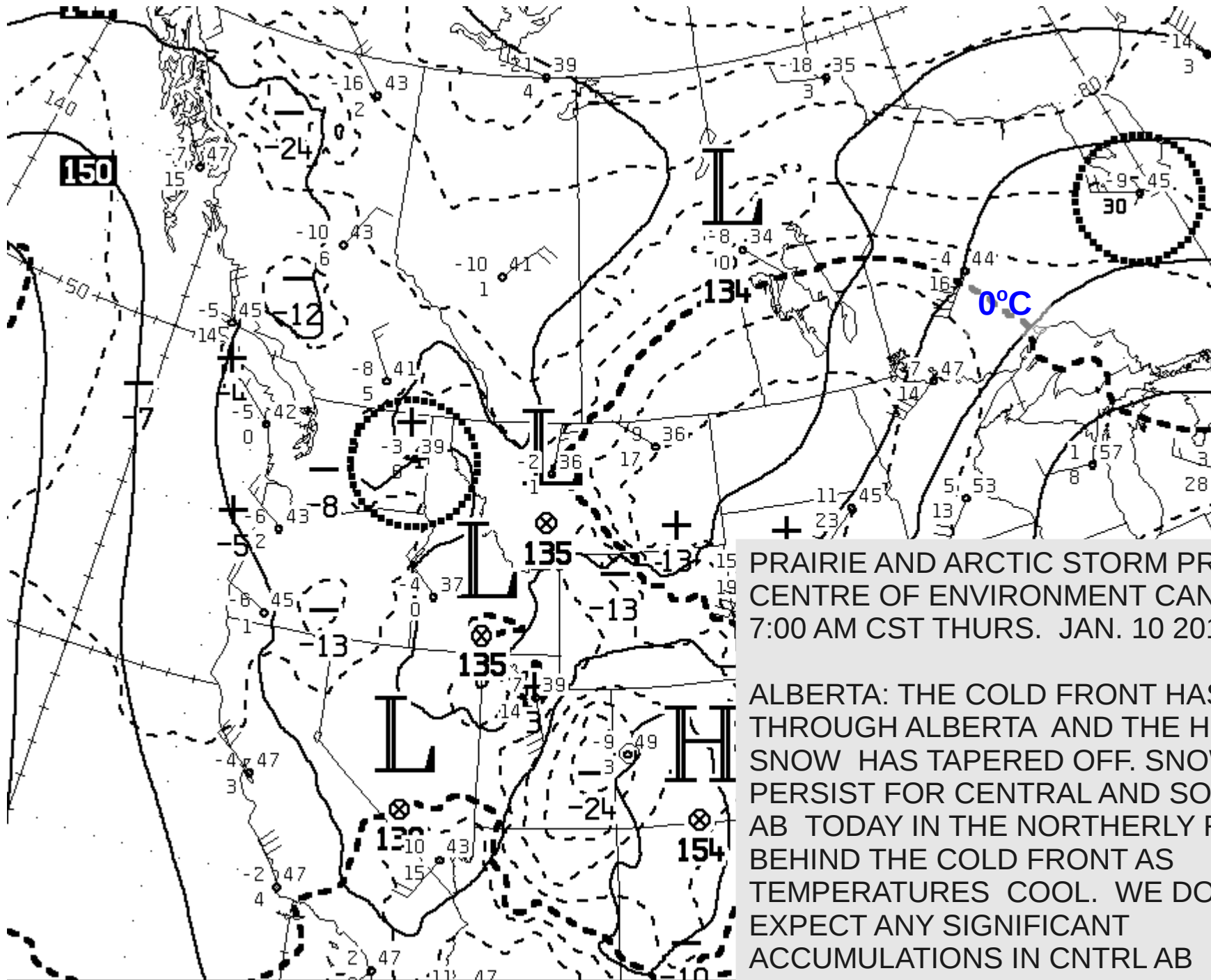


- compute air density  $\rho$  at the surface level for Stony Plain at 12Z today, based on the sounding (over)
- compute the relative humidity at the surface level for Stony Plain at 12Z today (use Bolton's Eqn [https://courses.eas.ualberta.ca/eas372/Vomel\\_CIRES\\_satvpformulae.html](https://courses.eas.ualberta.ca/eas372/Vomel_CIRES_satvpformulae.html) to compute the needed equilibrium vapour pressure). Compare with the value tabulated on the sounding
- surface elevation at Stony Plain is 766 m. Consult Environment Canada's "Climate Data Online" to determine surface elevation at Edmonton Int'l Airport (YEG or CYEG). Use the hydrostatic equation (Lackmann Eq 1.16) in conjunction with the Stony Plain sounding to obtain an approximate estimate for surface pressure at CYEG
- plot the Stony Plain sounding (from the surface to the 500 hPa level) on the Skew-T diagram provided (blanks can be found on the course web links page)
- use the sounding to deduce the potential temperature of air at the 500 hPa level. Compare with the value given by using Eqn 1.24

# 71119 WSE Edmonton Stony Plain Observations at 12Z 10 Jan 2013

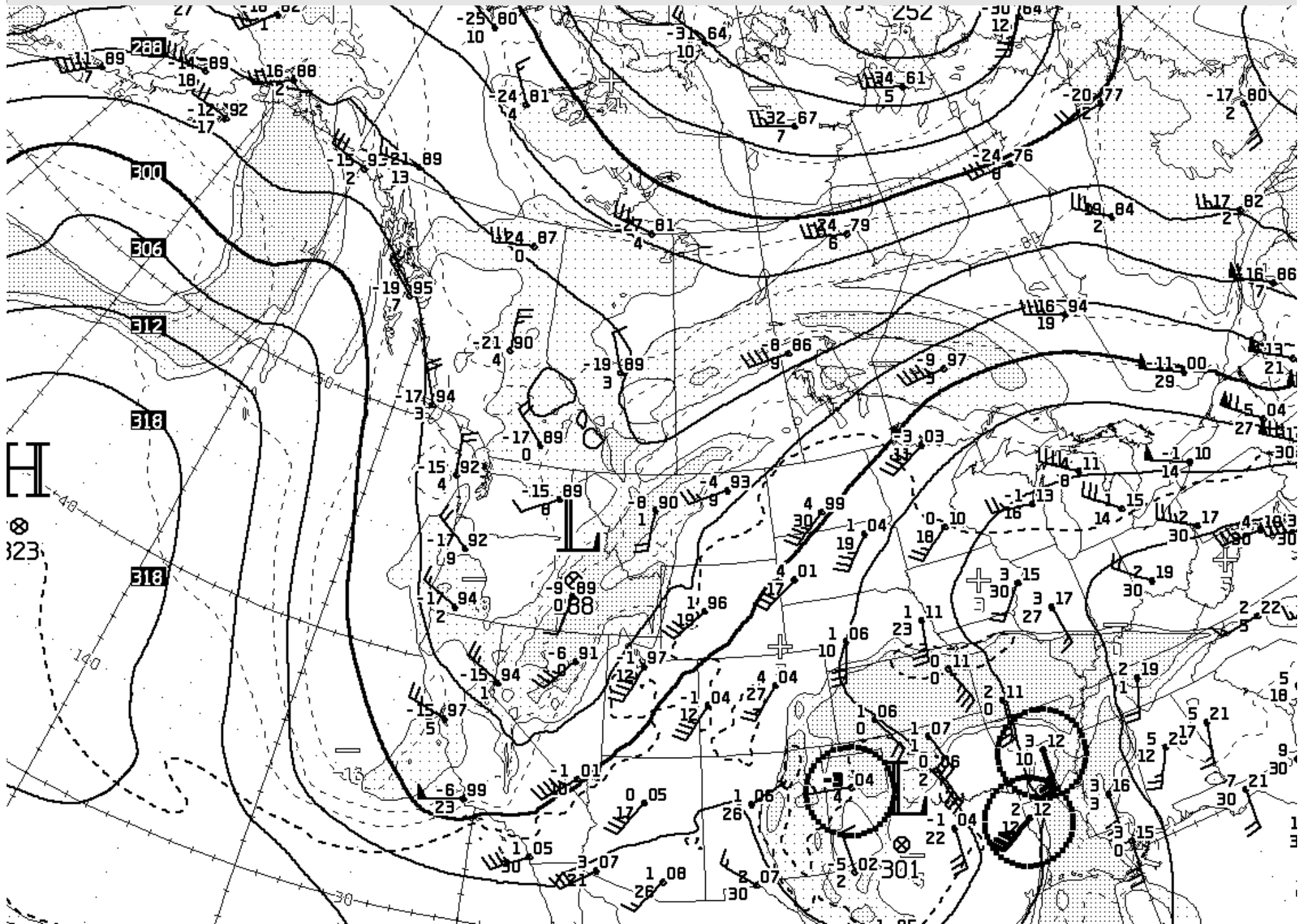
PRES	HGHT	TEMP	DWPT	RELH	MIXR	DRCT	SKNT	THTA	THTE	THTV
hPa	m	C	C	%	g/kg	deg	knot	K	K	K
1000.0	153									
925.0	766	-11.3	-13.1	87	1.51	350	10	267.8	272.0	268.0
907.2	914	-12.5	-14.1	87	1.42	15	23	268.0	272.1	268.3
889.0	1068	-13.7	-15.2	88	1.33	35	21	268.3	272.1	268.5
871.5	1219	-10.7	-11.5	94	1.82	55	20	272.9	278.1	273.2
869.0	1241	-10.3	-11.0	95	1.91	54	20	273.6	279.1	273.9
853.0	1384	-9.9	-10.7	94	1.99	51	18	275.5	281.2	275.8
850.0	1411	-9.9	-10.9	92	1.97	50	18	275.8	281.4	276.1
804.7	1829	-12.1	-13.0	93	1.76	45	13	277.8	282.9	278.0
773.2	2134	-13.7	-14.5	94	1.61	35	6	279.2	284.0	279.5
744.0	2428	-15.3	-16.0	94	1.48	16	10	280.6	285.0	280.8
743.1	2438	-15.4	-16.1	95	1.48	15	10	280.6	285.0	280.9
734.0	2531	-16.1	-16.6	96	1.43	10	10	280.8	285.1	281.0
713.5	2743	-17.8	-20.6	78	1.05	0	10	281.2	284.4	281.4
707.0	2812	-18.3	-21.9	73	0.94	353	10	281.4	284.3	281.6
700.0	2886	-18.9	-22.1	76	0.94	345	10	281.5	284.4	281.7
684.8	3048	-20.3	-22.6	82	0.91	340	10	281.7	284.5	281.9
657.1	3353	-23.0	-23.7	94	0.87	305	13	282.0	284.7	282.2
648.0	3456	-23.9	-24.0	99	0.85	295	14	282.1	284.8	282.3
643.0	3513	-22.5	-23.1	95	0.93	289	14	284.4	287.3	284.5
637.0	3582	-22.3	-28.3	58	0.59	283	14	285.4	287.2	285.4
633.0	3628	-22.3	-30.3	48	0.49	278	15	285.9	287.5	285.9
630.4	3658	-22.5	-30.3	49	0.49	275	15	285.9	287.6	286.0
604.6	3962	-24.7	-29.9	62	0.53	285	17	286.9	288.6	287.0
579.7	4267	-26.9	-29.6	78	0.57	255	21	287.8	289.6	287.9
560.0	4518	-28.7	-29.3	95	0.61	251	21	288.5	290.5	288.6
552.0	4621	-29.1	-31.0	84	0.52	249	21	289.2	290.9	289.3
532.5	4877	-31.4	-33.6	81	0.42	245	21	289.4	290.8	289.5
527.0	4951	-32.1	-34.4	80	0.40	251	21	289.5	290.8	289.5
509.9	5182	-34.1	-42.1	44	0.19	270	22	289.7	290.4	289.8
507.0	5223	-34.5	-43.5	40	0.16	270	23	289.8	290.3	289.8
500.0	5320	-35.1	-43.1	44	0.17	270	24	290.2	290.8	290.2



PRAIRIE AND ARCTIC STORM PREDICTION  
 CENTRE OF ENVIRONMENT CANADA AT  
 7:00 AM CST THURS. JAN. 10 2013.

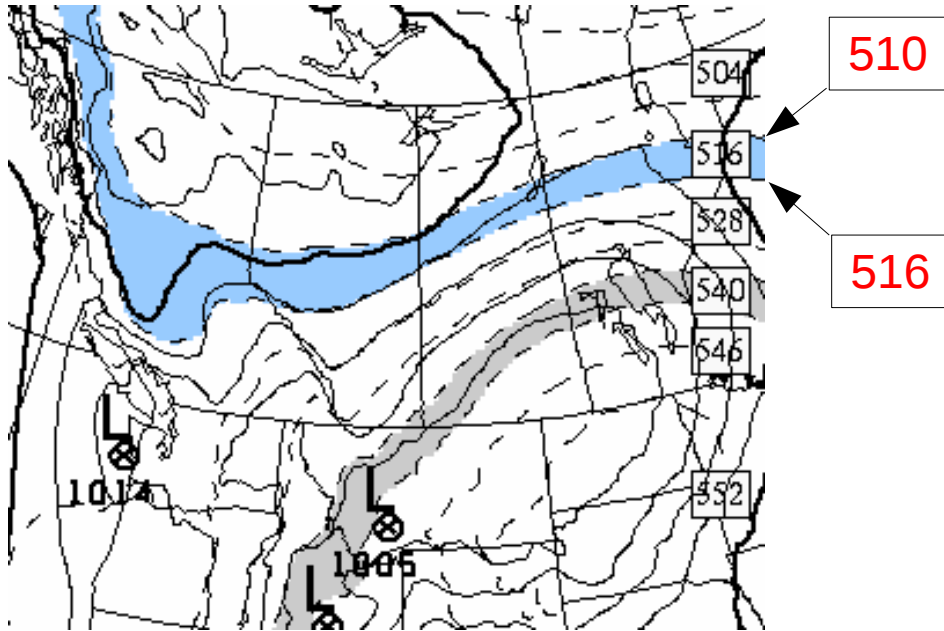
ALBERTA: THE COLD FRONT HAS SWEEP  
 THROUGH ALBERTA AND THE HEAVY  
 SNOW HAS TAPERED OFF. SNOW WILL  
 PERSIST FOR CENTRAL AND SOUTHERN  
 AB TODAY IN THE NORTHERLY FLOW  
 BEHIND THE COLD FRONT AS  
 TEMPERATURES COOL. WE DON'T  
 EXPECT ANY SIGNIFICANT  
 ACCUMULATIONS IN CNTRL AB

# CMC 700 hPa analysis valid 12Z Thurs 10 Jan. 2013

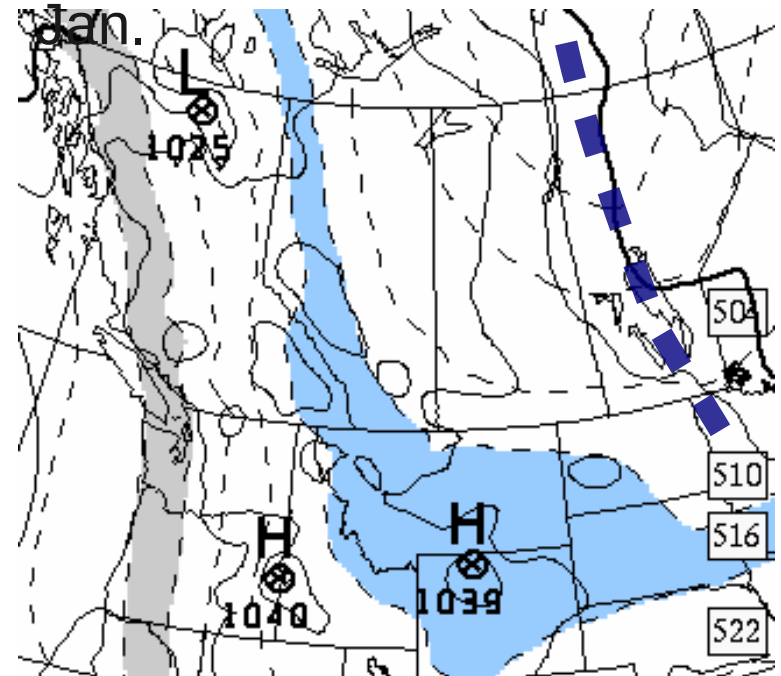


# Evolution of the thickness field over western prairies

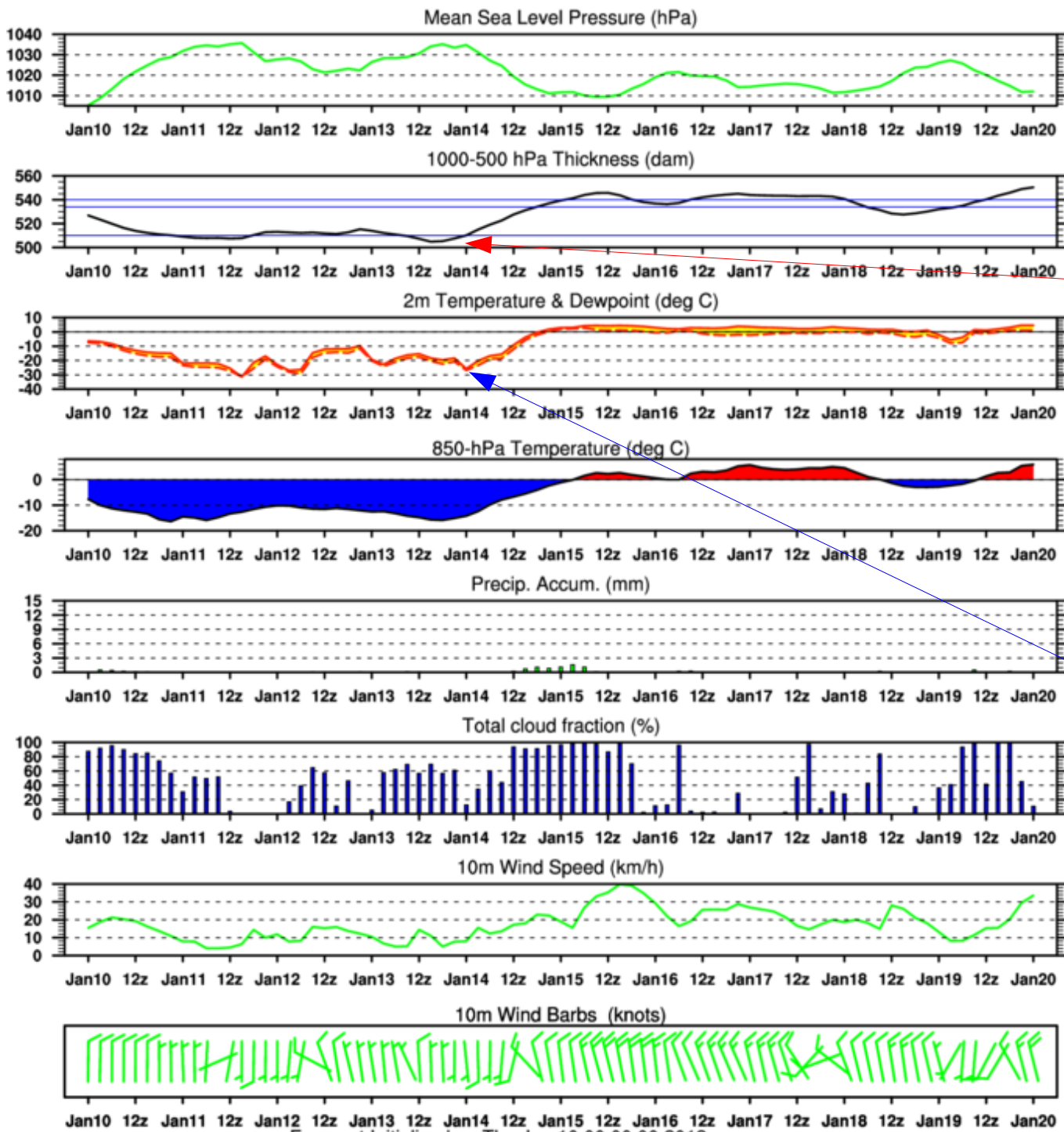
GEM reg 0hr prog, vld 12Z today



GEM glbl 90 hr prog initialized 00Z today, vld 18Z Sunday 13



axis of thermal trough slips eastward to Manitoba – as is typical



thickness bottoms out at about 505 dam

relative to the longer range (180 hr) prog inspected Tues 8 Jan., next week's low sfc temp more moderate and occurring earlier (between -20 and -30, rather than -40)