

Questions for today – *given as an example*

- why is it windy? (in Edmonton, this morning)

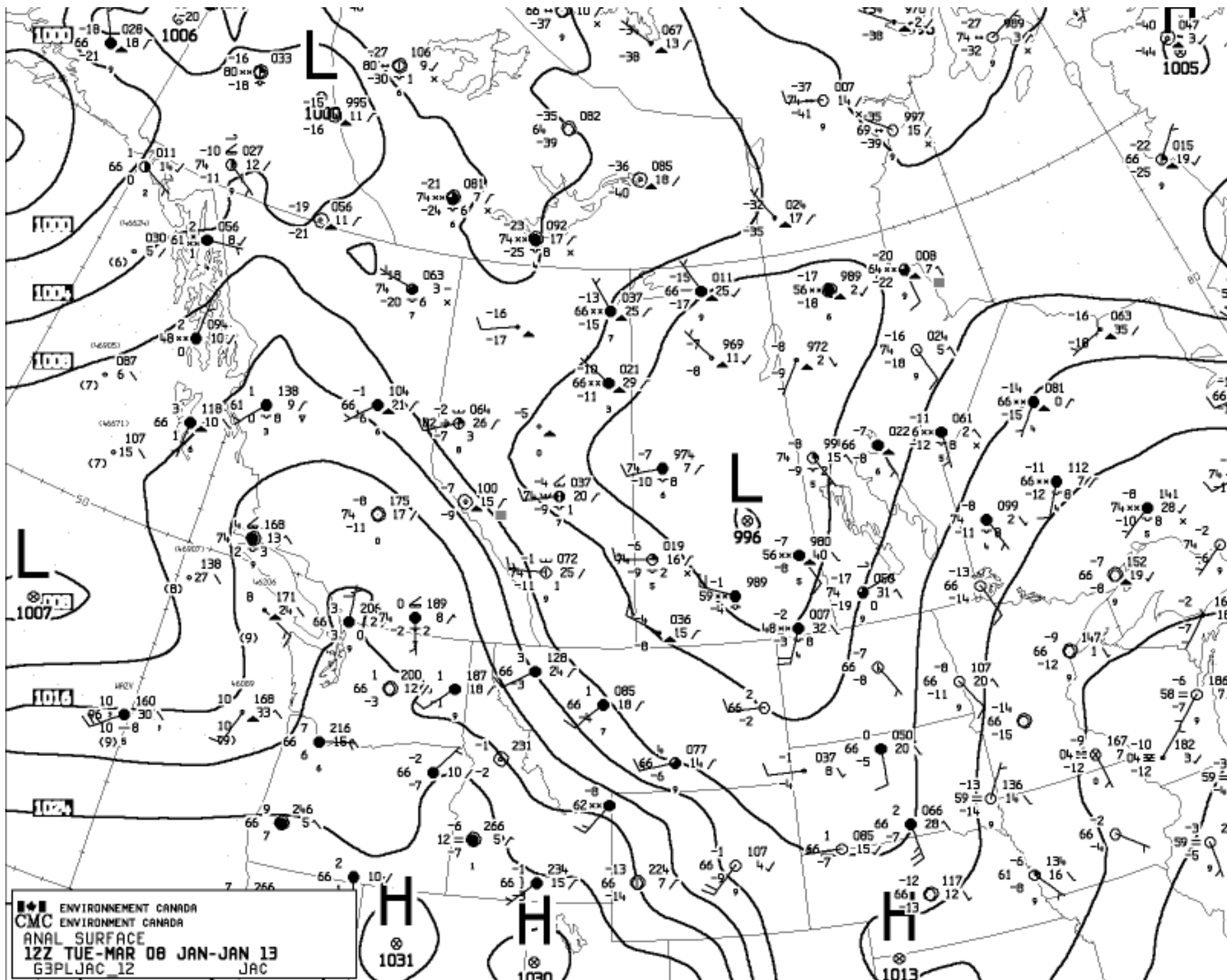
Because there is a strong pressure gradient over C. Alberta – see surface analysis (over)

- what is the 1000-500 hPa thickness at Edmonton?

From the sounding (over), 526 dam. By interpolation of thickness contours on the 500 hPa analysis or 0hr progs, about 523 dam.

- what will the thickness be at 12Z one week from now (12Z Tues 15th), and what is the implied cooling?

From the meteogram, or by interpolation off the 180 hr prog (over), about 490 dam. This is a decrease of $526 - 490 = 36$ dam, corresponding to 18°C cooling (you can prove this to yourself using Eqn. 1.37)

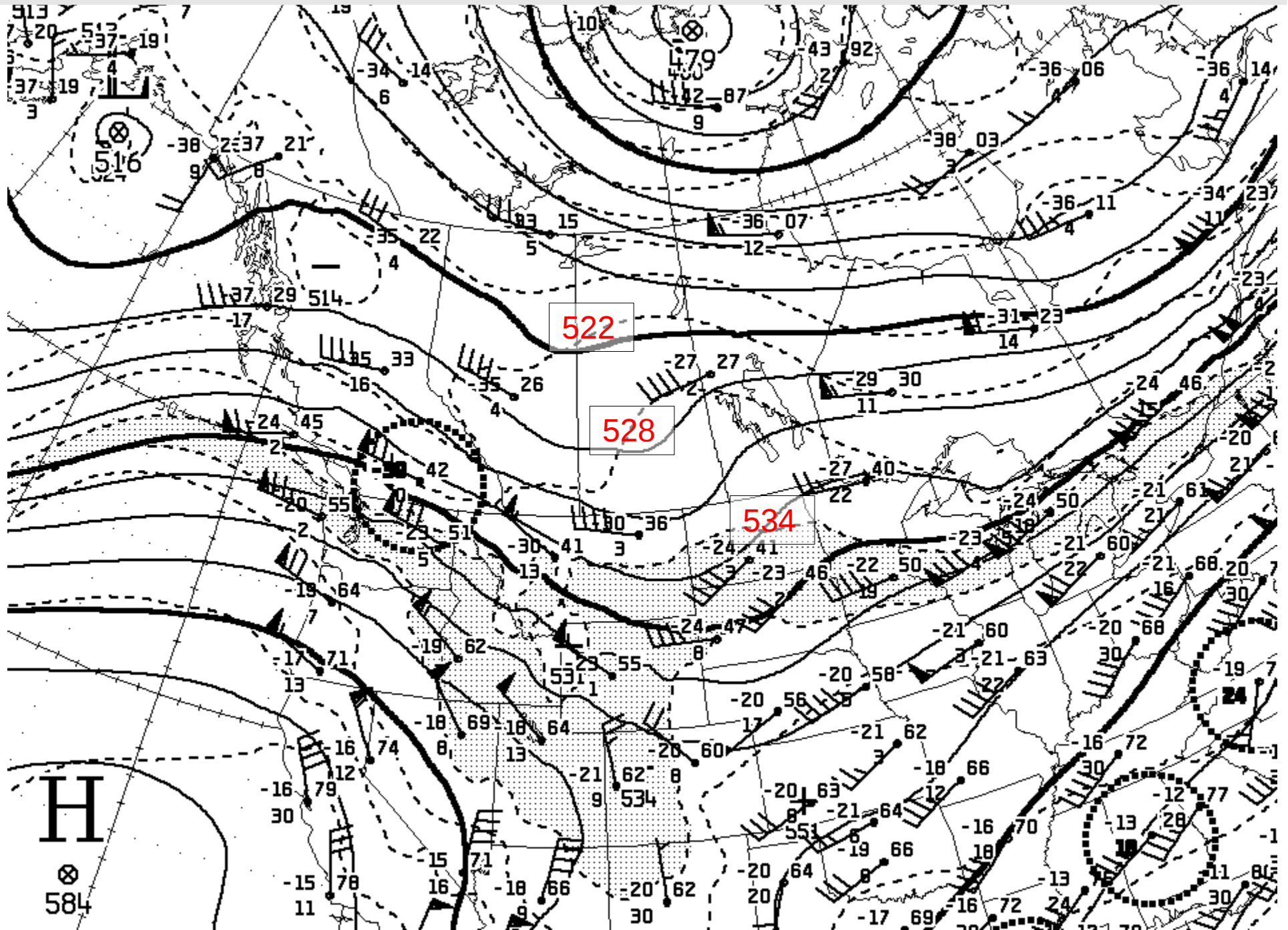


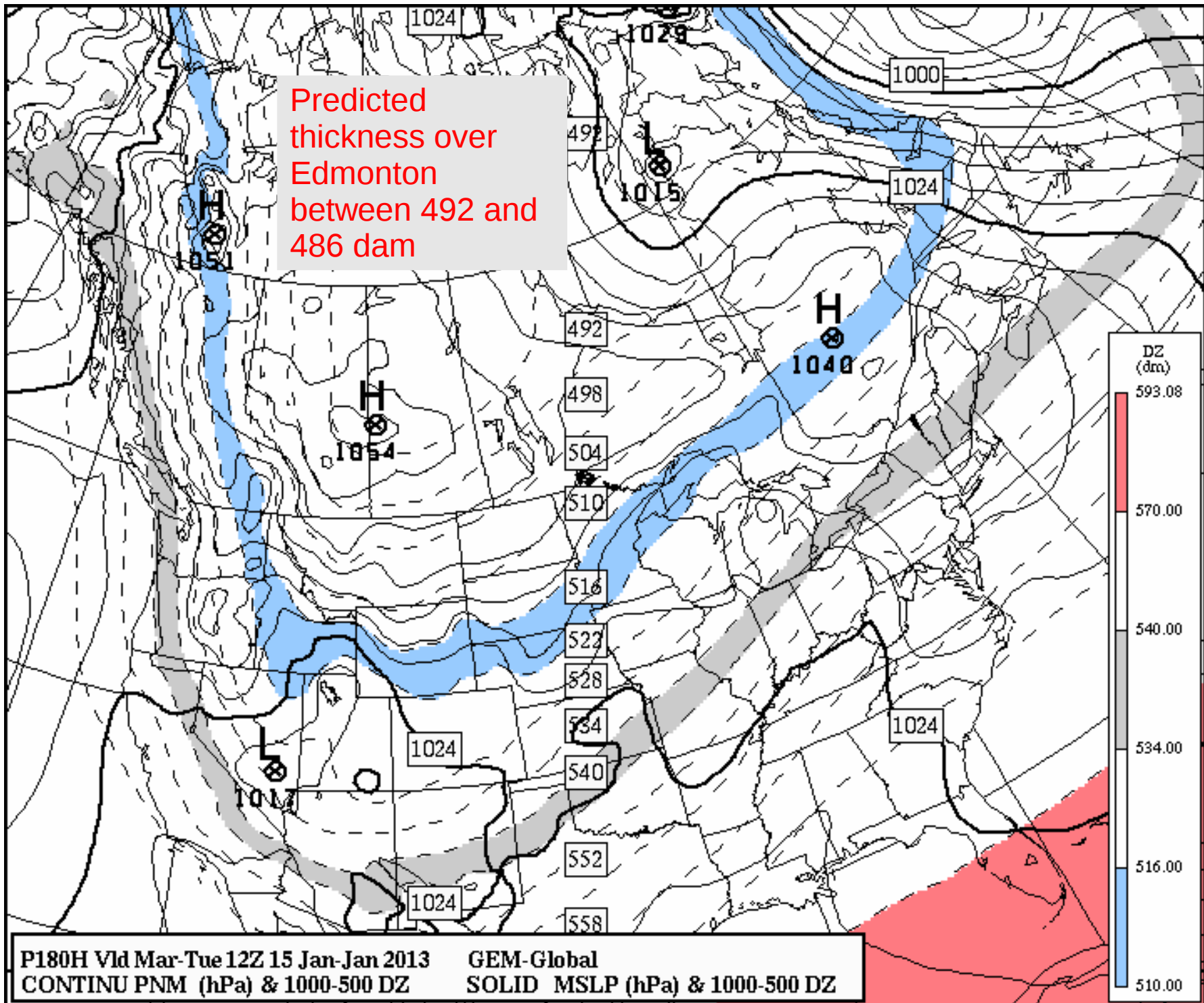
71119 WSE Edmonton Stony Plain Observations at 12Z 08 Jan 2013

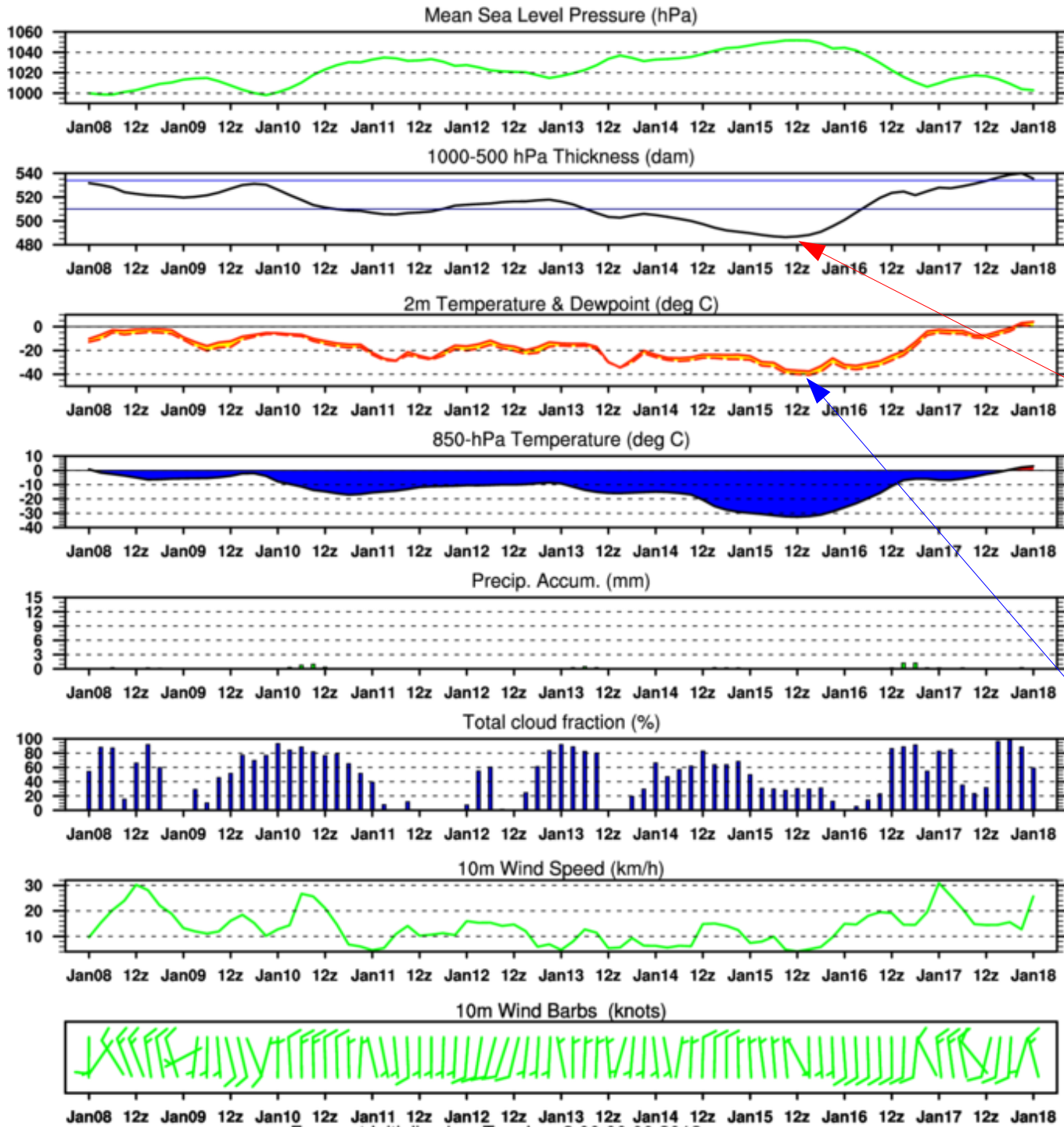
PRES hPa	HGHT m	TEMP C	DWPT C	RELH %	MIXR g/kg	DRCT deg	SKNT knot	THTA K	THTE K	THTV K
1000.0	4									
925.0	643									
911.0	766	-0.7	-8.7	55	2.18	280	13	279.8	286.2	280.2
904.0	828	0.0	-9.0	51	2.15	282	23	281.1	287.5	281.5
894.2	914	-0.5	-9.5	51	2.10	285	37	281.5	287.7	281.9
860.7	1219	-2.1	-11.1	50	1.92	295	51	282.9	288.7	283.3
856.0	1262	-2.3	-11.3	50	1.89	295	52	283.1	288.8	283.5
850.0	1318	-2.9	-10.9	54	1.97	295	53	283.1	289.0	283.4
827.8	1524	-4.8	-11.5	60	1.93	300	53	283.2	288.9	283.5
795.9	1829	-7.7	-12.4	69	1.86	305	55	283.3	288.9	283.6
765.2	2134	-10.6	-13.3	81	1.80	300	59	283.4	288.8	283.7
738.0	2416	-13.3	-14.1	94	1.75	300	61	283.4	288.7	283.7
735.8	2438	-13.4	-14.3	93	1.73	300	61	283.5	288.7	283.8
706.8	2743	-15.4	-16.9	89	1.45	300	54	284.6	289.0	284.8
700.0	2816	-15.9	-17.5	87	1.39	300	54	284.9	289.1	285.1
692.0	2902	-16.5	-19.4	78	1.20	299	53	285.1	288.8	285.3
656.0	3301	-19.9	-21.5	87	1.05	297	50	285.7	288.9	285.9
630.0	3601	-20.3	-27.3	54	0.65	295	47	288.5	290.6	288.6
625.1	3658	-20.8	-27.8	53	0.62	295	47	288.6	290.6	288.7
590.0	4082	-24.7	-31.7	52	0.46	288	48	288.9	290.4	289.0
574.9	4267	-26.3	-32.4	57	0.44	285	48	289.1	290.6	289.2
528.0	4877	-31.6	-34.5	75	0.39	300	49	289.9	291.2	290.0
527.0	4891	-31.7	-34.6	75	0.39	300	49	289.9	291.2	290.0
500.0	5260	-34.9	-39.0	66	0.26	295	42	290.4	291.3	290.5

1000-500 hPa thickness is $5260 - 4 \text{ m} = 5256 \text{ m} = 526 \text{ dam}$ (happens to be the same as the 500 hPa height, today)

MSC 500 hPa analysis 12Z Tues 8 Jan. 2013 – red numbers label thickness contours







thickness
about 490
dam

sfc temp
about -40