

Project: St. John's College Residence building

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PLAN 597

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Plan 597: Planning for water Resources management

Assignment 1: Data Analysis

Fall 2014

Project: St. John's College Residence building

2010-2014



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*Although the charges are applied in Cubic Ft. all the charts are created using the values in Cubic meters.

Introduction

The data provided in this paper represents the water consumption as per the meter readings from St. John's College residence at UBC. It is a graduate residential college with a kitchen (data not included here), common spaces, several studio and single bedrooms as well as guest rooms. St. John's College accepts graduate students year round and also hosts visiting professors from all over the world.

Data Collection and analysis

The data in this paper was obtained from the power house at UBC (STC is customer #329) and includes 57 data points for the years 2010-2014. The graphs have been done using the consumption readings in cubic meter. No renovations have been done in this building.

Calculations for measuring the consumption have been done using the following formula:

$$\begin{aligned} & [(\text{Current High Flow meter reading} - \text{Previous high Flow meter reading}) \\ & + (\text{Current low flow meter reading} - \text{Previous low flow meter reading})] \times \\ & 35.314475 \text{ (conversion rate to cubic feet)} \end{aligned}$$

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There were several inaccuracies in the data provided for the consumption, hence all the consumption values were recalculated and then used for preparing the charts.

From the chart below, there seems to be a sudden dip in the consumption in June and then a sudden increase in values in July, which is quite odd and probably indicate something missing from the readings. The highest recorded value for water consumption was in November 2012. The inconsistencies and sudden dips and rise in values disappear after April 2013 as the readings see to show a gradual rise or fall of the numbers without any drastic change.

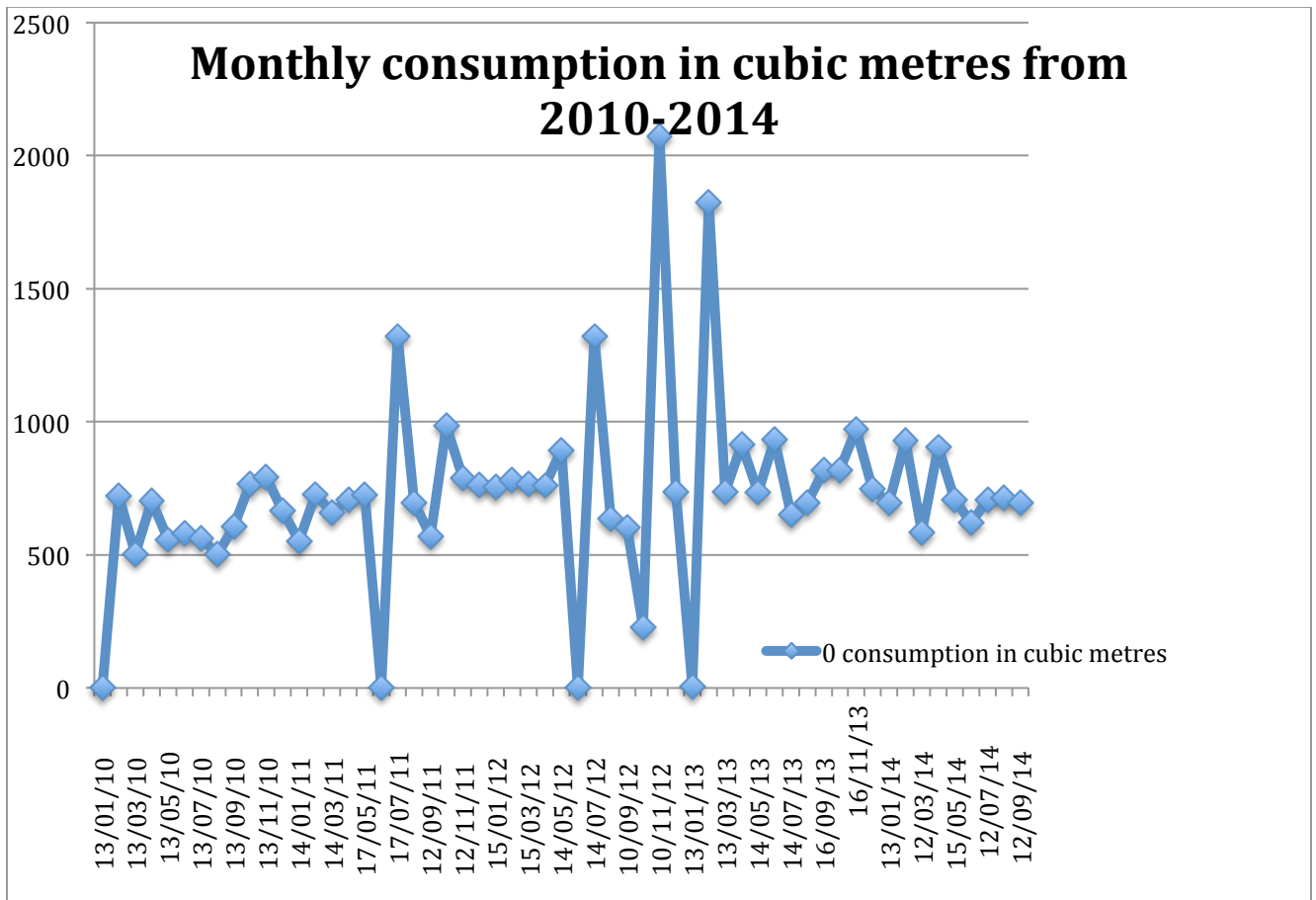


fig 1.1

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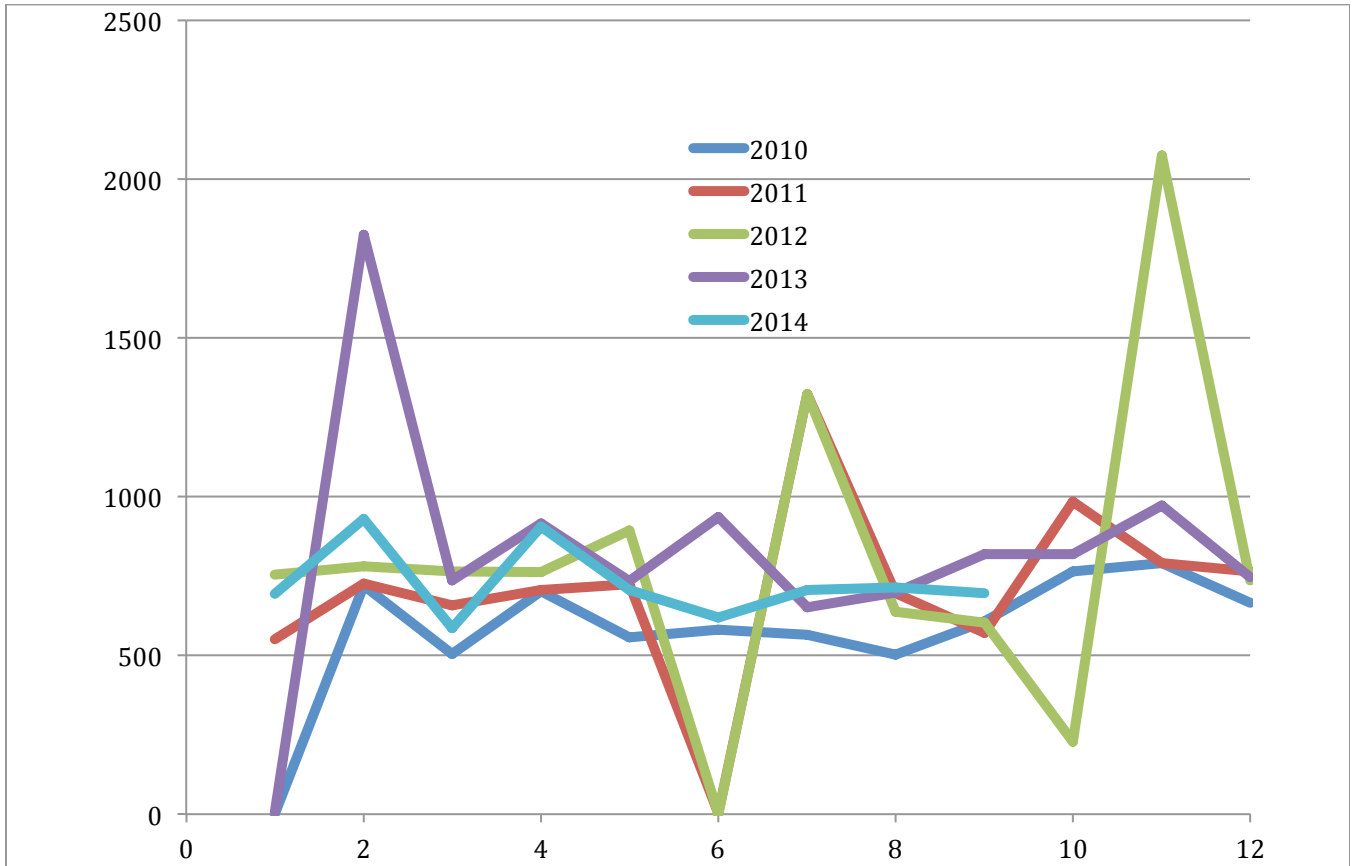


fig: 1.2

The graph in fig 1.2 is a scatter diagram with the months plotted against consumption. The years 2012 and 2013 seem to have the some of the highest and lowest readings showing great fluctuations.

The Histogram in fig. 1.3 shows the frequency of readings and the readings from 1000-1500 seem to be the most in number showing some consistency with a few odd numbers (very unlikely) sprinkled in between.

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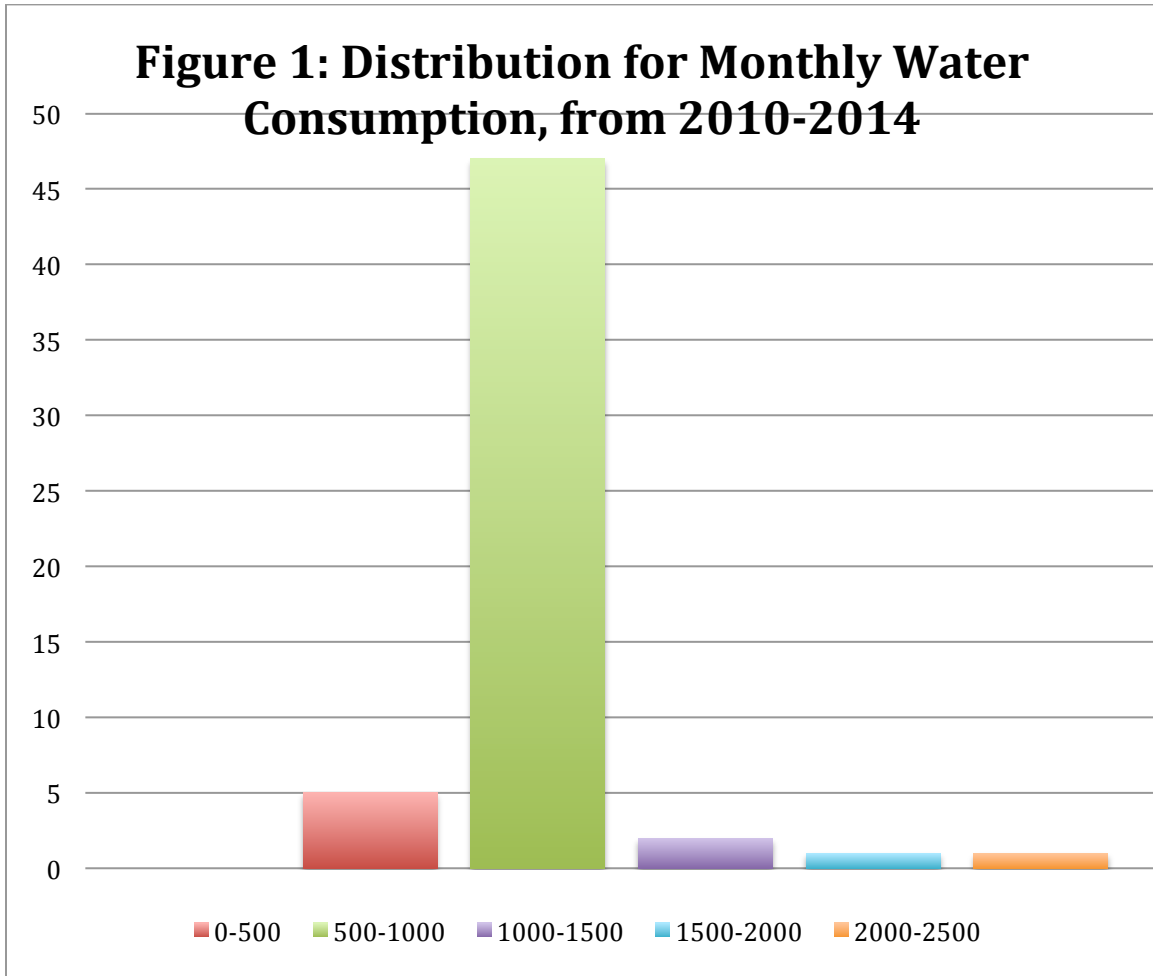


fig 1.3

Summary Statistics (fig 1.4):

Median	714
Mean	719
Variance	363

***Variance has been calculated as sample standard deviation**

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