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

teste_id_ant = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_02_07_Di
teste_id_novo = 'C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24_D

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

teste_id_novo =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24_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\2017_02_07_Diego_afteralign\D
```

```
ans =
```

```
READING 26 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_04_24_Diego_afteralign\D
```

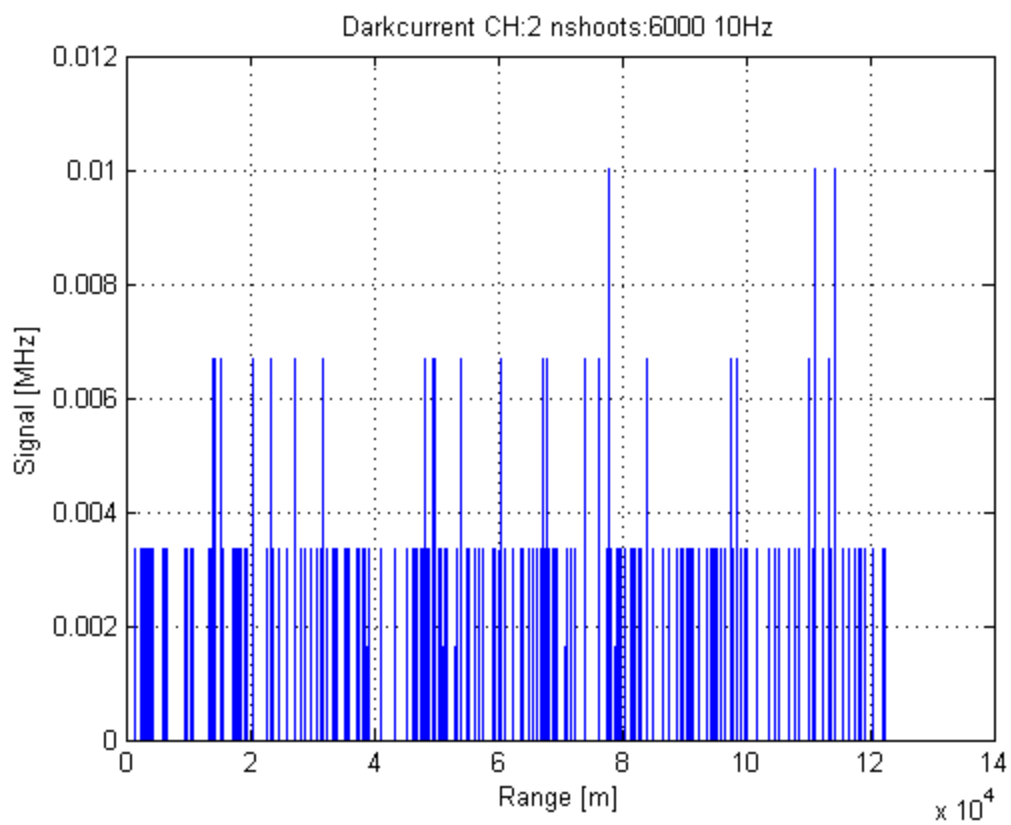
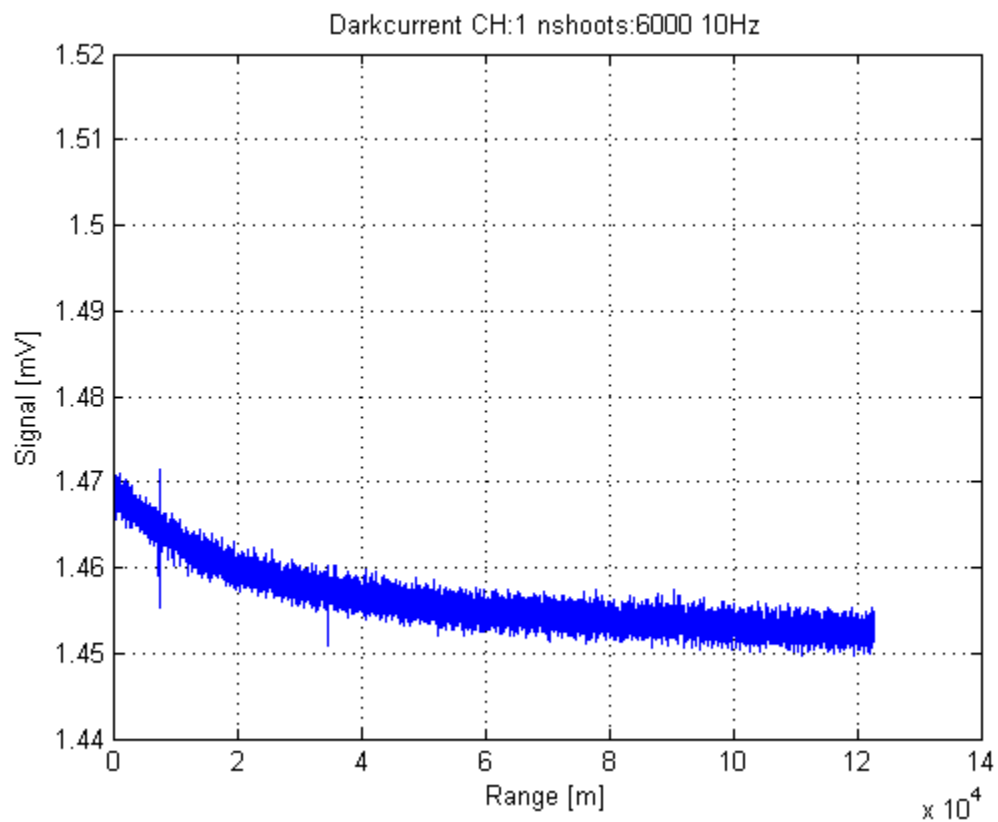
```
ans =
```

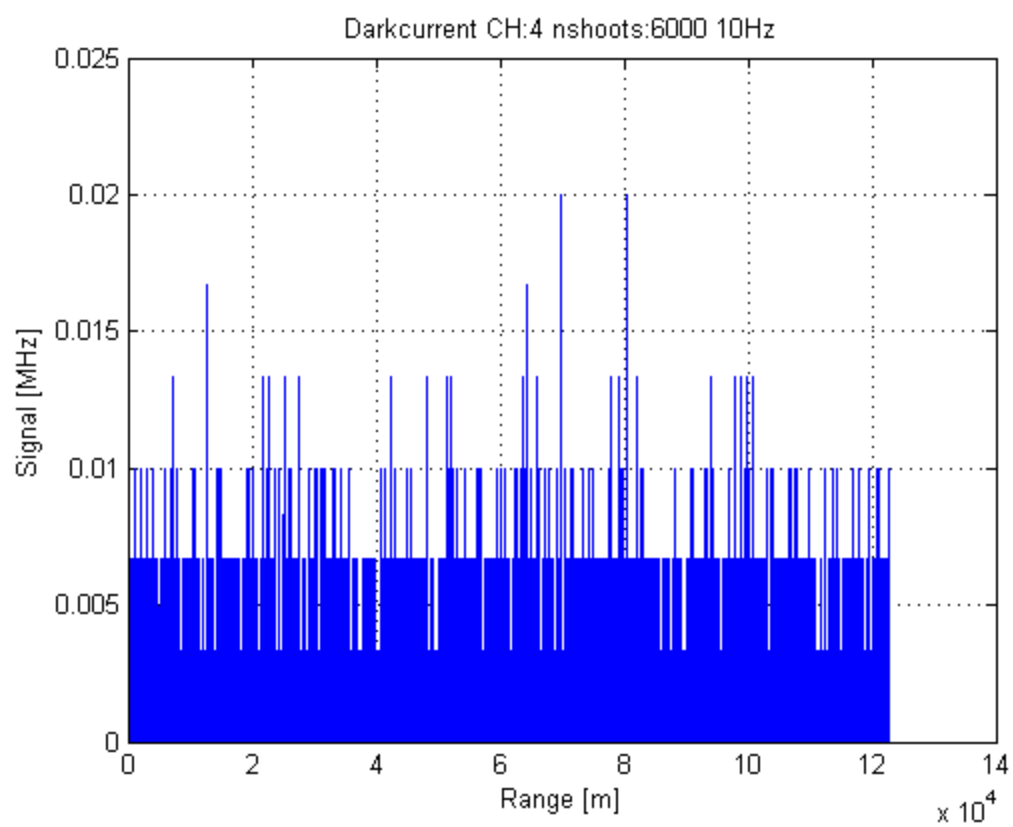
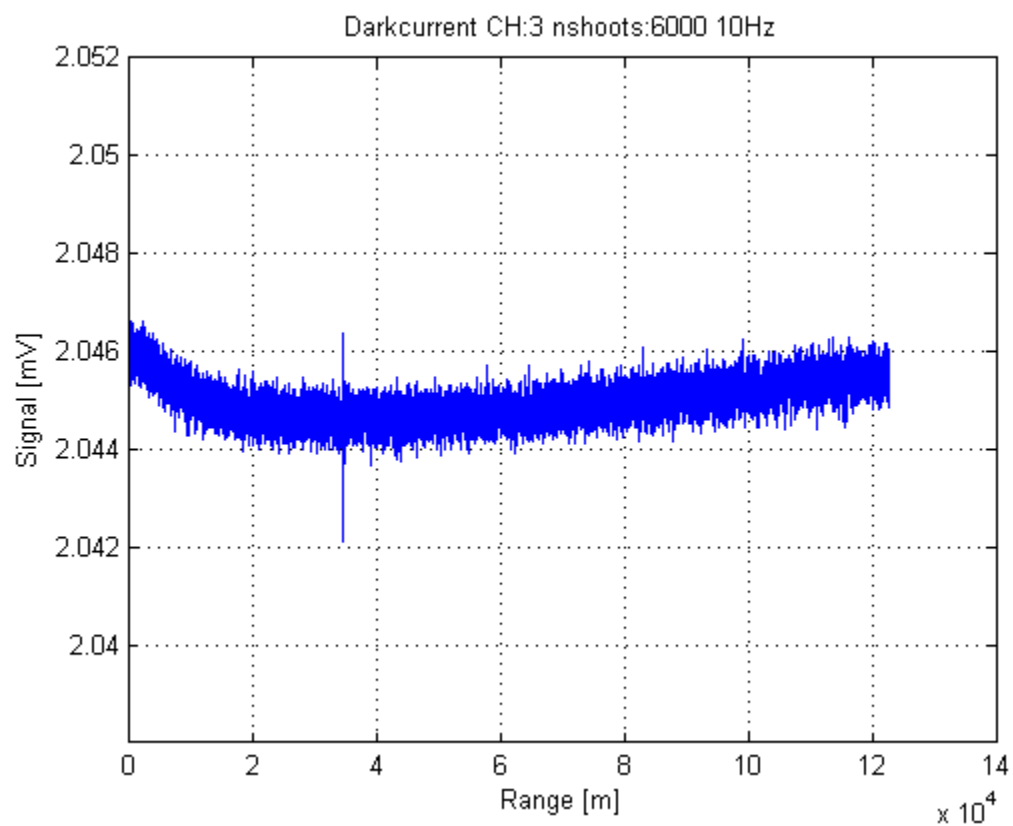
```
READING 55 files
```

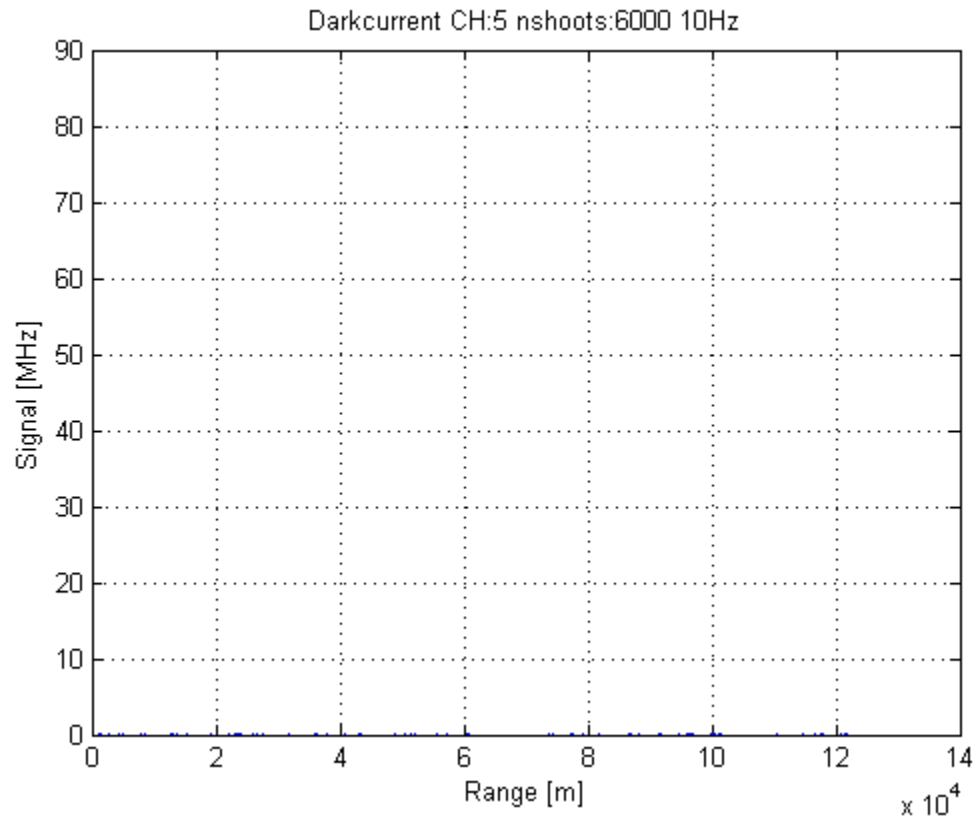
```
zh = [1:length(chphy_DC_novo(1).data(:,1))]'*.7.5;
% jdi_novo = [head_DC_novo(:).jdi]

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).
```





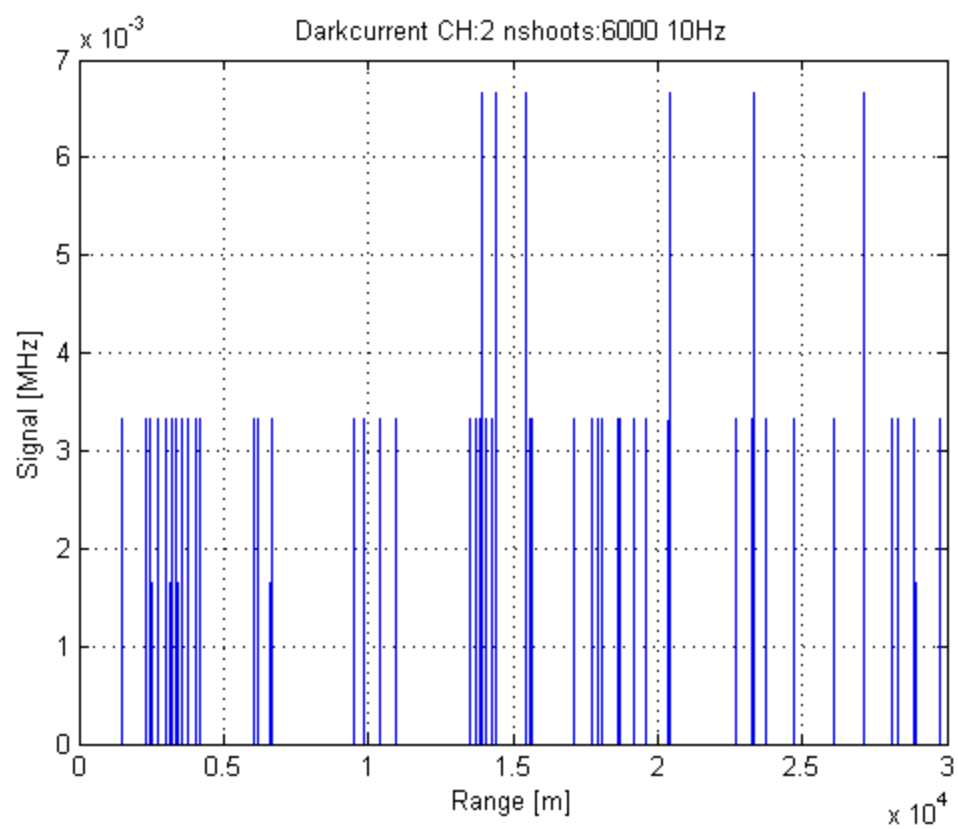
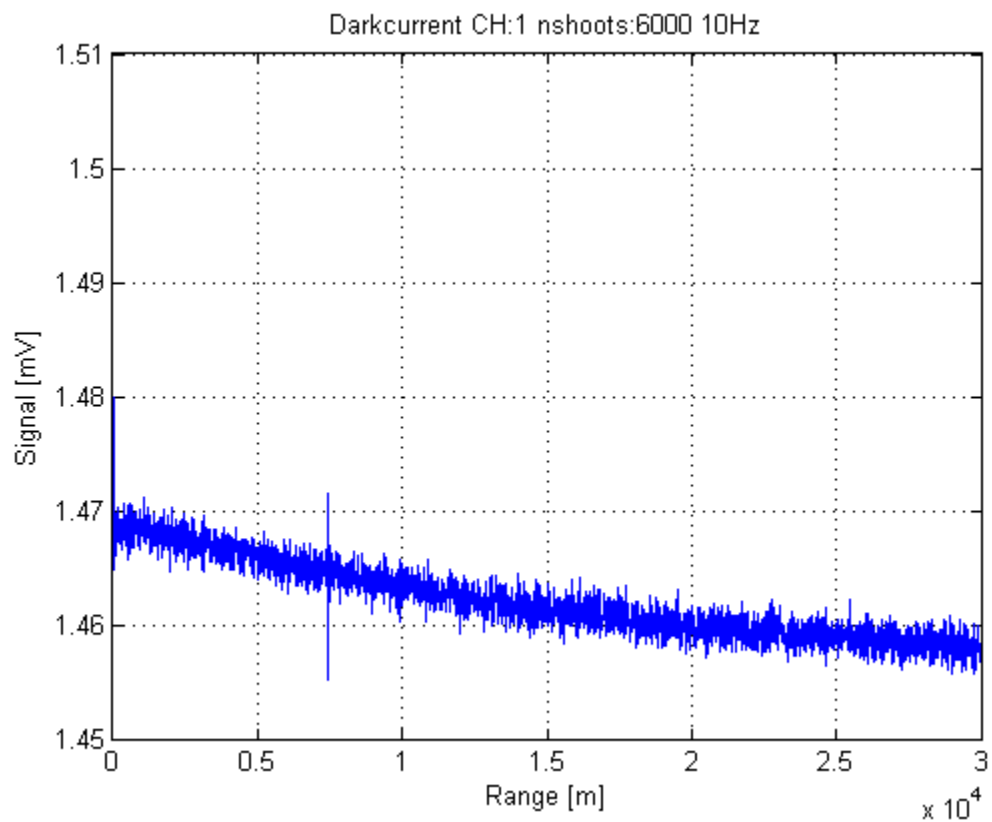


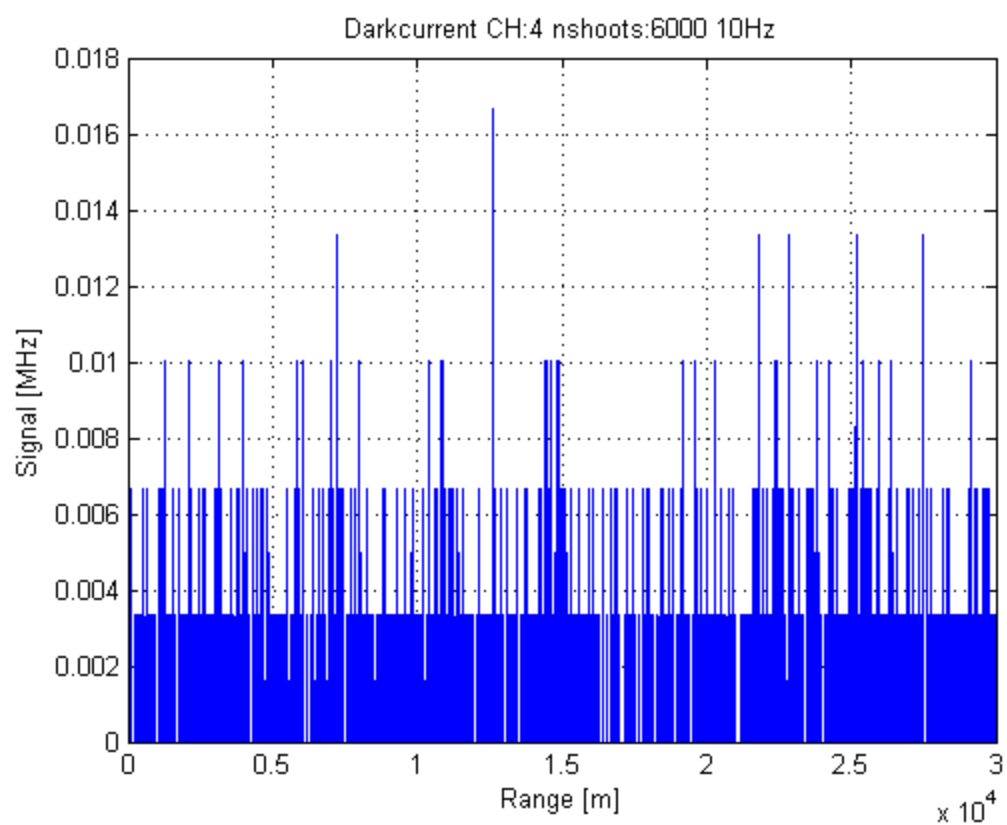
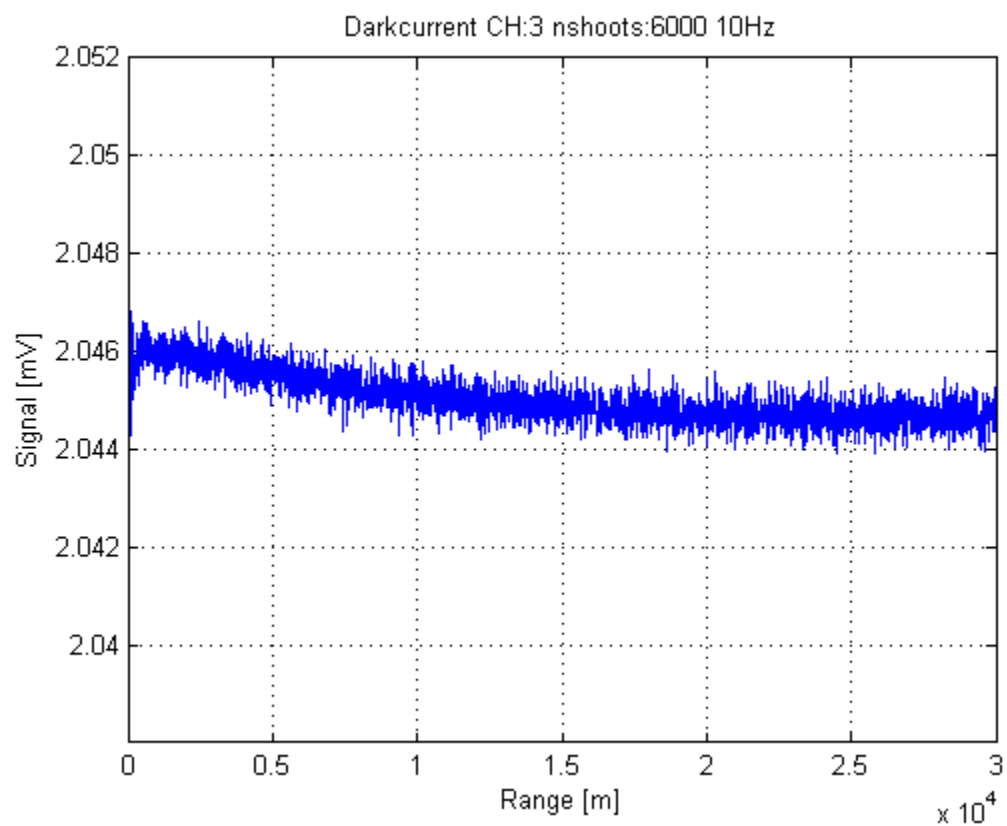
end

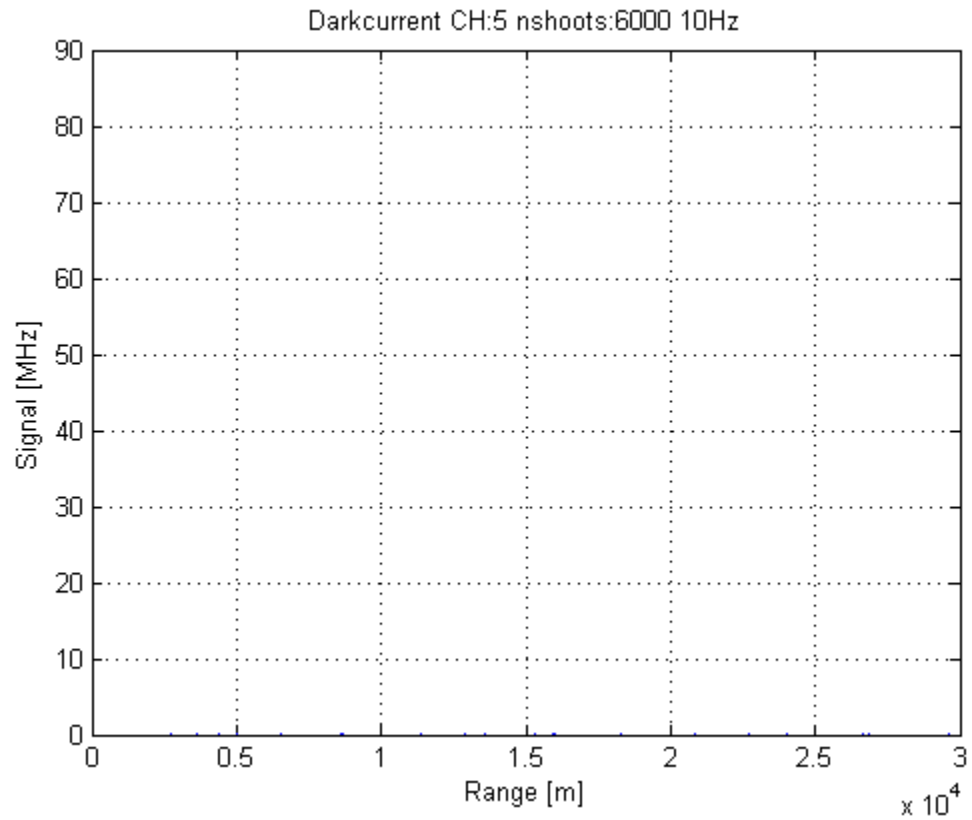
for ch=1:5

```
%
    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
```







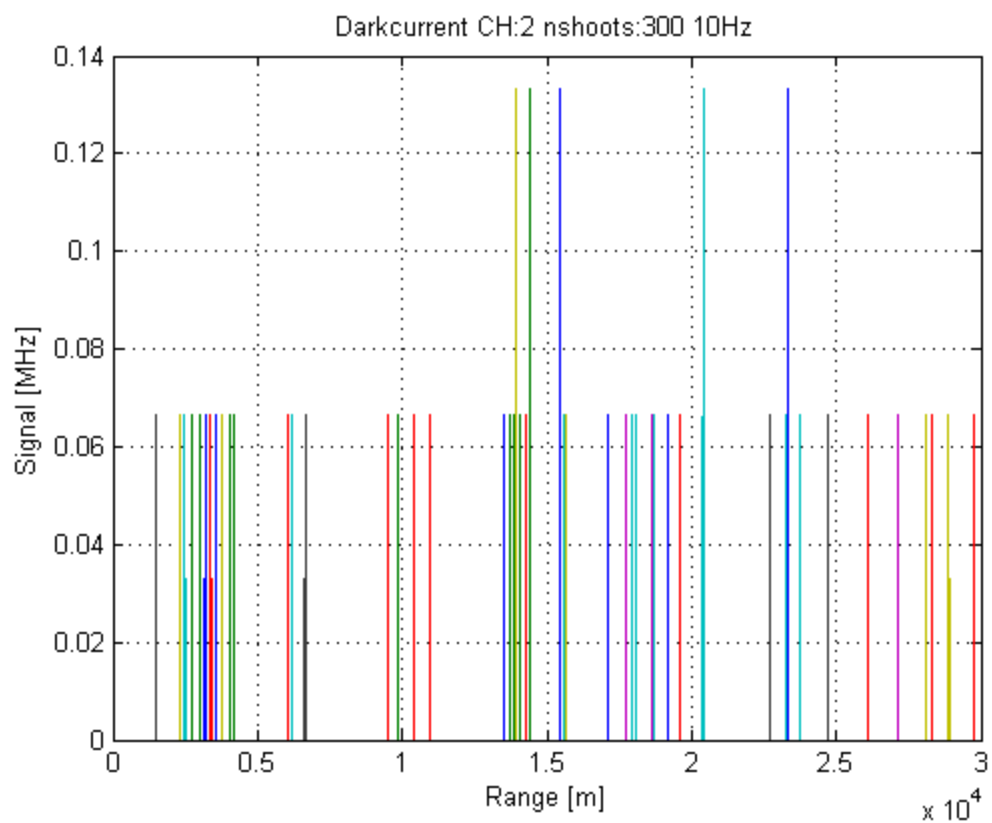
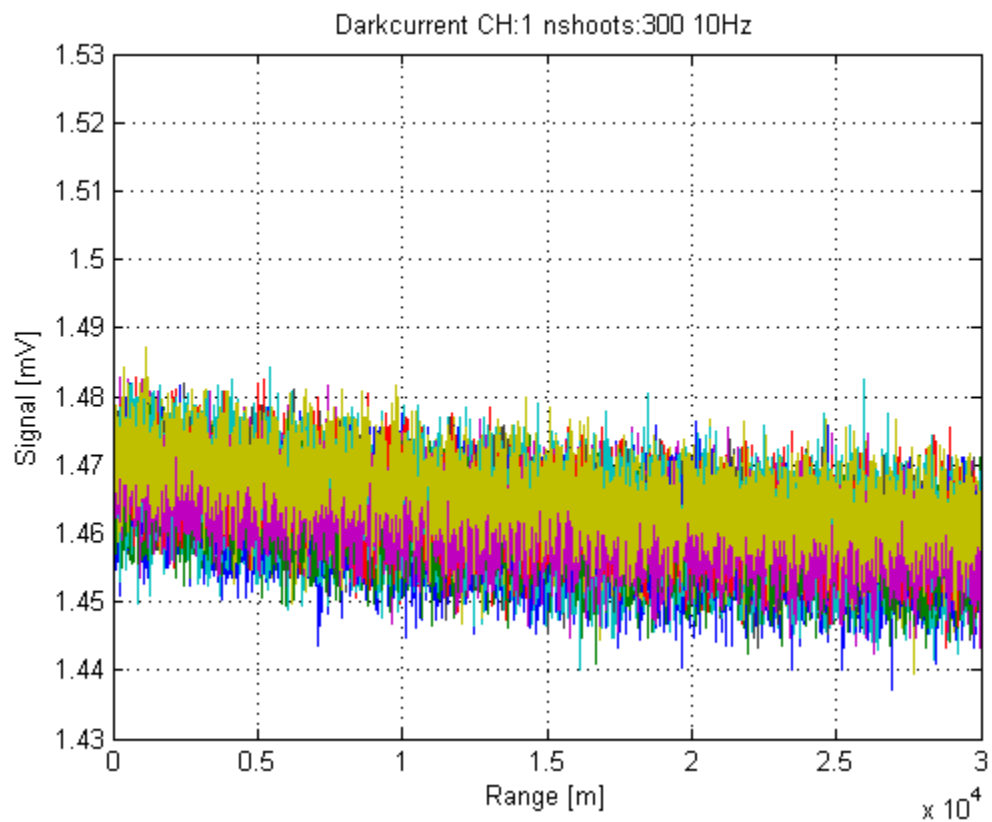
end

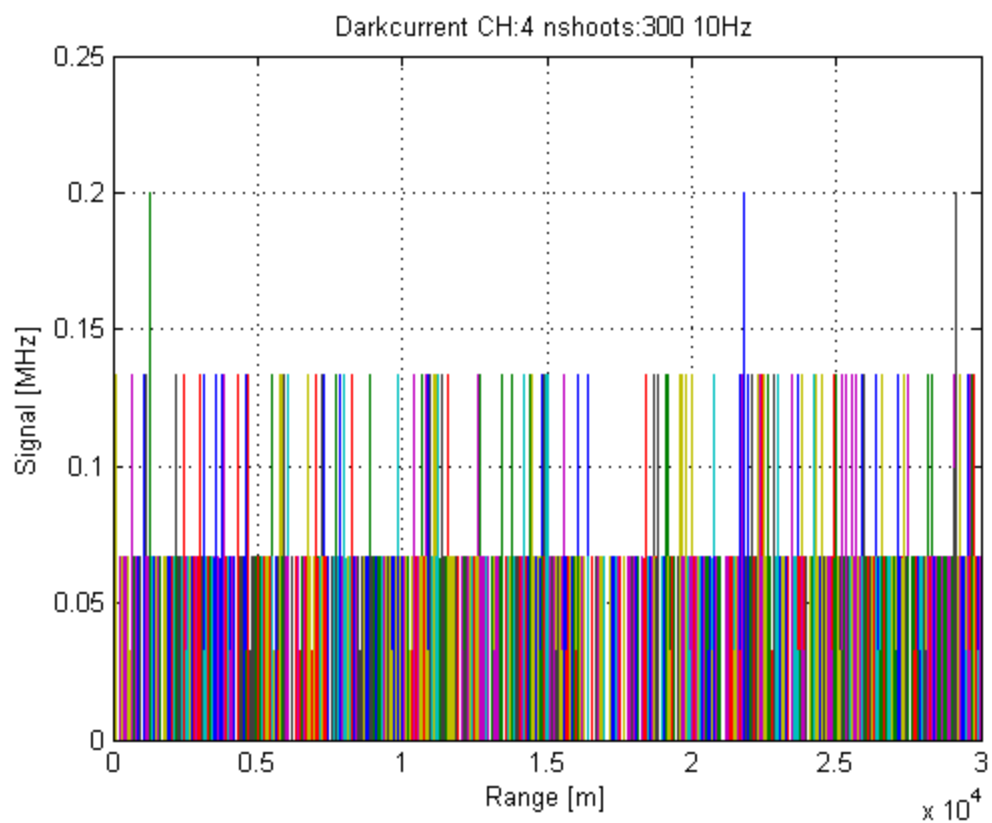
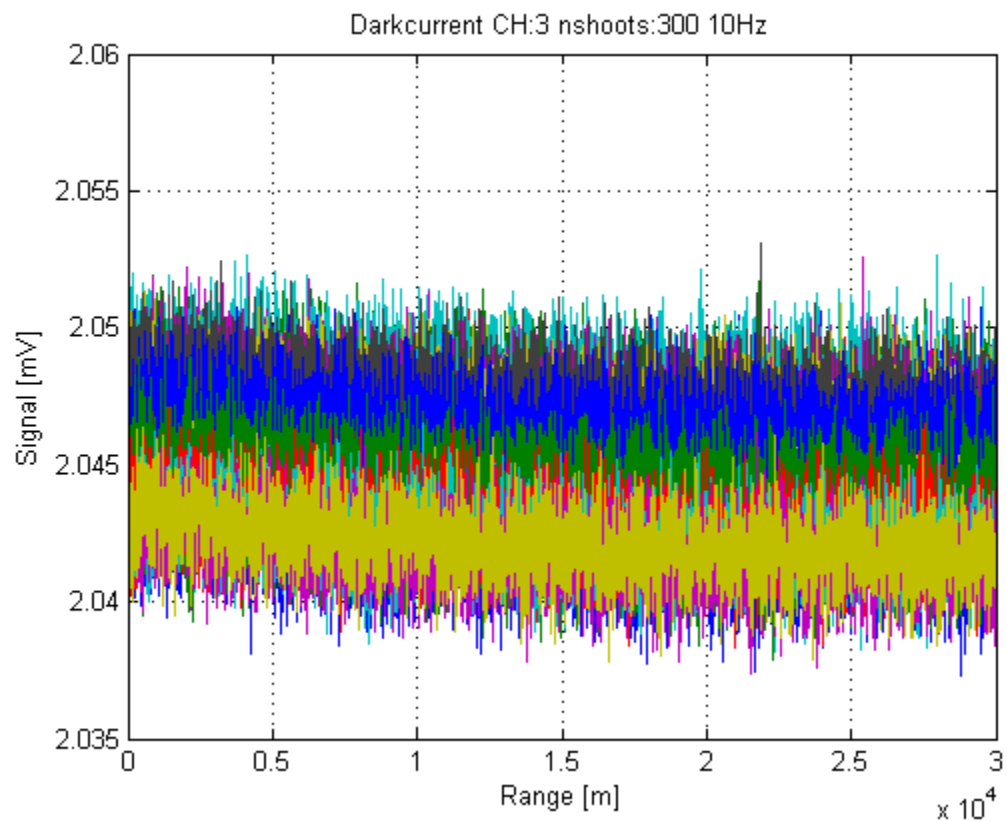
for ch=1:5

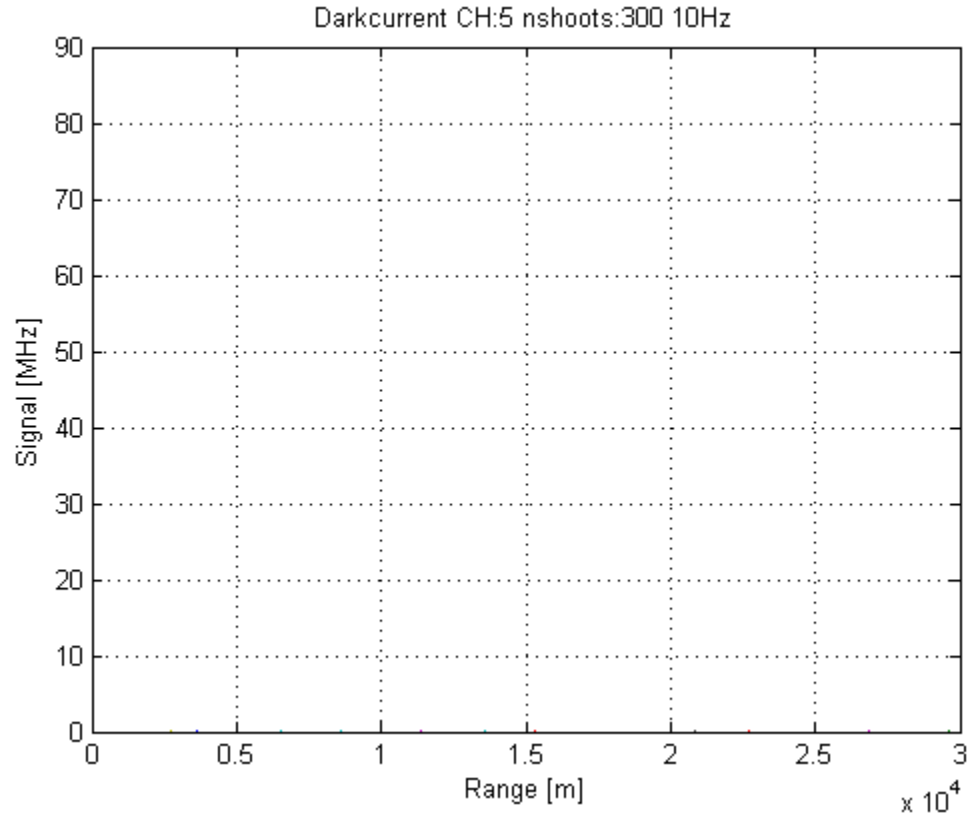
```
%
    r = 1;
    r = 1:20;
    % r = 1:length(a);
    % P = mean(chphy_DC_novo(ch).data(:,r),2);
    P = chphy_DC_novo(ch).data(:,r);
    figure(1)
    plot(zh,P)
    % ylim(mean(P) + 10.*std(P).*[-1 1])
    title(['Darkcurrent CH:' num2str(ch) ' nshoots:' num2str(sum([head_DC_novo(1).
    if ch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

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









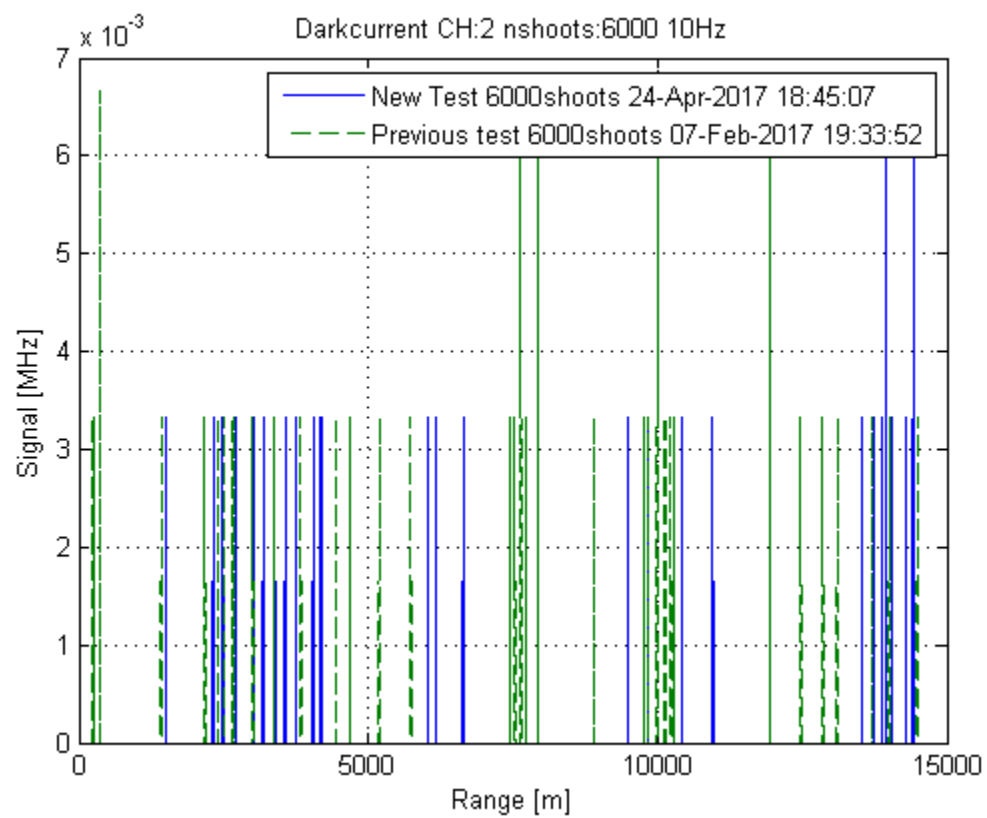
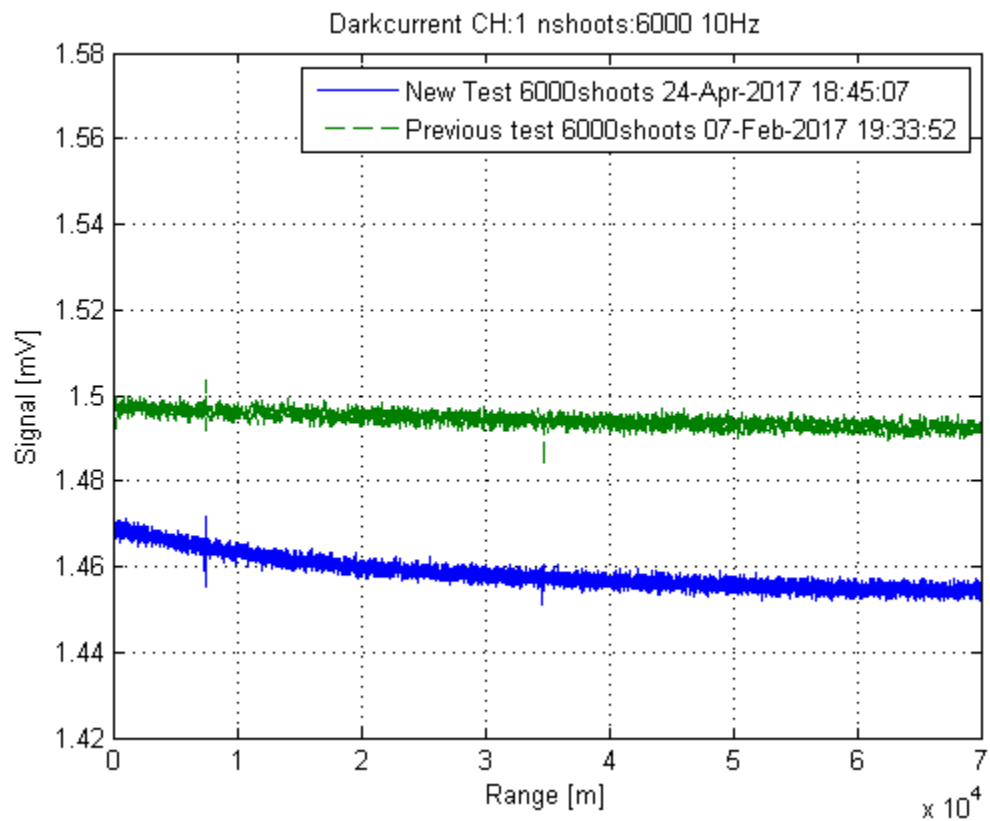
end

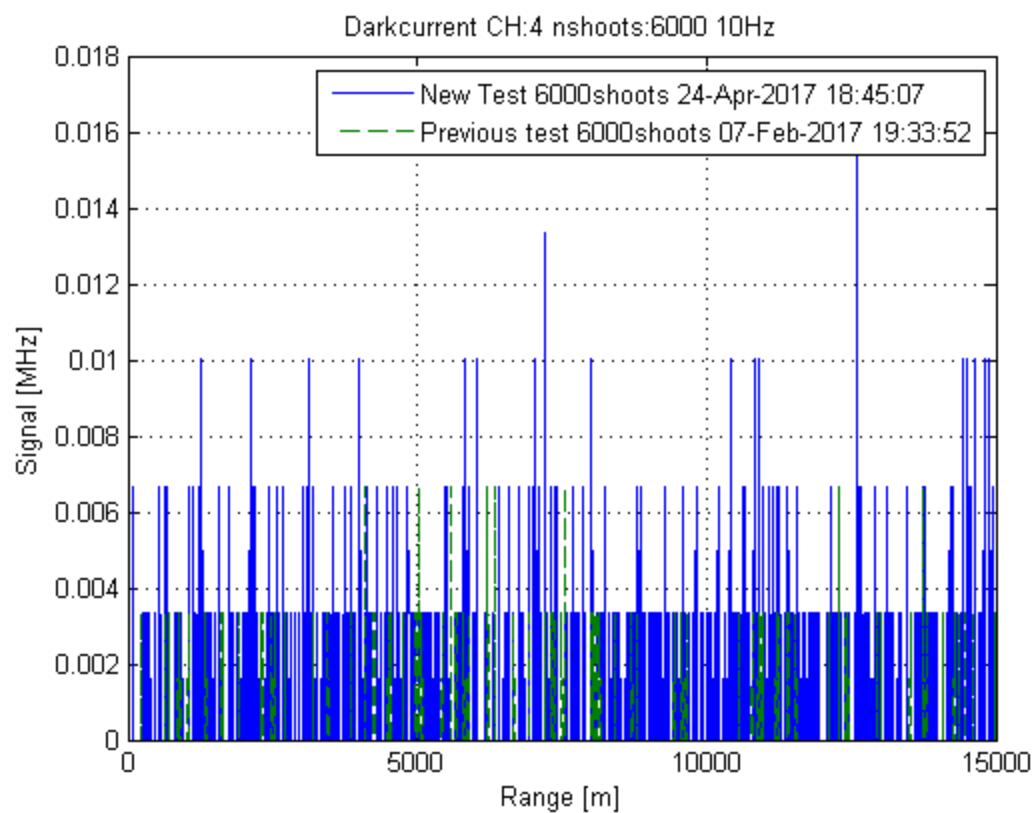
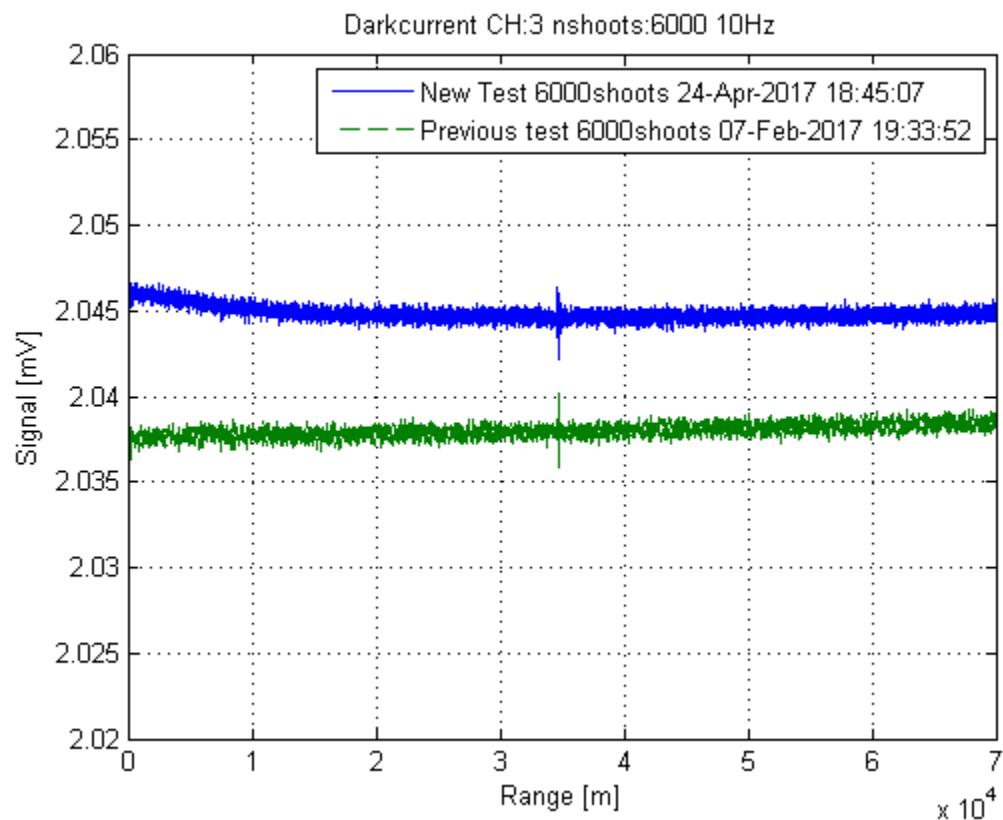
for ch=1:5

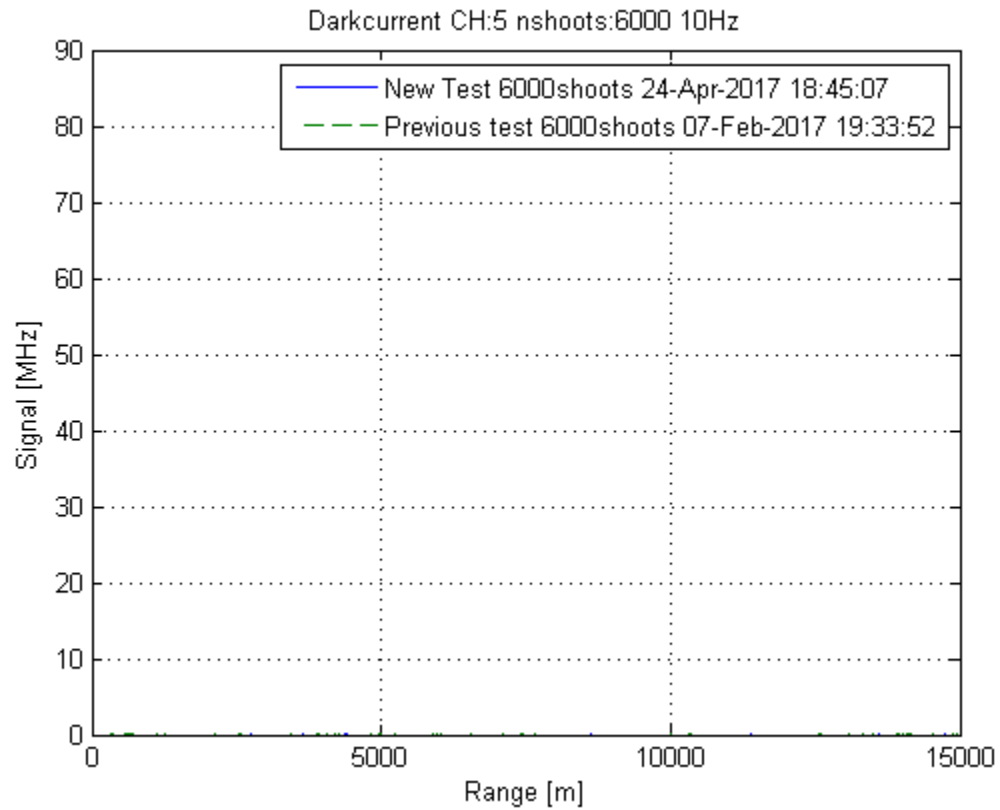
```
%
    r = 1;
    r = 1:20;
    % r = 1:length(a);
    P = mean(chphy_DC_novo(ch).data(:,r),2);
    P_ant = mean(chphy_DC_ant(ch).data(:,r),2);
%
    P = chphy_DC_novo(ch).data(:,r);
    figure(1)
    plot(zh,P,zh,P_ant,'--')
    % ylim(mean(P) + 10.*std(P).*[-1 1])
    title(['Darkcurrent CH:' num2str(ch) ' 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);

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);

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);

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);

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_04_24_Diego_afteralign\n

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24_Diego_afteralign\s

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24_Diego_afteralign\e

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24_Diego_afteralign>w

ans =
READING 5 files

pasta =
C:\Users\Diego\Dropbox\Cirrus Prog\testes lidar 2017\2017_04_24_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

```

---



---

```

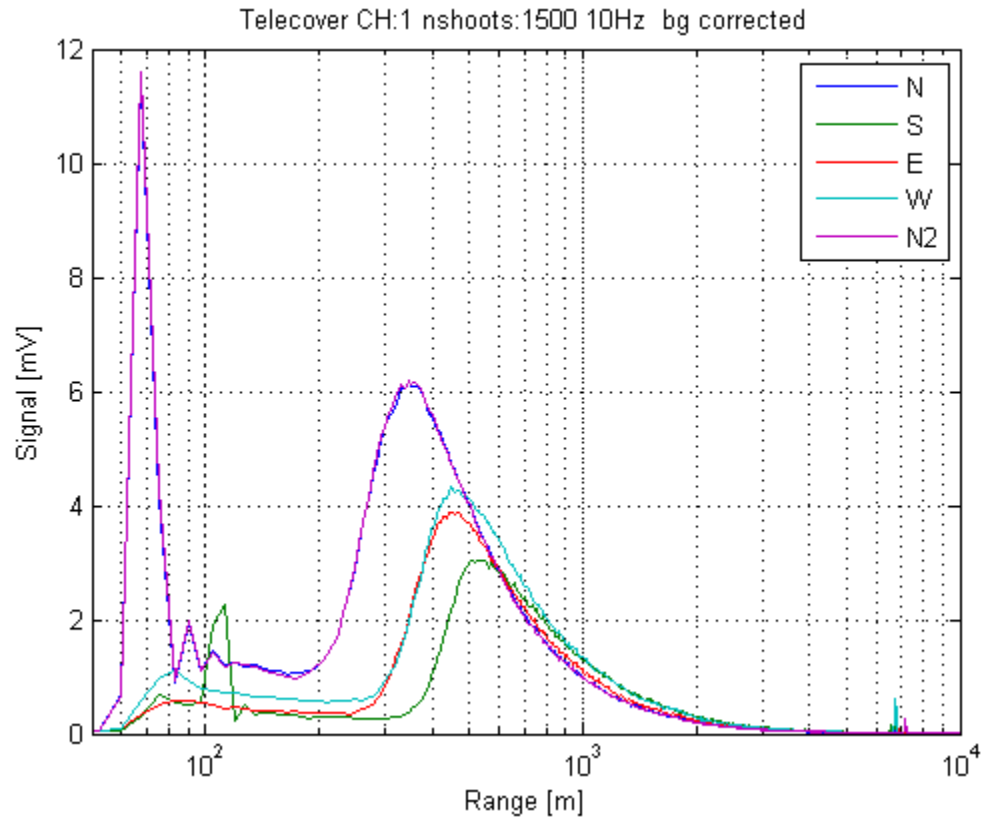
figure(1)
clf
% plot(zh,PNr2,zh,PSr2,zh,PER2,zh,PWr2,zh,PN2r2)
% plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2,zh,PE2)
plot(zh,PN,zh,PS,zh,PE,zh,PW,zh,PN2)
% plot(zh,PN./mean(PN(rn)),zh,PS./mean(PS(rn)),zh,PE./mean(PE(rn)),zh,PW./mean(PW(rn)))
% plot(zh,PNr2./mean(PNr2(rn)),zh,PSr2./mean(PSr2(rn)),zh,PER2./mean(PER2(rn)))
% 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])

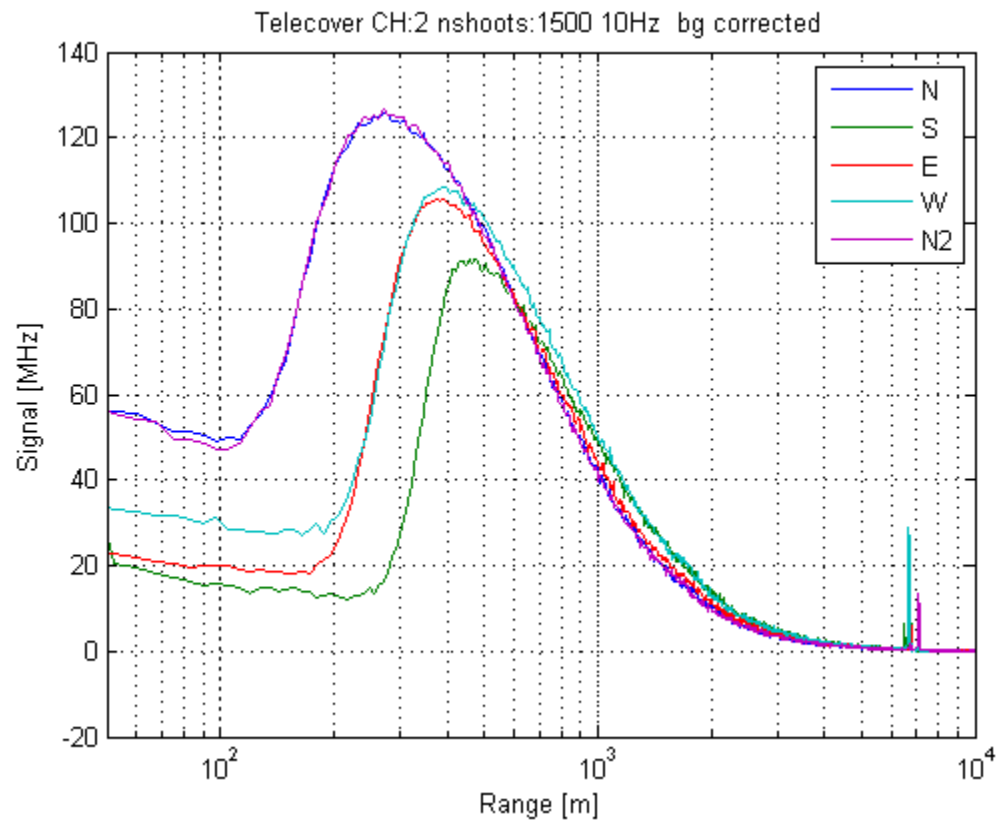
grid on
% pause

```

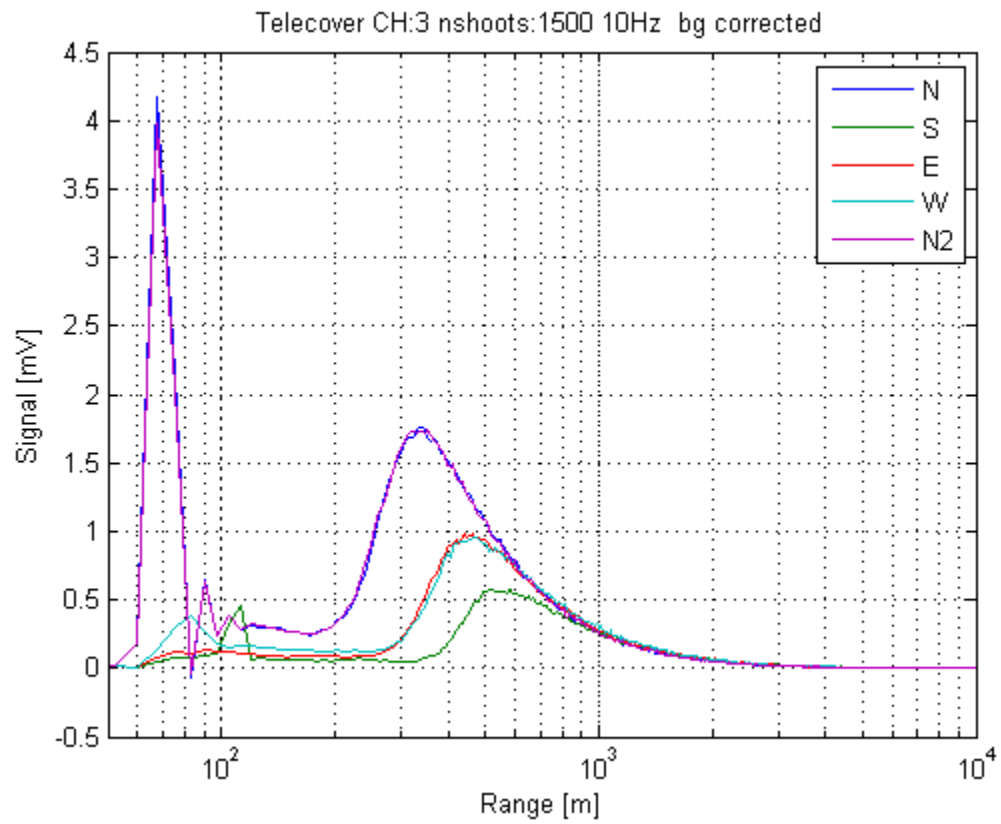
*Warning: Ignoring extra legend entries.*



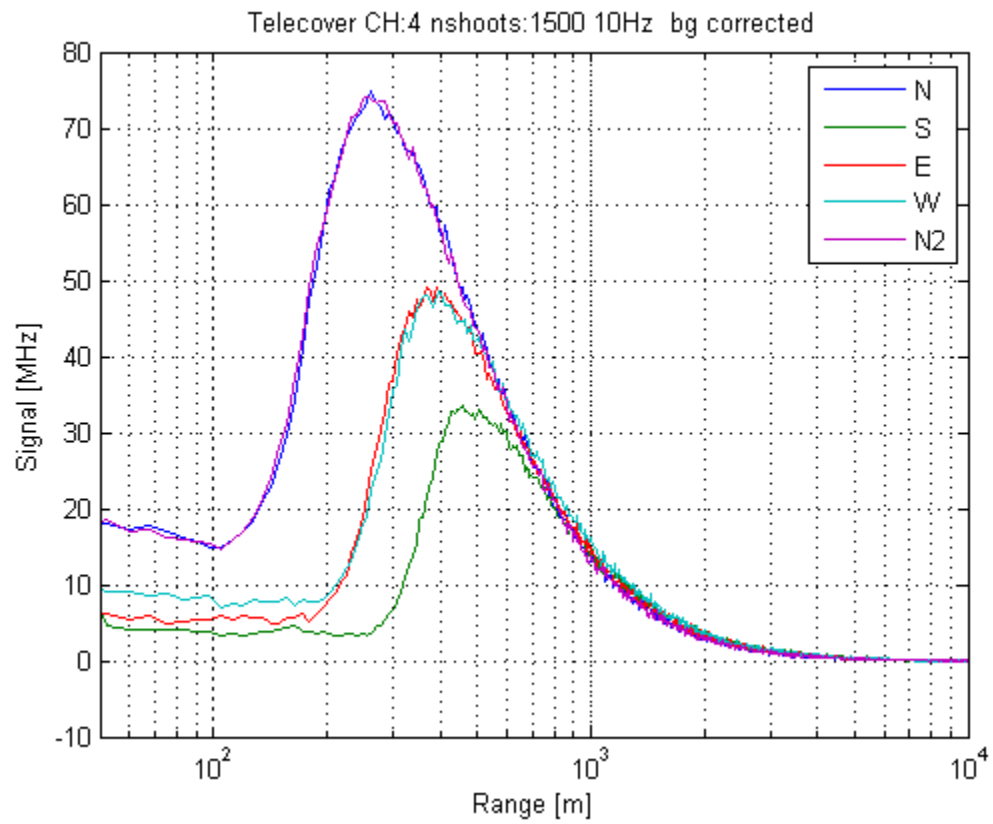
*Warning: Ignoring extra legend entries.*



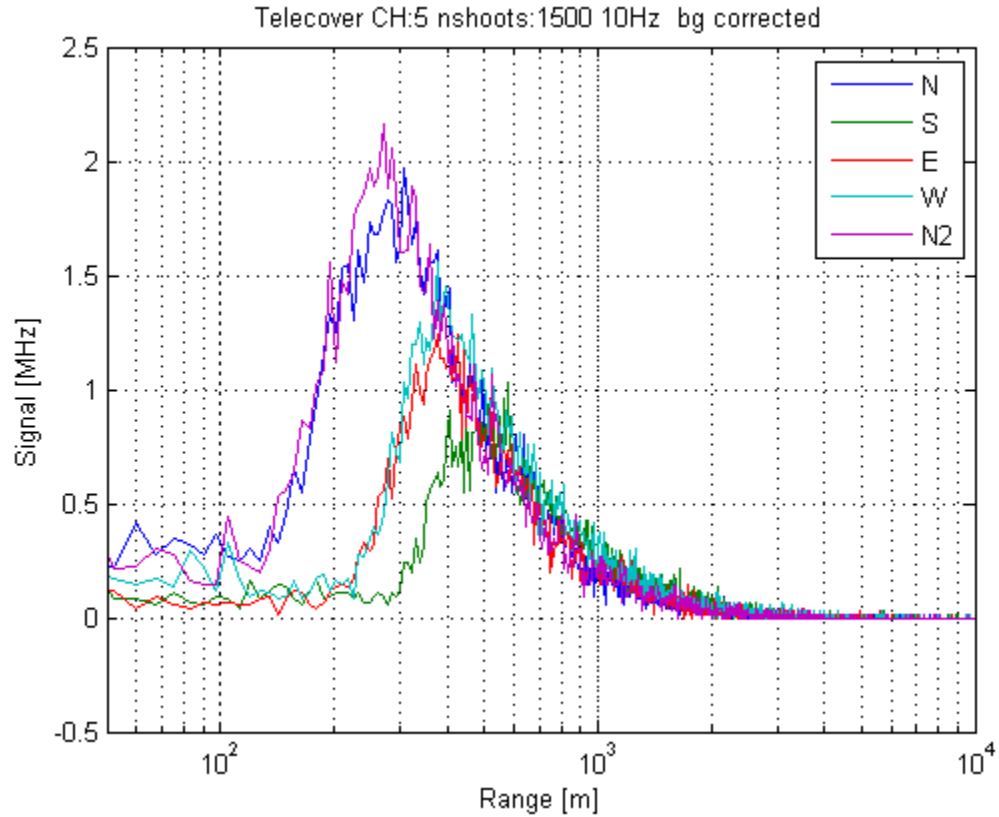
*Warning: Ignoring extra legend entries.*



*Warning: Ignoring extra legend entries.*



*Warning: Ignoring extra legend entries.*



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')

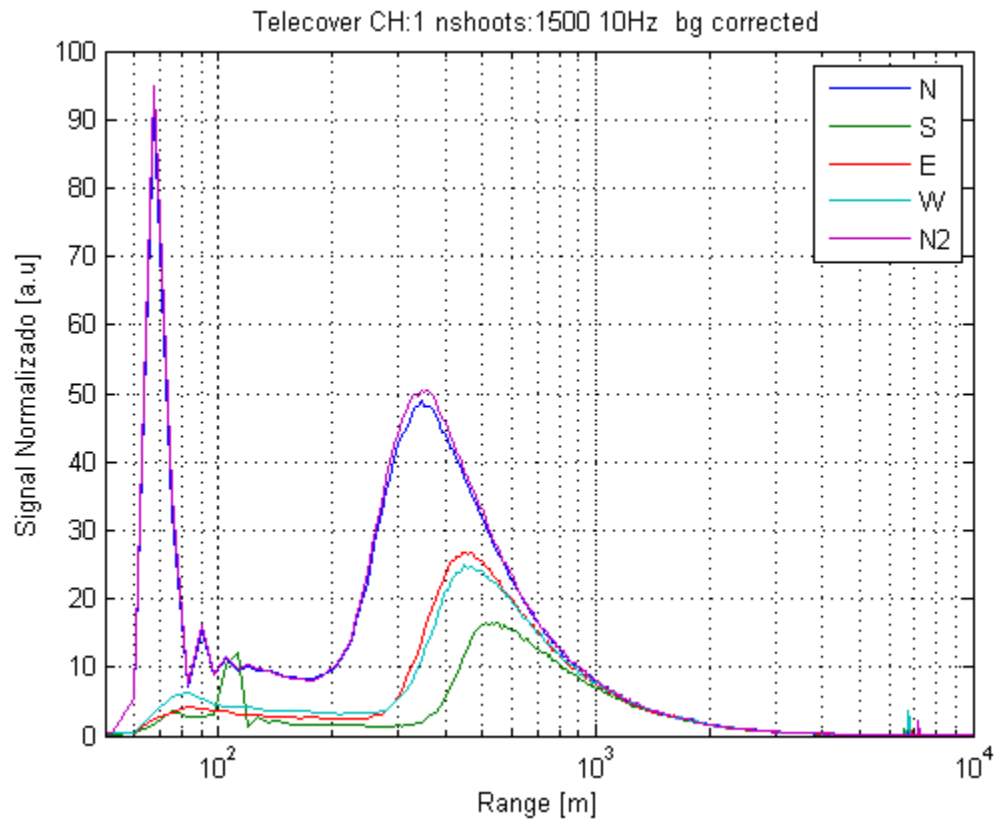
```

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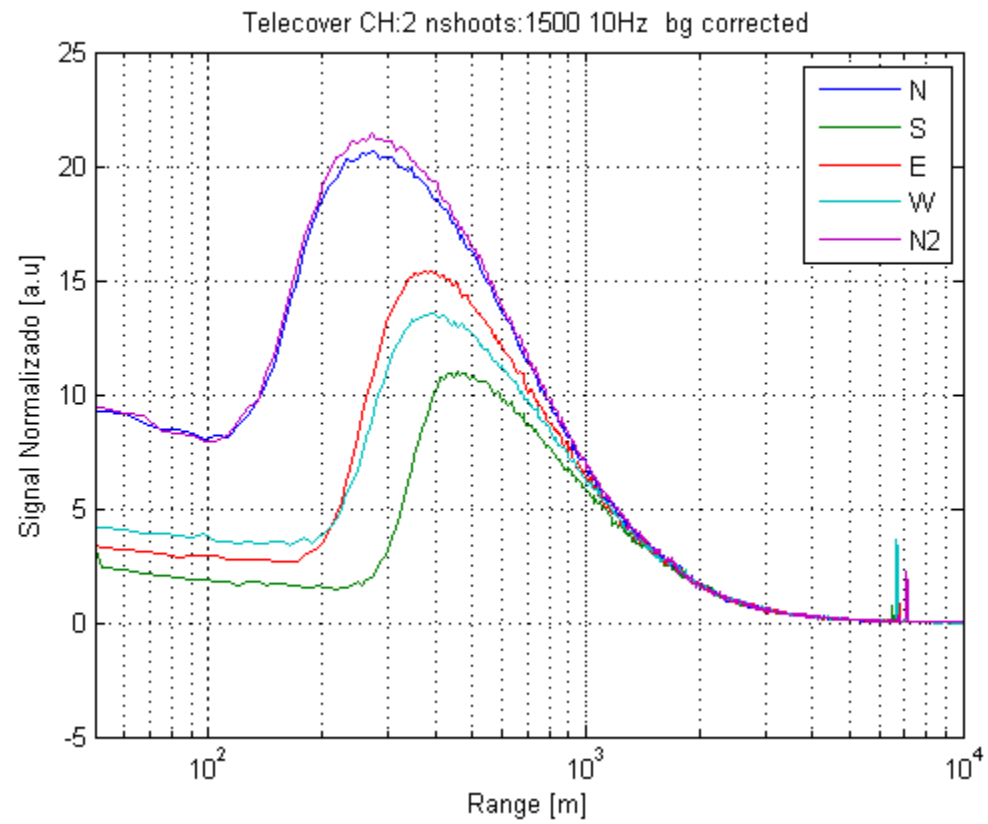
```
%      xlim([0 3000])

      grid on
%      pause
```

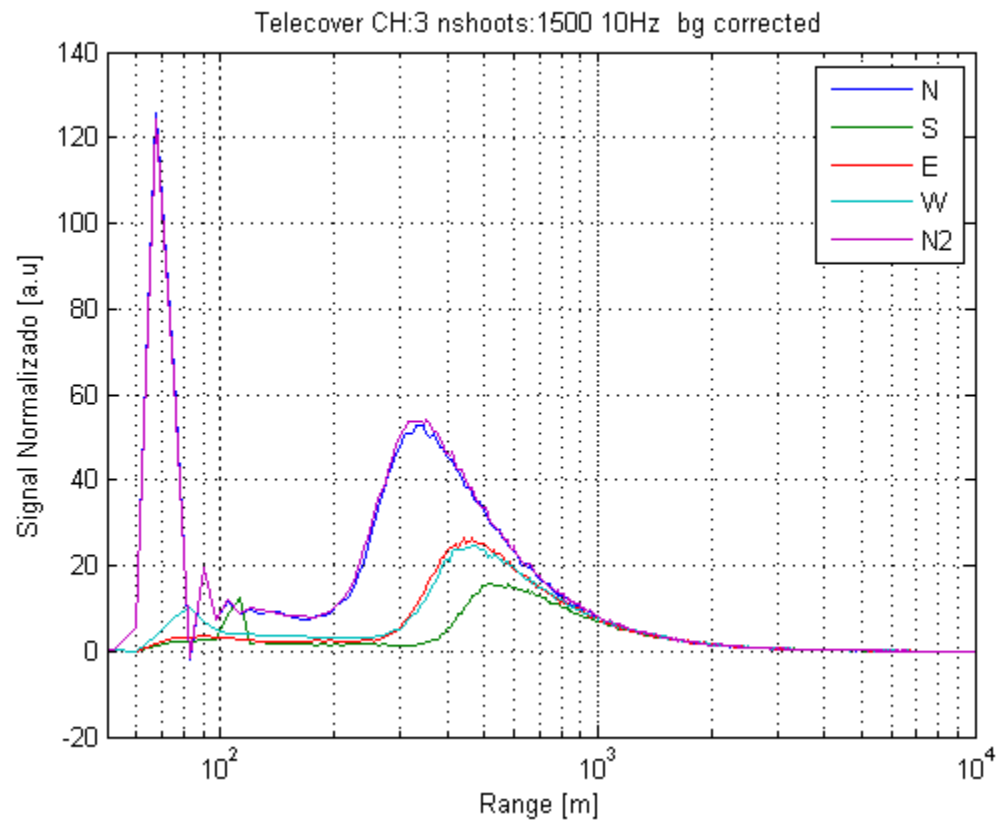
*Warning: Ignoring extra legend entries.*



*Warning: Ignoring extra legend entries.*

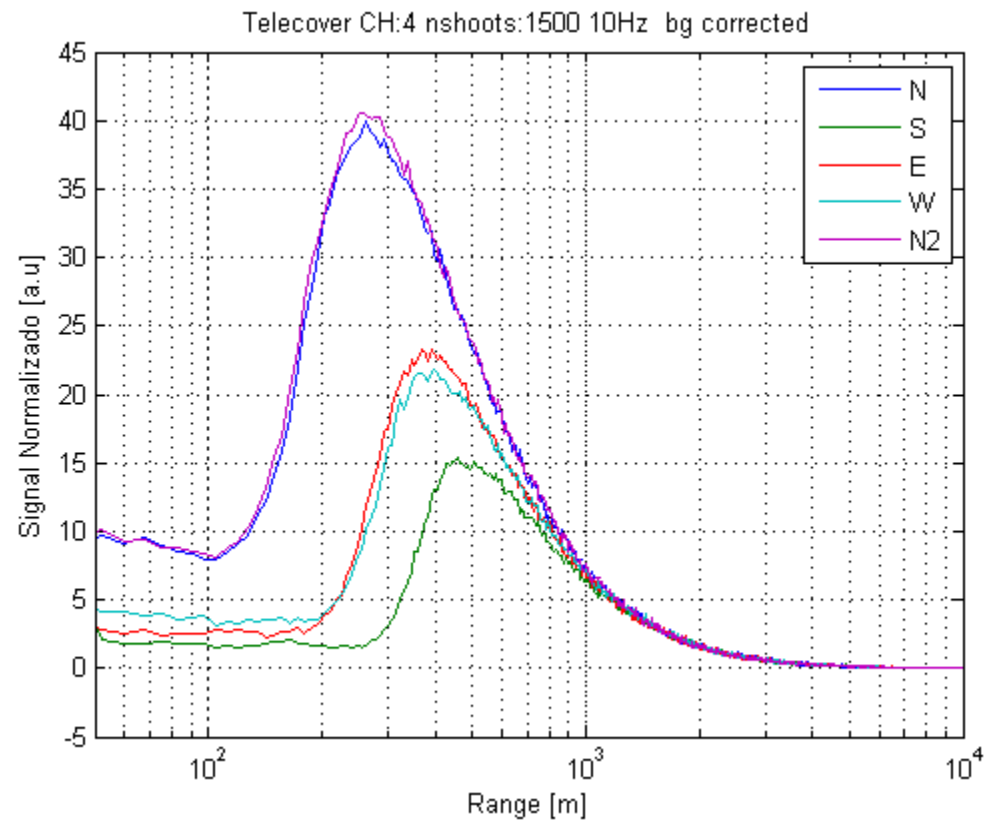


*Warning: Ignoring extra legend entries.*

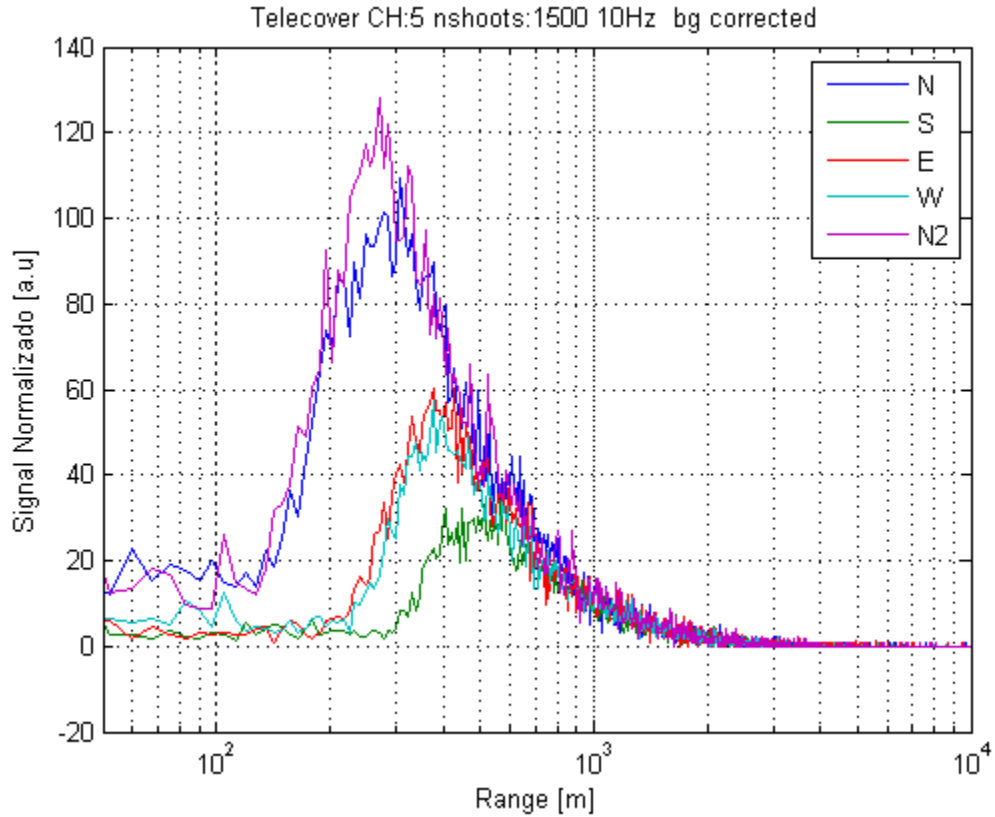


*Warning: Ignoring extra legend entries.*





*Warning: Ignoring extra legend entries.*



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')

```

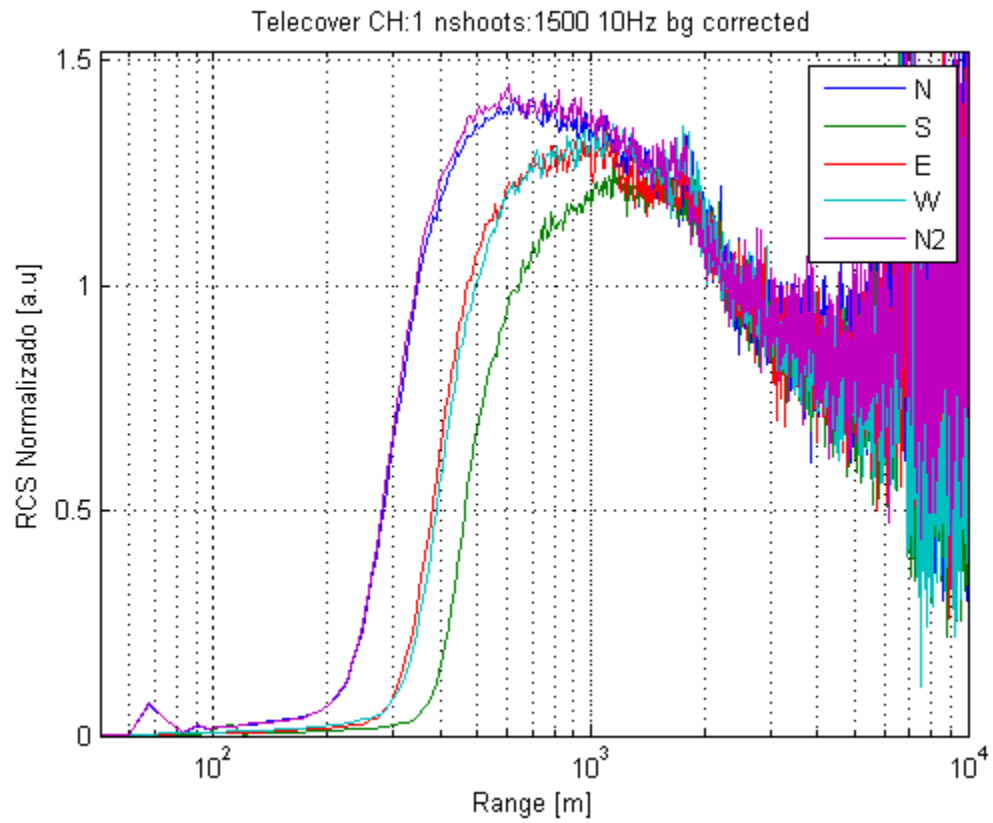
---

```

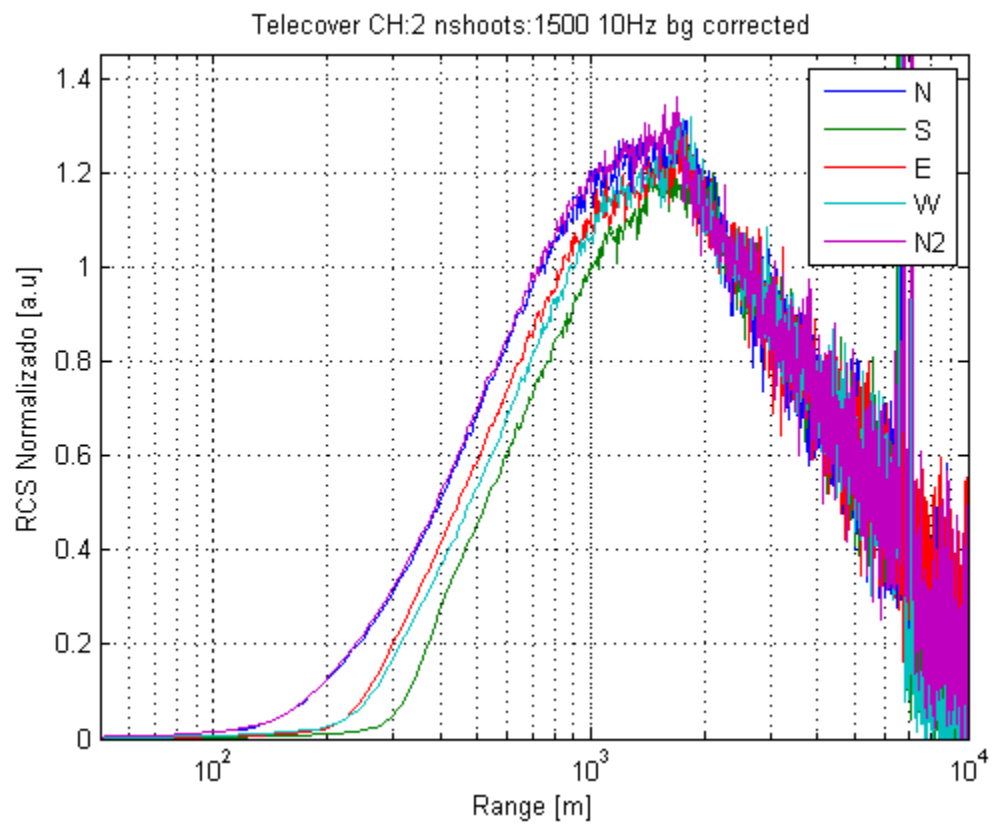
        ylim([0 1.2.*max(PSr2(1:200)./mean(PSr2(rn))))])
%     ylim([0 2.5])
grid on
%     pause

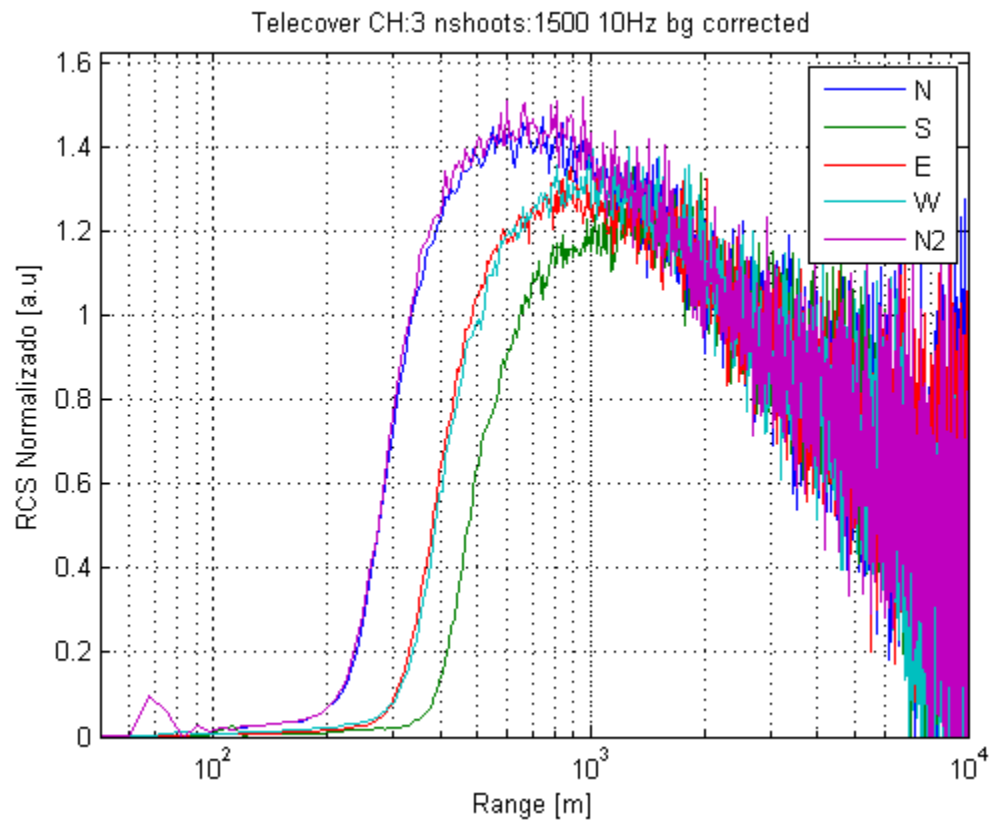
```

*Warning: Ignoring extra legend entries.*

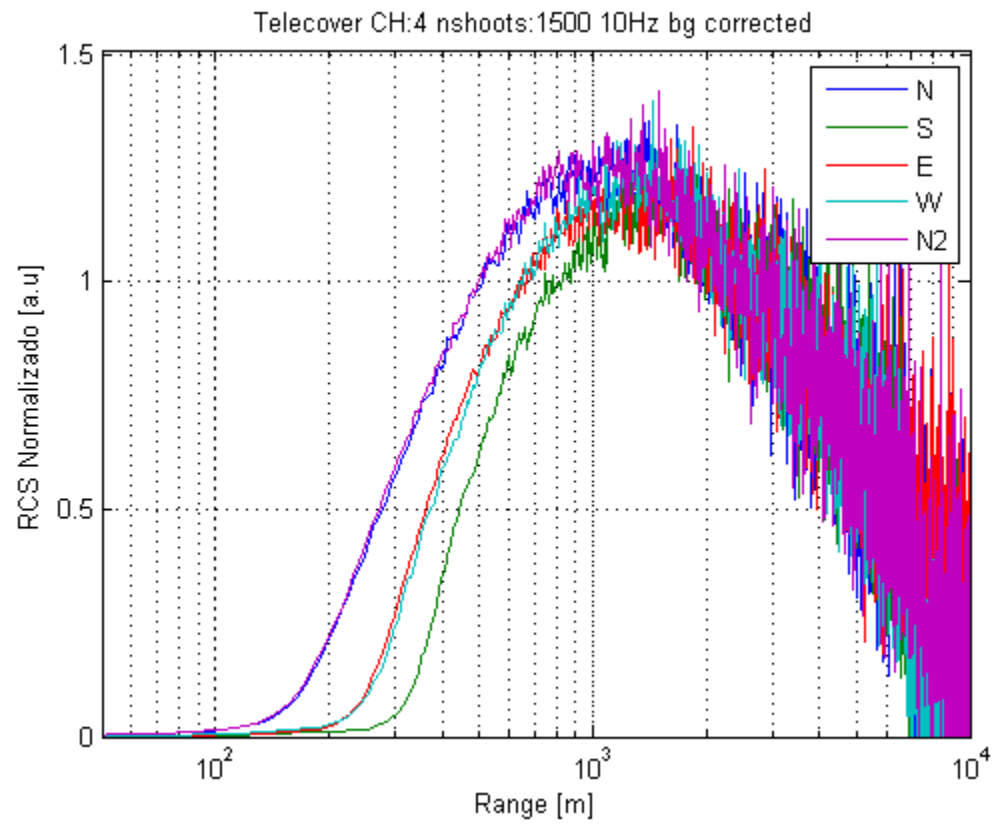


*Warning: Ignoring extra legend entries.*

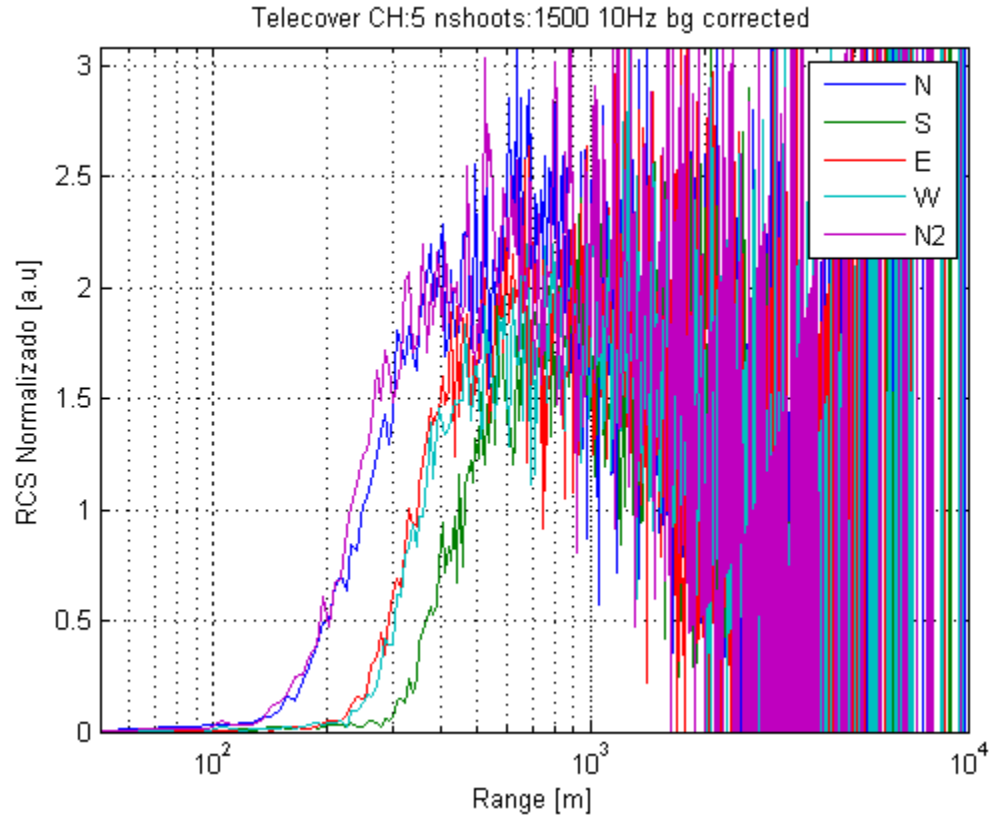




*Warning: Ignoring extra legend entries.*



*Warning: Ignoring extra legend entries.*



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\2017_02_07_Diego_afteralign\

ans =

READING 8 files

pasta =

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

ans =

READING 5 files

```

---



---

```

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

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\w

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}')

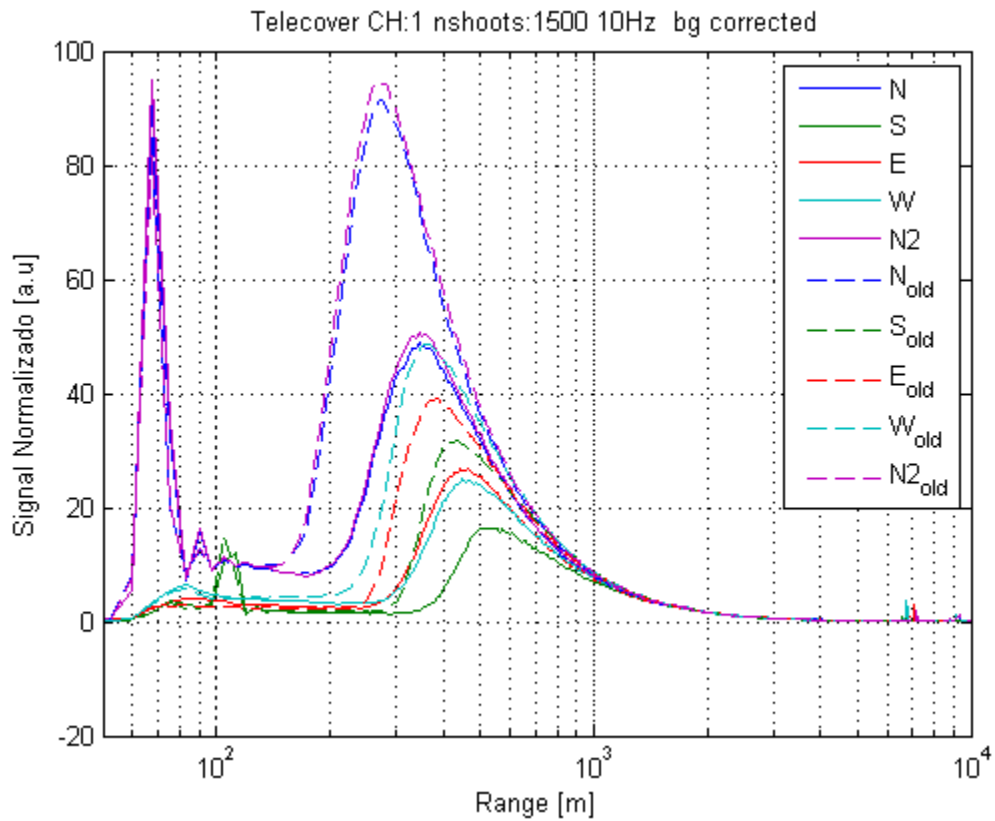
title(['Telecover CH:' num2str(ch) ' nshoots:' num2str(sum([head_N_novo(r).nsh

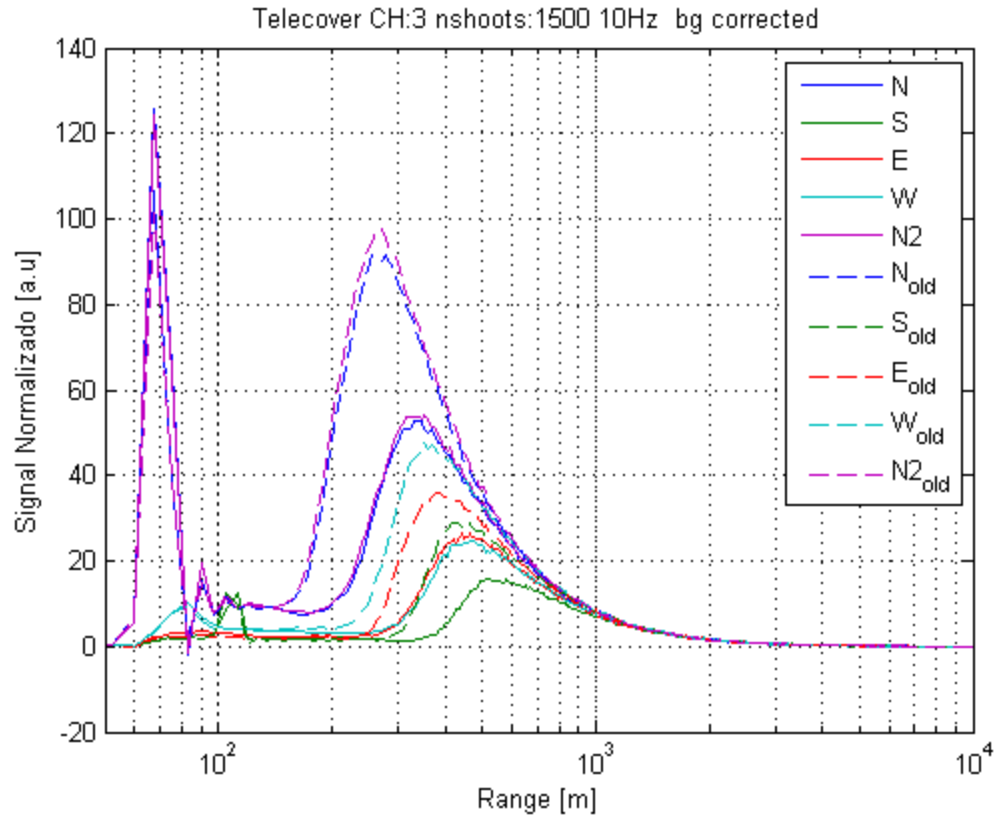
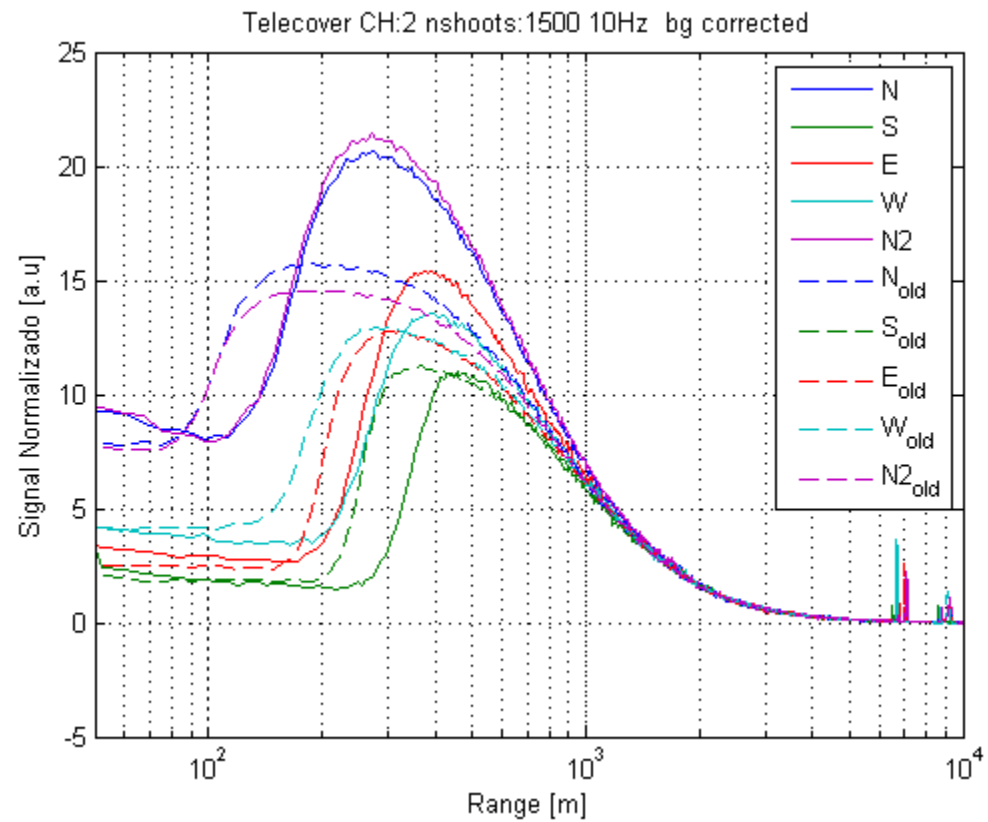
ylabel('Signal Normalizado [a.u]')

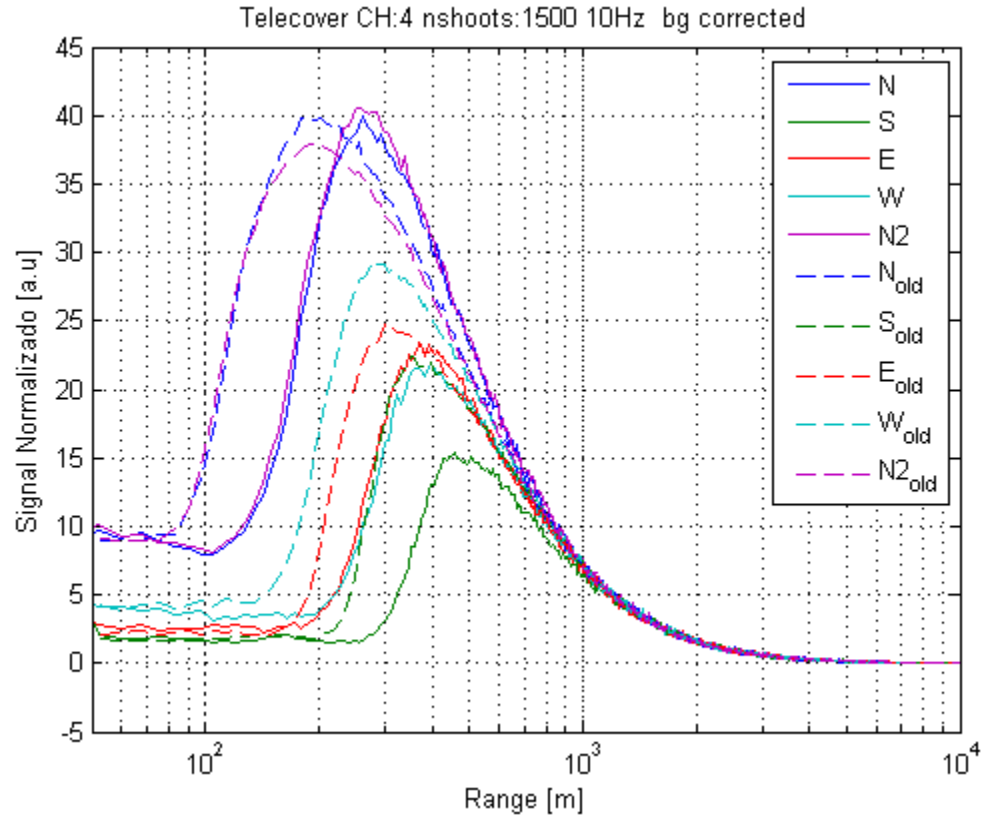
xlabel('Range [m]')
xlim([50 10000])
set(gca,'xscale','log')
%      xlim([0 3000])

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, m
% % % % % [head_RF_novo, chphy_RF_novo, chraw_RF_novo] = profile_read_many(filelis
% % % % %
% % % % % %%
% % % % % 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)));
```

```
% % % % %
% % % % % 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
% % % % % % aux2 = mean(chphy_RF_novo(ich+2).data(:,r),2) - mean(chphy_DC_no
% % % % % % 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
% % % % % % P(:,2) = mean(chphy_RF_novo(ich+2).data(rh,r),2) - mean(mean(chp
% % % % %
% % % % % 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.m
% % % % % % % % load('C:\Users\Diego\Documents\Mestrado\diego\Diego - Modificado\son
% % % % % % % % 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
% % % % %
% % % % %
% % % % % 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((pr
% % % % % aux2 = unique([alt_snd((temp_snd > 0) & (alt_snd > 0)), temp_snd((te
% % % % % 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
% % % % % end

```

*Published with MATLAB® 7.10*