*Questions for Dr. Wotton based on Tuesday 18 June call with Cordy:*

**Matthew:**

How far back in time do you look for holdovers? Do you look forward in time as well? Is this possible?

**Dr. Wotton:**

up to 21 days…..depends on DC. I can change it to be longer.

One can carry the calculation forward with a weather forecast to look at when a known bunch of holdovers would be arriving……if that is the question. As long as you have inputs you can work with them. tHat is to forecast NEW holdovers in the future you would need a forecast of lightning strikes…..to forecasts existing holdover arrivals all you need is a weather forecast.

**Matthew:**

You use regular DMC and not sheltered DMC, yes?

**Dr. Wotton:**

yes…in this version…..I was trying to keep it simple and immediately implementable.

**Matthew:**

You do not worry about interpolation of fuel moisture indices, nor of calculating these values? You expect these input values as already given?

**Dr. Wotton:**

I do the interpolation from their weather station network obs in an earlier step. I interpolate it too the centroids of the 10 by 10 km grid.

I can give you this C code if needed. I am really not just showing you that step…So you either need to do that for them….or tap into their stuff in their new fire management system that does it (I can’t remember the name of that system)….i assume the latter

**Matthew:**

How does the model run if lightning is arriving 24-7?

**Dr. Wotton:**

you can run the model whenever you want. IF you have properly summed up the data to the current point in time.(so gridded current lightning strikes, interpolated weather)

**Matthew:**

Is lightning forecasting for tomorrow taken into consideration?

**Dr. Wotton:**

IF you have a forecast of strikes for tomorrow and their general location…you could use this as an input for sure…..do they have such a forecast? If you were getting a general forecast of ‘there may be lightning here.” well that’s a different problem. I doubt they have access to what they would need to do a prediction in that regard.

**Matthew:**

When exactly does the first input file get built in relation to when it is used as input in your model (by Ontario, for example)? In a timing sense.

So what I mean by this is, let's say the file that we use as input to your model is created at some time during the day or night. Let's call that time A o'clock.

What time does it then get used by your model? Let's call this time B o'clock.

Is there a scheduled / regular difference between A and B o'clock? For example, the input being created at 9 o'clock in the morning, and then the model executes at time 1 o'clock in the afternoon?

I think Cordy is trying to understand how this whole arrangement is implemented in Ontario and when the different inputs get grabbed and massaged into a single format for use by your model. Followed by when the prepared input actually gets used to produce predictions.

**Dr. Wotton:**

I don’t think there is any prescribed B oclock. Or really any A oclock per se. AND they can coincide and probably do most logically

In Ontario I am not sure exactly how the timing currently works in the current daily operational use (mainly cuz it doesn’t really matter other than when they want to operationally consume it)……I would GUESS that they 1) want to consume it at the morning briefing and 2) only care about it daily. So guessing they run the model at like say 8 or 9 in the morning. (key there is prior to the morning briefing and morning Intel desk work…BUT likely after the 8 am obs and the weather forecast for 1300 weather conditions and forecasted indices for the day). THIS way you have a sense of overnight lightning strikes (and maybe even overnight rain associated)……And you have a sense of the FWI System codes for the day (even tho they are forecast FWI System output …still a pretty good estimate)

IF in fact you then got a shwack of lightning say between 1000 and noon that day……you might rerun the whole thing at noon (from the ltg gridding point onward) and a still using the forecast FWI conditions for the day…to update the forecast (if you really cared).

If your morning weather forecast turned out to be absolute shit, then you might rerun the forecast after the 1300 hrs weather is in and the FWI System actuals are calculated (regardless of if there was lightning in the late morning or not). This just depends …as an intel product user, informing a decision makers, if you are confident or not in what the models were telling you based on their input

IF say you got lots of lightning thru the day….but if the storms moved on late in the day, a duty officer (or someone else who cares about intel) might want to rerun the system at that point…gridding up all that lightning that happened to that point that day to get a sense of the holdovers that storm might have created….if they want that information in the back of their head before they go home to sleep. They might also then run that looking at how all those holdovers would be forecast to arrive over the next day if they had say a 5 day weather forecast in there system (and associated FWI System outputs)

The models don’t care really…..so the runs can be updated anytime.

IF you want the Probability of ignition and Probabilty of arrival outputs (which can make a nice spatial map like a DMC or FWI) to correspond to your daily FWI System stuff…you either use forecasted 1300 weather (and FWI System indices) in the morning…OR you wait until after 1300hrs. (the latter is foolish I think, as you want a morning decision aid from this I think)

BUT the models don’t care….that is the bottom line….the answer to that question is more around when the operational need for it is….and then you push the button to do it right before that…..OR if clever…program it to update every hour of the day perhaps……

Operationally the need is for a LC fire occurrence prediction and range for the day….so am a guessing AB like Ontario wants ot use it first thinking in the morning….7 or 8 am.

probably doesn’t really answer that definitively for you.

A and B can coincide if you like……thats how I envision it mostly I think.