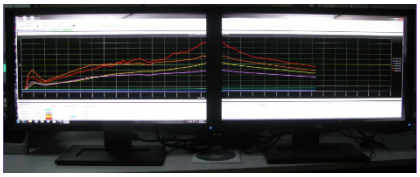
Ontario Stove Testing Camp 1
– Measurements and Metrics for Product Development



Are you developing a **solid or liquid fuel stove**?
Are you looking for detailed information on **what to measure** to know if your stove is **better** or **worse**?
Are you looking for information on **how to turn your measurements** into valuable **metrics**?

If your answers are "**Yes, yes, yes**!" then join us for two days of **testing, trials and tech talk** at the first ever Ontario Stove testing Camp.

Date: 9 and 10 July 2015
Time: As soon as you can get there, but try for 9AM on the 9th of July.
Contact: Information on accommodation and reservations: stove.camp.ontario@gmail.com
Julien's Cell Phone for July 4-10: 905-396-0549
Cost: $125 Canadian Bucks (US $100) which covers all presentations, 2 lunches, 1 supper, AV equipment and your chair, stove fuel, facilities and a thank you for Burt.

Place: Burt's Greenhouses, 539 Maple Road, just North of **Odessa, Ontario**, Canada Postal Code K0H 2H0. Exit 599 off the 401, go north. Take the tee junction "Maple Road" left. It is the second road north of Highway 401. There is a sign on that corner saying "Burt's Greenhouses" (that's because Burt has more than one).

Burt's Greenhouses is near the city of Kingston which has excellent train connections with Toronto. If you need a lift from Kingston, let us know.

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Using simple equipment an enthusiast might own, you will learn what to measure, when, when, what it mean and what to do with the numbers.

Structured into a series of 45 minute sessions you will learn:
Where to take measurements and when, Sources of some common errors, Targets for high performance stoves, Why the customer is more important than the inventor, but not the designer.

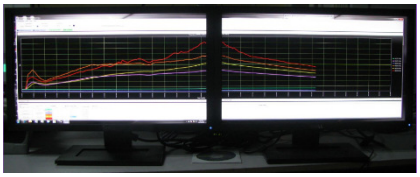
Learn how to calculate:
Fuel Burn rate, Fire power, Fuel consumption, CO/CO2 ratio, Excess air ratio, Emission factors for CO, NO, CO2 and H2, System efficiency, Heat transfer efficiency, Heat loss rate from a pot, The effect of a lid on test results, And a little basic mechanical engineering on mass transfer.

The equipment used will include a basic combustion analyser, a temperature logger, a computer-logged digital scale and an Infrared Thermometer.

The goal is to know what to look for and to be able to rapidly improve and eventually optimise the functions of your stove.

Some of the time is unstructured so you can bring a project you are working on and we will discuss it together.

Your guides through this event include:



Alex English, who started the original "Stoves" discussion list, a man who has developed small, large and very large and astonishing biomass burning devices (some of which we will see). He has been very active in this sector for 'a couple of decades' and lives by what he knows – he has a biomass stove-heated house that employs advanced combustion ideas you have probably not seen before. The greenhouse boiler can produce biochar at will at the touch of a button. Be amazed.

Crispin Pemberton-Pigott, international technical advisor for several stove projects at the World Bank and GIZ. He is a test methods and stove technology innovator with multiple patents, creator of the SeTAR chemical mass balance test method used in multiple countries, active in creating national stove standards in South Africa and a representative of the South African Bureau of Standards at the ISO creating new standards on TC-285. He is a co-founder of the South-South Sustainable Stoves Group, a collaborative effort among experts from developing countries formed to create scientifically sound and robust test methods for own use in developing countries.

Julien Winter, a soil biologist, biochar technology and stove developer and a serial experimenter presently investigating high performance TLUD stoves of various power levels. He will bring a series of models to be used during demonstrations and will present some work on temperature evolution in TLUD's which will be combined for the first time with real time mass-balance measurements to provide fresh insights into what is happening inside the stove.

Participants with testing experience will be invited to share their insights to provide as much collaborative advancement as we can cram into two days. Wood chips and stick fuel are available. Bring your own pellets.

A joint assessment of performance metrics will be a major outcome of the work: Are we measuring and reporting what we need, and what our customers need? Which metrics are valid and what are their limitations? How can we use innovating testing approaches to optimise stove performance in less time, at lower cost and reach higher standards?

And the catch-all class: what to do when you only have simple equipment in hand – how much can you accomplish and when do you need to seek help?

Numbers: We feel we can accommodate up to 20 participants and expect less. There are chairs, a projector, water, and if you want, you can sleep in your camper. It will be July! Enjoy the summer!

Nearby places to stay include Odessa, Trenton, Kingston and Napanee (Avril Lavigne comes from Napanee, don't you know? Keep your eyes peeled.)

Please tell us if you are coming. We'll wait up for you.

A message from *The Committee*, OSTC-1