

Making the best use of weather forecasts.

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Herein reference is made to forecasts issued by Environment Canada (EC).

I've noticed from time to time a tendency of trip coordinators to cancel outings at the prospect of inclement weather. As we all know, the forebodings of doom and gloom sometimes don't materialize, but obviously forecasts are correct a good portion of the time; otherwise people wouldn't have any faith in them and wouldn't much care what the forecast said. As was the case years ago, you'd just bring a raincoat and keep an eye on the sky.



From Pinpointweather.com

Jack Williams, founder of the famous USA today weather page, believes there should be a rating system for how good the forecast is, some indication of forecaster confidence. Like the system in some hiking guidebooks where a "must do" hike gets 4 boots and the one boot hike is in the "don't bother" category. I must say I agree with Jack, and with others, lament the loss of Environment Canada's synopsis, wherein the forecaster gave a bit more information than what's in

the sparsely worded regional forecasts, along with some indication of confidence, such as "the front may move slower than expected, delaying the expected showers till later on this evening".

In the absence of such a system, what are we to do?

A few words here on how much reliability we can have in EC's standard forecasts, which now go out to a week.

Weather is a "chaotic system", meaning not disorderly but inherently unpredictable after a time, due to it being impossible to pin down exactly the initial state. All forecasts eventually break down, but on average, day 1 will generally have the greatest chance of being correct, and reliability will gradually deteriorate in the following days. However even this "rule of thumb" will to a large extent depend on what type of weather pattern we're experiencing.

I'll speak about summer patterns mostly here, since that's the season. We can divide our summer weather into 2 broad regimes. We have a settled regime, when we have

fairly persistent sunny weather under a ridge of high pressure, and the unsettled type of regime, when low pressure tends to bring in varying amounts of cloud, showers and thundershowers or even prolonged periods of rain, along with cooler temperatures.

The easiest forecast is persistence, since weather often gets “stuck” in a particular pattern, which then persists for some time, from a few days to a few weeks. The longer it has been dry, the more likely it is that the next day will be dry. The same applies in wet patterns; the longer it’s been cool wet and unsettled, the more likely tomorrow is going to be more of the same. It seldom stays wet all the time, so the cool wet regime may have some breaks.

I’ll deal with the fair weather situation first. Sunny and warm summer weather is typically associated with an upper ridge of high pressure, when the pacific storm track is pushed far to the north. If you see a weather forecast of 6 dry days with steady or steadily increasing daytime highs, and no mention of showers, you can have quite good confidence in the first 3 days. Probably even 4 or 5 in the latter part of the summer. This forecast indicates a building upper ridge of high pressure, meaning the atmosphere will be warming at high elevations, suppressing shower activity. And this type of pattern once established, tends to remain for a while.

The “unsettled” kind of pattern is much more problematic, since low pressure systems, commonly referred to as “disturbances”, come in many shapes, sizes and flavours. You could see just a chance of showers, torrential downpours with thunder, or prolonged periods of rain depending on how intense the system is and where the track is in relation to your location. So a forecast in an “unsettled” situation is less reliable than in the “good” weather pattern, especially beyond day one or two. In the “high pressure” scenario, Wednesday’s forecast for Saturday of hot and dry, is probably about 90 percent chance of being correct, especially if the warm dry conditions are forecast to continue beyond Saturday. Conversely if we have an unsettled regime, and the forecast calls for 60 percent chance for showers Thursday and Friday, with periods of rain on Saturday, I wouldn’t be so quick to write off Saturday. The computer models might not have such a good handle on the track and intensity of the low pressure system that far in advance. Exactly where it ends up going can make a lot of difference. A track 50 km farther south could leave us rain free in some cases. Saturday may end up just having a good chance of showers, and be quite a useable day. I wouldn’t be inclined to cancel several days ahead. Perhaps with 36 or 24 hours notice, and successive forecasts confirming the previous estimates, I might be more inclined to call it off. The “hit and miss” nature of summer precipitation is another problem, since showery precipitation is spotty by nature, and one place may get soaked for an hour, while a location a few km up the road may escape with a dry day. You’ll just see the black cloud in the distance.

It’s also important to mention, in our context, that EC’s forecasts are essentially geared to populated centres in the region. If Castlegar’s forecast (West Kootenay

region) calls for a 40 percent chance of showers, and you're headed for Kokanee Glacier or the Valhallas, you may well find that the probability of precipitation is considerably higher. I used to joke that it might not rain all day, just about 40 percent of the time! ... a little tongue in cheek. The higher probability would also apply if lightning is mentioned, so in any case it's always good to keep an eye on the sky and watch out for those growing towering cumulus clouds, with the big cauliflower tops and dark bases. If the day looks thundery, perhaps a lower elevation destination might be a prudent choice, but as mentioned, thunder is difficult to predict several days in advance.

If the forecast is worded more strongly, in the case where warnings are issued, it would mean that there is high forecaster confidence in inclement weather. A "severe thunderstorm watch" means that the atmosphere is expected to be "primed" for the development of severe thunderstorms. They aren't there yet, but likely at least some kind of thunderstorms will be soon. You might not want to summit on that day, or at least keep a very careful eye out.