Weather Observation & Analysis Project

(WxProj) **2025**

Project & Report Objective:

Weather Observation & Analysis Project

Observe and document the weather over a specified 4-day period

&

explain why it occurred

Applied Lecture & Lab Component

- **Worth 30%**
  - Pre-report data collection activities: 6%
    (data collection: roof 2%, diary 2%, electronic 1% teamwork 1%)
  - Data quality control, data graphing, report instructor meeting: 4%
  - Written case study report: 20%
- **Weather Observation and Analysis Project Supporting Document**
  Gives all information: objectives, methods, requirements, writing tips, example data sheet, instrument information sheets
- **Read & revisit this document!**
- **Ask when uncertain**

Wx Proj Components:

- **Observing Period: Mon Feb 10 – Thur Feb 13, 2025**
- **Report Due: 4pm, Tue April 1, 2025**

  Submit both paper (in your drop-box) & electronic (on Moodle) copies

- **Supporting weekly content:**
  - **weather data collection skills /knowledge** (labs)
  - **weather interpretation** (lecture & labs)

2025 - ENSC 201 Key Wx Proj Dates

Mon Feb 10 – Thu Feb 13 Observations Days

- Roof-top data
- personal diary
- local & synoptic electronic data
- teamwork evaluations

Fri Feb 14 by 10 am

Submitted (dropbox) in a sealed, provided Ziplock bag:

- personal diary
- Completed teamwork evaluation
- USB key with electronic data

4pm April 1: Report Due (Dropbox & Moodle)

2025 ENSC 201 Schedule (updated)

NOTE: Schedules are subject to change with notification.

Week / Date (Mon of the week)	Lecture & *Weather Project Topics* **Weekly Lecture reading quizzes and activities worth 12%.**	Laboratory & *Weather Project Topics*
1 / Jan 6	Course introduction. The atmosphere. Energy.	**Lab 1:** Quantitative Analysis Skills & Radiation **(2%)** Lab 1: 1st turn-in ***WxProj: Using Max/Min Thermometers; Sky Condition & Cloud*** ***Outside briefly* – dress appropriately**
	Learn how to classify & recognize clouds. *Read Chapter 5 (pages 135 – 150). Review cloud chart (end of the text)*	
2 / Jan 13	Radiation terms & measurement. Radiation Laws. Shortwave & Longwave radiation.	**Lab 2:** Radiation Measurement **(2%)** Lab 2: 1st turn-in Lab 1: 2nd turn-in ***WxProj: Observing /Measuring Wind; Observing Cloud*** ***Outside most of the lab* – dress appropriately**
3 / Jan 20	Net radiation. Energy balance. Global climate. ***WxProj: Introduction to the Weather Observation & Analysis Project***	**Lab 3:** Energy & Water Budgets **(2%)** Lab 3: 1st turn-in Lab 2: 2nd turn-in Lab 1: returned ***WxProj: Measuring Precipitation; Setting WxProj Observation Schedule***
4 / Jan 27	Water balance. Atmospheric moisture – concepts & measurements.	**Lab 4:** Atmospheric Humidity **(2%)** Lab 4: 1st turn-in Lab 3: 2nd turn-in Lab 2: returned ***WxProj: Measuring Humidity; Confirm Wx Project Roof-top Observation Schedule Outside....***
5 / Feb 3	Atmospheric pressure. Hydrostatic law & its implications. Air masses, fronts.	**Lab 5:** Atmospheric Pressure **(2%)** Lab 5: 1st turn-in Lab 4: 2nd turn-in Lab 3: returned ***WxProj: Barometer Measurements, Calculations & Data Collection Practice Run – Outside...***
	Wed Feb 5 during lecture: Course Midterm: lecture, lab, WxProj **(13%)**	
6 / Feb 10	Middle-latitude Cyclones. Weather maps.	**Lab 6:** Weather Maps & Analysis **(2%)** Lab 6: 1st turn-in Lab 5: 2nd turn-in Lab 4: returned ***WxProj: Interpreting Weather Maps;***
	Wx Proj: Data Collection *Mon to Thu:* ***(6%).*** *Remember your observation time, partner meeting place, key returns.* *Complete:* ***Roof-top Observations*** *(2%);* ***Weather Diary*** *(2%);* ***Electronic Synoptic Data Collection*** *(1%);* ***Teamwork Evaluation*** *(1%)* **Due by 10 am Friday Feb 14 in your dropbox**: Personal weather diary, completed teamwork evaluation (on paper), & collected electronic data (on a USB key), submitted in a properly labelled, sealed ziplock bag.	
Feb 17	**Family Day** (Mon) **& Mid-Semester Break** – no classes Feb 17 – Feb 21	
7/ Feb 24	Atmospheric stability & cloud formation. Air pollution.	***WxProj: Data Quality Control,* produce Appendix 2, (1%)** **Bring: your laptop or use lab computers.** Appendix 2 submitted Lab 6: 2nd turn-in Lab 5, Collected WxProj data: returned
8 / Mar 3	Condensation, cloud & precipitation formation. ***Wx Proj: How to write a scientific report.*** *Collected Wx Proj data returned in Labs or here*	***WxProj: Time Series Graphing*, produce your report graphs (1%)** ***Sign-up for Report outline meeting times*** Lab 6: returned Appendix 2 returned
9 / Mar 10	Forces in the atmosphere. Atmospheric dynamics & wind. Jet streams, upper-level patterns.	***WxProj: Report Outline Interview Meetings* (2%)** Bring prepared WxProj outline & resources for discussion
10 / Mar 17	Atmosphere / Greenhouse effect. Global climate & climate change.	**No labs – work on Wx Project**
11 / Mar 24	Stratospheric ozone. Tropical cyclones.	**No labs – work on Wx Project**
12 / Mar 31	Summer and Winter Severe weather. Exam prep & course review.	**No labs**
	WxProj Report Due: Tue Apr 1 at 4 pm in your drop box & electronically on Moodle (20%). **Late reports lose 20% per day** (including weekends & holidays) **staring after the due time.**	

Report Components:

- Weather observations made with roof-top Wx Proj instruments assigned to you & partner(s)
- Personal Weather diary
- Electronic data:
  - UNBC wx station graph,
  - selected synoptic wx maps and satellite images, that show & explain the weather pattern
- Report: Evidence-based, case study presenting the weather we experienced & explaining why it occurred

Roof-top data collection, your personal diary & the UNBC Weather Station provide local observation data.

EXAMPLE WEATHER PROJECT
DAILY OBSERVATION SCHEDULE
(Mon Feb 10 – Thu Feb 13, inclusive 2025)

Screen and Instrument #	Screen A		Screen B		Screen C		Screen D		Screen E	
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Reading Time: 8:00 am	Student 1 Student 2	Student 7 Student 8	Instructors	Student 19 Student 20	Student 25 Student 26	Student 31 Student 32	Student 37 Student 38	Student 41 Student 42	Student 47 Student 48 Student 49	Student 52 Student 53 Student 53
Reading Time: 12:00 (noon)	Student 3 Student 4	Student 9 Student 10	Student 14 Student 15 Student 16	Student 21 Student 22	Student 27 Student 28	Student 33 Student 34	Student 39 Student 40	Student 43 Student 44	Instructors	Student 54 Student 55
Reading Time: 16:00 (4:00 pm)	Student 5 Student 6	Student 11 Student 12 Student 13	Student 17 Student 18	Student 23 Student 24	Student 29 Student 30	Student 35 Student 36	Instructors	Student 45 Student 46	Student 50 Student 51	Instructors

EXAMPLE STEVENSON SCREEN DATA COLLECTION SHEET for Screen: XX Instrument:

DATE	TIME	TEMPERATURE			HUMIDITY (Note Instrument Type in RH column)				PRECIPITATION (Note when precipitation is from melted snow)				SKY Condition & CLOUD							WIND				PRESSURE			COMMENTS
Entered from earliest to latest		Max Temp. (°C)	Min Temp. (°C)	Present Air Temp. (°C)	Wet bulb Temp. (°C)	F = wick is frozen	Dry bulb Temp. (°C)	e (hPa) RH (%) A = Assmann B = Bacharach W = Wsksler	Snow Depth (mm) Ruler measurement	Snow Water Equivalent (mm)	Rain gauge (mm) T= Trace	M = from melted rain gauge	Sky: CLR FEW SCT BKN OVC OBSCD MISG	Amount (8ths) low	Amount (8ths) mid	Amount (8ths) high	Cloud type: Use abbreviations; use dashes for layers you cannot see. low	Cloud type: Use abbreviations; use dashes for layers you cannot see. mid	Cloud type: Use abbreviations; use dashes for layers you cannot see. high	Visual Observation: Direction Bearing as an 8-point compass	Visual Observation: Beaufort number	UNBC Weather Station: Direction Azimuth as degrees (°) from north	UNBC Weather Station: Speed (m/s)	Barometer (mm Hg)	Barometer Temp. °C (report to the nearest degree)	Corrected Pressure (hPa)	
Tues. Feb. 26	8:10	5.0	1.0	1.5	1.0	--	1.5	B	0		3.6	--	OVC	8	--	--	Ns	--	--	SE	2	120	1.8	697.2	20		Rain ended when emptying gauge
Tues. Feb. 26	11:49	2.0	1.5	2.0	-2.0	F	2.0	W	0		T	--	BKN	3	4	--	Sc	Ac	--	--	0	280	0.3	698.4	21		
Tues. Feb. 26	4:03																								22		
Wed. Feb. 27	7:55																								20		Sundogs visible
Wed. Feb. 27	12:07																								21		
Wed. Feb. 27	4:13																								22		
Thurs. Feb. 28	8:00																								20		Snow started
Thurs. Feb. 28	11:59																								21		Heavy snow during measurements
Thurs. Feb. 28	3:45																								22		Snow ended during observations
Fri. Mar. 1	7:40																								20		Foggy on campus
Fri. Mar. 1	11:39																								21		No fog now
Fri. Mar. 1	3:43	-1.0	-4.0	-4.0	-4.0	F	-3.5	A	10		0.9	M	SCT	1	2	0	St	As	--	SE	1	173	1.1	689.3	21		Cloud diminished during reading time

Each student will do their own calculations here.

Each student will do their own calculations here.

Each student will do their own calculations here.

These example data values → show a completed data collection form. Note the values and how they are recorded for → → each measurement as well as between measurements at the same time. Review reporting → requirements again before we start data collection. Also, realize that instruments are → never perfectly calibrated, so there are usually small discrepancies between → → → thermometers etc. from different Stevenson screens, but observations should be → → → consistent. More discussion of data issues will occur in labs before /after data collection. → [The data rationalization /quality control lab will focus on post data collection issues, so → avoid as many as possible by clarifying any confusion now.


Get key (UNBC Security Desk)
Collect wind data (WxProj Lab 2) from 2nd floor UNBC Weather Display on the way to the roof.

Also on the 2nd floor:

Measure pressure using the barometer.

Record wind & pressure on your own paper so you can transfer these values to the roof data collection sheet.

Mercury in Glass Barometer

Lab 5 teaches how to read & convert pressure measurements.

On the Roof:

Get your assigned data collection clipboard.

Transfer 2nd floor readings.

Record all roof observations on the roof-top data collection sheet as you make them.

Bacharach (+50 to -5°C) sling psychrometer

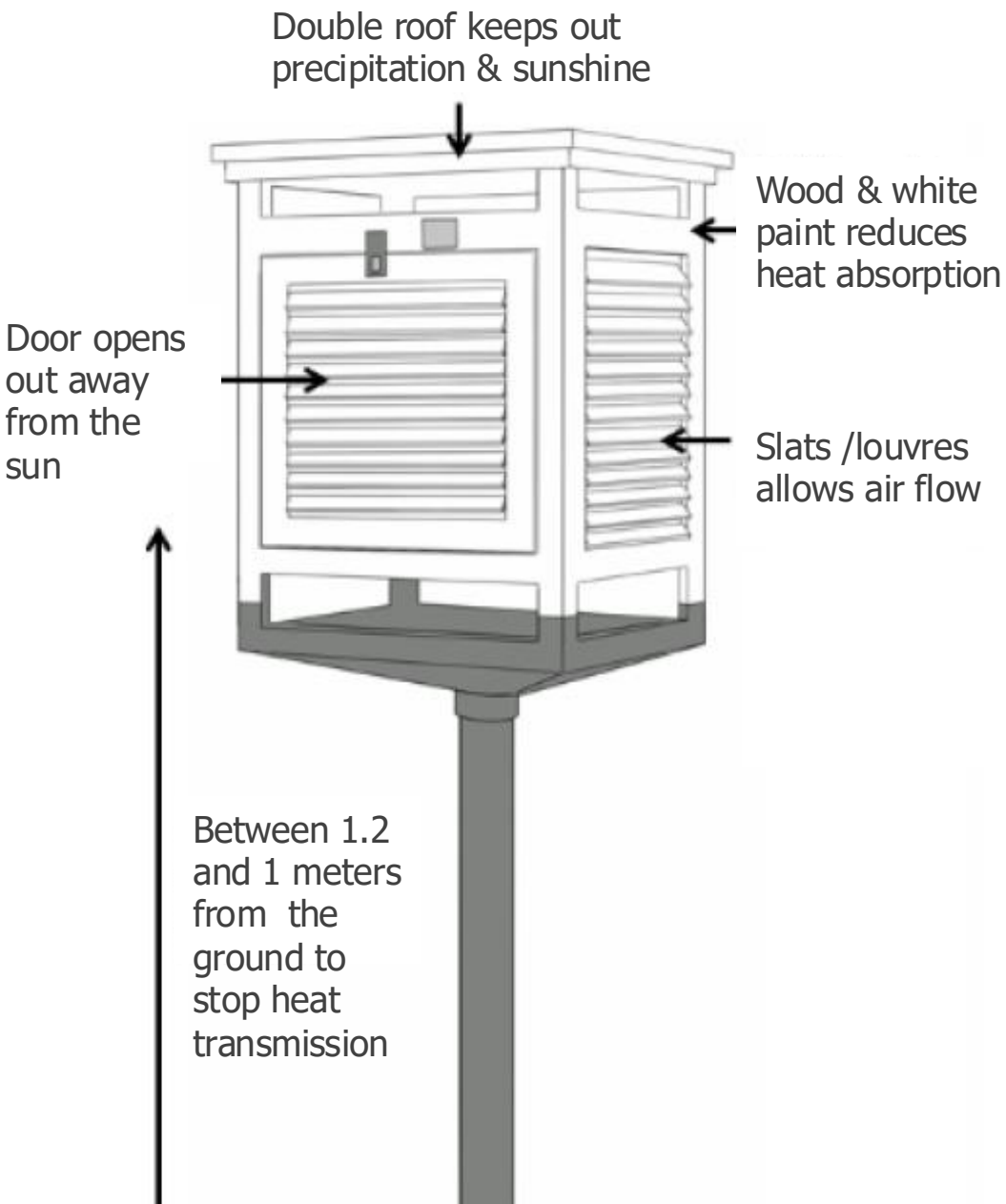
Make Efficient Humidity Measurements

You need to choose the right psychrometer. (WxProj Lab 4)

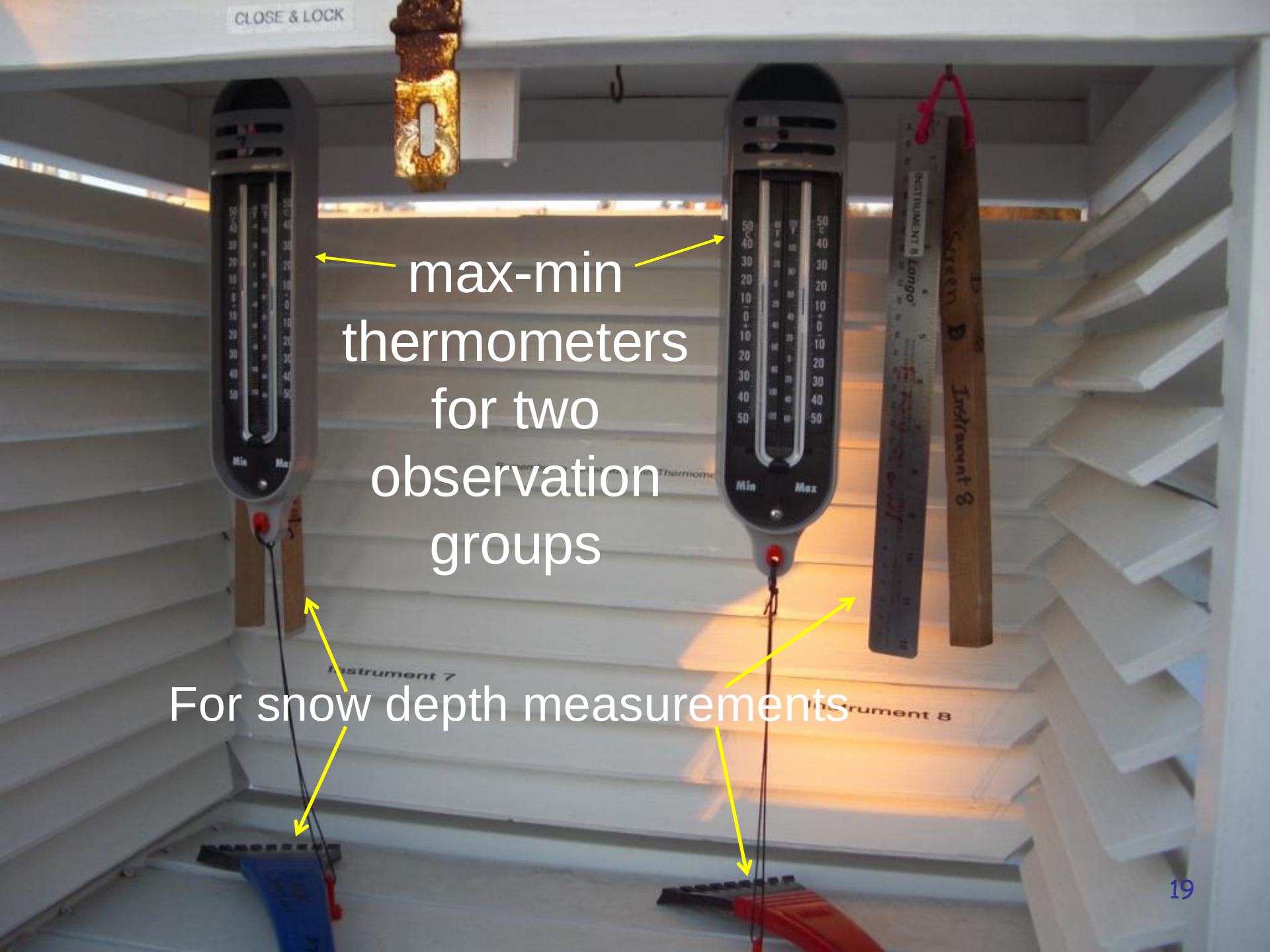
- properly wet it (water must be unfrozen – at inside temperatures)
- set it in your Stevenson screen to equilibrate to outside temperatures

If above freezing cool & use the Bacharach sling psychrometer

Stevenson Screen – Instrument Shelter



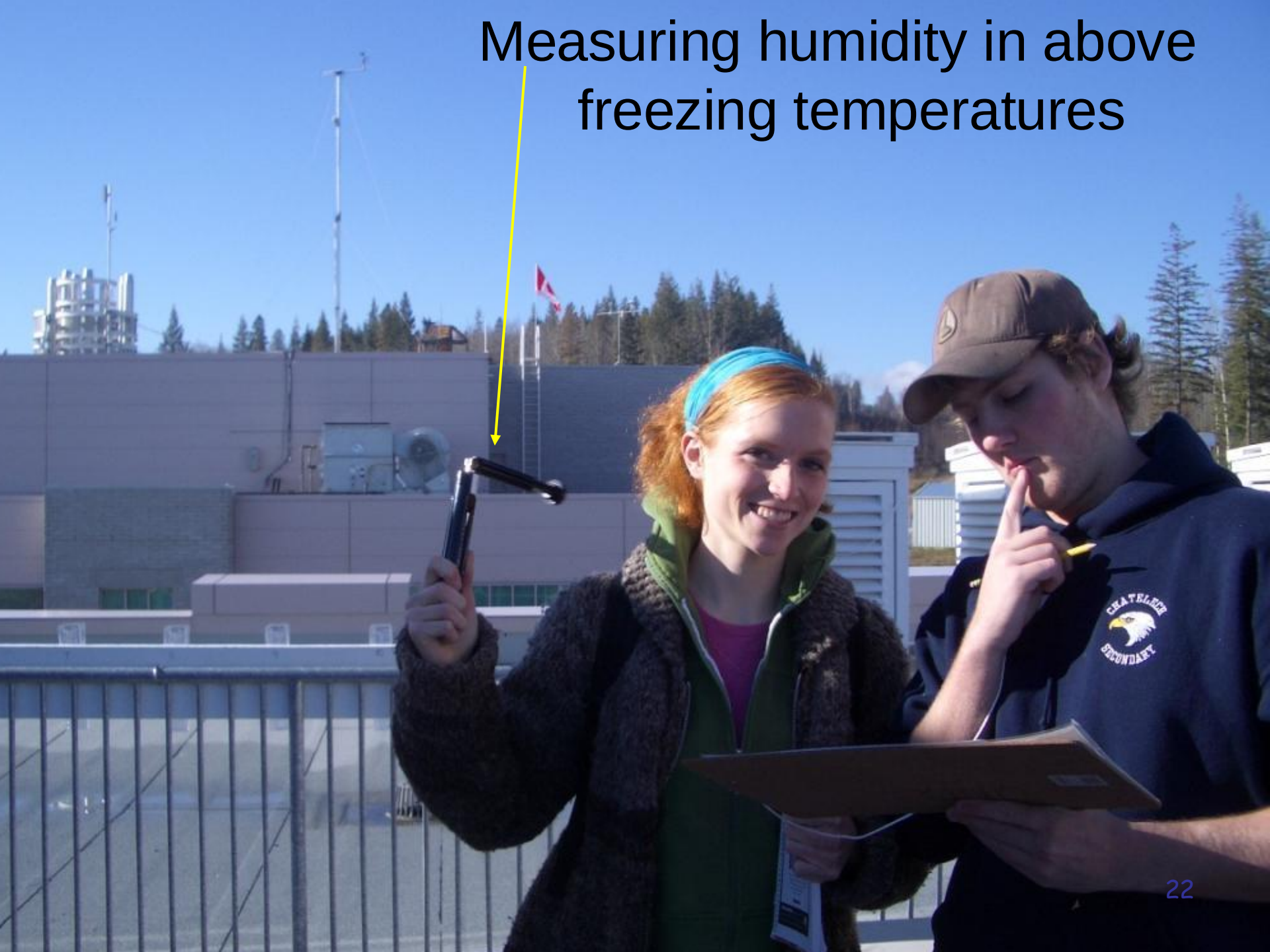
Stevenson screens shield thermometers from sunlight & house your instruments


CLOSE & LOCK
max-min thermometers for two observation groups
For snow depth measurements
Min
Max
Instrument 7
Instrument 8

Student partners collect data from Roof-top instruments. UNBC Weather Station in the background.


No snow on the snow bench, but check for hoar frost

Measuring humidity in above freezing temperatures



For **above freezing** temperatures use the Bacharach (B) sling psychrometer

For freezing temperatures, use the +50 to -30°C Weksler (W) sling psychrometer

Humidity measurements can be tricky around freezing – *more on this in Lab 4*

Assmann (A) Psychrometers

Aspirated (- wind-up or battery powered)

Very accurate 0.1^{o}C precision

For +30 to -30^{o}C

Delicate, very expensive

Instructors will assist with these

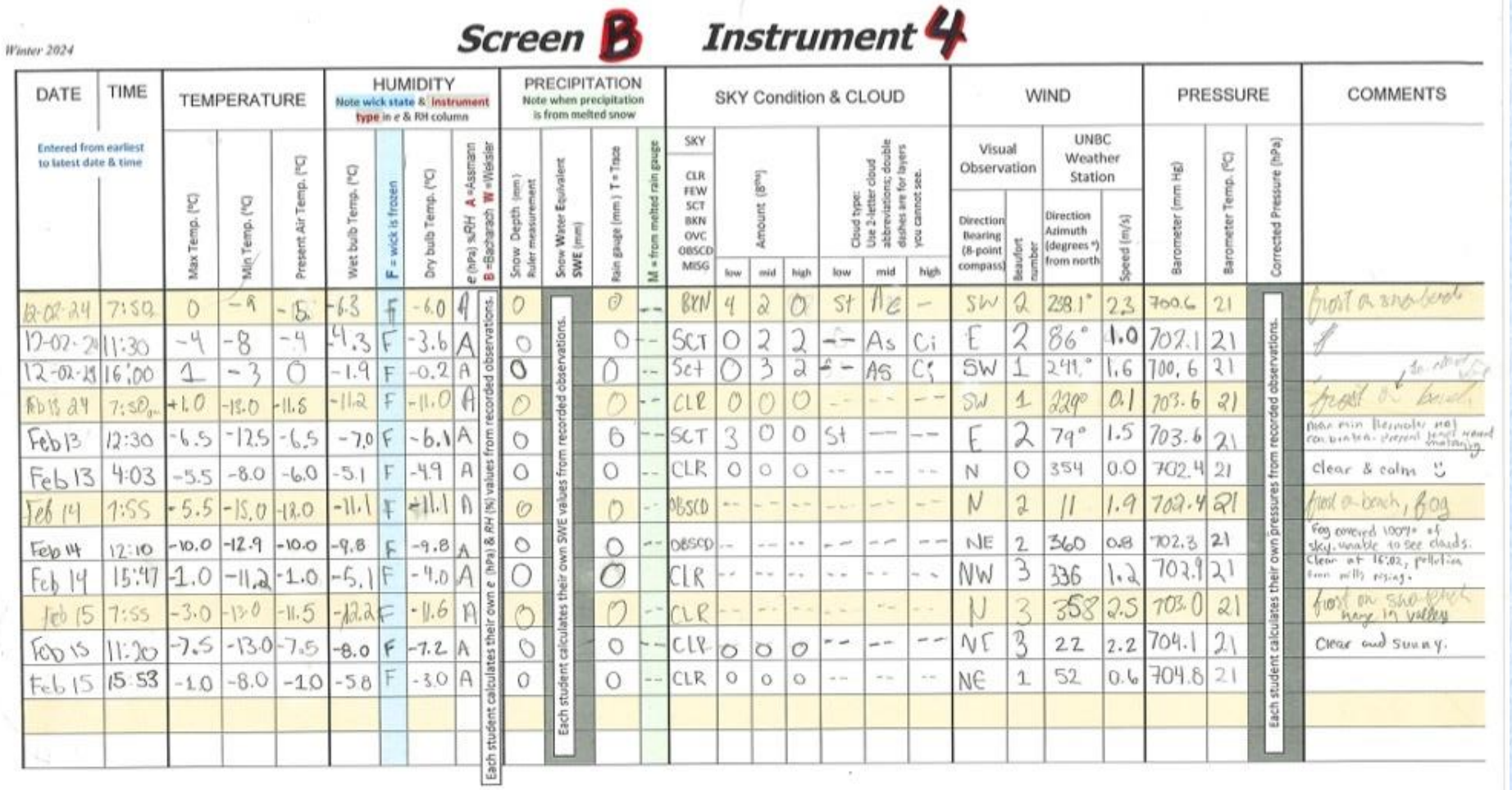
Report Data Sources:

Collected by the end of the 4 days:

- ✓ **Roof-top weather data**
- ✓ **Personal weather diary**

Selected electronic weather information from public sources that that show the weather pattern through:

- ✓ **local information (UNBC Wx station)**
- ✓ **synoptic maps & satellite images**



Winter 2024

Screen B Instrument 4

DATE	TIME	TEMPERATURE			HUMIDITY (Note wick state & instrument type in e & RH column)				PRECIPITATION (Note when precipitation is from melted snow)				SKY Condition & CLOUD						WIND				PRESSURE			COMMENTS
Entered from earliest to latest date & time		Max Temp. (°C)	Min Temp. (°C)	Present Air Temp. (°C)	Wet bulb Temp. (°C)	F = wick is frozen	Dry bulb Temp. (°C)	e (hPa) %RH A=Assmann B=Bacharach W=Wiekler	Snow Depth (mm) Ruler measurement	Snow Water Equivalent SWE (mm)	Rain gauge (mm) T = Trace	M = from melted rain gauge	SKY CLR FEW SCT BKN OVC OBSCD MISG	Amount (8ths) low	Amount (8ths) mid	Amount (8ths) high	Cloud type: Use 2-letter cloud abbreviations; double dashes are for layers you cannot see. low	Cloud type mid	Cloud type high	Visual Observation Direction Bearing (8-point compass)	Visual Observation Beaufort number	UNBC Weather Station Direction Azimuth (degrees °) from north	UNBC Weather Station Speed (m/s)	Barometer (mm Hg)	Barometer Temp. (°C)	Corrected Pressure (hPa)	
12-02-24	7:50	0	-9	-5	-6.3	F	-6.0	A	0		0	--	BKN	4	2	0	St	Ac	--	SW	2	238.1°	2.3	700.6	21		frost on snowboards
12-02-24	11:30	-4	-8	-4	-4.3	F	-3.6	A	0		0	--	SCT	0	2	2	--	As	Ci	E	2	86°	1.0	702.1	21		
12-02-24	16:00	1	-3	0	-1.9	F	-0.2	A	0		0	--	Sct	0	3	2	--	As	Ci	SW	1	241°	1.6	700.6	21		
Feb 13 24	7:50	+1.0	-13.0	-11.5	-11.2	F	-11.0	A	0		0	--	CLR	0	0	0	--	--	--	SW	1	229°	0.1	703.6	21		
Feb 13	12:30	-6.5	-12.5	-6.5	-7.0	F	-6.1	A	0		0	--	SCT	3	0	0	St	--	--	E	2	79°	1.5	703.6	21		
Feb 13	4:03	-5.5	-8.0	-6.0	-5.1	F	-4.9	A	0		0	--	CLR	0	0	0	--	--	--	N	0	354	0.0	702.4	21		clear & calm
Feb 14	7:55	-5.5	-15.0	-12.0	-11.1	F	-11.1	A	0		0	--	OBSCD	--	--	--	--	--	--	N	2	11	1.9	702.4	21		frost on bench, fog
Feb 14	12:10	-10.0	-12.9	-10.0	-9.8	F	-9.8	A	0		0	--	OBSCD	--	--	--	--	--	--	NE	2	360	0.8	702.3	21		Fog covered 100% of sky, unable to see clouds.
Feb 14	15:47	-1.0	-11.2	-1.0	-5.1	F	-4.0	A	0		0		CLR	--	--	--	--	--	--	NW	3	336	1.2	702.9	21		Clear at 16:02, pollution from mills rising.
Feb 15	7:55	-3.0	-13.0	-11.5	-12.2	F	-11.6	A	0		0	--	CLR	--	--	--	--	--	--	N	3	358	2.5	703.0	21		frost on shop front many in valley
Feb 15	11:20	-7.5	-13.0	-7.5	-8.0	F	-7.2	A	0		0	--	CLR	0	0	0	--	--	--	NE	3	22	2.2	704.1	21		Clear and Sunny.
Feb 15	15:53	-1.0	-8.0	-1.0	-5.8	F	-3.0	A	0		0	--	CLR	0	0	0	--	--	--	NE	1	52	0.6	704.8	21		

Each student calculates their own e (hPa) & RH (%) values from recorded observations.

Each student calculates their own SWE values from recorded observations.

Each student calculates their own pressures from recorded observations.

DO NOT REMOVE – LEAVE DATA SHEET WITH CLIPBOARD AT ALL TIMES

Example completed data sheet.
Completed by 3 teams of students per day
(teams at 8 am, noon, 4 pm)

Personal Weather Diary

Qualitative observations taken irregularly over the entire 96-hour (4-day) period

- Hand-written (original work must be submitted)
- Included as your report's Appendix 1
- Diary Format? Your choice, but must be:
  - paper & convenient for you to use
  - attachable to your report
  - meet observation & summary criteria (next slide)

Personal Weather Diary Criteria:

Elements: Individual, daily observations & end of day summary; end of observation period summary

- **Observations**:
  - qualitative (not measurements), clear, short, point form works well
  - made multiple times (whenever possible); at least 4 each 24-hour period but at irregular times works best so you can document key events as they occur
  - span day & night (but don't lose sleep)
  - must note observation time & location
  - report key sky & weather conditions, "how you felt weather"

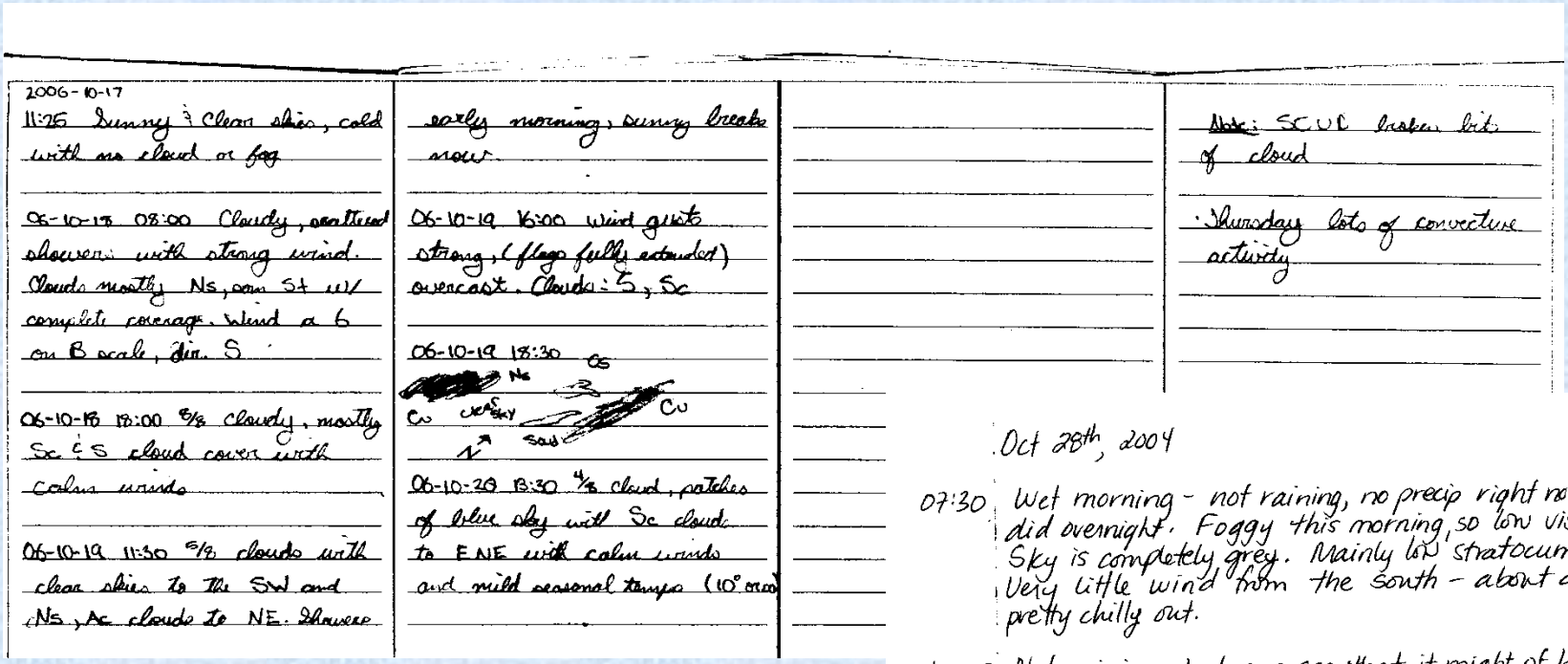
- Do not attempt to replicate roof-top observing times or information.

Personal Weather Diary Criteria continued:

- **Daily summary:**
  - 1 to 2 sentences each day
  - based on your multiple daily observations
  - summarizes the day's key weather events to show patterns, or trends
- **4-day summary:**
  - last entry; a short concise paragraph
  - summarizes the key 4-day weather events to show patterns /trends over the observation period

Don't forget to do these!

Personal Weather Diary examples



2006-10-17

11:25 Sunny & Clear skies, cold with no cloud or fog

06-10-18 08:00 Cloudy, scattered showers with strong wind. Clouds mostly Ns, some St w/ complete coverage. Wind a 6 on B scale, dir. S

06-10-18 18:00 8/8 cloudy, mostly Sc & S cloud cover with calm winds

06-10-19 11:30 6/8 clouds with clear skies to the SW and Ns, Ac clouds to NE. Showers early morning, sunny breaks now.

06-10-19 16:00 Wind gusts strong, (flags fully extended) overcast. Clouds: S, Sc

06-10-19 18:30 Cs

06-10-20 8:30 4/8 cloud, patches of blue sky with Sc cloud to ENE with calm winds and mild seasonal temps (10° cm)

Note: SCUC broken bit of cloud

Thursday lots of convective activity

Oct 28th, 2004

07:30 Wet morning - not raining, no precip right now, but likely did overnight. Foggy this morning, so low visibility. Sky is completely grey. Mainly low stratocumulus type. Very little wind from the South - about a 2. It's pretty chilly out.

12:05 Not raining, but can see that it might of because surfaces are wet. Still cold & sky completely grey. Wind= Same as this morning. Stratus & stratocumulous.

16:20 Still cool and grey. Wind hasn't changed. Moist & can see Stratus and stratocumulus clouds. Temperature is still cool - hasn't really warmed up at all today.

19:50 Dark out and can't see clouds - type more wind maybe. Still grey b/c I can't see stars & still cold.

Oct 29th, 2004

09:30 Very windy this morning. Cool & damp. Altostratus & cumulus clouds cover the entire sky.

13:30 Still very windy and from the south. About a 7 on the Beaufort. It's trying to rain. Everything is damp & occassional wet snowflake or raindrop.

Collecting Electronic Weather Information:

Weather Observation & Analysis Project

Synoptic = larger /regional scale

Synoptic data are needed to be successful!

Shows why our weather occurs….

What information is best?

Depends on the weather that occurs….

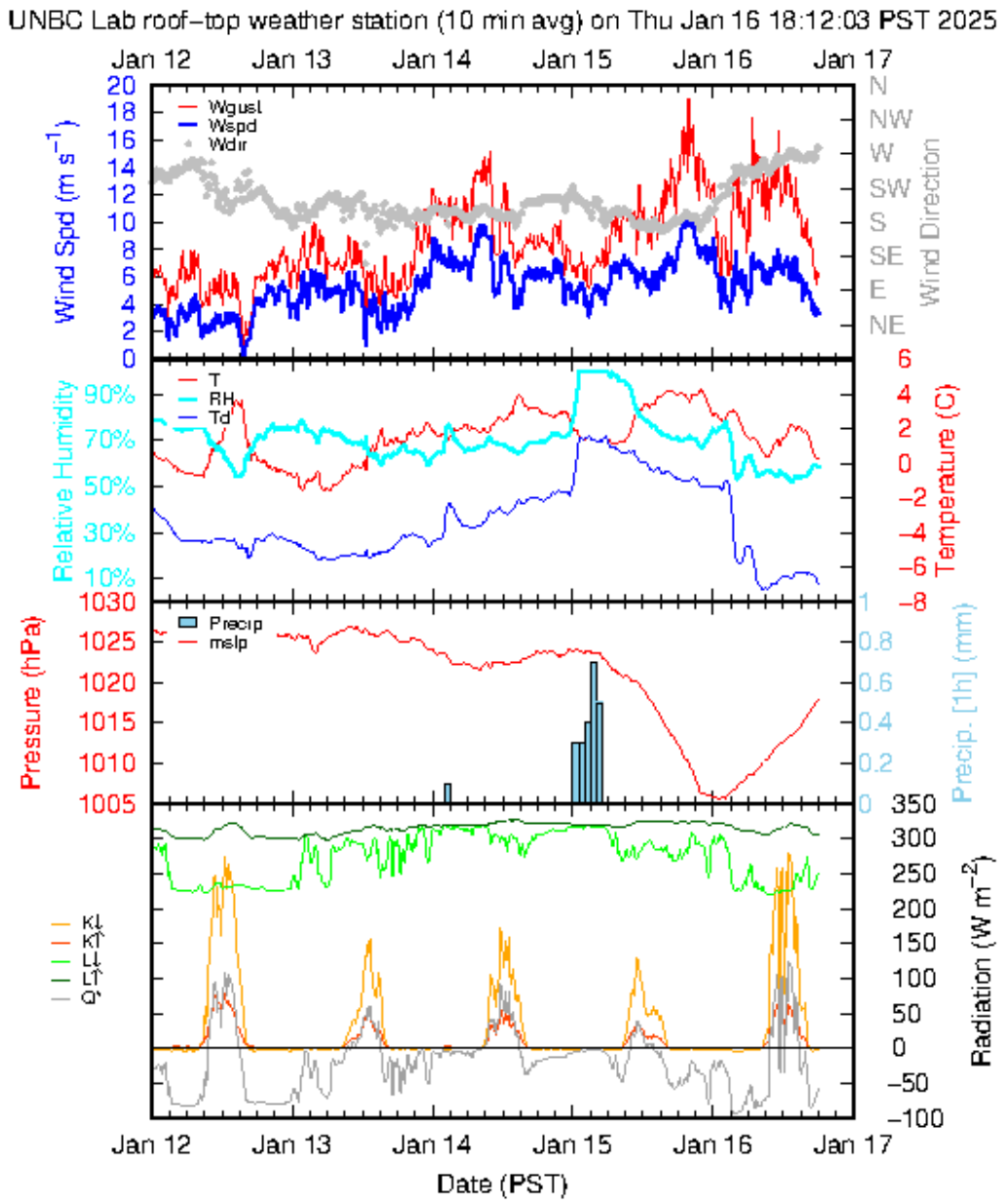
Only know after it has happened

You must collect more data than you need as it occurs, so you have what you need for analysis.

Other Required Weather Information

- ✓ **UNBC Weather Station graph**
  - provides 24-hour local information
  - best collected Friday morning (end of the observations)
- ✓ **Weather maps**: Surface Analysis & 500 hPa geopotential height
- ✓ **IR Satellite imagery**

Collect weather maps & satellite images daily & at the same time -- avoids loosing data that are overwritten as new data are created.



UNBC Weather Station Observations

Complementary 24-hr record, but…
it can not replace your roof-top data set!

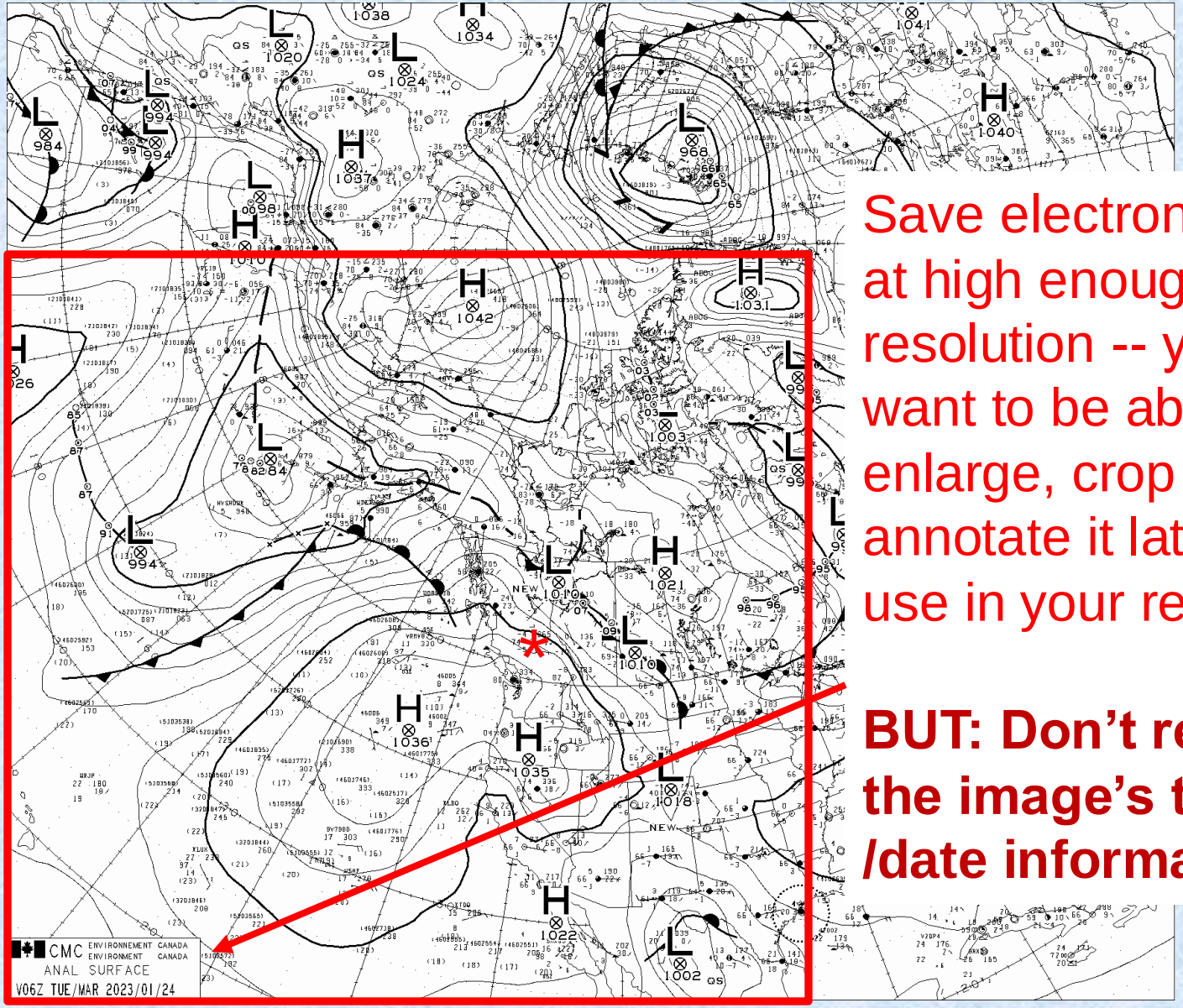
Other Required Weather Information

- ✓ **Weather maps**:
  - Surface Analysis:
    - collect all (4 per day) – produced every 6 hours
    - use "Complete" maps - fronts analysed by a meteorologist
  - Upper atmosphere:
    - posted twice each day; collect 1 per day
- ✓ **Infra-red (IR) Satellite imagery**
  - collect 8 infra-red images daily (every 3 hours)
  - 4 images – at the same times as the Surface maps
  - 4 images – representing times in-between Surface maps

Remember: Collect maps & images daily at the same time. Providers overwrite their files as new ones are created.

✓ Collect Surface Weather Maps

shows analysis & fronts - "Complete"

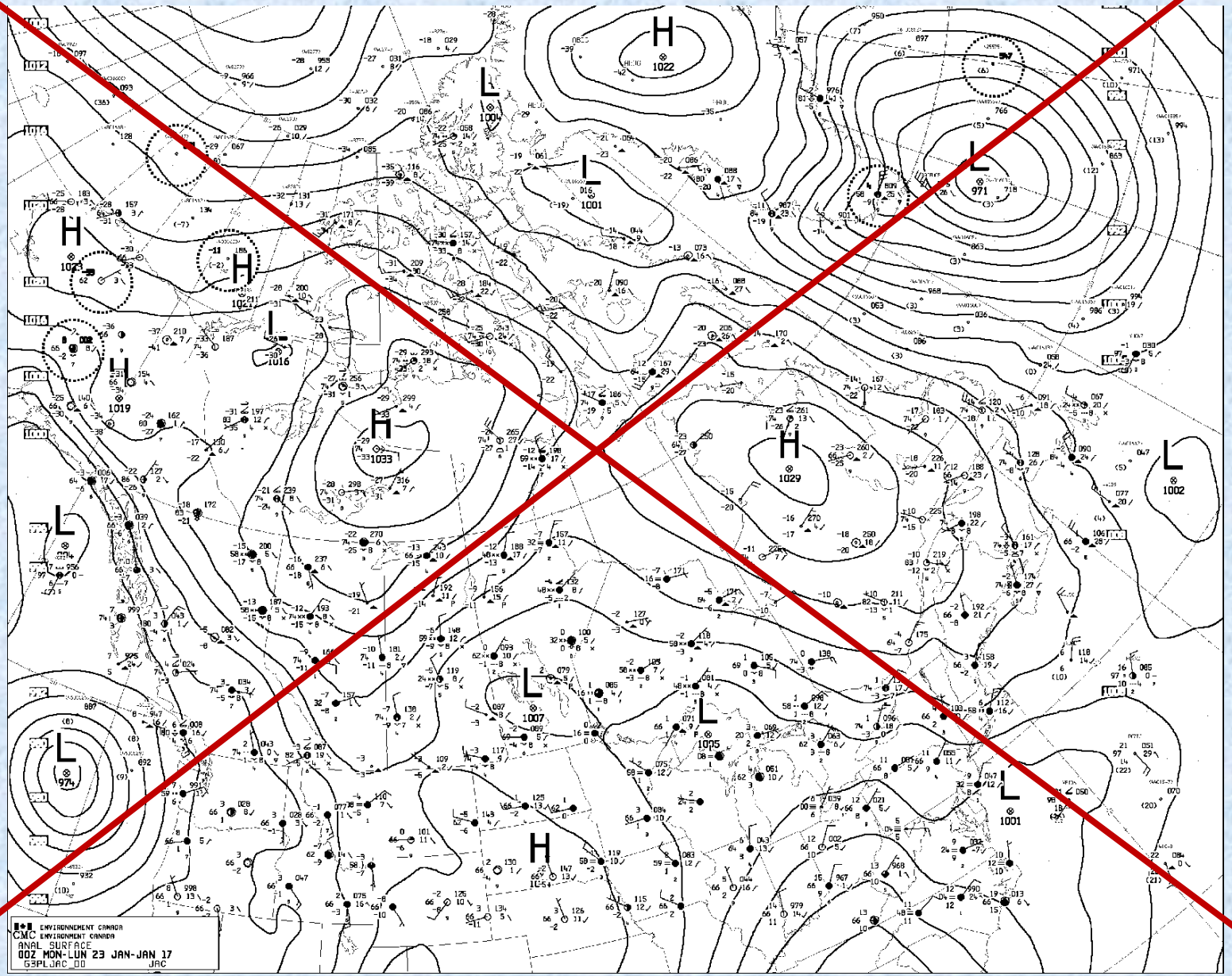


Save electronic data at high enough resolution -- you'll want to be able to enlarge, crop & annotate it later for use in your report.

BUT: Don't remove the image's time /date information!

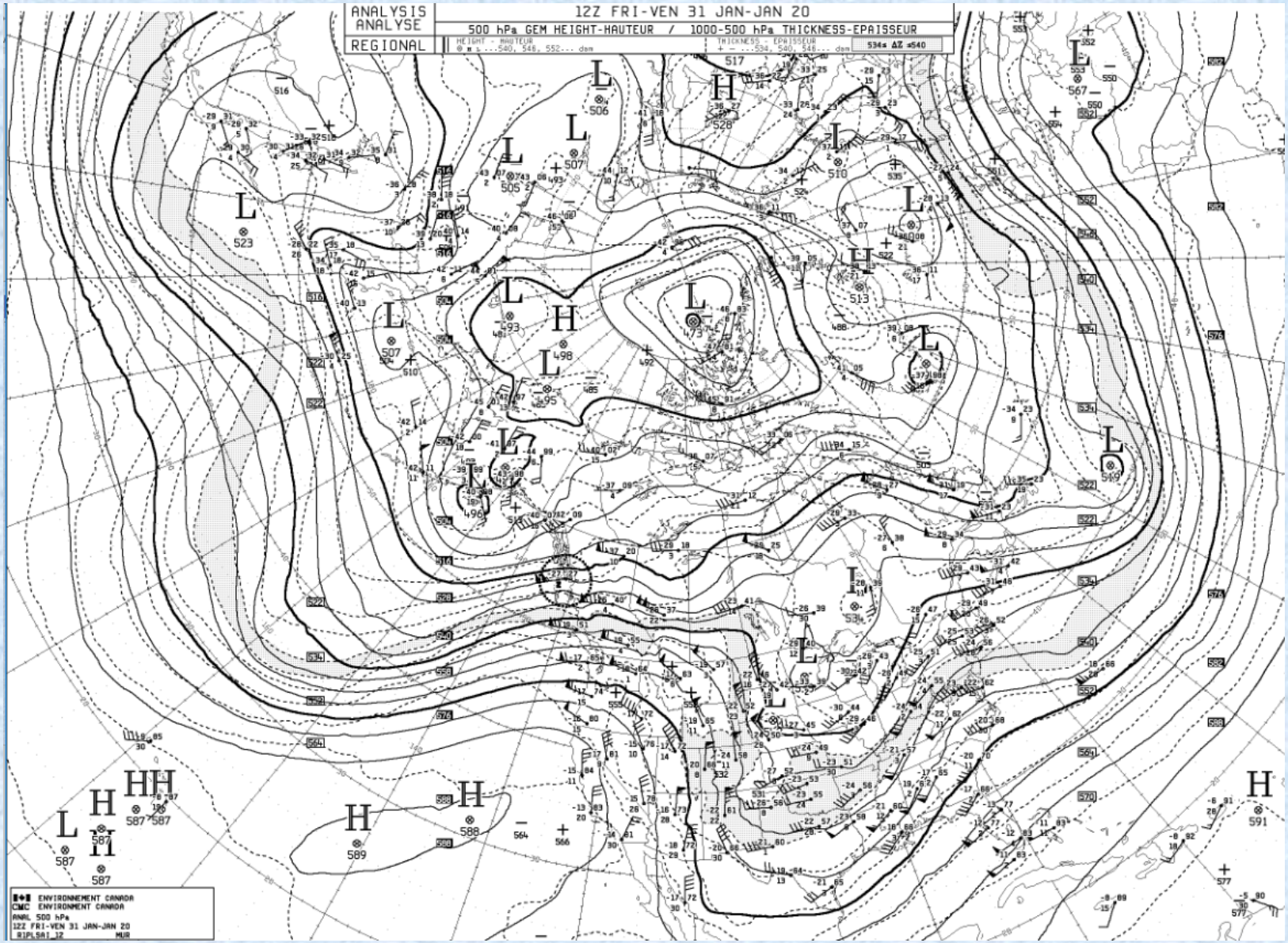
✕ Not Preliminary Surface Weather Maps

(no frontal analysis)



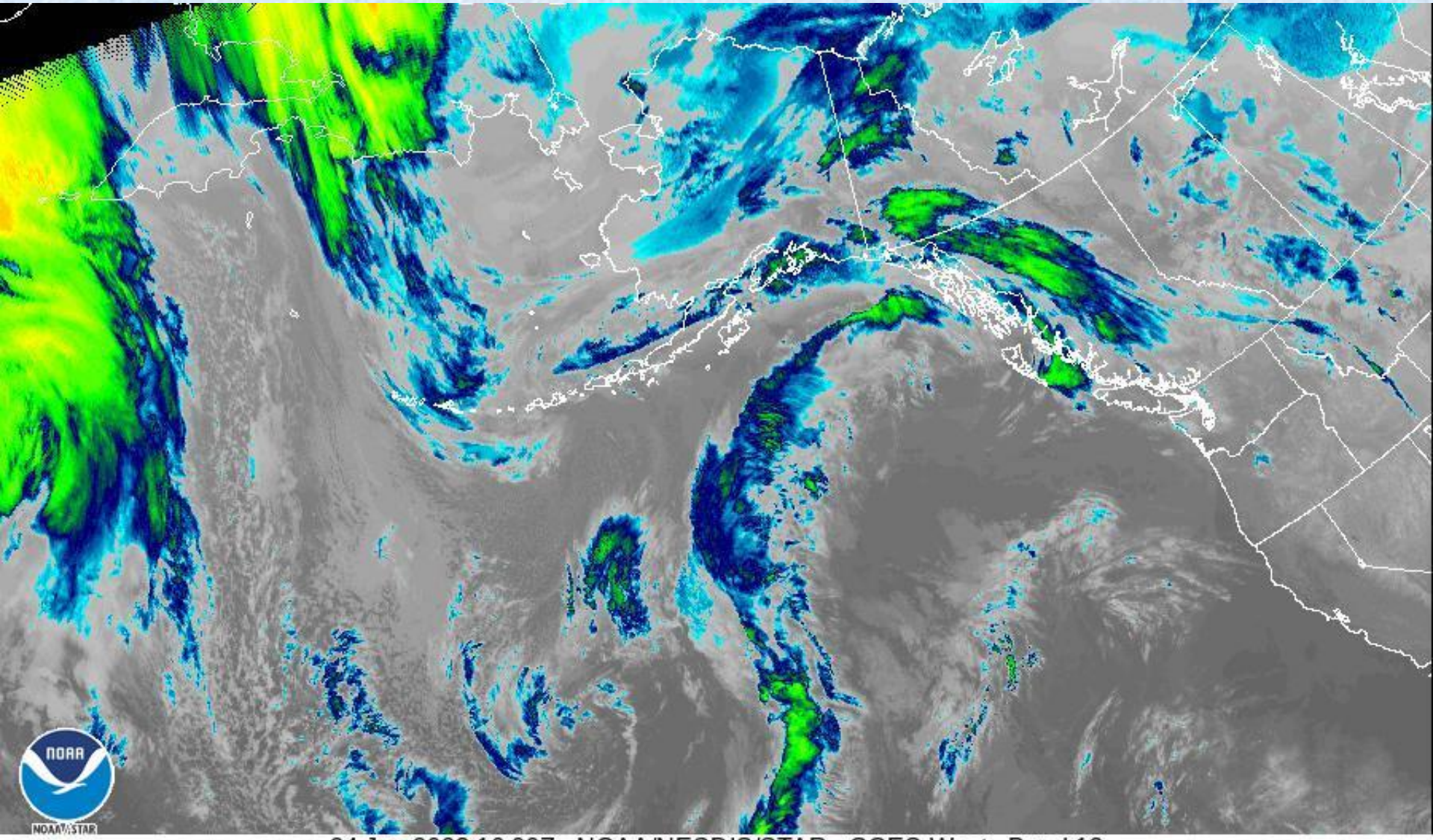
✓ Collect Upper Atmosphere Maps:

500 hPa geopotential height map



✓ Collect IR Satellite Imagery

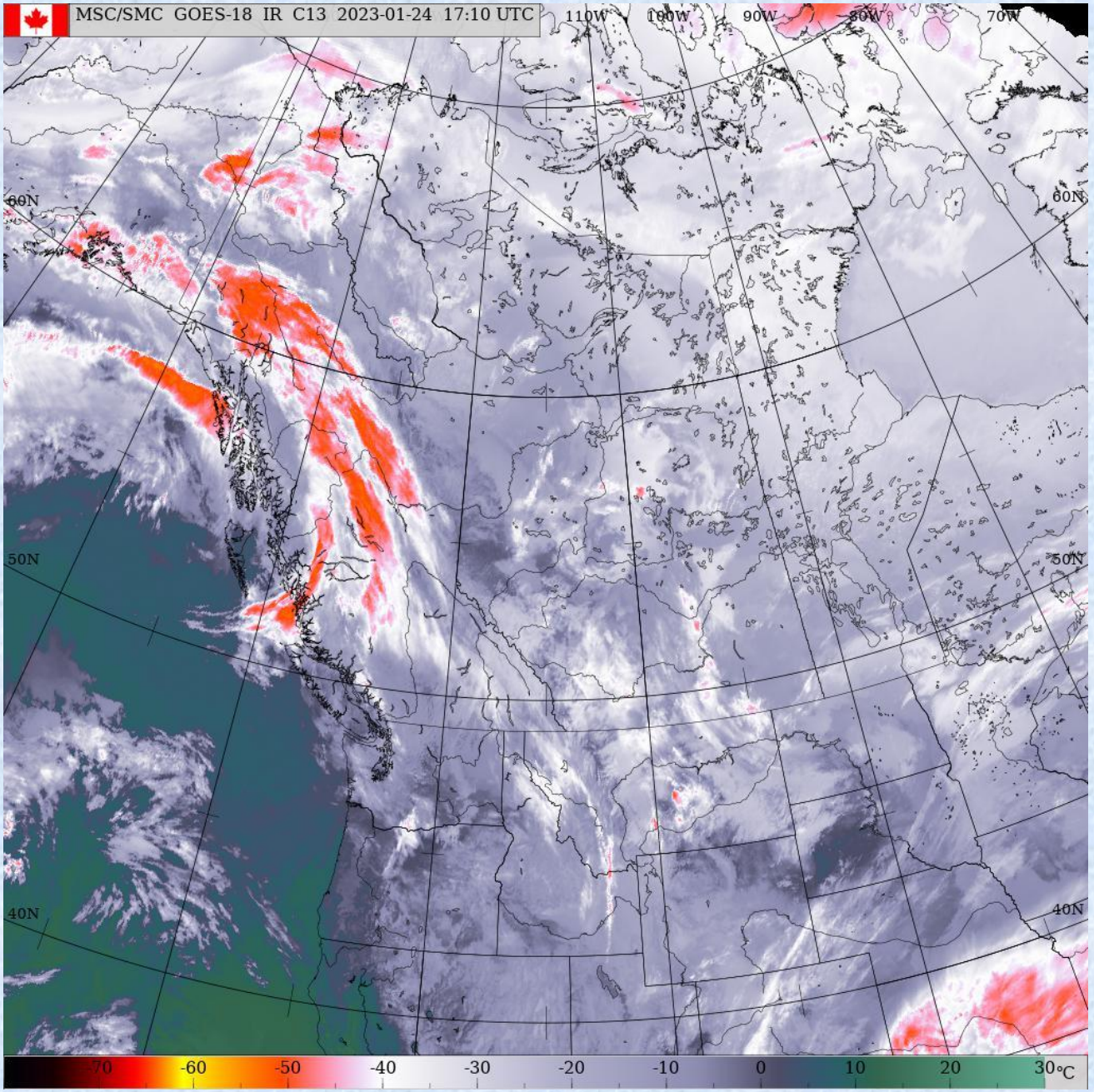
shows weather patterns – NOAA Northern Pacific



✓ More IR Satellite imagery Options

Environment and Climate Change Canada (ECCC),

Infrared(IR) GOES W satellite product.



Collecting Other Required Weather Information

- ✓ **Have a plan for electronic data collection**
- ✓ **Practice it before the data collection week**
- ✓ **Name files simply by date and type, so they can be easily organized for analysis in date/time order**

  e.g. 01-Feb12-00Z-Sfc, 02-Feb12-06Z-Sfc, etc…

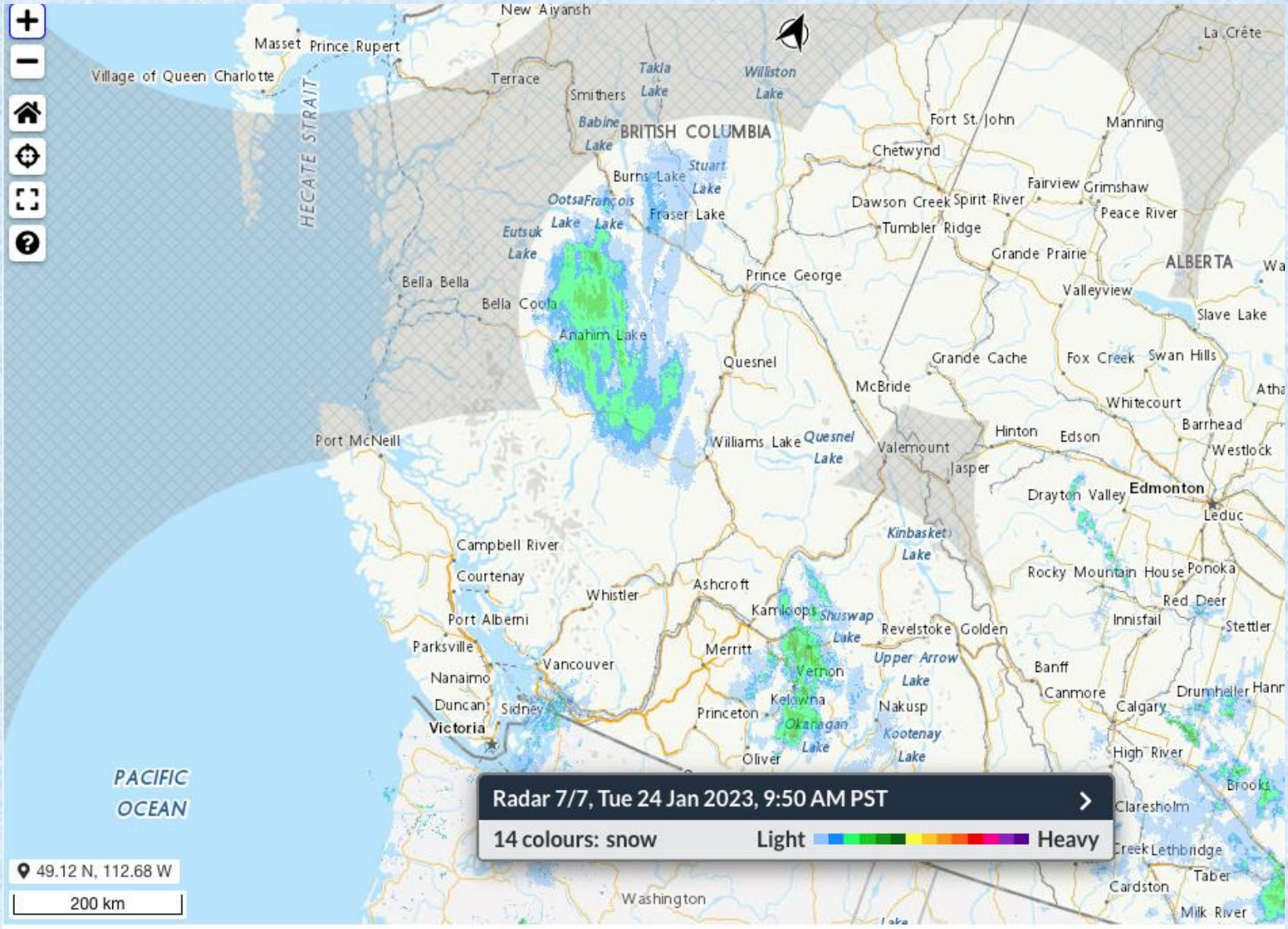
  → *note how the file numbers start with 01, 02, etc. starting with 0# will sequentially sort files when using them later.*

- ✓ **The data collection week is busy**

Optional Weather Information:

- ? Radar
- ? Airport weather data
- ? other publicly available local weather station data
- ✗ NO forecasts! ← not relevant for this case study

Environment and Climate Change Canada (ECCC) Weather Radar → usually not needed



Previous Day | LST | 2023 | January | 23 | Go

Hourly Data Report for January 23, 2023

TIME LST	Temp °C	Dew Point °C	Rel Hum %	Precip. Amount mm	Wind Dir 10's deg	Wind Spd km/h	Visibility km	Stn Press kPa	Hmdx	Wind Chill	Weather
00:00	-3.0	-4.0	93	1.6	19	28		93.86		-10	NA
01:00	-2.8	-4.1	91	0.2	19	33		93.81		-10	NA
02:00	-2.7	-4.0	90	0.2	19	31		93.81		-10	NA
03:00	-2.4	-4.3	86	0.0	19	29		93.82			NA
04:00	-2.8	-4.9	86	0.0	19	27		93.82			NA
05:00	-2.6	-4.6	86	0.0	20	30		93.83		-10	NA
06:00	-2.4	-4.5	85	0.0	19	28				-9	NA
07:00	-2.6	-4.6	86	0.0	19	30				-10	NA
08:00	-3.3	-5.1	88	0.0	18	28		93.86		-11	NA
09:00	-3.5	-5.5	86	0.0	17	2		93.93		-10	NA
10:00	-2.2	-5.2	80	0.0	19	2		93.92		-9	NA
11:00	-2.2	-5.1	80	0.0	16	23		94.01		-8	NA
12:00	-1.6	-4.5	81	0.0	18	19		94.00		-7	NA
13:00	-0.9	-4.1	79	0.0	18	20		93.96		-6	NA
14:00	-0.3	-3.4	80	0.0	17	20		93.94		-6	NA
15:00	0.0	-3.2	79	0.0	18	25		93.89		-6	NA
16:00	0.0	-3.3	80	0.0	18	28		93.87		-6	NA
17:00	-0.1	-3.3	82	0.0	18	24		93.87		-6	NA
18:00	0.1	-2.7	81	0.0	18	23		93.83			NA
19:00	0.2	-2.8	80	0.0	18	25		93.84			NA
20:00	0.0	-2.9	81	0.0	18	23		93.86		-6	NA
21:00	-0.7	-3.5	81	0.0	18	23		93.85		-7	NA
22:00	-0.4	-3.4	80	0.0	17	21		93.90		-6	NA
23:00	-0.6	-3.4	81	0.0	18	25		93.93		-7	NA

Previous Day | LST | 2023 | January | 23 | Go

Notes on Data Quality.

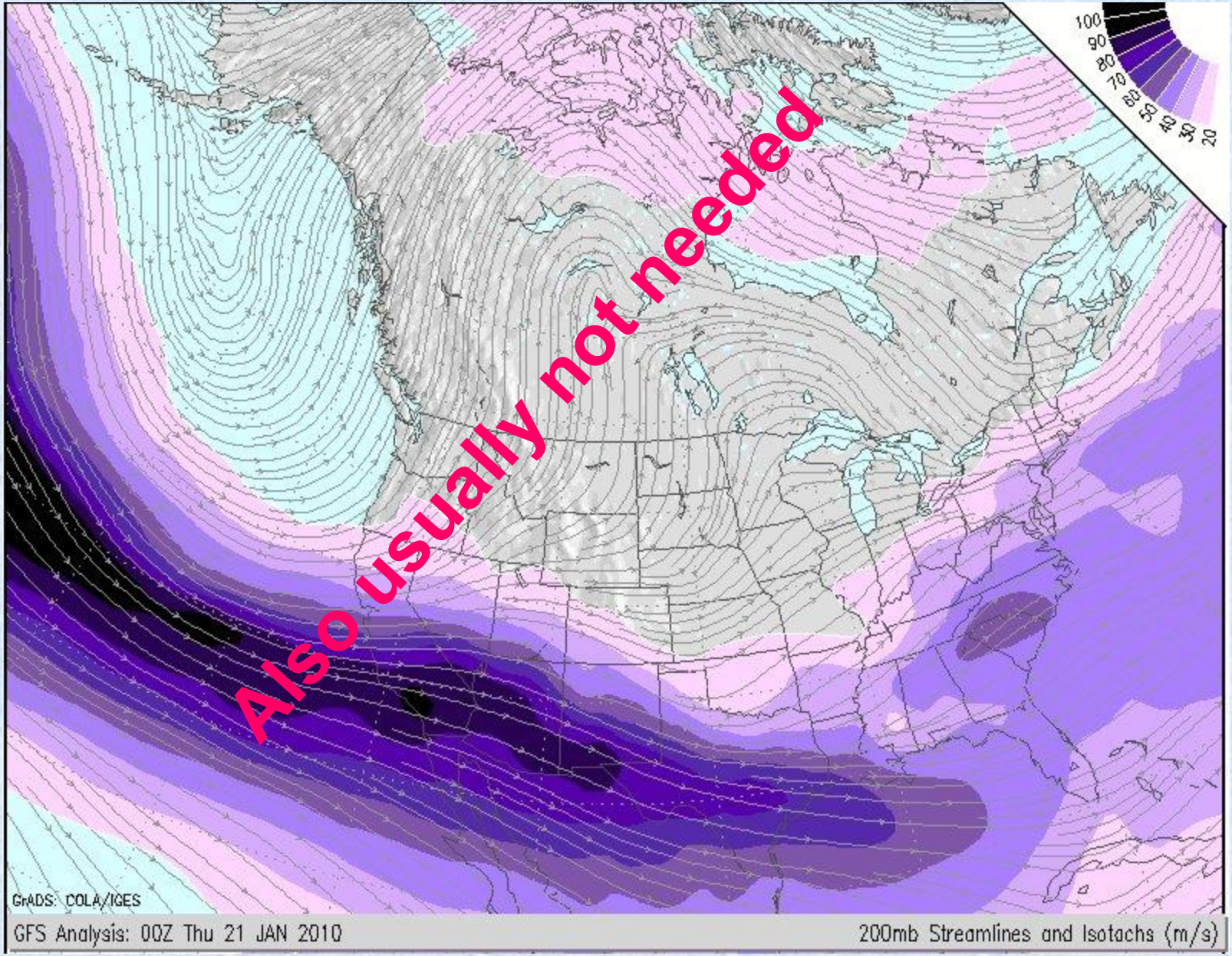
Also usually not needed

- ECCC also reports hourly airport weather observation data.

AND:

remember, your report is based on your roof-top observations so this may not be that useful.

https://climate.weather.gc.ca/historical_data/search_historic_data_e.html



Weather maps showing the jet stream

Optional Weather Data….

generally, this isn't needed

Consider its appropriateness.

Sometimes it can augment /clarify your UNBC weather observations

but often it really is not that useful!

It cannot replace your collected roof-top data

How you'll be using Image Data

Image data are graphs, maps, & satellite images that will become figures that are referred to in your report.

They:

- Support report text, provide evidence, and show readers the "weather story"
- Need crafting. Crop /annotate them! Show your location /province boundaries; use symbols /arrows /words to highlight features /show your point(s)
- Must have good captions
- Must be properly cited & referenced (use CSE 9th edition)
- Detract from reports when not appropriate or not used effectively

Remember:

Report Objectives:

- **Observe & document** the weather over the specified 4-day period
- **Explain why that pattern of weather occurred**
- **Use evidence to support what you say** (for both what happened & why)
- **Write clearly & succinctly**

Report Guidelines ← see Wx Proj Handbook!

- Case study report style (title page, headings, subheadings, TOC, appendices, references)
- ~ 2,000 words max (~9 pages double-spaced text not including figures, appendices). Be thorough, well-spoken & concise!
- Support text with quality graphs & images that enhance your discussion
- Citations & references (use CSE 9th edition Name-Year system)
- Corner-stapled /clipped only (no covers / booklets)
- Animations not accepted

Wx Proj Key Dates:

Data collection: roof-top weather observations, personal diary, synoptic & other local data Mon Feb 10 – Thur Feb 13

Data rationalization: data quality control & tracking it, number crunching Labs – Feb 24 week

Analysis: Labs - March 3 week, plot data, start data interpretation

data manipulation to explain / support your explanation of what you saw & why the weather pattern we experienced occurred. Involves: plotting, interpreting weather events, selecting images, sequencing maps & images, annotating them to understand the weather patterns

Labs - March 10 week, discuss Report with instructors

Explanation: what weather happened; why did it occur. Your analysis supports your interpretation & provides evidence. "Tells the weather story"

Wx Proj Key Dates:

No formal labs – weeks March 17 & 24 (your lab instructor is available during your lab time for consultation)

4 pm April 1: Report Due (Dropbox & Moodle)

6 / Feb 10	Middle-latitude Cyclones. Weather maps.	**Lab 6:** Weather Maps & Analysis **(2%)** Lab 6: 1st turn-in Lab 5: 2nd turn-in Lab 4: returned ***WxProj: Interpreting Weather Maps;***
	Wx Proj: Data Collection *Mon to Thu:* ***(6%).*** *Remember your observation time, partner meeting place, key returns.* *Complete:* ***Roof-top Observations*** *(2%);* ***Weather Diary*** *(2%);* ***Electronic Synoptic Data Collection*** *(1%);* ***Teamwork Evaluation*** *(1%)* **Due by 10 am Friday Feb 14 in your dropbox**: Personal weather diary, completed teamwork evaluation (on paper), & collected electronic data (on a USB key), submitted in a properly labelled, sealed ziplock bag.	
Feb 17	**Family Day** (Mon) **& Mid-Semester Break** – no classes Feb 17 – Feb 21	
7/ Feb 24	Atmospheric stability & cloud formation. Air pollution.	***WxProj: Data Quality Control,*** **produce Appendix 2, (1%)** **Bring: your laptop or use lab computers.** Appendix 2 submitted Lab 6: 2nd turn-in Lab 5, Collected WxProj data: returned
8 / Mar 3	Condensation, cloud & precipitation formation. ***Wx Proj: How to write a scientific report.*** *Collected Wx Proj data returned in Labs or here*	***WxProj: Time Series Graphing*****, produce your report graphs (1%)** ***Sign-up for Report outline meeting times*** Lab 6: returned Appendix 2 returned
9 / Mar 10	Forces in the atmosphere. Atmospheric dynamics & wind. Jet streams, upper-level patterns.	***WxProj: Report Outline Interview Meetings*** **(2%)** Bring prepared WxProj outline & resources for discussion
10 / Mar 17	Atmosphere / Greenhouse effect. Global climate & climate change.	**No labs – work on Wx Project**
11 / Mar 24	Stratospheric ozone. Tropical cyclones.	**No labs – work on Wx Project**
12 / Mar 31	Summer and Winter Severe weather. Exam prep & course review.	**No labs**
WxProj Report Due: Tue Apr 1 at 4 pm in your drop box & electronically on Moodle (20%). **Late reports lose 20% per day** (including weekends & holidays) **staring after the due time.**		

Evaluation (continued)

Presentation: look, length, readability, grammar, captions, etc.

Organization: structure, TOC, appendices, page numbers, etc.

References & Citations: use CSE 9th Edition Name-Year style See Academic Success Centre handout: https://www.unbc.ca/sites/default/files/sections/academic-success-centre/cse-style-2025.pdf

Bonus Marks: for originality and excellence

Impress us!

Report marking guide given before the data collection week

Sunrise over a foggy Prince the George bowl

The End