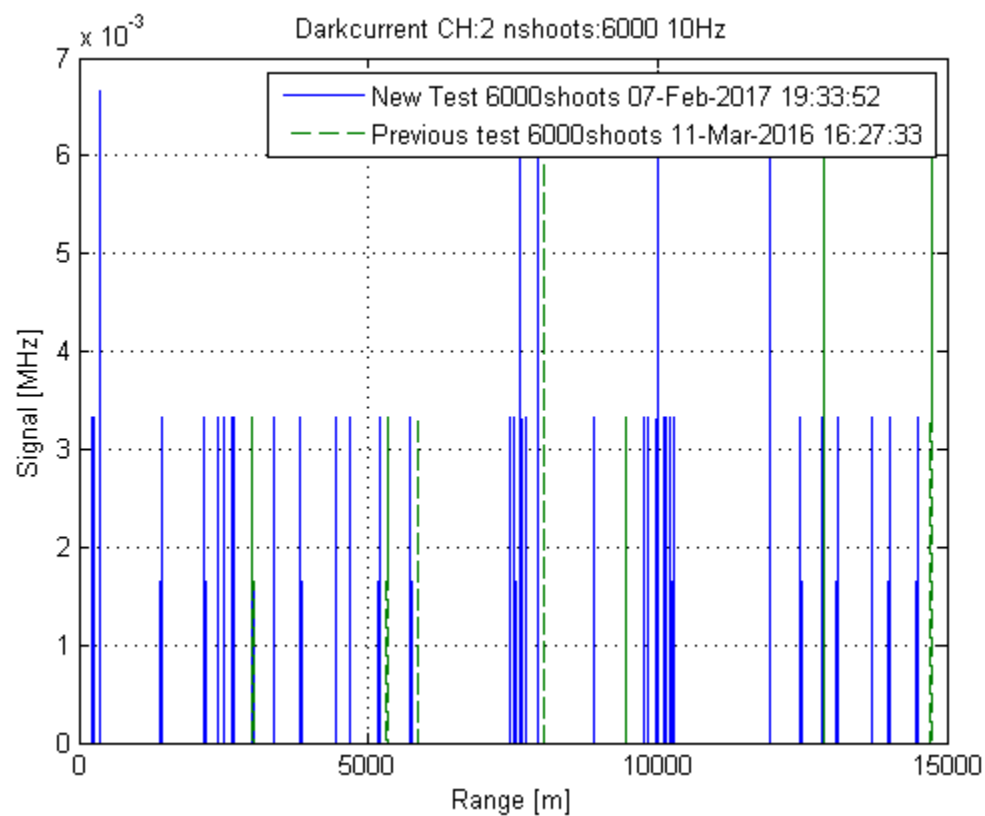
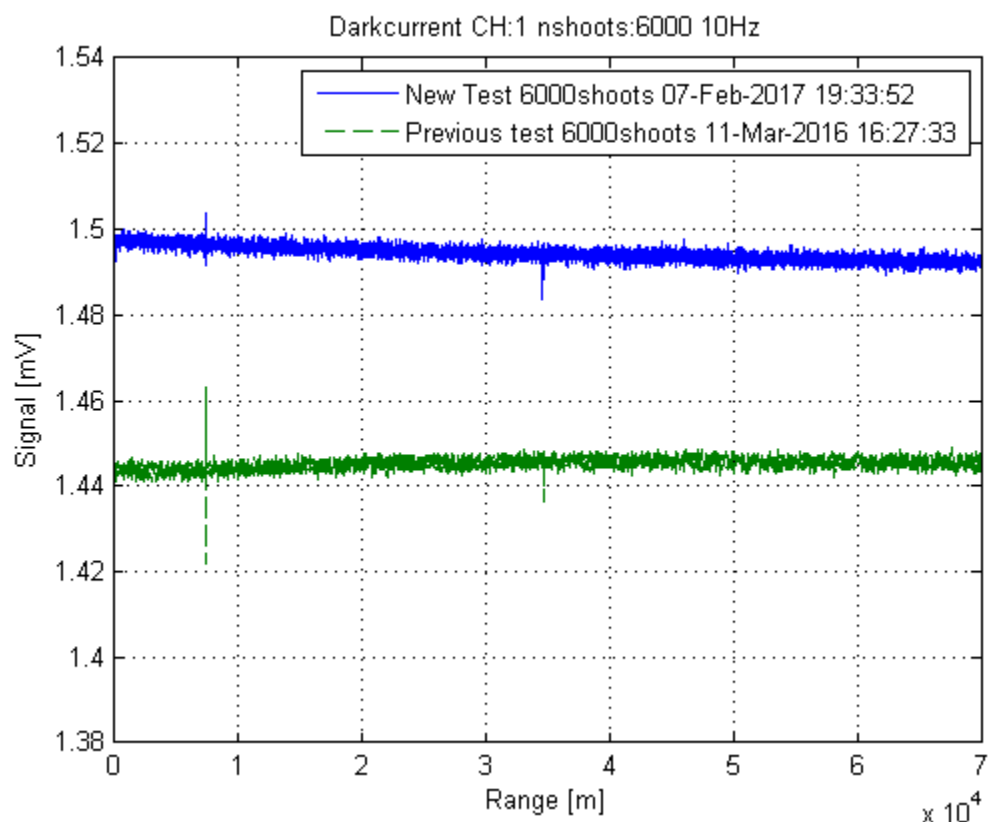
for ch=1:5

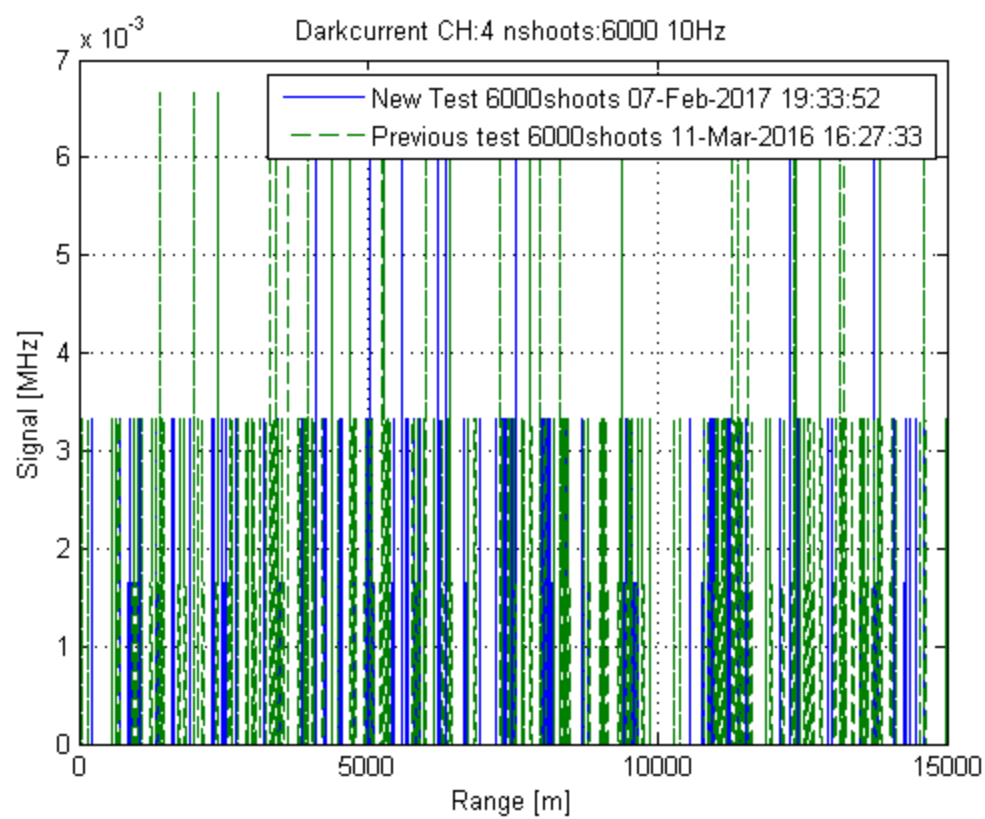
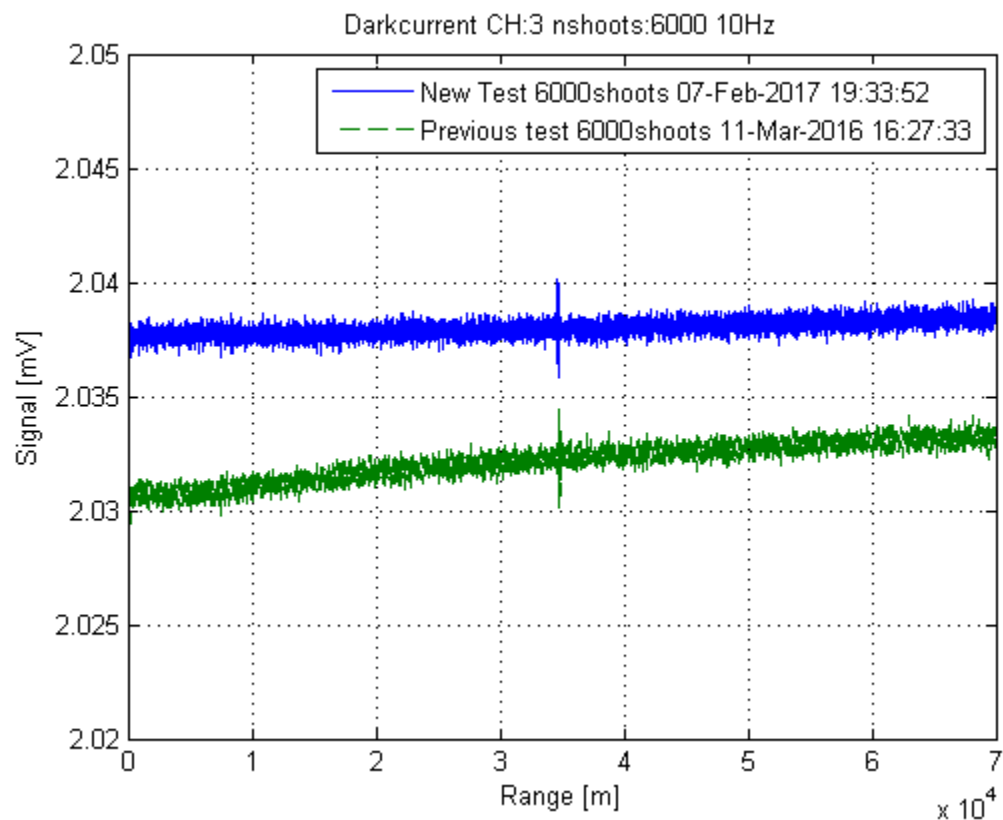
```
%
    r = 1;
    r = 1:20;
    % r = 1:length(a);
    P = mean(chphy_DC_novo(ch).data(:,r),2);
    P_ant = mean(chphy_DC_ant(ch).data(:,r),2);
%
    P = chphy_DC_novo(ch).data(:,r);
    figure(1)
    plot(zh,P,zh,P_ant,'--')
    % ylim(mean(P) + 10.*std(P).*[-1 1])
    title(['Darkcurrent CH:' num2str(ch) ' nshoots:' num2str(sum([head_DC_novo(r).
if ch == 1 | ch == 3
    ylabel('Signal [mV]')
    xlim([0 70000])
else
    ylabel('Signal [MHz]')
    xlim([0 15000])
end
xlabel('Range [m]')
legend(['New Test ' num2str(sum([head_DC_novo(r).nshoots])) 'shoots ' datestr(
    ['Previous test ' num2str(sum([head_DC_ant(r).nshoots])) 'shoots ' datestr

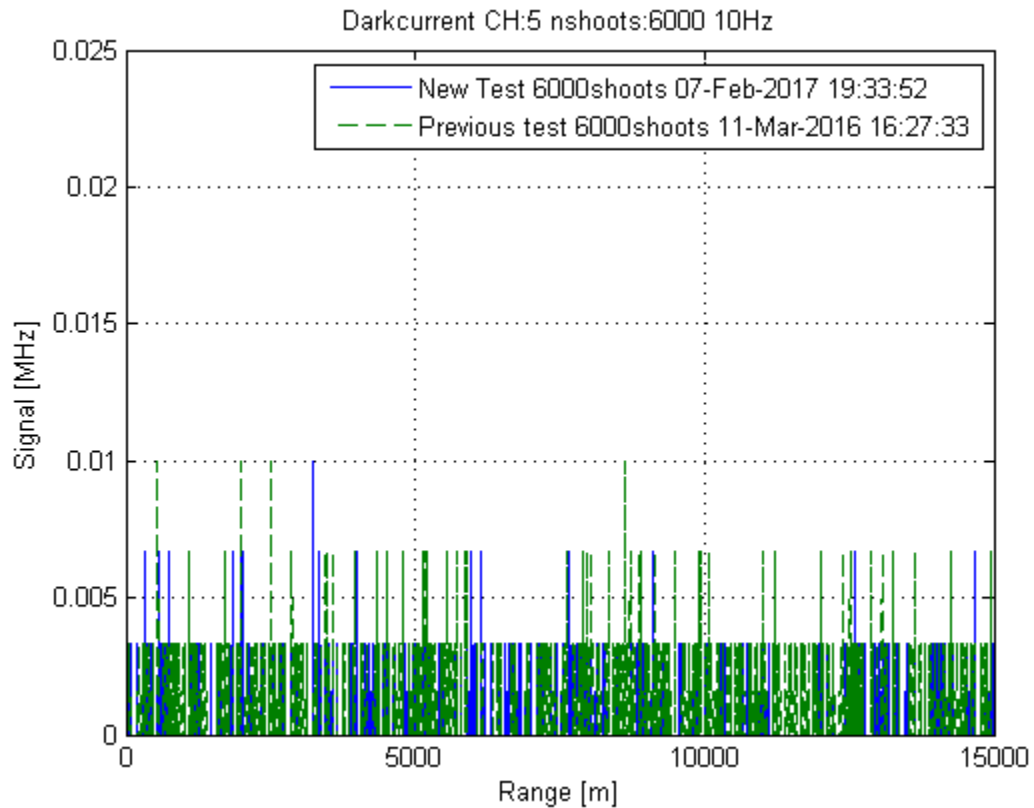
%
    xlim([0 30000])
    grid on

%
    pause
```

---







end

## Telecover

```
% teste_id_novo = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11'

clear a
pasta = [teste_id_novo 'north\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_N_novo, chphy_N_novo, chraw_N_novo] = profile_read_many(filelist, 0, 0, 0, 0);

clear a
pasta = [teste_id_novo 'south\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end
```

---

```

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_S_novo, chphy_S_novo, chraw_S_novo] = profile_read_many(filelist, 0, 0, 0, 0, 0);

clear a
pasta = [teste_id_novo 'east\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_E_novo, chphy_E_novo, chraw_E_novo] = profile_read_many(filelist, 0, 0, 0, 0, 0);

clear a
pasta = [teste_id_novo 'west\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_W_novo, chphy_W_novo, chraw_W_novo] = profile_read_many(filelist, 0, 0, 0, 0, 0);

clear a
pasta = [teste_id_novo 'north2\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end
% clear pasta

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_N2_novo, chphy_N2_novo, chraw_N2_novo] = profile_read_many(filelist, 0, 0, 0, 0, 0);

clear a
% % % % % pasta = [teste_id_novo 'east2\']
% % % % % pasta = [teste_id_novo 'east\']
% % % % % a = dir([pasta 'RM*']);
% % % % %
% % % % % clear filelist
% % % % % for i = 1:length(a)
% % % % %     filelist{i} = [pasta a(i).name];
% % % % % end
% % % % %
% % % % % [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, m
% % % % % [head_E2_novo, chphy_E2_novo, chraw_E2_novo] = profile_read_many(filelis

clear pasta

```

---

---

```

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\n

ans =

READING 8 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\s

ans =

READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\e

ans =

READING 6 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\w

ans =

READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\n

ans =

READING 5 files

for ch=1:5

    r = 1:5;
    rbg = floor(45000./(zh(2)-zh(1))):floor(50000./(zh(2)-zh(1)));
    b = 1;
    rn = floor(2000./(zh(2)-zh(1))):floor(3000./(zh(2)-zh(1)));
    auN = mean(chphy_N_novo(ch).data(:,r),2);PN = auN - b.*mean(auN(rbg));PNr2 = P
    auS = mean(chphy_S_novo(ch).data(:,r),2);PS = auS - b.*mean(auS(rbg));PSr2 = P
    auE = mean(chphy_E_novo(ch).data(:,r),2);PE = auE - b.*mean(auE(rbg));PEr2 = P
    auW = mean(chphy_W_novo(ch).data(:,r),2);PW = auW - b.*mean(auW(rbg));PWr2 = P
    auN2 = mean(chphy_N2_novo(ch).data(:,r),2);PN2 = auN2 - b.*mean(auN2(rbg));PN2
%     auE2 = mean(chphy_E2_novo(ch).data(:,r),2);PE2 = auE2 - b.*mean(auE2(rbg));P

```

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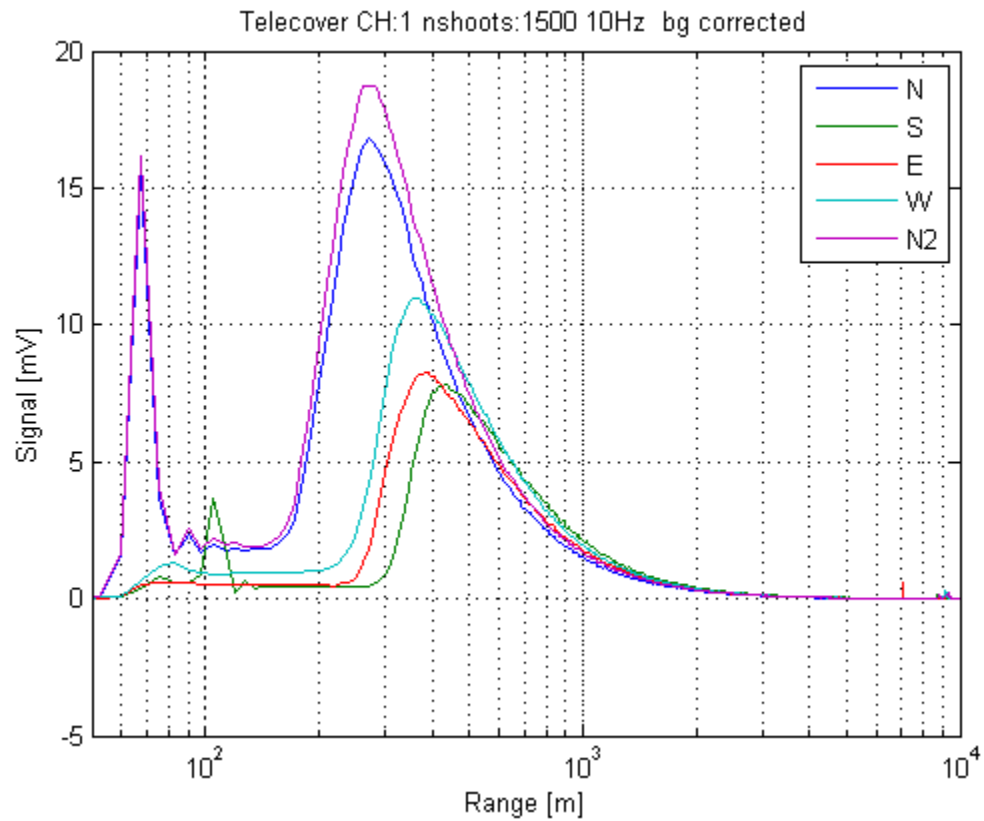
```

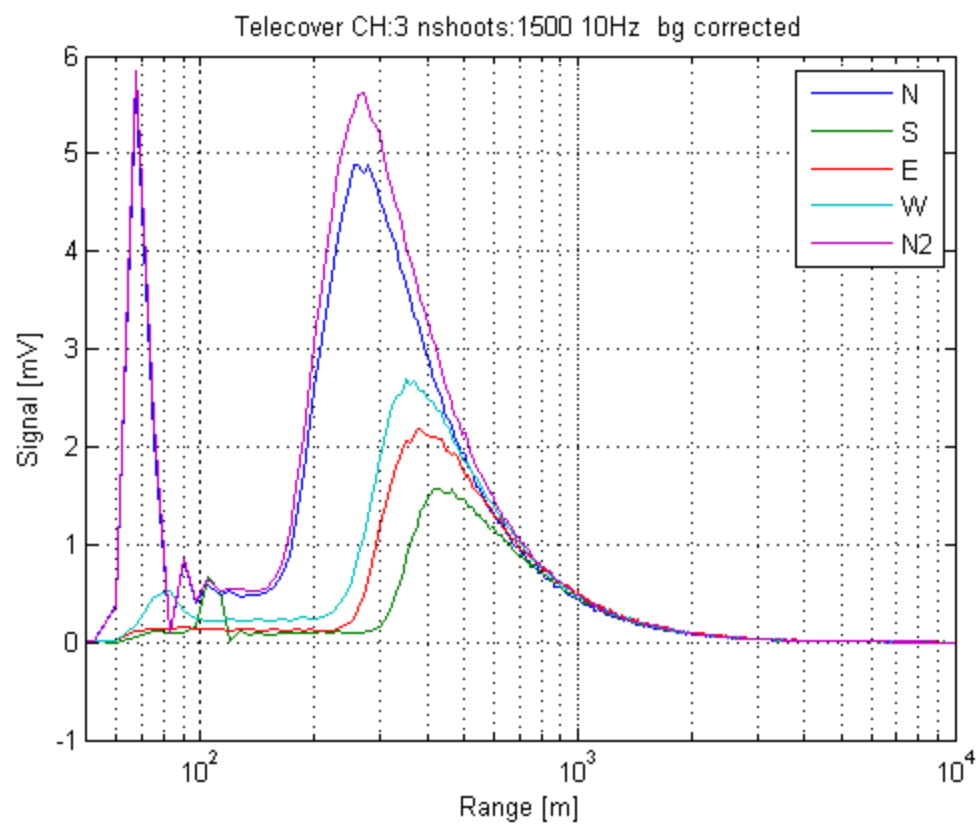
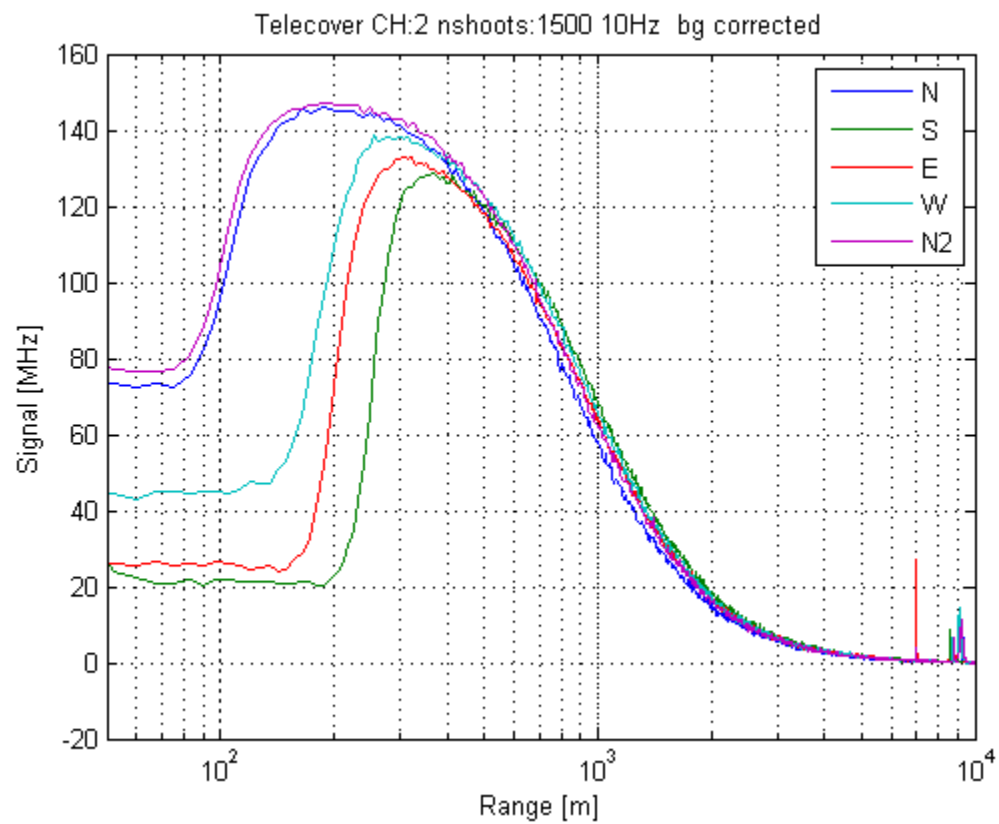
figure(1)
clf
% plot(zh,PNr2,zh,PSr2,zh,PEr2,zh,PWr2,zh,PN2r2)
% plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2,zh,PE2)
plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2)
% plot(zh,PN./mean(PN(rn)),zh,PS./mean(PS(rn)),zh,PE./mean(PE(rn)),zh,PW./mean(PW(rn)))
% plot(zh,PNr2./mean(PNr2(rn)),zh,PSr2./mean(PSr2(rn)),zh,PEr2./mean(PEr2(rn)))
% ylim(mean(P) + 10.*std(P).*[-1 1])
legend('N','S','E','W','N2','E2')

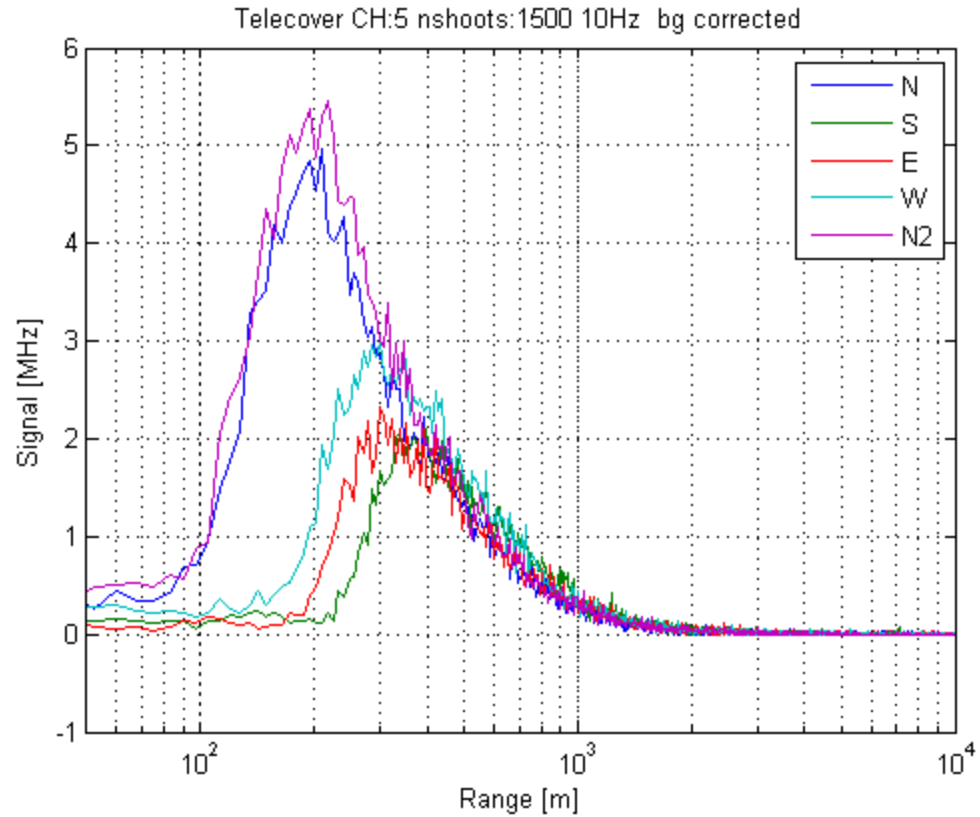
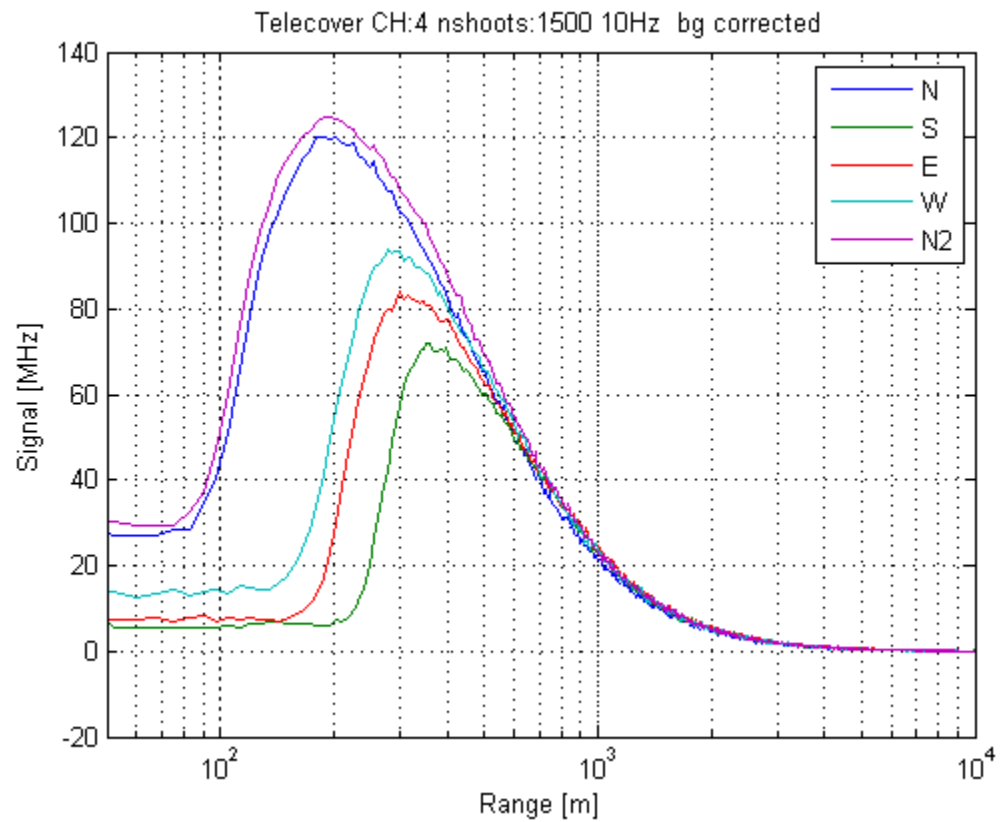
title(['Telecover CH:' num2str(ch) ' nshoots:' num2str(sum([head_N_novo(r).nshoots])
if ch == 1 | ch == 3
    ylabel('Signal [mV]')
else
    ylabel('Signal [MHz]')
end
xlabel('Range [m]')
xlim([50 10000])
set(gca,'xscale','log')
% xlim([0 3000])

grid on
% pause

```







---

end

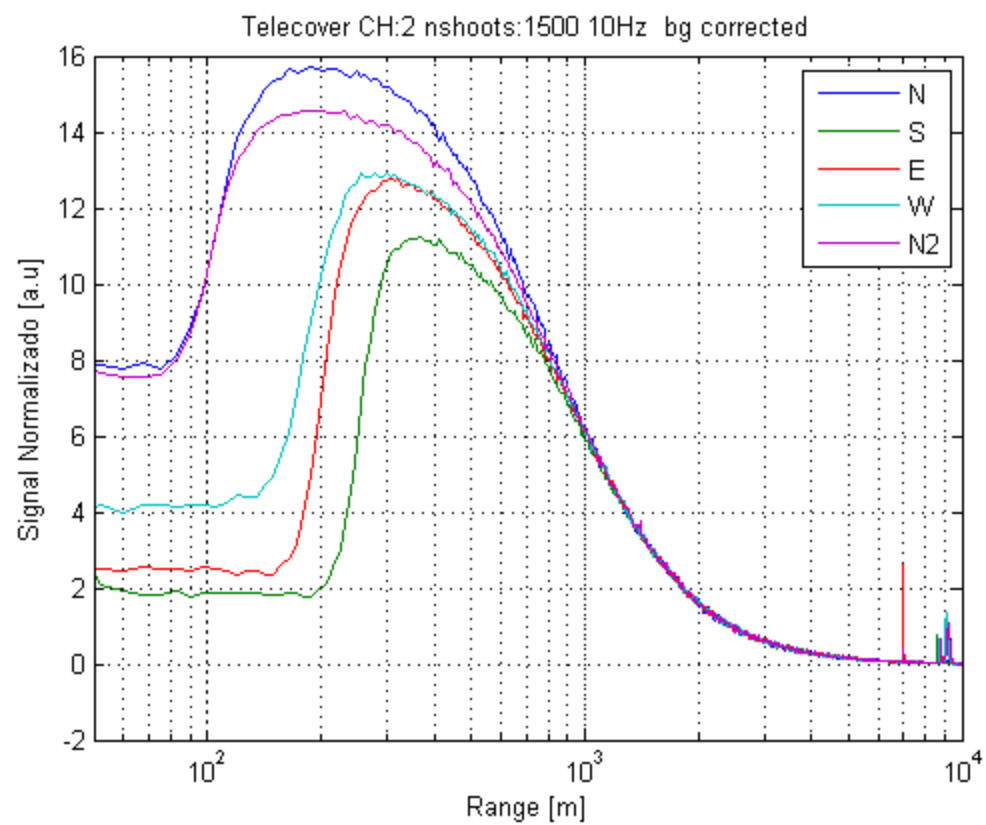
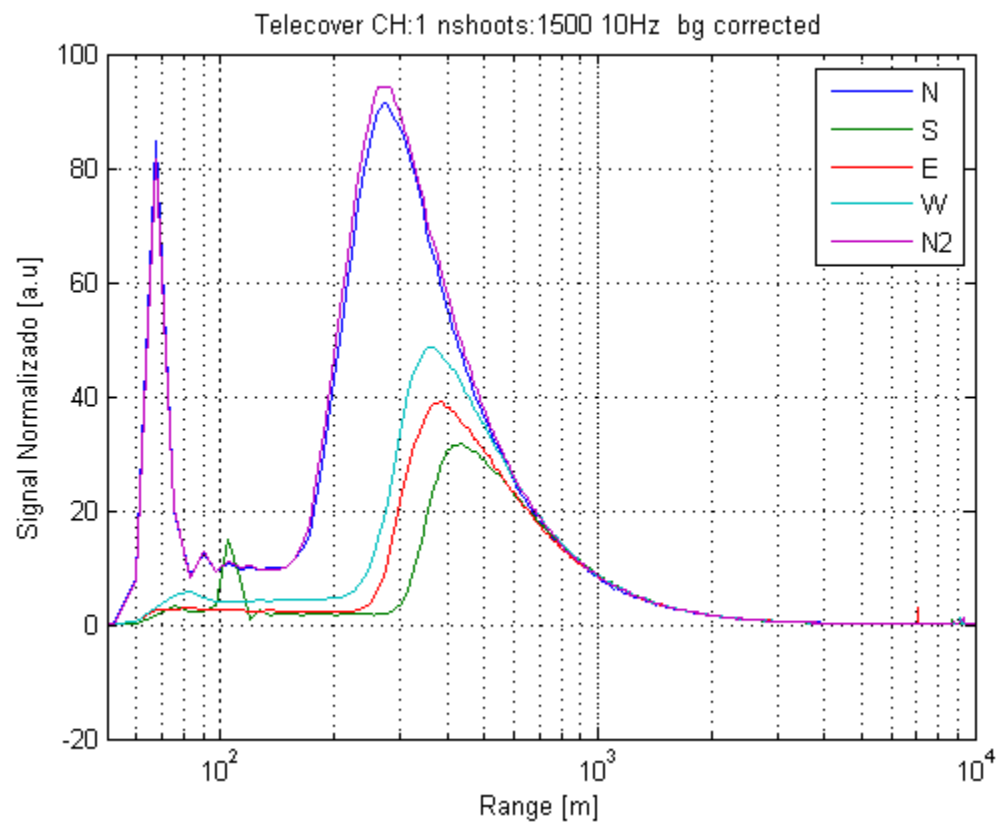
for ch=1:5

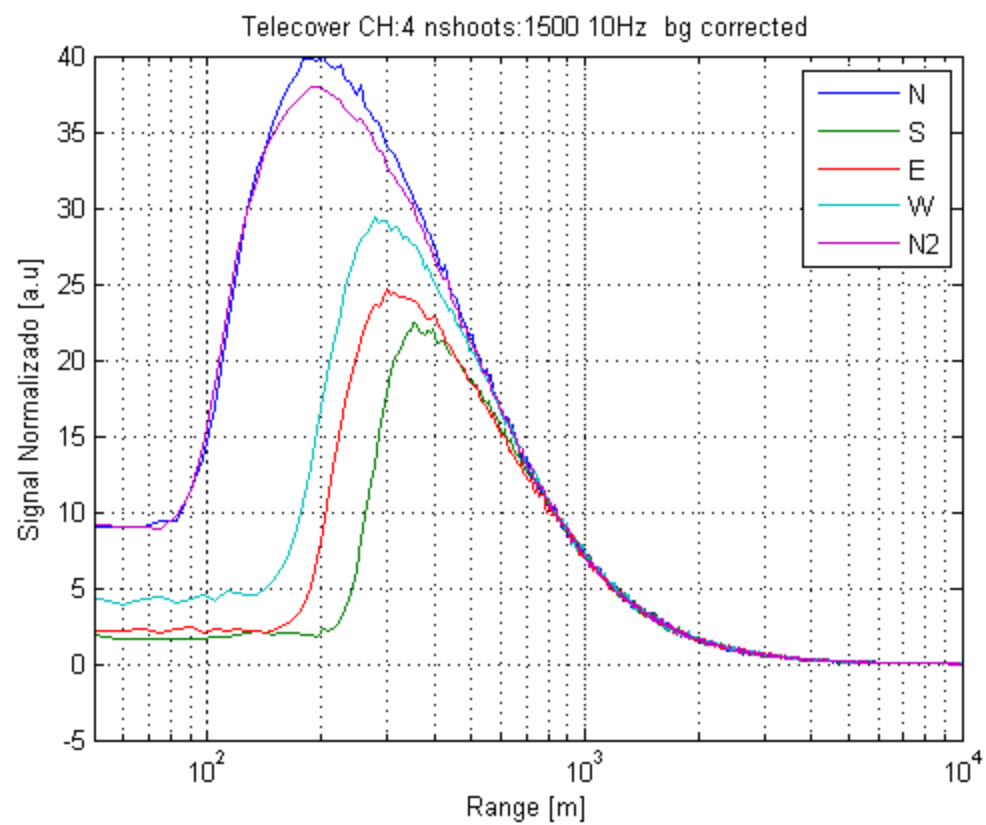
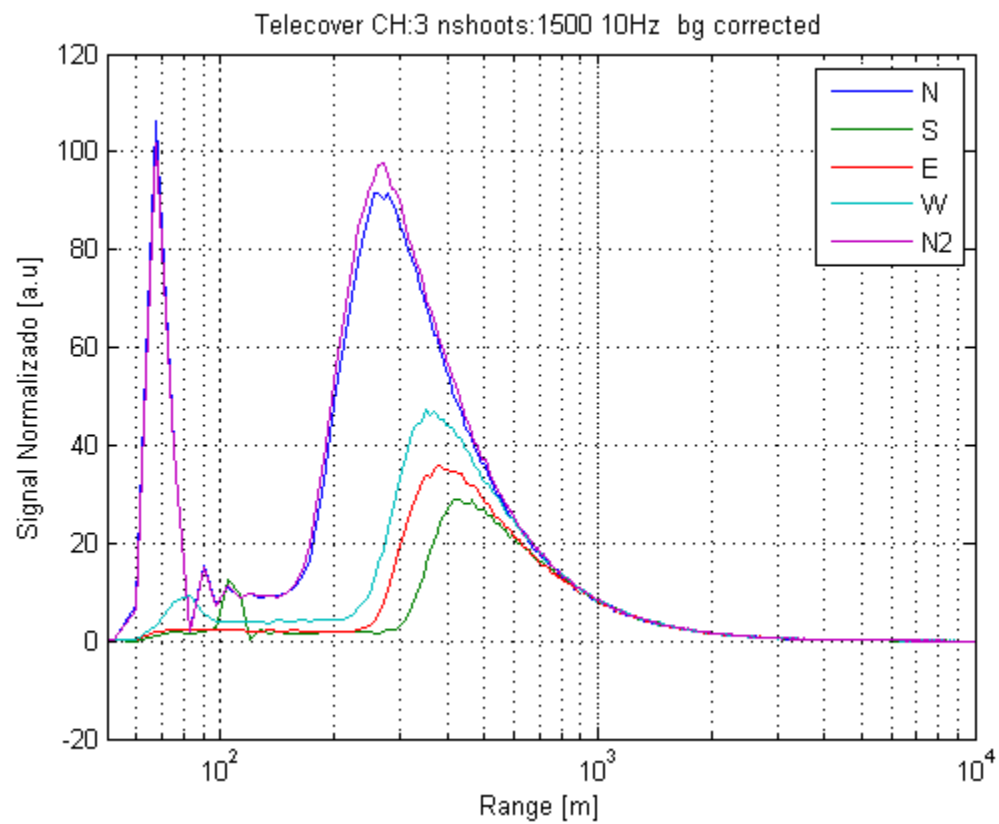
```
    r = 1:5;
    rbg = floor(45000./(zh(2)-zh(1))):floor(50000./(zh(2)-zh(1)));
    b = 1;
    rn = floor(2000./(zh(2)-zh(1))):floor(3000./(zh(2)-zh(1)));
    auN = mean(chphy_N_novo(ch).data(:,r),2);PN = auN - b.*mean(auN(rbg));PNr2 = P
    auS = mean(chphy_S_novo(ch).data(:,r),2);PS = auS - b.*mean(auS(rbg));PSr2 = P
    auE = mean(chphy_E_novo(ch).data(:,r),2);PE = auE - b.*mean(auE(rbg));PER2 = P
    auW = mean(chphy_W_novo(ch).data(:,r),2);PW = auW - b.*mean(auW(rbg));PWr2 = P
    auN2 = mean(chphy_N2_novo(ch).data(:,r),2);PN2 = auN2 - b.*mean(auN2(rbg));PN2
%     auE2 = mean(chphy_E2_novo(ch).data(:,r),2);PE2 = auE2 - b.*mean(auE2(rbg));P
    figure(1)
    clf
%     plot(zh,PNr2,zh,PSr2,zh,PER2,zh,PWr2,zh,PN2r2)
%     plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2,zh,PE2)
    plot(zh,PN./mean(PN(rn)),zh,PS./mean(PS(rn)),zh,PE./mean(PE(rn)),zh,PW./mean(P
%     plot(zh,PNr2./mean(PNr2(rn)),zh,PSr2./mean(PSr2(rn)),zh,PER2./mean(PER2(rn))
%     ylim(mean(P) + 10.*std(P).*[-1 1])
    legend('N','S','E','W','N2','E2')

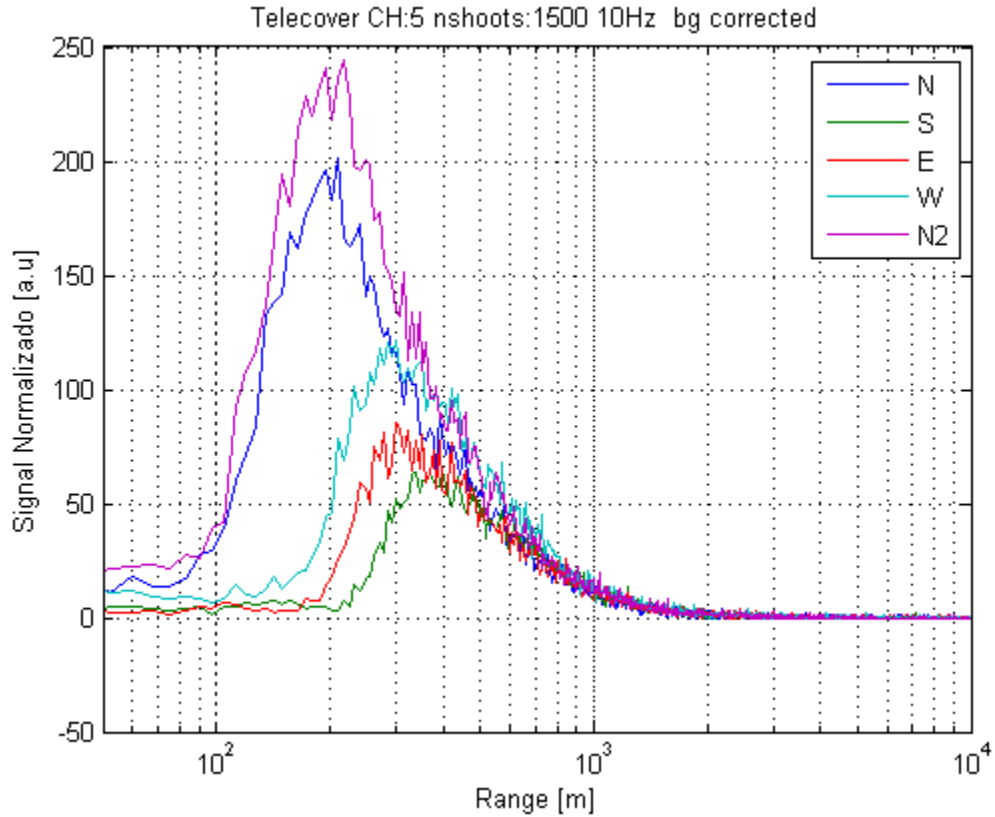
    title(['Telecover CH:' num2str(ch) ' nshoots:' num2str(sum([head_N_novo(r).nsh
        ylabel('Signal Normalizado [a.u]')

    xlabel('Range [m]')
    xlim([50 10000])
    set(gca,'xscale','log')
%     xlim([0 3000])

    grid on
%     pause
```







end

for ch=1:5

```

r = 1:5;
rbg = floor(45000./(zh(2)-zh(1))):floor(50000./(zh(2)-zh(1)));
b = 1;
rn = floor(2000./(zh(2)-zh(1))):floor(3000./(zh(2)-zh(1)));
auN = mean(chphy_N_novo(ch).data(:,r),2);PN = auN - b.*mean(auN(rbg));PNr2 = P
auS = mean(chphy_S_novo(ch).data(:,r),2);PS = auS - b.*mean(auS(rbg));PSr2 = P
auE = mean(chphy_E_novo(ch).data(:,r),2);PE = auE - b.*mean(auE(rbg));PER2 = P
auW = mean(chphy_W_novo(ch).data(:,r),2);PW = auW - b.*mean(auW(rbg));PWr2 = P
auN2 = mean(chphy_N2_novo(ch).data(:,r),2);PN2 = auN2 - b.*mean(auN2(rbg));PN2
% auE2 = mean(chphy_E2_novo(ch).data(:,r),2);PE2 = auE2 - b.*mean(auE2(rbg));P
figure(1)
clf
% plot(zh,PNr2,zh,PSr2,zh,PER2,zh,PWr2,zh,PN2r2)
% plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2,zh,PE2)
% plot(zh,PN./mean(PN(rn)),zh,PS./mean(PS(rn)),zh,PE./mean(PE(rn)),zh,PW./mean
plot(zh,PNr2./mean(PNr2(rn)),zh,PSr2./mean(PSr2(rn)),zh,PER2./mean(PER2(rn)),z
% ylim(mean(P) + 10.*std(P).*[-1 1])
legend('N','S','E','W','N2','E2')

title(['Telecover CH:' num2str(ch) ' nshoots:' num2str(sum([head_N_novo(r).nsh
ylabel('Signal [a.u.]')
% xlim([0 10000])
xlabel('Range [m]')
ylabel('RCS Normalizado [a.u.]')
xlim([50 10000])
set(gca,'xscale','log')

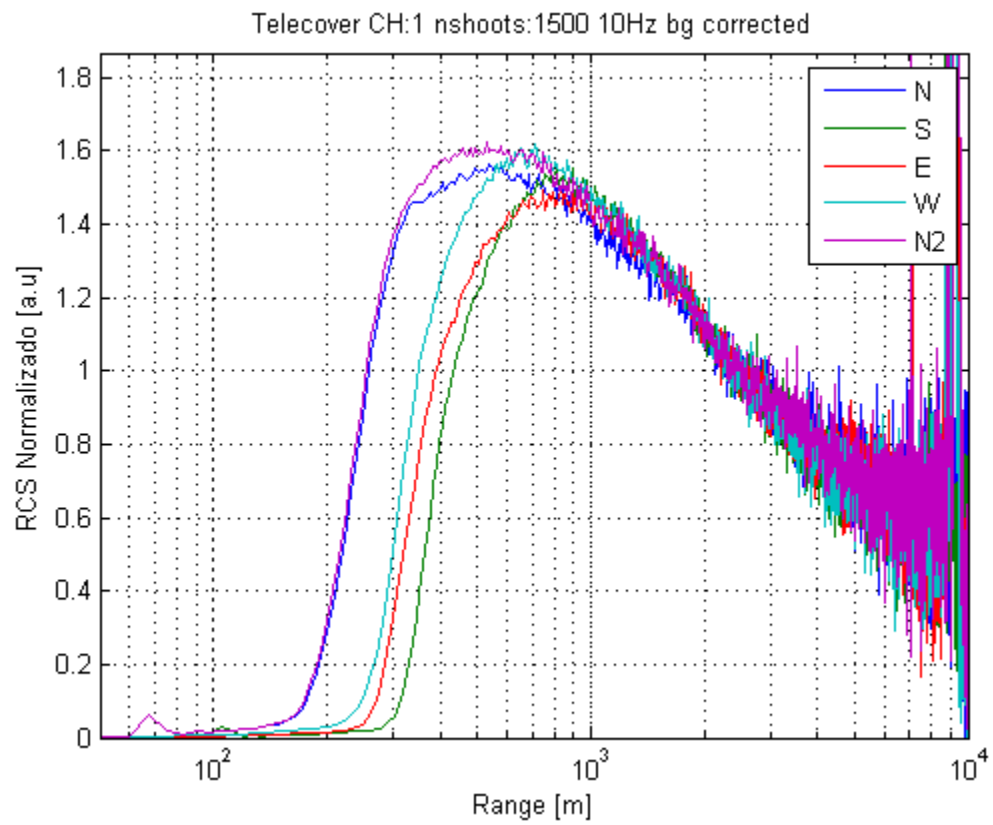
```

---

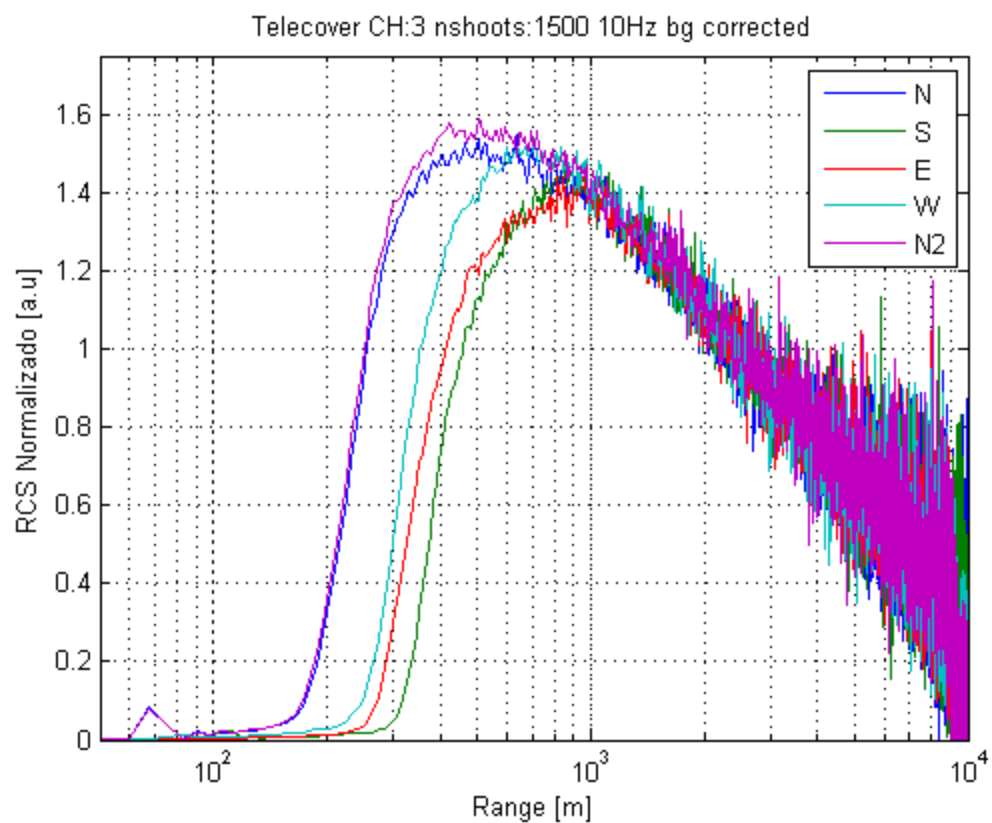
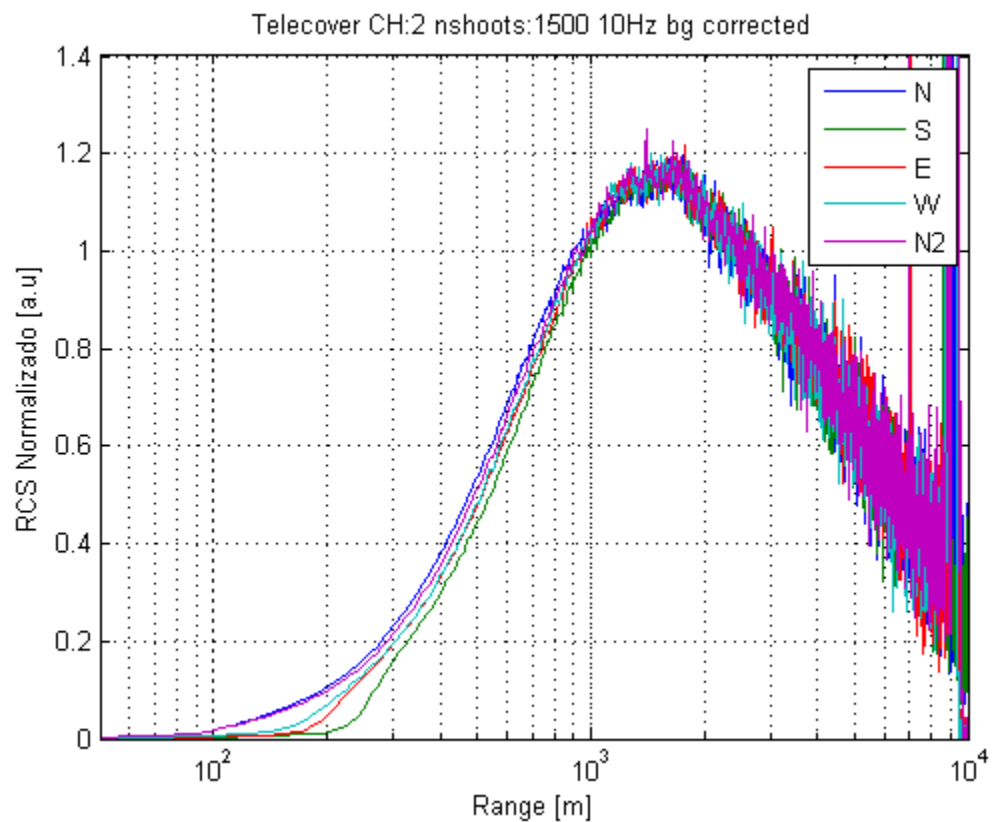
```

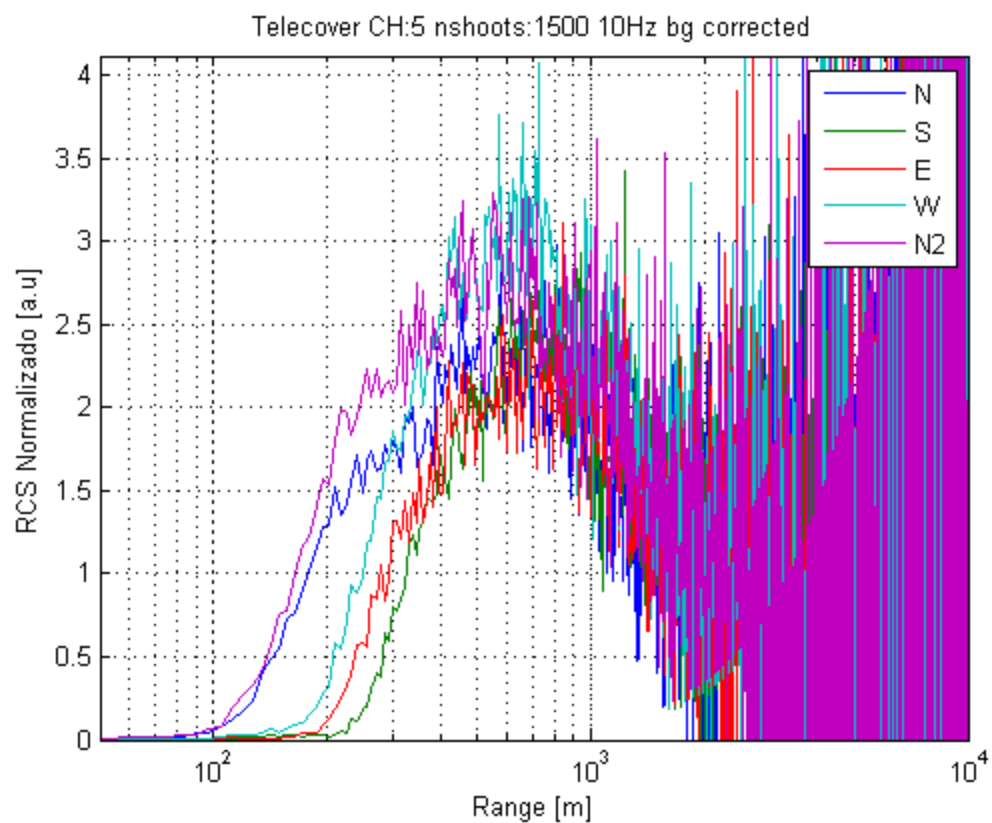
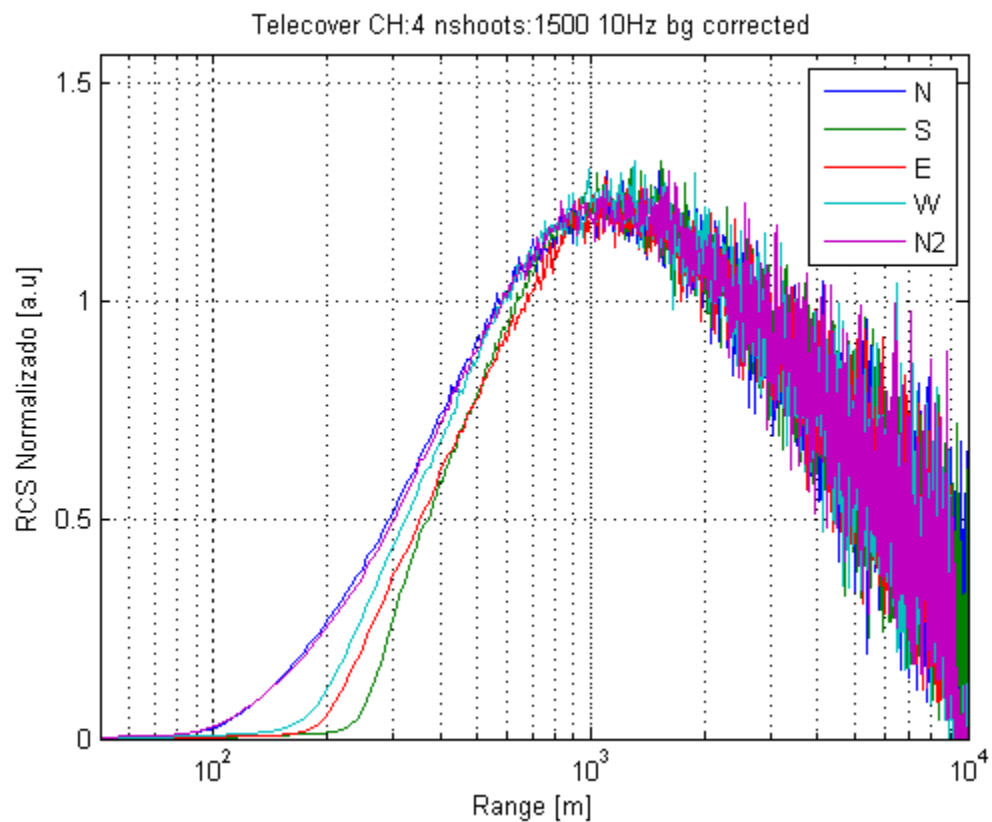
ylim([0 1.2.*max(PSr2(1:200)./mean(PSr2(rn))))
% ylim([0 2.5])
grid on
% pause

```









---

end

```
clear a
pasta = [teste_id_ant 'north\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_N_ant, chphy_N_ant, chraw_N_ant] = profile_read_many(filelist, 0, 0, 0, 0);
```

```
clear a
pasta = [teste_id_ant 'south\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_S_ant, chphy_S_ant, chraw_S_ant] = profile_read_many(filelist, 0, 0, 0, 0);
```

```
clear a
pasta = [teste_id_ant 'east\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_E_ant, chphy_E_ant, chraw_E_ant] = profile_read_many(filelist, 0, 0, 0, 0);
```

```
clear a
pasta = [teste_id_ant 'west\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_W_ant, chphy_W_ant, chraw_W_ant] = profile_read_many(filelist, 0, 0, 0, 0);
```

```
clear a
pasta = [teste_id_ant 'north2\']
a = dir([pasta 'RM*']);
```

---

```

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end
% clear pasta

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_N2_ant, chphy_N2_ant, chraw_N2_ant] = profile_read_many(filelist, 0, 0, 0, 0)

clear pasta

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2016_03_11_depois_troca_flash

ans =
READING 5 files

```

---

---

```

for ch=1:4

    r = 1:5;
    rbg = floor(45000./(zh(2)-zh(1))):floor(50000./(zh(2)-zh(1)));
    b = 1;
    rn = floor(2000./(zh(2)-zh(1))):floor(3000./(zh(2)-zh(1)));
    auN_ant = mean(chphy_N_ant(ch).data(:,r),2);PN_ant = auN_ant - b.*mean(auN_ant
    auS_ant = mean(chphy_S_ant(ch).data(:,r),2);PS_ant = auS_ant - b.*mean(auS_ant
    auE_ant = mean(chphy_E_ant(ch).data(:,r),2);PE_ant = auE_ant - b.*mean(auE_ant
    auW_ant = mean(chphy_W_ant(ch).data(:,r),2);PW_ant = auW_ant - b.*mean(auW_ant
    auN2_ant = mean(chphy_N2_ant(ch).data(:,r),2);PN2_ant = auN2_ant - b.*mean(auN

    rn = floor(2000./(zh(2)-zh(1))):floor(3000./(zh(2)-zh(1)));
    auN = mean(chphy_N_novo(ch).data(:,r),2);PN = auN - b.*mean(auN(rbg));PNr2 = P
    auS = mean(chphy_S_novo(ch).data(:,r),2);PS = auS - b.*mean(auS(rbg));PSr2 = P
    auE = mean(chphy_E_novo(ch).data(:,r),2);PE = auE - b.*mean(auE(rbg));PER2 = P
    auW = mean(chphy_W_novo(ch).data(:,r),2);PW = auW - b.*mean(auW(rbg));PWr2 = P
    auN2 = mean(chphy_N2_novo(ch).data(:,r),2);PN2 = auN2 - b.*mean(auN2(rbg));PN2
%     auE2 = mean(chphy_E2_novo(ch).data(:,r),2);PE2 = auE2 - b.*mean(auE2(rbg));P

    figure(1)
    clf
%     plot(zh,PNr2,zh,PSr2,zh,PER2,zh,PWr2,zh,PN2r2)
%     plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2,zh,PE2)
    plot(zh,PN./mean(PN(rn)),zh,PS./mean(PS(rn)),zh,PE./mean(PE(rn)),zh,PW./mean(P
    hold on
    plot(zh,PN_ant./mean(PN_ant(rn)),'--',zh,PS_ant./mean(PS_ant(rn)),'--',zh,PE_a
    hold off
%     plot(zh,PNr2./mean(PNr2(rn)),zh,PSr2./mean(PSr2(rn)),zh,PER2./mean(PER2(
%     ylim(mean(P) + 10.*std(P).*[-1 1])
    legend('N','S','E','W','N2','N_{old}','S_{old}','E_{old}','W_{old}','N2_{old}')

    title(['Telecover CH:' num2str(ch) ' nshoots:' num2str(sum([head_N_novo(r).nsh

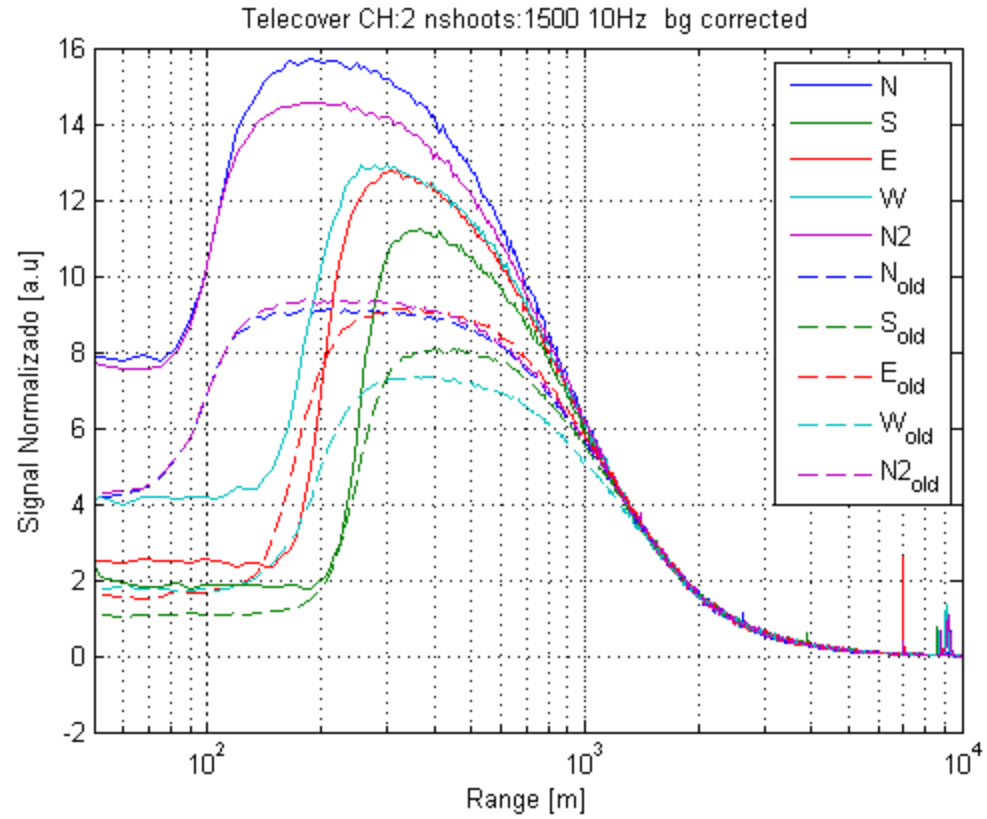
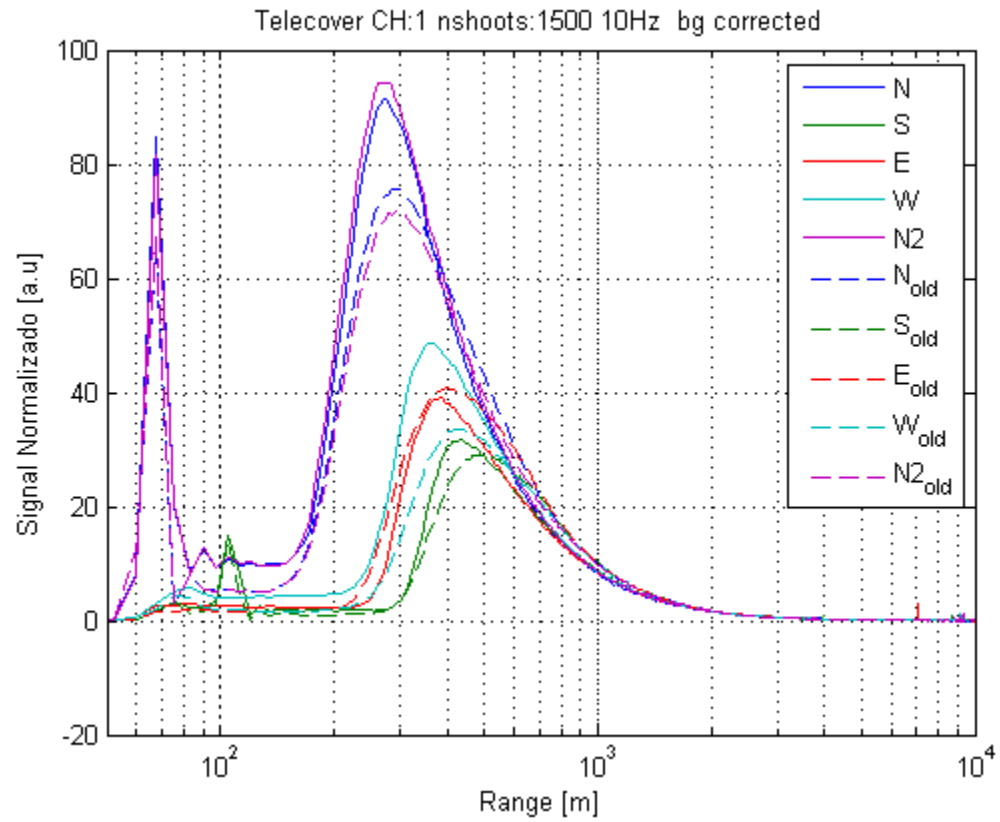
        ylabel('Signal Normalizado [a.u]')

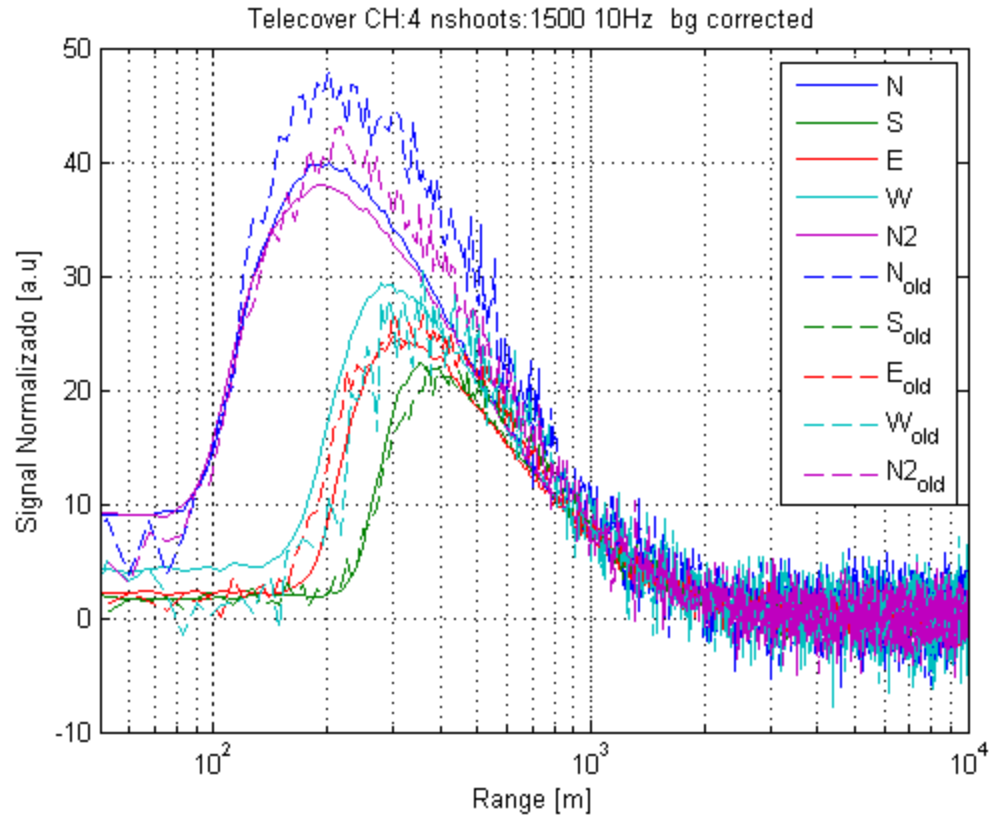
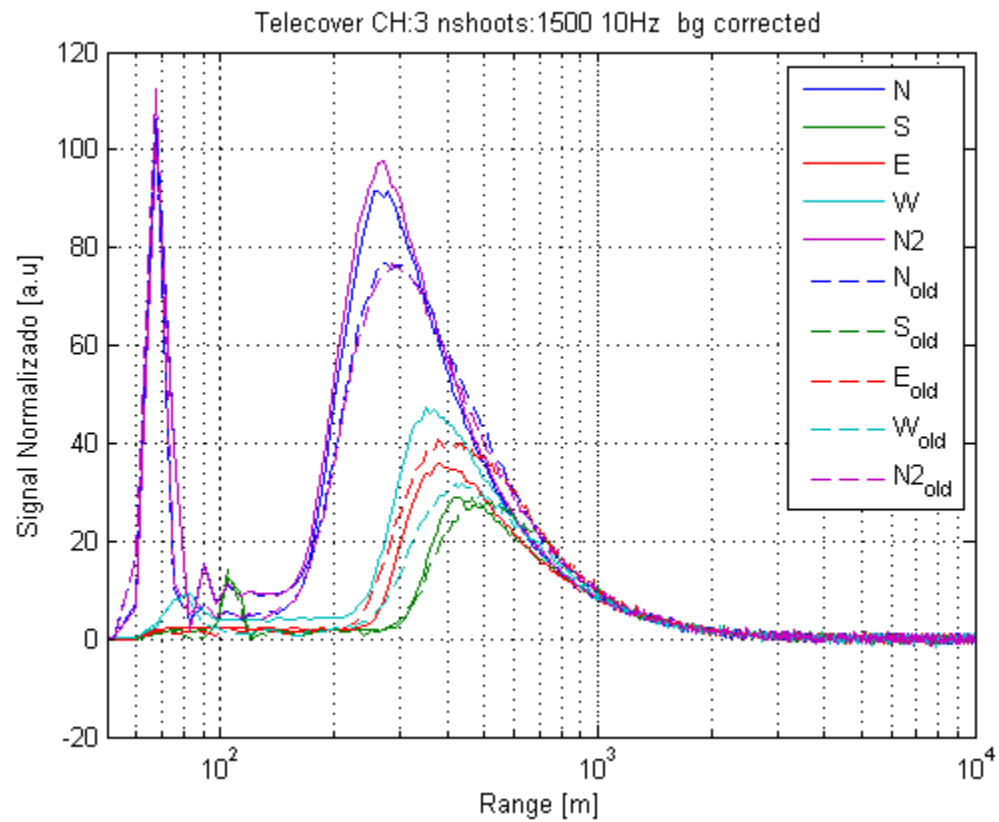
        xlabel('Range [m]')
        xlim([50 10000])
        set(gca,'xscale','log')
%     xlim([0 3000])

    grid on
%     pause

```

---





---

end

## Rayleigh Fit

```
clear a
pasta = [teste_id_novo 'Rayleigh\']
a = dir([pasta 'RM*']);

clear filelist
for i = 1:length(a)
    filelist{i} = [pasta a(i).name];
end
clear pasta

% [head, chphy, chraw] = profile_read_many(filelist, dbin, dtime, ach, maxz);
[head_RF_novo, chphy_RF_novo, chraw_RF_novo] = profile_read_many(filelist, 10, 0.

pasta =

C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Diego_afteralign\R

ans =

READING 60 files

for ich = 2:-1:1

u = 1
heads = head_RF_novo;

    r = 1:60;
    if ich ==1
%         rbg = floor(28000./(zh(2)-zh(1))):floor(30000./(zh(2)-zh(1)));
        rbg = floor(45000./(zh(2)-zh(1))):floor(50000./(zh(2)-zh(1)));
%         rbg = 3500:4000;
        rh = 1:4000;
        clear P Pr2 alt altsq clear aux1 aux2

%         aux1 = mean(chphy_RF_novo(ich).data(:,r),2);
%         aux2 = mean(chphy_RF_novo(ich+2).data(:,r),2);
        aux1 = mean(chphy_RF_novo(ich).data(:,r),2) - mean(chphy_DC_novo(ich).data(:,r),2);
        aux2 = mean(chphy_RF_novo(ich+2).data(:,r),2) - mean(chphy_DC_novo(ich+2).data(:,r),2);
        P(:,1) = aux1(rh) - mean(aux1(rbg));
        P(:,2) = aux2(rh) - mean(aux2(rbg));

    elseif ich ==2
        rbg = floor(60000./(zh(2)-zh(1))):floor(65000./(zh(2)-zh(1)));
        rh = 1:4000;
        clear P Pr2 alt altsq
        P(:,1) = mean(chphy_RF_novo(ich).data(rh,r),2) - mean(mean(chphy_RF_novo(ich).data(rbg,r),2));
        P(:,2) = mean(chphy_RF_novo(ich+2).data(rh,r),2) - mean(mean(chphy_RF_novo(ich+2).data(rbg,r),2));
    end
```

---



---

```

jdz = head_RF_novo(round(mean(r))).jdi;

rangebins = length(P(:,1));
maxbin = rangebins;
for i=1:rangebins
    alt(i,1)=(7.5*i);
end

zh = alt;
% calculate the range^2 [m^2]
altsq = alt.*alt;

% bin height in km
r_bin=(alt(2)-alt(1))*1e-3;

% matrix to hold lidar received power P(z, lambda)
% anything user needs: time average, bg correction, glueing, etc..

% range corrected signal Pz2(z, lambda)
for j = 1:2
    Pr2(:,j) = P(:,j).*altsq(:);
end

% figure(1)
% subplot(2,1,1)
% plot(alt,P)
% subplot(2,1,2)
% plot(alt,Pr2)

% pause

lambda_ELASTICO = 0.35468; % Elastic [microns]
lambda_INELASTICO = 0.38673; % Raman N2 [microns]
% lambda_ELASTICO = 0.53206; % Elastic [microns]
% lambda_INELASTICO = 0.6074; % Raman N2 [microns]

if ~exist('sonde')
    % load('D:\Diego\Documents\Mestrado\diego\Diego - Modificado\sonde.mat')
    load('C:\Users\Diego\Documents\Mestrado\diego\Diego - Modificado\sonde.mat')
    clear jd_sonde
    jd_sonde = [sonde.jd];
end

jd_sonde = [sonde.jd] - datenum(0,0,0,4,0,0);

ksonde = find(min(abs(jd_sonde-jdz(u))) == abs(jd_sonde-jdz(u)))

clear Asonde_cfun Bsonde_cfun alpha_mol_snd beta_mol_snd Asonde_cfun Bsonde_cf

pres_snd = sonde(ksonde).pres;
temp_snd = sonde(ksonde).temp;
alt_snd=sonde(ksonde).alt;

lambda_rayleigh = lambda_ELASTICO;
lambda_raman = lambda_INELASTICO;

constants
molecular_2

aux1 = unique([alt_snd((pres_snd > 0) & (alt_snd > 0)), pres_snd((pres_snd > 0
aux2 = unique([alt_snd((temp_snd > 0) & (alt_snd > 0)), temp_snd((temp_snd > 0
pres_snd_cfun = fit(aux1(:,1), aux1(:,2),'linearinterp');
```

---

---

```

temp_snd_cfun = fit(aux2(:,1), aux2(:,2), 'linearinterp');

bottomlayer=5;
toplayer=13;

debug = 0;
% rayleigh_fit_Manaus3_Diego

rayleigh_fit_Manaus3_Diego_TESTE_NAO_TIRA_O_BG

% pause

u =

    1

ksonde =

    2229

%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Rayleigh fit for ch= 1
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
lowest used at height=5.0025
highest used at height=12.99
iter= 0 nmask=2934 a=62636120337.9942 sa=60278092.3973 b=0.0016168 sb=0.0023654 ch
lowest used bin #667 at height=5.0025
highest used bin #1732 at height=12.99
% BG correction for ch= 1
ch= 1 last BG= 0
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
% Rayleigh fit for ch= 2
%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
lowest used at height=5.0025
highest used at height=12.99
iter= 0 nmask=2934 a=25953034423.1787 sa=44766539.8497 b=0.0018113 sb=0.0013409 ch
lowest used bin #667 at height=5.0025
highest used bin #1732 at height=12.99
% BG correction for ch= 2
ch= 2 last BG= 0

RefBin =

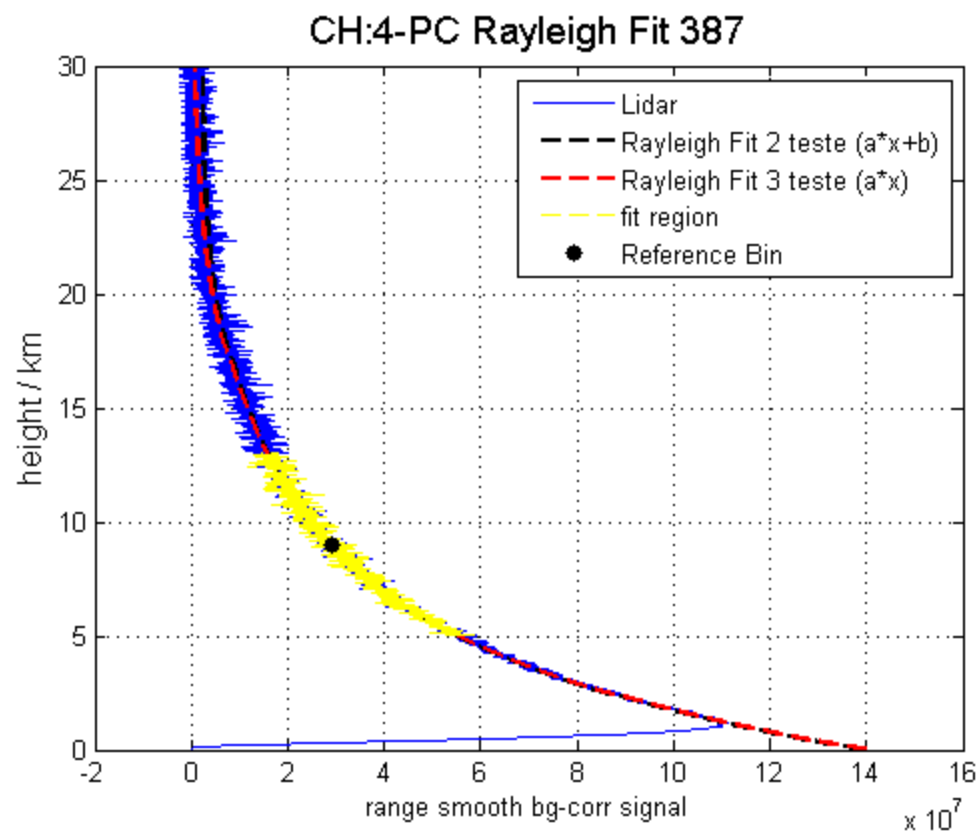
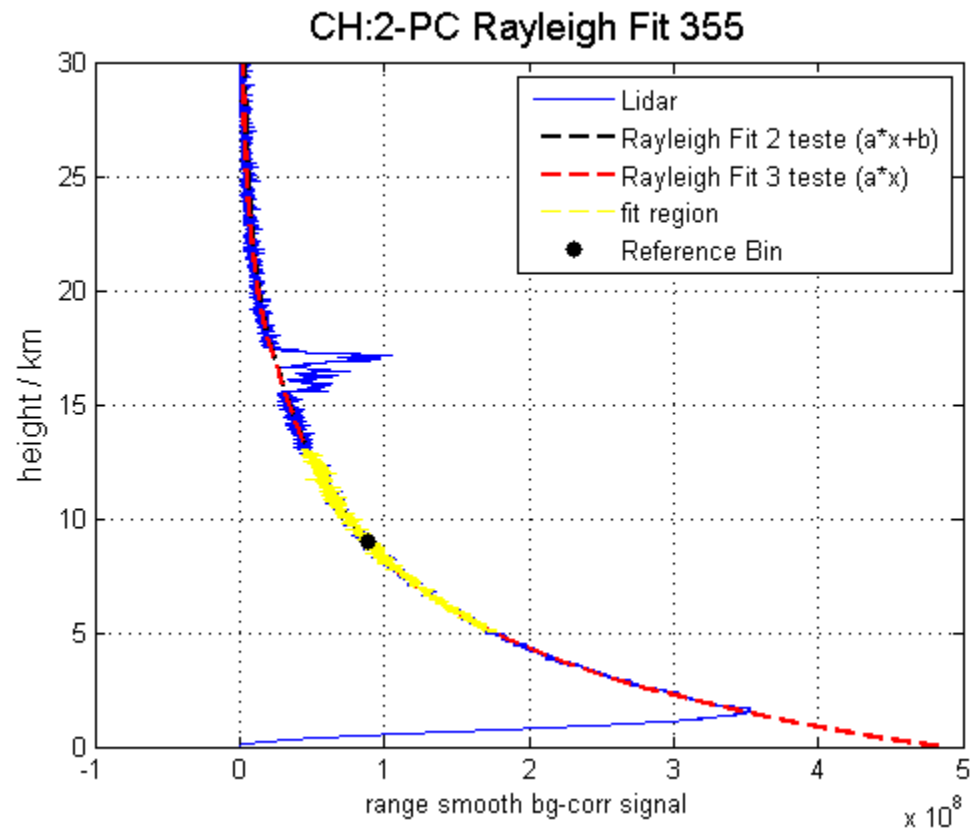
    1199    1199

ans =

    8.9925
    8.9925

```

---



---

u =

1

ksonde =

2229

%%%

% Rayleigh fit for ch= 1

%%%

lowest used at height=5.0025

highest used at height=12.99

iter= 0 nmask=2934 a=1131232523.9301 sa=1638994.82 b=0.0018894 sb=6.4318e-005 chi2

lowest used bin #667 at height=5.0025

highest used bin #1732 at height=12.99

% BG correction for ch= 1

ch= 1 last BG= 0.0018894

%%%

% Rayleigh fit for ch= 2

%%%

lowest used at height=5.0025

highest used at height=12.99

iter= 0 nmask=2934 a=418872015.3861 sa=799220.4616 b=0.00074095 sb=2.3939e-005 chi

lowest used bin #667 at height=5.0025

highest used bin #1732 at height=12.99

% BG correction for ch= 2

ch= 2 last BG= 0.00074095

RefBin =

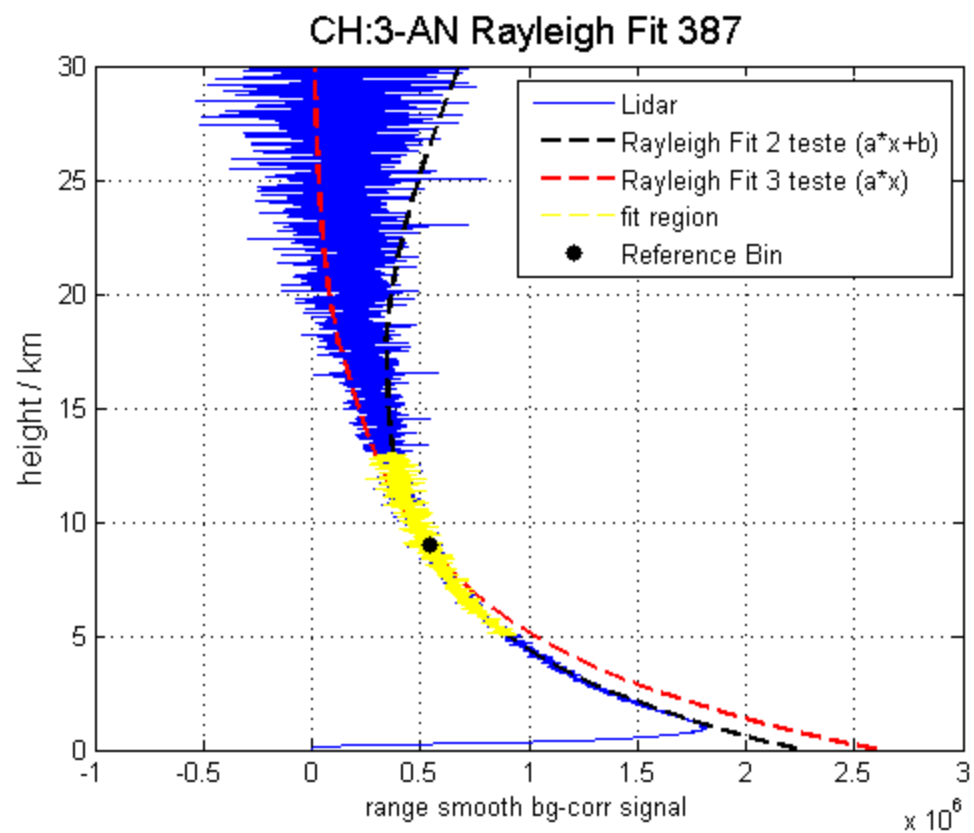
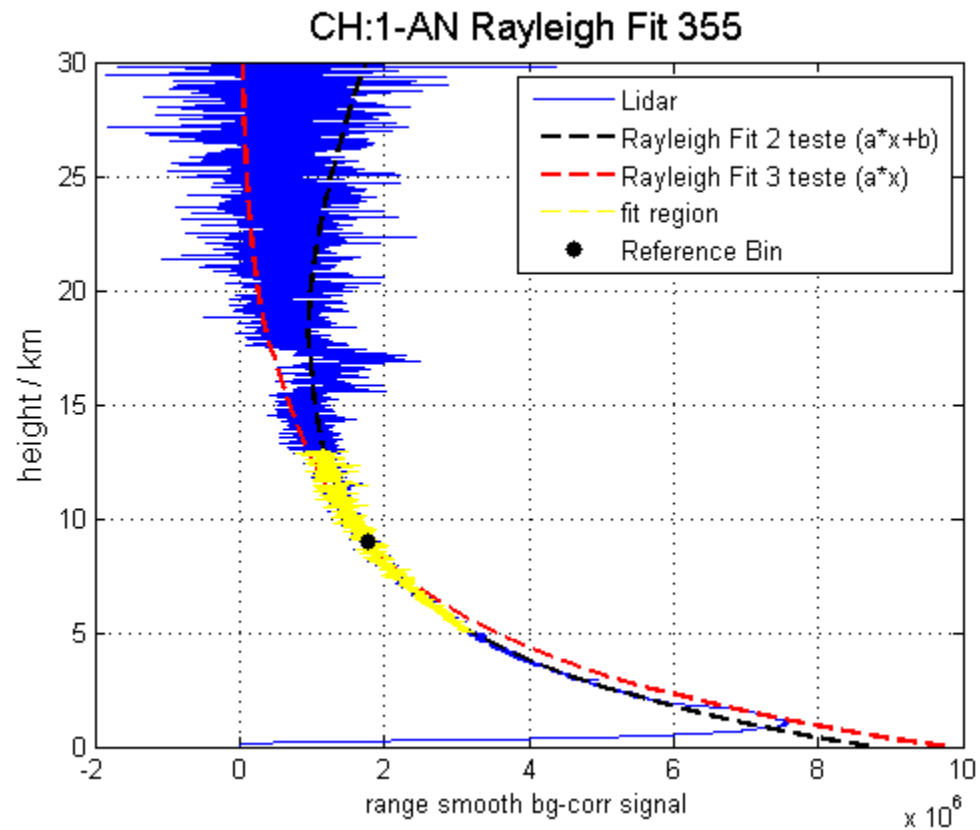
1199

1199

ans =

8.9925

8.9925



---

end

*Published with MATLAB® 7.10*