EAS270, "The Atmosphere" Assignment 2 Due 5 pm 25 Nov., 2009

Professor: J.D. Wilson Value: 10%

Weather Analysis & Assessment of Numerical Forecast

Preamble: Students are permitted (but not obliged) to work in teams on this assignment. Teams may number up to four students, and each team is to submit a single report, identifying all participants. Please deliver your assignment (hard copy; labelled with names and ID numbers) to the instructor or to the drop-off box outside Tory 3-40. A two mark penalty will be applied for late assignments received before noon Thursday 26 Nov. After that time, the late penalty will be five marks.

Task: Compare a CMC 48-hr numerical weather forecast ("prognosis") with a CMC 0-hr prognosis valid at that same time. Focus specifically on the surface pressure field and the 1000-500 hPa thickness field, both of which are plotted (upper-right panel) on the CMC progs[1]. You may choose *any* date (and time) during November 2009, although probably the task will be easier if you select an inherently dramatic weather situation, e.g. a snow storm, strong winds, rapid warming or cooling, frontal passage, etc. (that is, a case involving strong gradients of pressure and temperature, with consequently vigorous weather). Note that you will need to be regularly viewing, and if needbe saving, the 48 hour numerical forecasts in order to identify a forthcoming time/event that you potentially might choose as your "event."

Format & Content of Report: Your report is restricted to a title page (listing names and ID's) plus **three** single-sided standard pages, of which one gives your two maps, with their appropriate captions. The maps should be cropped and re-scaled (e.g. in PowerPoint) to focus attention on the particular geographic area of interest. Your narrative may be in point or essay form. In either case it must be ordered (coherent) and legible. Use appropriate headings. Cover why you focused on this event, and its significance. Briefly interpret the meteorological situation; and comment on the accuracy (or inaccuracy) of the 48-hr prognosis. Relate your discussion very specifically to the maps, and focus on *factual* elements, rather than conjecture. You *may* refer to information (e.g. public text forecasts, tabulated weather records, other weather maps/charts, satellite or radar images) supplementary to your two key maps, with the proviso that such references be relevant to, and properly integrated within, your discussion.

Marking Scheme:

- Accurate and perceptive summary of the prevailing meteorological situation (e.g. dominant pressure system, thermal gradients, pattern of the winds,...) 4%
- Assessment of the forecast 3%
- Effectiveness & Professionalism (legibility, grammar, organization, clarity, creativity) 3%

[1]See page 2 for an example (here I chose to show the entire domain, but it is acceptable and probably useful to crop, so as to focus on a particular region). The 0-hr prognosis gives the same information as the analysis, and this high resolution, black-and-white chart can be viewed and downloaded at weatheroffice.gc.ca/data/model_forecast/590_100.gif. The 48-hr prog is at weatheroffice.gc.ca/data/model_forecast/600_100.gif.

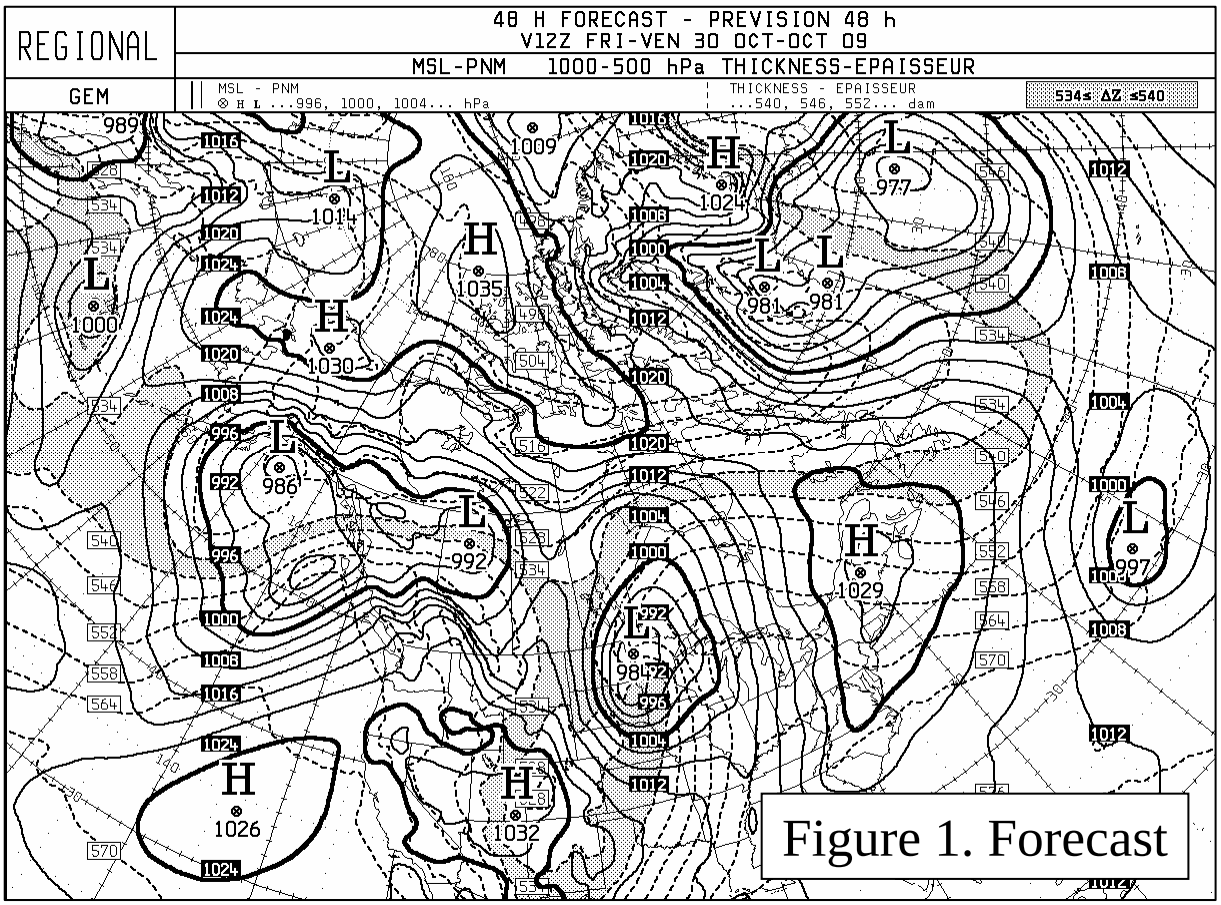

Figure 1. Forecast

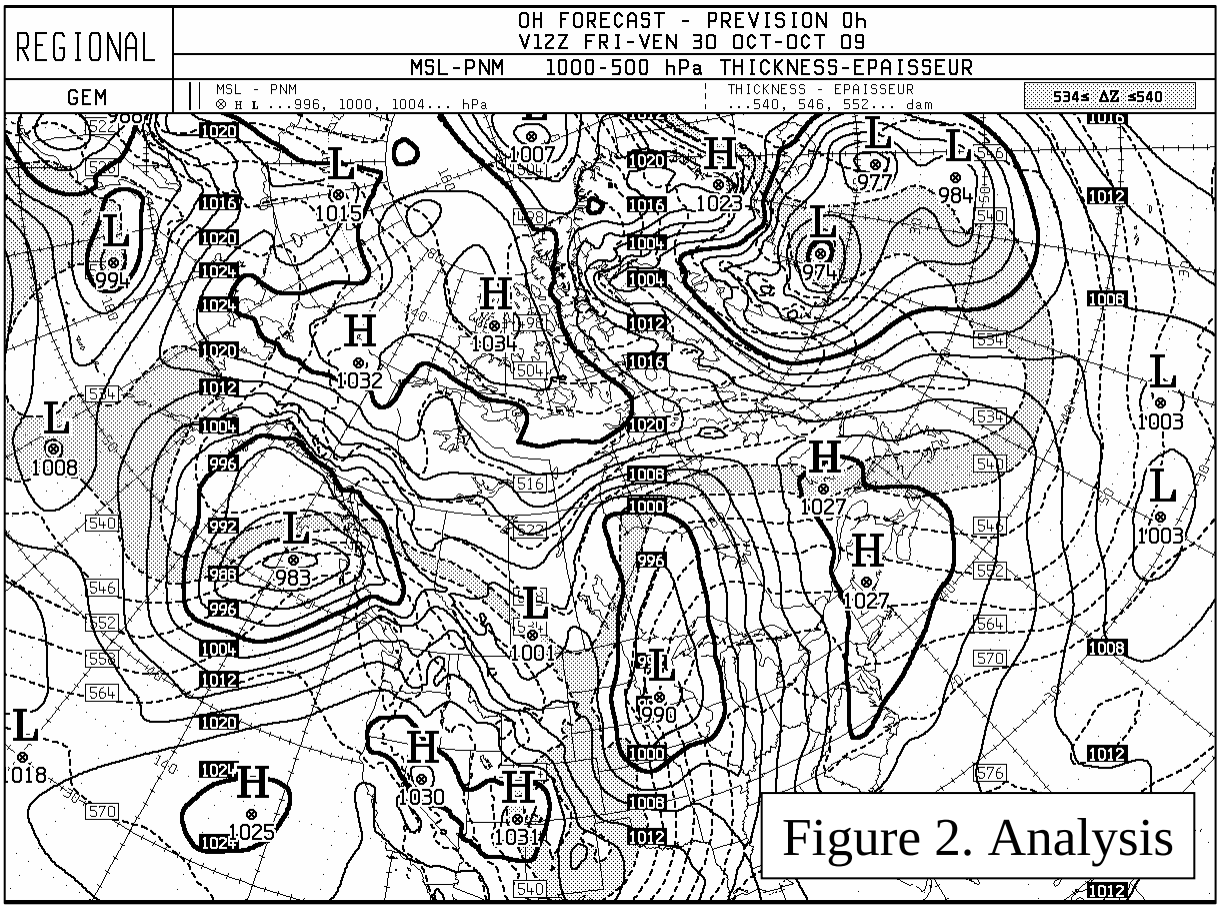

Figure 2. Analysis