



BRITISH  
COLUMBIA

Ministry of Environment

# The Venting Index

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# The Venting Index

What is it?

It is a crude estimate of how well smoke released into the atmosphere will be carried away from the surface during the afternoon – i.e. will the valley be cleaned quickly?

How is it calculated?

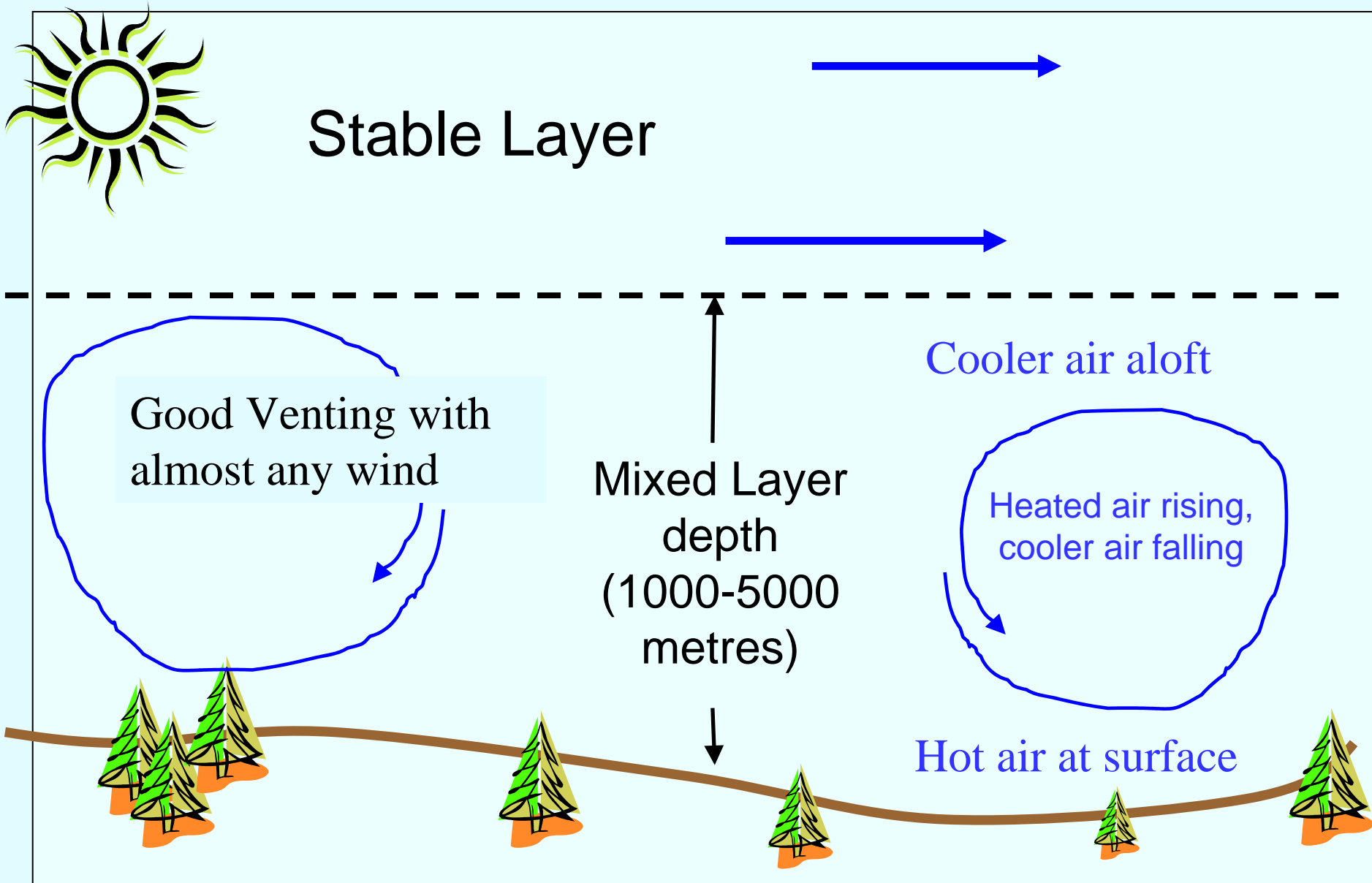
The mixed layer depth multiplied by the wind speed. It is issued for the Okanagan and many other locations.

What can go wrong?

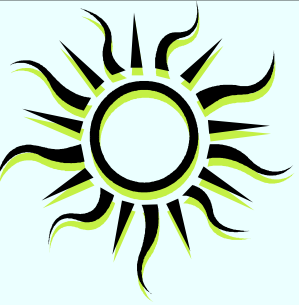
# What the Venting Index is not!

- It is not related to the Air Quality Index
- It was not designed for small fires in cold valleys, it was designed for large fires on level ground.
- It has nothing to do with good weather. Clear and cold winter days are usually poor venting days.
- It has little to do with the way a plume behaves near the ground.

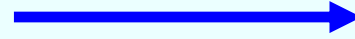
# Sunny July afternoon



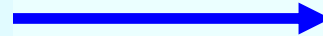
# Sunny October Afternoon



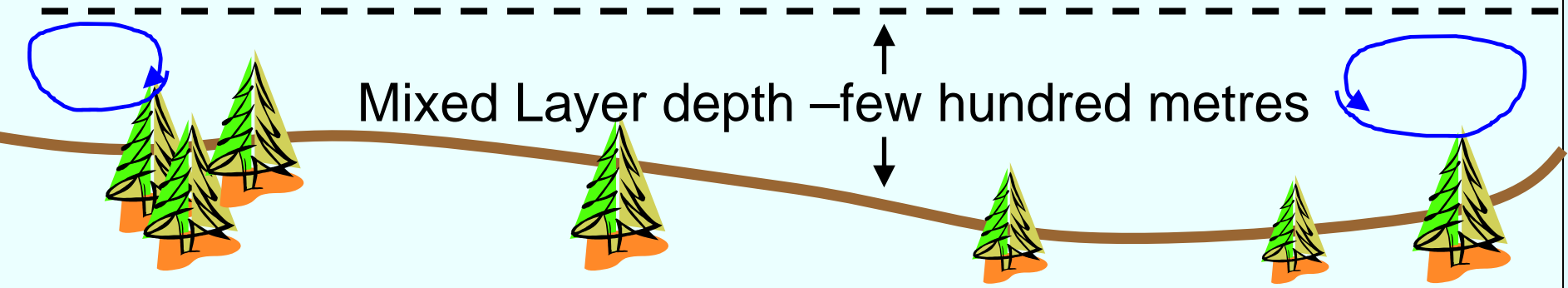
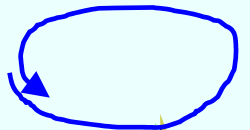
Stable Layer



Marginal Venting,  
depending on the wind  
speed



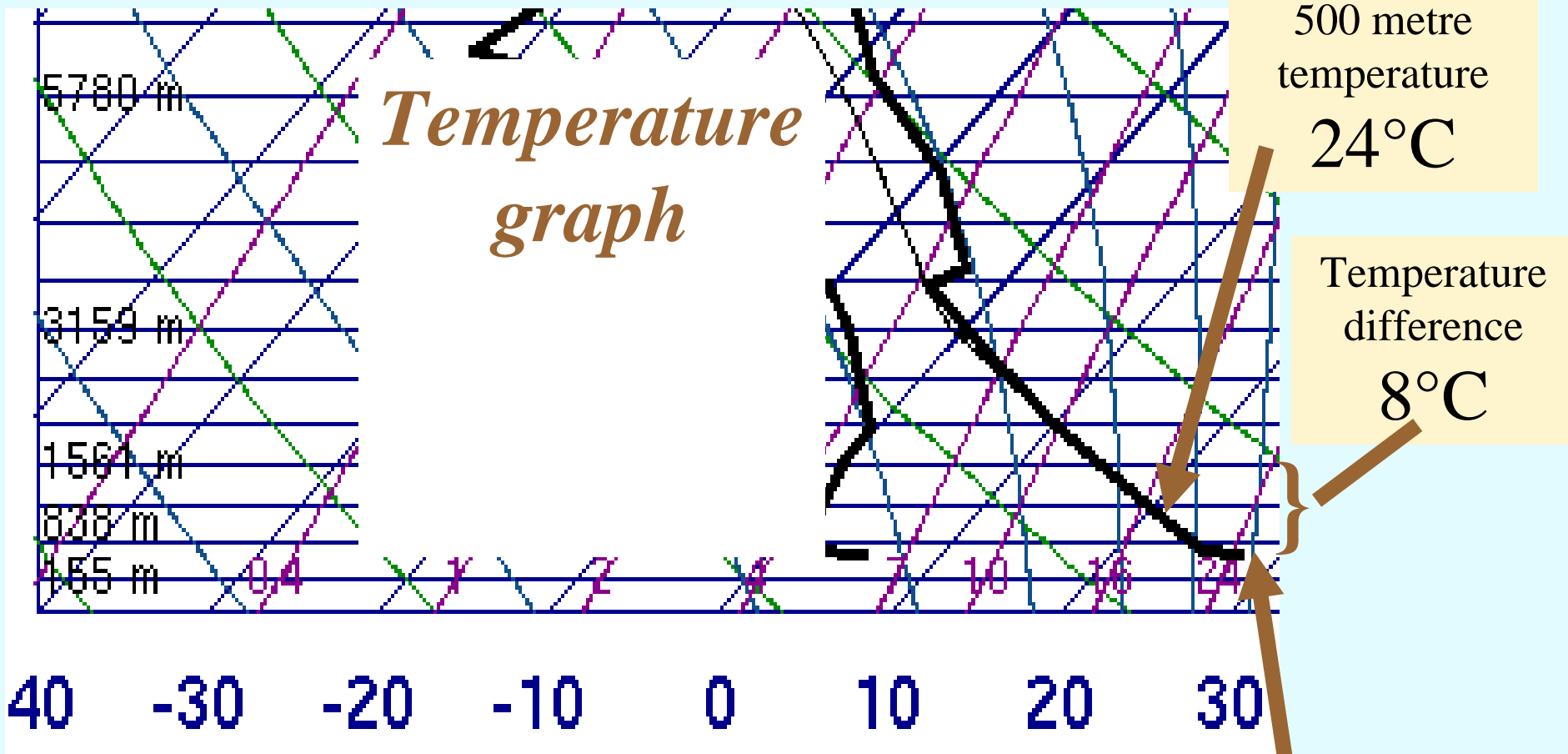
Mixed Layer depth – few hundred metres



An example from a recent upper air sounding



# Kelowna - July 25, 2005 5PM



*Temperature graph*

500 metre temperature  
24°C

Temperature difference  
8°C

Surface Temperature  
32°C

**Deep mixed layer.**

**Good venting even with light winds.**

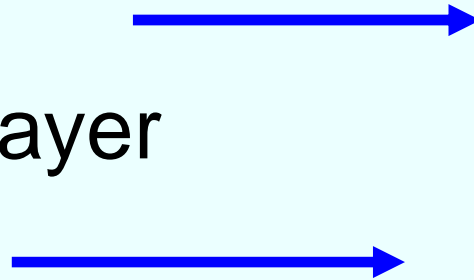




# Cold and cloudy January afternoon



Stable Layer



Milder air aloft

Poor Venting with almost any wind



Little or no Mixed Layer



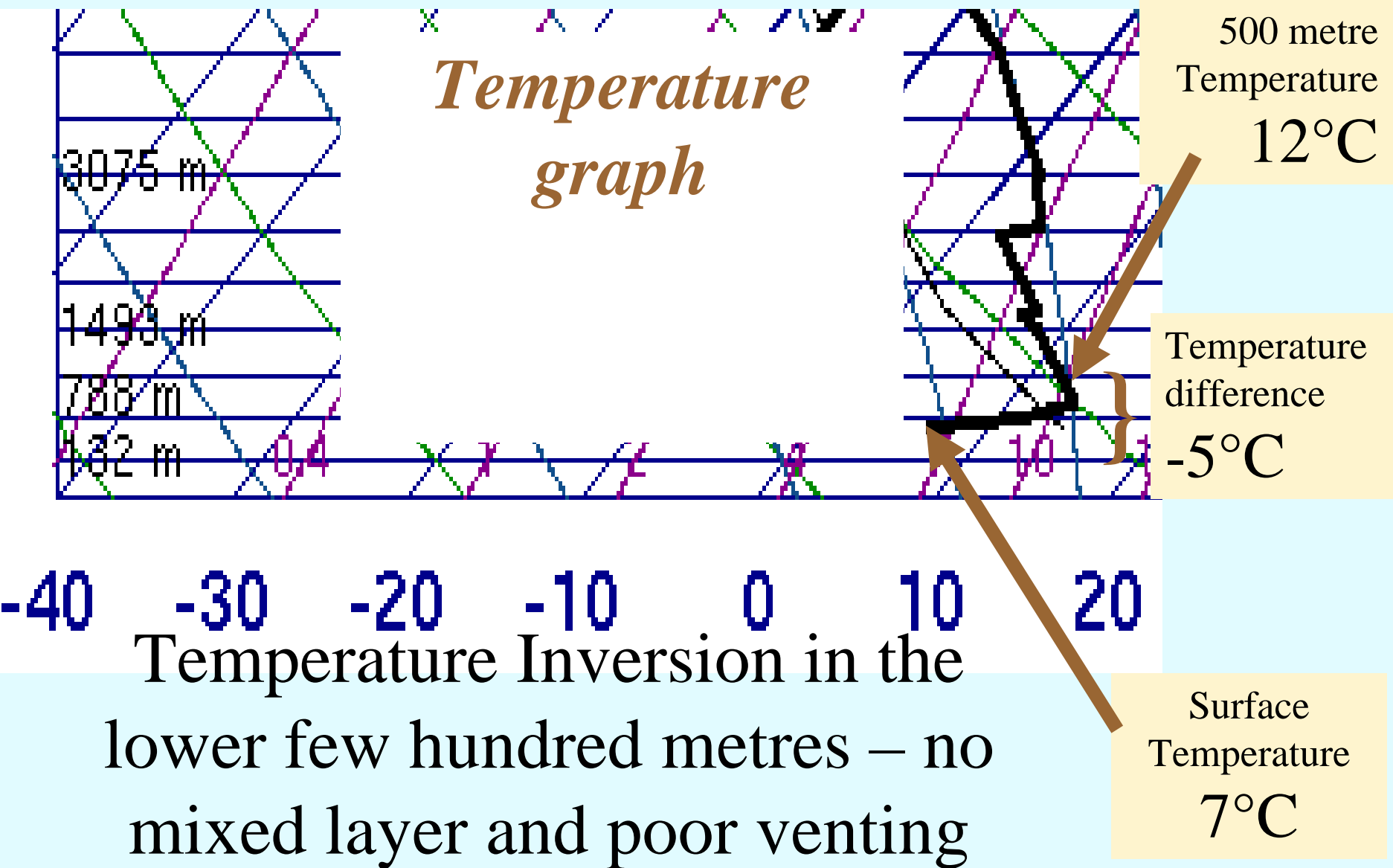
Cold air at surface



Temperature Inversion – also happens at night all year

# *Kelowna - Sept. 26, 2005 5AM*

## *Temperature graph*



Wind 30 km/hr - better venting



Wind 10 km/hr - poorer venting



The higher the wind speed, the lower the concentration of smoke, and the better the venting.

# Venting Index calculation

Venting Index = mixing depth X wind speed

We only use the forecast of the AFTERNOON Venting Index

Ventilation Guidelines

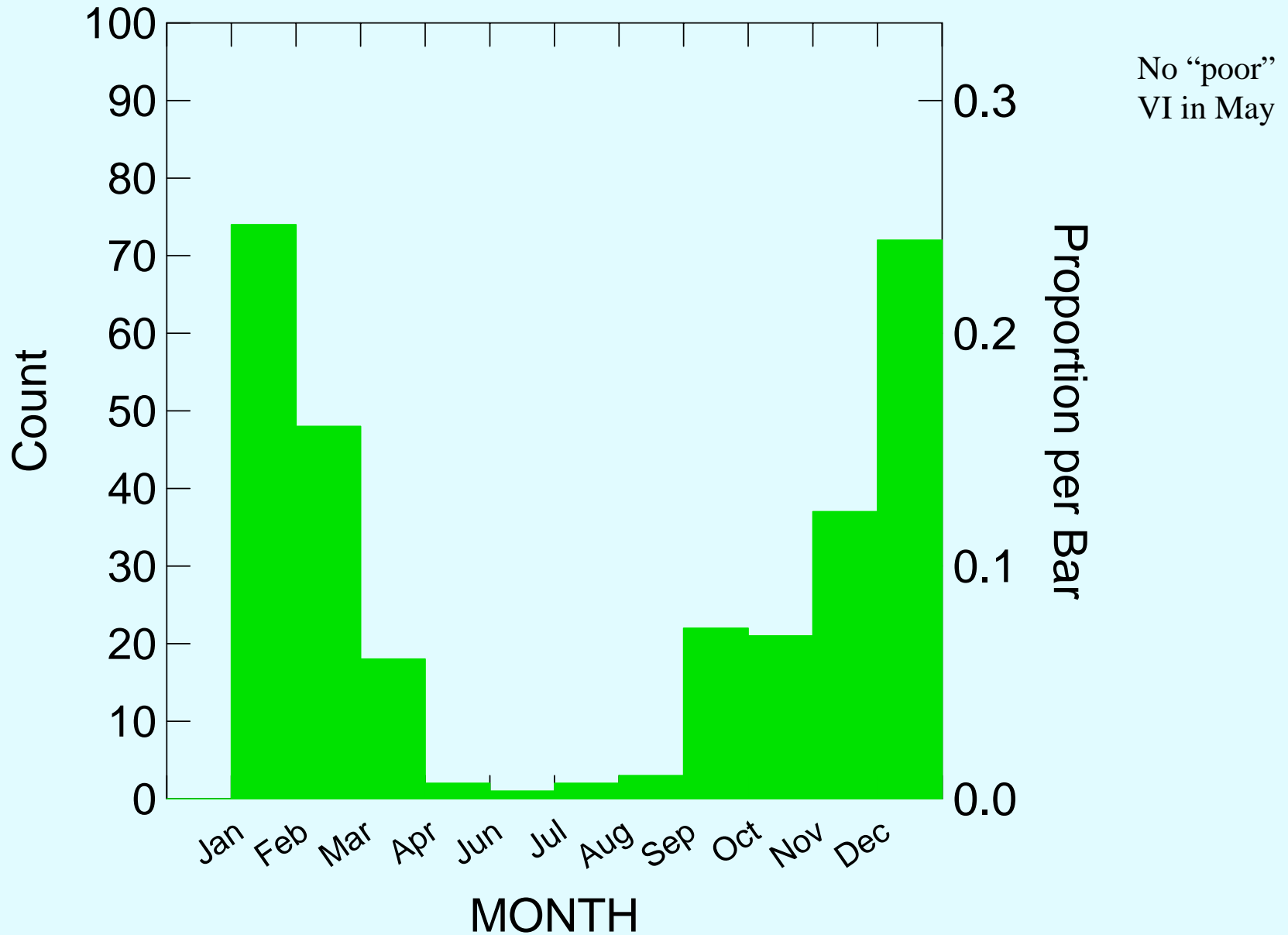
POOR: 0-33

FAIR: 34-54

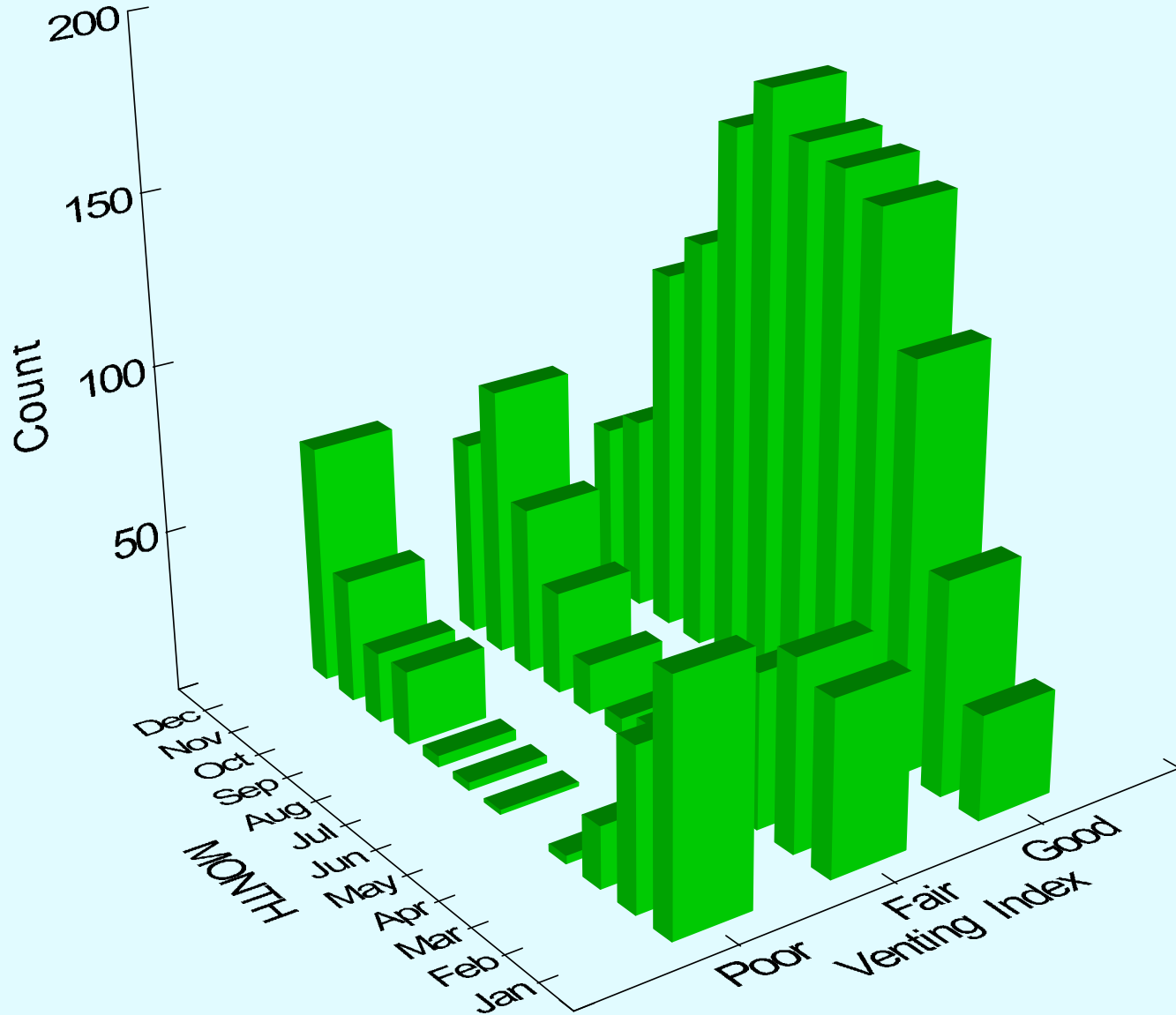
GOOD: 55-100

Venting must be GOOD to burn today, and GOOD or FAIR tomorrow for multi-day burns.

# Frequency of Poor Afternoon Venting Indices in the Okanagan 1996-2001



# Distribution of the Venting Index in Okanagan



# What can go wrong

- People use the wrong location
- The venting index forecast can miss brief periods of good venting behind a cold front.
- Burning of beetle wood may be exempt from venting restrictions.
- Venting Index is not being updated on weekends at the Ministry of Environment number.

# Phone numbers

- **Environment Canada 250 470-5155**  
365 days a year. Fraser Canyon, Kamloops, Okanagan.
- **Ministry of Environment 250 861-7405.**  
Only updated on weekdays but also includes Castlegar, Revelstoke and Clearwater.
- **Environment Canada 900 565-5000.**  
All sites, 365 days a year.
- **My office: 250 371-6296**