Contents


```
%%QA/QC for Dissolved Organic Runs performed on Shimdazu TOC-L Carbon
%%Analyzer


clear
cruise='F06';
```

Open TOC-L run data

```
path = '/Users/joaquin/Documents/CVO/Lab stuff/DOC/';

run_file = uigetfile([path,'Runs/*.csv'],...
    'Select TOC Run Report file');

        fid = fopen(run_file);
            if fid==-1
             warning('File not found, make sure folder is added to path');
            end

        C_text = textscan(fid, '%s', 4, 'delimiter', ',');

        C_data = textscan(fid, '%s %f %f %s',...
            'delimiter', ',');
        fclose(fid);
```

Assign variable names to run data columns

```
cols=size(C_text{1});

for i = 1:cols(1);
    colnames = C_text{1};
     v = genvarname(colnames(i), who);
     eval([char(v) '= C_data{i};']);
end

    disp ('TOC run loaded');
```

```
TOC run loaded
```

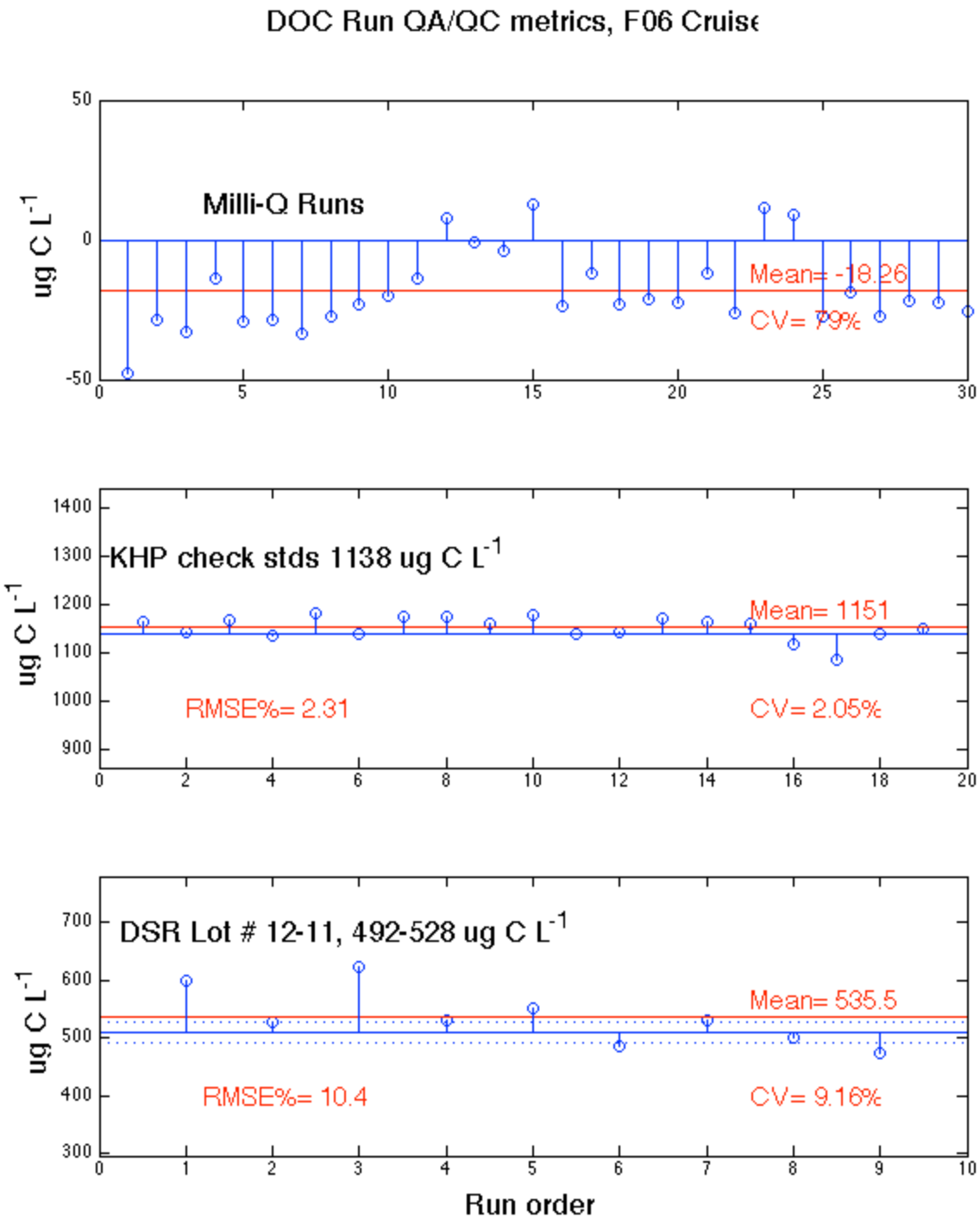
QC plots

```
%Plot of runs of Mili-Q water, 'Q'.

 close all

 q_index=find(strcmp(run_id,'Q')==1);

 figure('Position',[2000 1000 650 750]);
 subplot(3,1,1);
  plot(DOC(q_index),'o')
  ylim([-ceil(max(abs([min(DOC(q_index)) max(DOC(q_index))]))/10)...
      *10 ceil(max(abs([min(DOC(q_index)) max(DOC(q_index))]))/10)*10])
    grid off



     a=get(gca,'xtick');
%         set(gca,'xlim',[a(1)-mean(diff(a)) a(end)+1]);
%     a=get(gca,'xtick');

    hline(0,'blue')

        meanQ = mean(DOC(q_index));
        hline(meanQ,'red');

           xx=get(gca,'xlim');

        text(xx(1)+range(xx)*.75,meanQ,['Mean= ' num2str(meanQ,4)],...
            'color','red',...
            'Fontsize',15,...
            'VerticalAlignment','bottom');

    for i = 1:length(q_index);
        line([i i],[0 DOC(q_index(i))]);
    end

    ylabel('ug C L^{-1}','FontSize',17);
    xx=get(gca,'xlim');
    text(xx(1)+range(xx)*.12,max(DOC(q_index)),'Milli-Q Runs','FontSize',17);

    %Coefficient of variation for Q runs

    q_cv = std(DOC(q_index))/abs(mean(DOC(q_index)))*100;

        yl=get(gca,'ylim');

    xx=get(gca,'xlim');
    text(xx(1)+range(xx)*.75,yl(1)+(range(yl)*.15),['CV= ' num2str(q_cv,3) '%'],...
            'color','red',...
            'Fontsize',15,...
            'VerticalAlignment','bottom');


   %Check Standards
```

```
%KHP

 KHP_index=find(strcmp(run_id,'KHP1138')==1);

chk_conc=1138; % Concentration of potassium phthalate (KHP)
               % check standards in ugC/L

subplot(3,1,2);
plot(DOC(KHP_index),'o')

a=get(gca,'ylim');
yl = [chk_conc-(a(2)-chk_conc) a(2)];
yl = yl.*[.8 1.2];
set(gca,'ylim',yl)
set(gca,'xlim',[0 length(KHP_index)+1])

 grid off
 hline(chk_conc,'blue')

     meanKHP = mean(DOC(KHP_index));
     hline(meanKHP,'red');
      a=get(gca,'xtick');
     xx=get(gca,'xlim');
     text(xx(1)+range(xx)*.75,meanKHP,['Mean= ' num2str(meanKHP,4)],...
         'color','red',...
         'Fontsize',15,...
         'VerticalAlignment','bottom');

 for i = 1:length(KHP_index);
     line([i i],[chk_conc DOC(KHP_index(i))]);
 end

 ylabel('ug C L^{-1}','FontSize',17);
 text(.25,max(DOC(KHP_index))*1.1,...
     ['KHP check stds ' num2str(chk_conc) ' ug C L^{-1}'],...
     'FontSize',17);

 %Coefficient of variation for KHP runs

 KHPcv = std(DOC(KHP_index))/mean(DOC(KHP_index))*100;

     yl=get(gca,'ylim');

 xx=get(gca,'xlim');
 text(xx(1)+range(xx)*.75,yl(1)+(range(yl)*.15),...
     ['CV= ' num2str(KHPcv,3) '%'],...
         'color','red',...
         'Fontsize',15,...
         'VerticalAlignment','bottom');

 %Performance metrics/Error analysis (Root mean percentage error)
  %KHP check standards

 T(1:length(KHP_index))=chk_conc;

 KHPerror=errperf(T',DOC(KHP_index),'rmspe');
```

```
   text(a(2),yl(1)+(range(yl)*.15),['RMSE%= ' num2str(KHPerror,3)],...
           'color','red',...
           'Fontsize',15,...
           'VerticalAlignment','bottom');


%DSR Deep Seawater Reference runs http://yyy.rsmas.miami.edu/groups/
%                                    biogeochem/Table1.htm

   DSR_index=find(strcmp(run_id,'DSR')==1);

  dsr_conc=510; %Mid range of consensus values of
                %DOC for DSR batch used: Lot # 12-11

  subplot(3,1,3);
  plot(DOC(DSR_index),'o')

  a=get(gca,'ylim');
  yl = [dsr_conc-(a(2)-dsr_conc) a(2)];
  yl = yl.*[.8 1.2];
  set(gca,'ylim',yl)
  set(gca,'xlim',[0 length(DSR_index)+1])

   grid off
   hline(dsr_conc,'blue')
   hline(41*12,'b:'); hline(44*12,'b:') % DSR upper and lower limits for
                                        % consensus values, in ugC/L
       meanDSR = mean(DOC(DSR_index));
       hline(meanDSR,'red');
        a=get(gca,'xtick');
       xx=get(gca,'xlim');
       text(xx(1)+range(xx)*.75,meanDSR,['Mean= ' num2str(meanDSR,4)],...
           'color','red',...
           'Fontsize',15,...
           'VerticalAlignment','bottom');

   for i = 1:length(DSR_index);
       line([i i],[dsr_conc DOC(DSR_index(i))]);
   end

   ylabel('ug C L^{-1}','FontSize',17);
   text(.25,max(DOC(DSR_index))*1.1,...
       ['DSR Lot # 12-11, 492-528' ' ug C L^{-1}'],'FontSize',17);

   %Coefficient of variation for DSR runs

   DSRcv = std(DOC(DSR_index))/mean(DOC(DSR_index))*100;

   yl=get(gca,'ylim');
   xx=get(gca,'xlim');
   text(xx(1)+range(xx)*.75,yl(1)+(range(yl)*.15),...
       ['CV= ' num2str(DSRcv,3) '%'],...
           'color','red',...
           'Fontsize',15,...
           'VerticalAlignment','bottom');
```

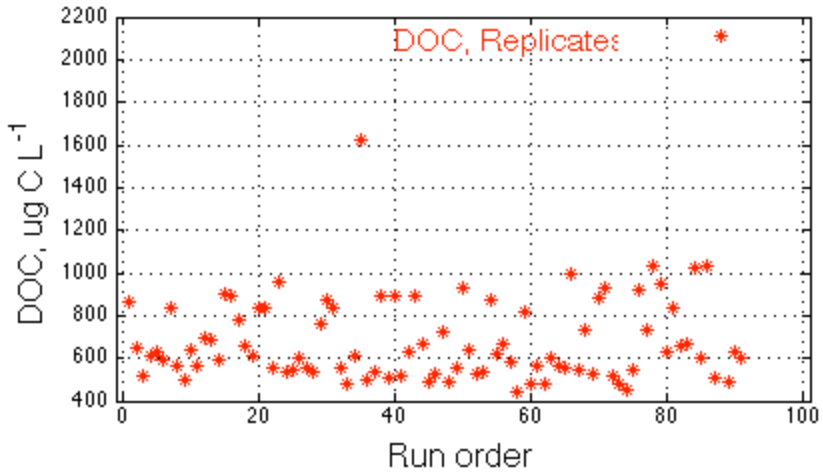
```
    xlabel('Run order','FontSize',17);

 %Performance metrics/Error analysis (Root mean percentage error)
  %DSR

  clear('T')
 T(1:length(DSR_index))=510;

 DSRerror=errperf(T',DOC(DSR_index),'rmspe');

 xx=get(gca,'xlim');

     text(xx(1)+range(xx)*.12,yl(1)+(range(yl)*.15),...
         ['RMSE%= ' num2str(DSRerror,3)],...
         'color','red',...
         'Fontsize',15,...
         'VerticalAlignment','bottom');

% Figure title
ha = axes('Position',[0 0 1 1],'Xlim',[0 1],'Ylim',[0 1],...
  'Box','off','Visible','off','Units','normalized', 'clipping' , 'off');

text(0.5, 1,['DOC Run QA/QC metrics, ' cruise ' Cruise'],...
    'HorizontalAlignment',...
     'center','VerticalAlignment', 'top','FontSize',17);
```



Sample Results

```
 samples=find(isnan(sample_id)==0);

figure('Position',[2000 100 450 250]);

%DOC
plot(DOC(samples),'*','color','r');
```

```
grid on
xlabel('Run order','FontSize',16)
ylabel('DOC, ug C L^{-1}','Fontsize',16)

yt=get(gca,'ytick');xt=get(gca,'xtick');
text(xt(end-3),yt(end-1),'DOC, Replicates',...
    'FontSize',15,...
    'VerticalAlignment','bottom',...
    'color','r')
xlim([xt(1)-1 xt(end)+1]);
```



Export Run Report

```
rep = [sample_id(samples) DOC(samples)]; %sample_id, DOC ugC L^-1

dlmwrite ([cruise '_TOC_run_report' ], rep)
  disp ('DOC run report generated');
```

```
DOC run report generated
```

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