

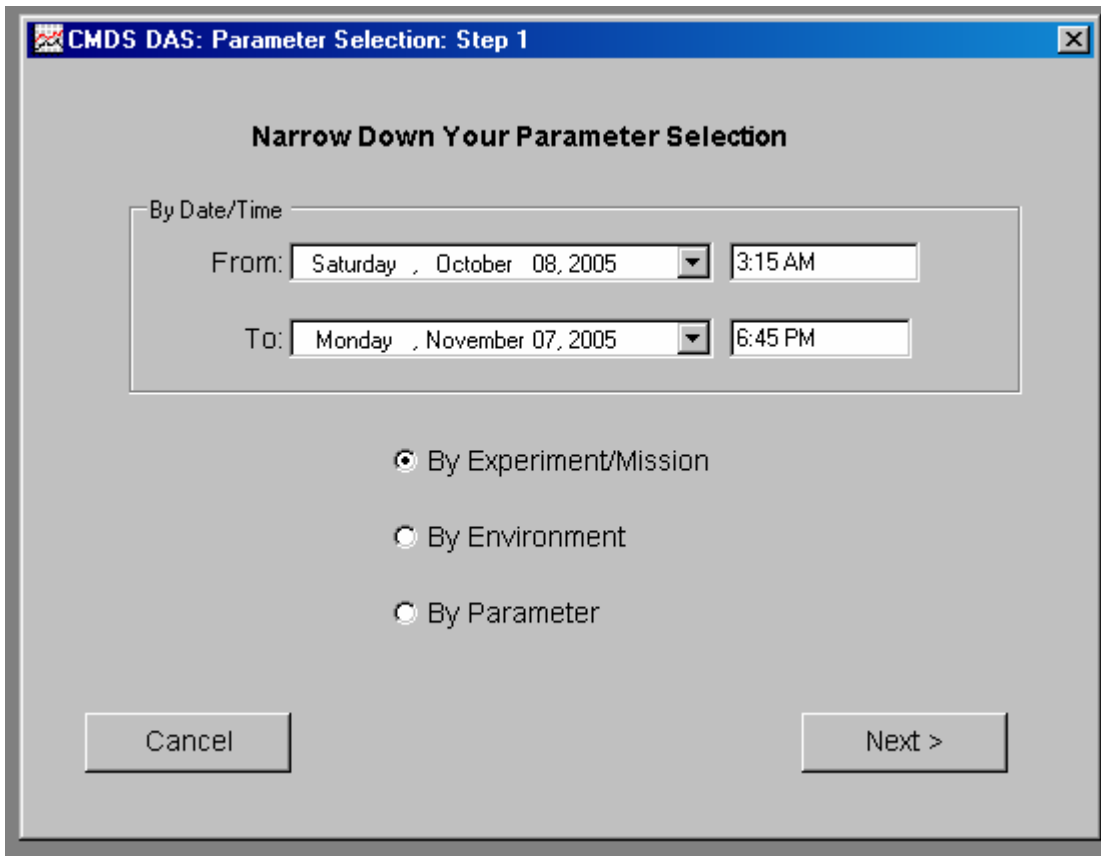
CMDS Data Analysis Services (DAS) – Users Guide

DAS enables basic statistical analysis on parameter data. Parameters can be selected, by experiment, by apparatus, or by parameter. Once the parameters have been selected, parameter data is graphed. The graphs may be printed, or the data exported. Data can be excluded by time range (or several time ranges), or by minimum and maximum parameter data values.

When the analyst is satisfied with the filtered raw data, a statistical report can be generated either with or without a conditional parameter. An example of a conditional parameter would be lights on or off; another would be RH above 55 % or not.

Custom reports allow data to be looked at in various ways then the report is exported to a text file so it may be included in an experiment report or pasted into a PowerPoint presentation.

Click on the File menu and select “Parameter Selection”. The form has two date



The screenshot shows a dialog box titled "CMDS DAS: Parameter Selection: Step 1". The main heading is "Narrow Down Your Parameter Selection". Under the heading "By Date/Time", there are two rows of input fields. The first row is labeled "From:" and contains a dropdown menu with "Saturday , October 08, 2005" and a text box with "3:15 AM". The second row is labeled "To:" and contains a dropdown menu with "Monday , November 07, 2005" and a text box with "6:45 PM". Below these fields are three radio button options: "By Experiment/Mission" (which is selected), "By Environment", and "By Parameter". At the bottom of the dialog are two buttons: "Cancel" on the left and "Next >" on the right.

fields for beginning and end time range and the option to select the parameters associated with an experiment, with an environment like a growth chamber or bioreactor, or just pick the parameters out of a list of parameters. As a time range is already associated with

an experiment, it is not necessary to enter dates when using that option. Clicking on the drop down list by either of the date fields will bring up a calendar to ease date selection.

If the experiment option is selected the next form will allow the selection of the experiment after narrowing down the selection using the experiment type.

The screenshot shows a software window titled "CMD5 DAS: Parameter Selection by Experiment". The window contains the following elements:

- Title Bar:** "CMD5 DAS: Parameter Selection by Experiment" with a close button (X).
- Main Title:** "Parameter Selection By Experiment/Mission".
- By Date/Time Section:** A group box containing:
 - From:** A date/time picker showing "Saturday , October 08, 2005" and "3:15 AM".
 - To:** A date/time picker showing "Monday , November 07, 2005" and "6:45 PM".
- Experiment Type:** A dropdown menu with "LED" selected.
- Experiment:** A dropdown menu with "STOMATAL CONDUCTANCE" selected.
- Buttons:** "Cancel", "< Back", and "Next >" buttons are located at the bottom of the window.

After the experiment has been selected and "Next" is clicked, the following form shows the parameters associated with the experiment and allows them to be included or excluded from the analysis; setpoints can be included as well. The form that is shown if equipment is selected is similar. The purpose is to select any prior analysis that may have been done on parameters associated with this experiment or equipment, or initiate a new analysis.

CMDS DAS: Experiment - Set Primary Analysis

Experiment Name: **STOMATAL CONDUCTANCE**

Mission Identifier:

Study Title:

Environmental Setpoints:

Principal Investigator: **HYEON-HYE KIM, PRINCIPAL INVESTIGATOR**

Experyment Type: **LED** StartDate: **10/14/2004** End Date: **10/6/2005**

Experiment Program: **LED RESEARCH**

Instructions:

Existing Analyses: STOMATAL CONDUCTANCE: 11/2/2005: 11:54 AM Show Details Delete

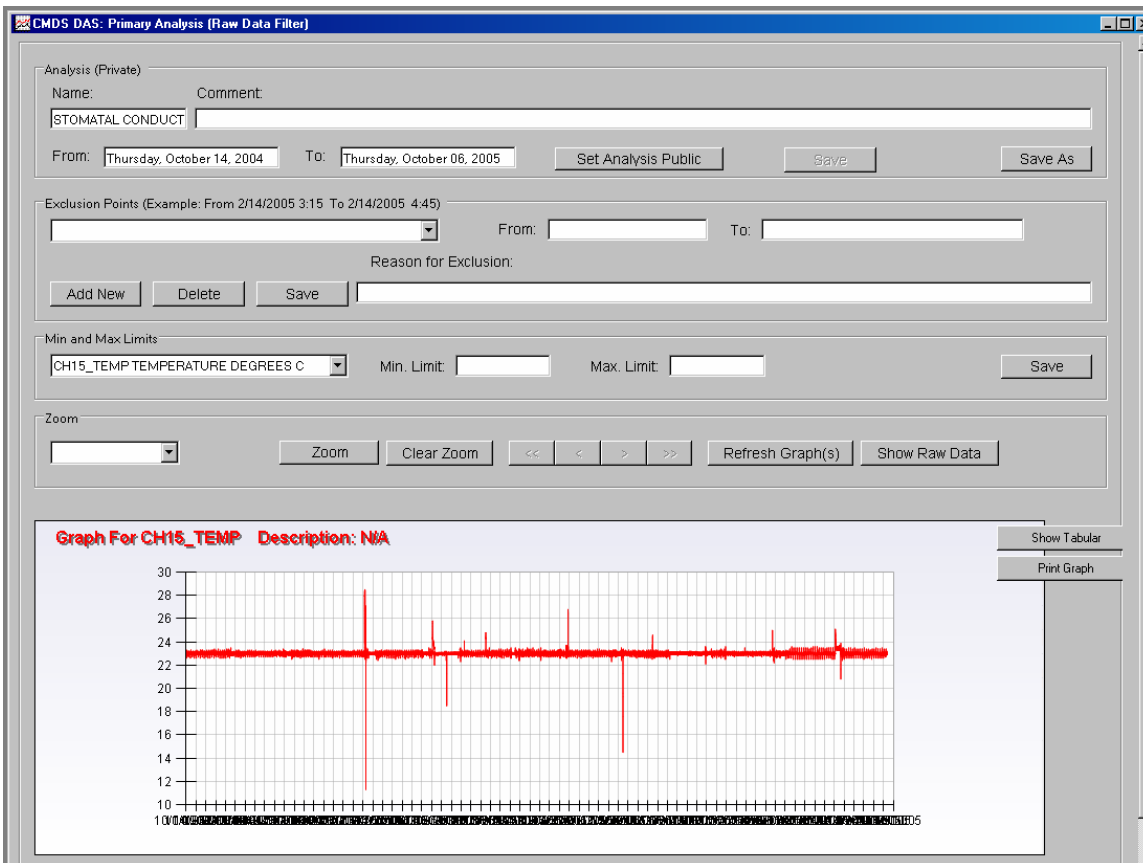
Choose Parameters

Create New Analysis From: 10/14/2004 To: 10/6/2005

Par. ID	Select	Parameter Name	Incl. Setpoint	Parameter Description	Apparatus	Sensor	Module	Line Weight	Line Color
57	<input checked="" type="checkbox"/>	CH15_TEMP	<input checked="" type="checkbox"/>	N/A	CHAMBER 15	Y2310004T	CH15-9A AV-4	1	Red
58	<input checked="" type="checkbox"/>	CH15_RH	<input checked="" type="checkbox"/>	N/A	CHAMBER 15	Y2310004H	CH15-9A AV-4	1	Orange
59	<input checked="" type="checkbox"/>	CH15_CO2	<input checked="" type="checkbox"/>	N/A	CHAMBER 15	050	CH15-9A AV-4	1	Blue
60	<input checked="" type="checkbox"/>	CH15_LITE	<input type="checkbox"/>	N/A	CHAMBER 15	CH15-LITE-1	CH15-9A AV-4	1	Green
61	<input checked="" type="checkbox"/>	CH16_TEMP	<input checked="" type="checkbox"/>	N/A	CHAMBER 16	Y2310002T	CH16-9A AV-4	1	Red
62	<input checked="" type="checkbox"/>	CH16_RH	<input checked="" type="checkbox"/>	N/A	CHAMBER 16	Y2310002H	CH16-9A AV-4	1	Orange
63	<input checked="" type="checkbox"/>	CH16_CO2	<input checked="" type="checkbox"/>	N/A	CHAMBER 16	052	CH16-9A AV-4	1	Blue
64	<input checked="" type="checkbox"/>	CH16_LITE	<input type="checkbox"/>	N/A	CHAMBER 16	CH16-LITE-1	CH16-9A AV-4	1	Green

Cancel Select All Unselect All < Back

The "Show Details" button will bring up the Raw Data Filter that allows multiple date ranges to be excluded and parameters to be clipped to min and max values.



When the raw data has been filtered, data can be exported in a tabular format to the clipboard or the graph can be printed if that is desired. If you want to copy the graph and insert it into a word document, print screen will capture the whole screen and then the Microsoft Paint program can be used to crop it to just the graph of interest.

File\Standard Reports will bring up the following form that allows you to select the analysis that will be sent to the report. First select the report which will be either the default: “Experiment History Report”, or “Parameter History Report”. Select Primary Analysis allows the specific analysis to be selected.

A “conditional parameter” can be added to the report which will result in two sets of data using the conditional parameter and value to segregate the data.

Chamber History Information						
Experiment:	STOMATAL CON	Description:				
Chamber:	n/a	Crop:				
Start Date:	10/14/2004	Program:				
End Date:	01/11/2005	P.I.:	LEN REINHART			
Parameter Values						
Parameter Name	Average	Minimum	Maximum	Std. Deviation	Count	
No Conditional Parameter						
CH15_CO2	1,214.01	832.00	1,568.00	28.13	23751	
CH15_RH	69.50	57.00	72.00	0.66	25629	
CH15_TEMP	23.00	22.50	23.50	0.07	25629	
CH16_CO2	1,195.67	800.00	1,787.00	25.39	23707	
CH16_RH	69.80	39.00	91.00	1.24	25594	
CH16_TEMP	23.04	14.60	31.20	0.44	25594	

File/Custom Reports will bring up the following form that allows the data to be looked at using various functions and comparison operators.

Show Filter Criteria

Report

Report Name: stromatical analysis

Report Comment: custom report

Apply Statistical Tools

Statistical Functions:

Param. ID	Parameter Name	Minimum	Maximum	Average	Std. Deviation	No. of Data Samples
57	CH15_TEMP	22.5	23.5	23.0049	0.0731	25629
58	CH15_RH	57	72	69.5003	0.6619	25629
59	CH15_CO2	832	1568	1214.007	28.1344	23751
61	CH16_TEMP	14.6	31.2	23.036	0.4431	25594

Threshold Values:

Param. ID	Parameter Name	Function	Condition Parameter	Operator	Param.Value	Results
59	CH15_CO2	Min		>		
61	CH16_TEMP	StDev	CH16_RH	>	55	0.3749
62	CH16_RH	Min		>		
63	CH16_CO2	Max		>		

Save Calculate Results Save to Text File

When the analysis is complete, it can be sent to a text file for inclusion in a report, or pasting into PowerPoint.

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testreport.txt - Notepad
File Edit Format Help
Report Name: stromatical analysis
Report Comment: custom report

Statistical Functions
Parameter ID:57,Parameter Name: CH15_TEMP,Min: 22.5,Max: 23.5,Avg: 23.0049,StDev: 0.0731,Count: 25629
Parameter ID:58,Parameter Name: CH15_RH,Min: 57,Max: 72,Avg: 69.5003,StDev: 0.6619,Count: 25629
Parameter ID:59,Parameter Name: CH15_CO2,Min: 832,Max: 1568,Avg: 1214.007,StDev: 28.1344,Count: 23751
Parameter ID:61,Parameter Name: CH16_TEMP,Min: 14.6,Max: 31.2,Avg: 23.036,StDev: 0.4431,Count: 25594
Parameter ID:62,Parameter Name: CH16_RH,Min: 39,Max: 91,Avg: 69.8002,StDev: 1.2362,Count: 25594
Parameter ID:63,Parameter Name: CH16_CO2,Min: 800,Max: 1787,Avg: 1195.6728,StDev: 25.3864,Count: 23707

Conditional Values
when Conditional Parameter: CH16_RH> than 55, then Parameter: ID - 61, Name - CH16_TEMP, Stat. Function Name - StDev equals 0.3749
  
```

Contact your system administrator for assistance if needed.