

# AOSC200: Weather and Climate Discussion

Sections 0101, 0102

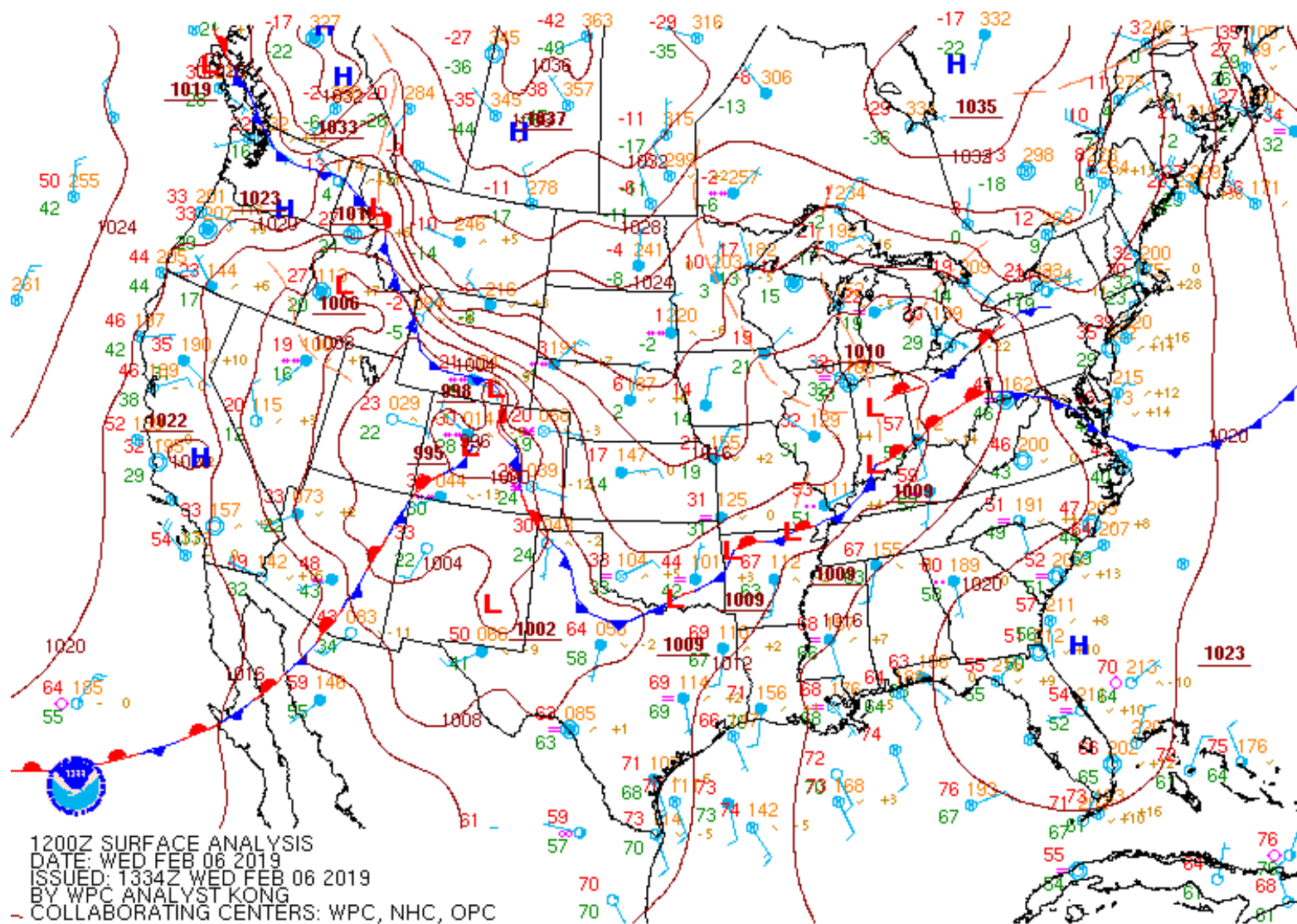
TA: Agniv Sengupta

6 February, 2019



DEPARTMENT OF  
ATMOSPHERIC &  
OCEANIC SCIENCE

# Today's weather map



# Review of course material

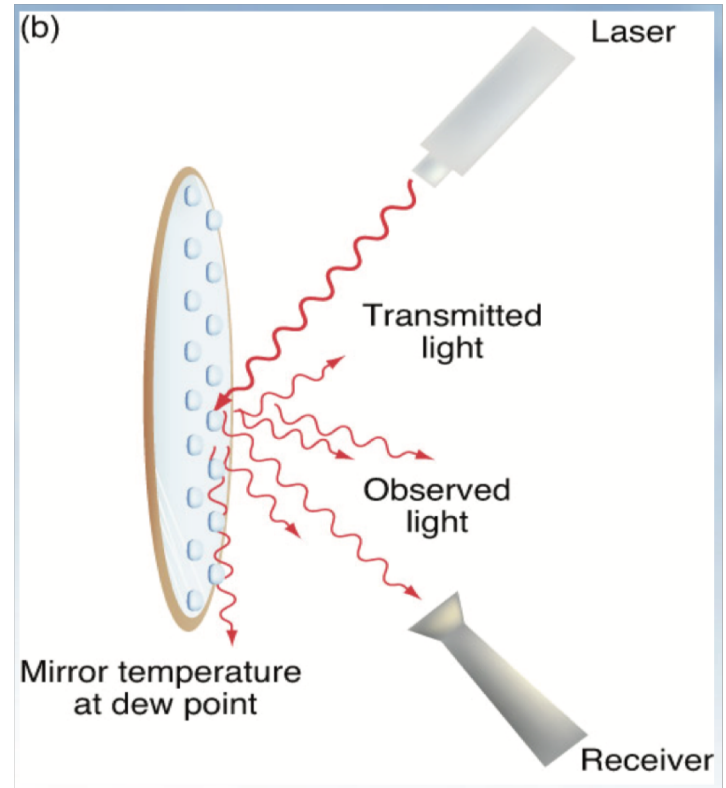
## Meteorological Observations:

Variable	Measuring Device	Units
Temperature	Thermometer	°C, °F, K
Pressure	Barometer	millibar or hectopascal
Wind Speed	Anemometer	knots or mph
Rainfall	Rain Gauge	mm

# Meteorological Observations:



Rain Gauge



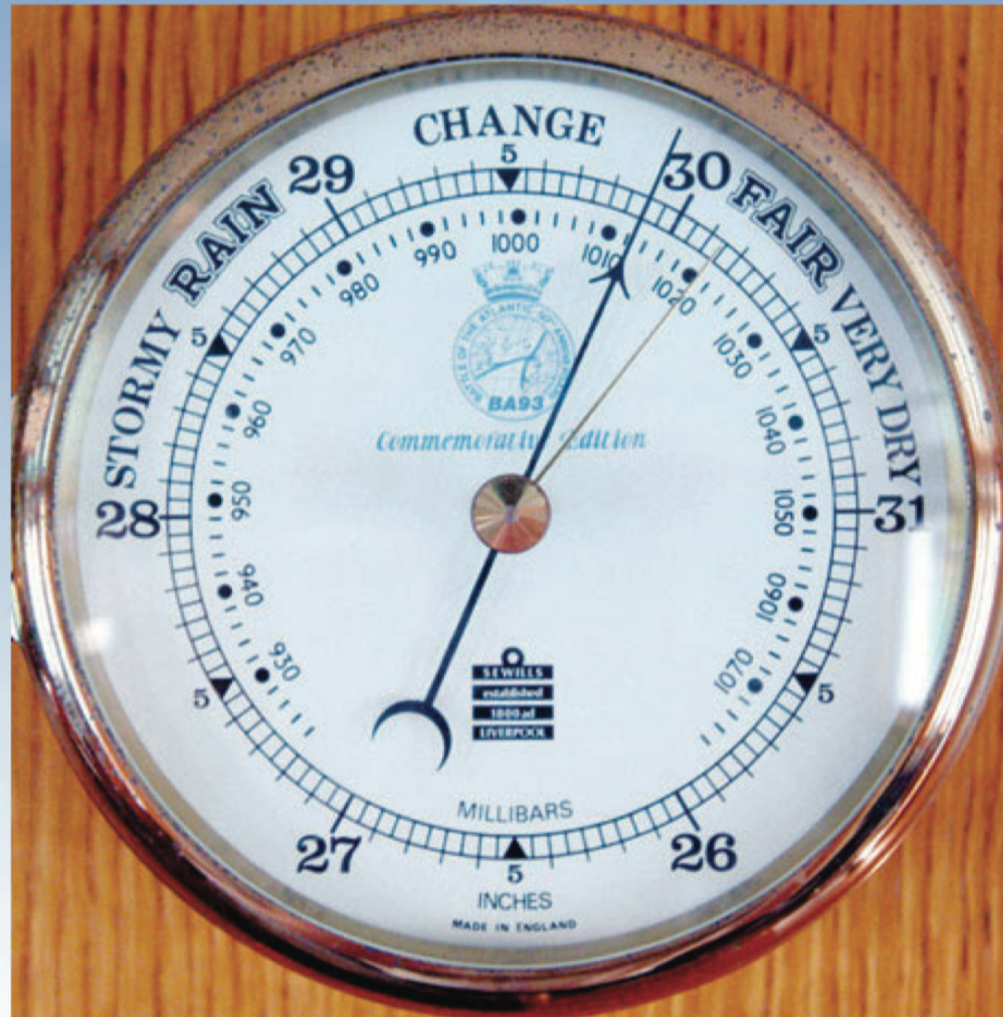
Dew Point Hygrometer



# Meteorological Observations:

## Pressure: Aneroid Barometer

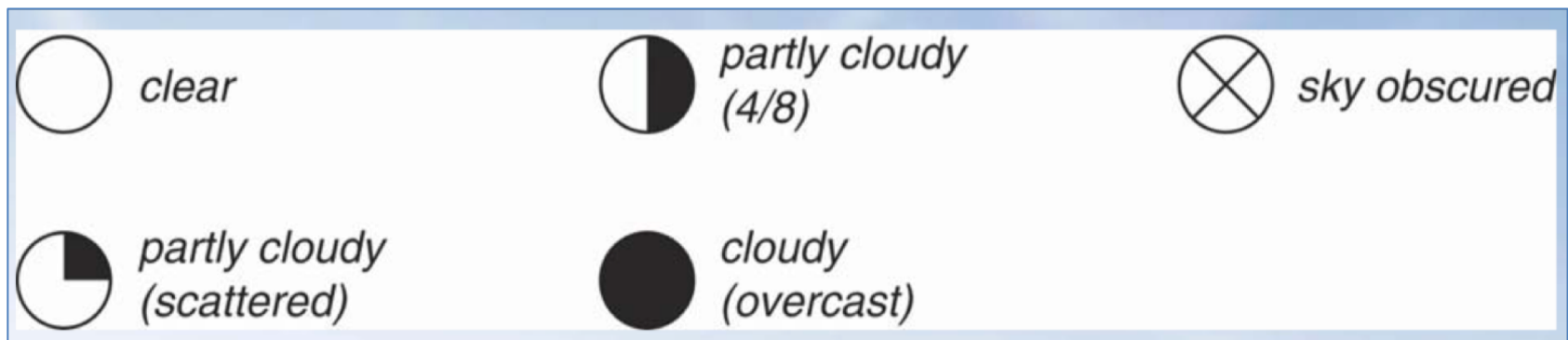
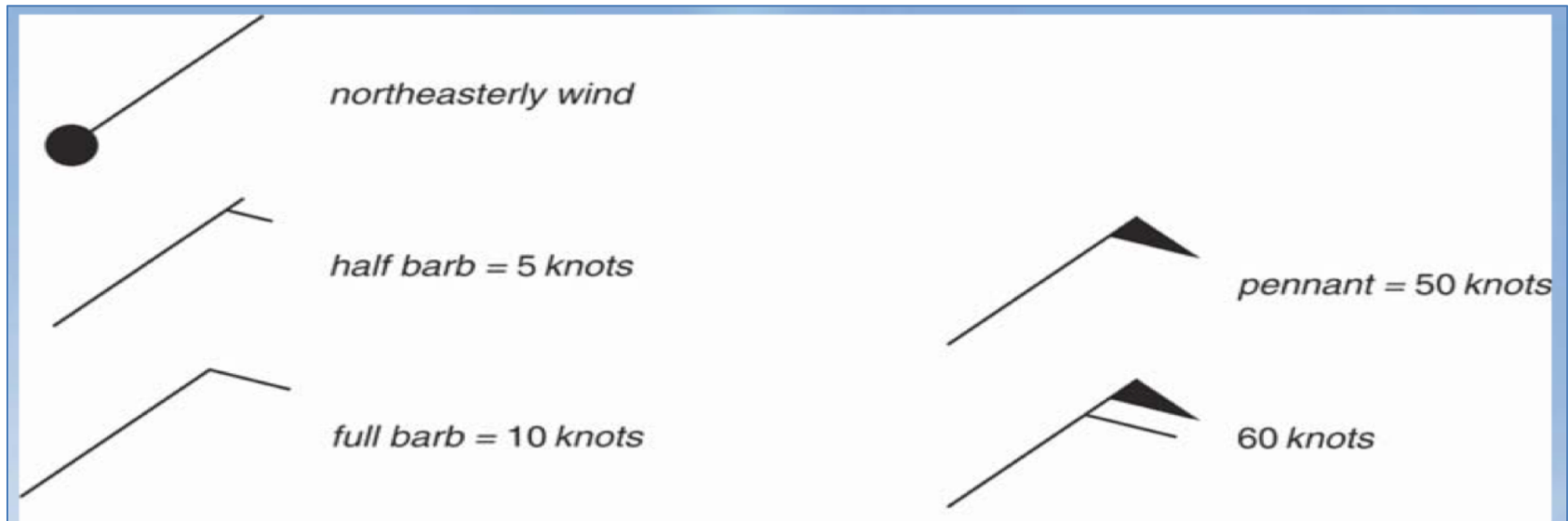
Low  
Pressure



High  
Pressure

# Review of course material

## Weather Station Model: Conventions



## Weather Station Model: Conventions

’ ’ *light drizzle*

\* \* *light snow*

 *thunderstorm*


• • *light rain*

\* \* \* *moderate snow*

 *severe thunderstorm*

• • • *moderate rain*

\* \* \* \* *heavy snow*

 *freezing rain*

• • • • *heavy rain*

\*  
▽ *snow shower*

≡ ≡ ≡ *fog*

•  
▽ *rain shower*

•  
△ *sleet (ice pellets)*

∞ *haze*

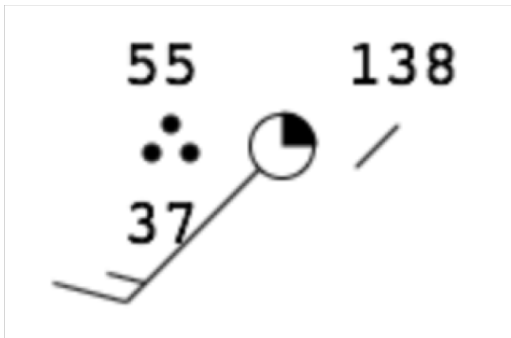
# Weather Station Model: Practice#1

1) What is the **Temperature**?

- **55°F**

2) **Dew Point**?

- **37°F**



3) **Wind Direction**?

- **SW**

4) **Wind Speed**?

- **15knots**

5) **Cloud Cover**?

- **Scattered**

6) **Pressure**?

- **1013.8 hPa or mb**

7) **Current Weather**?

- **Moderate Rain**

# Ideal Gas Law

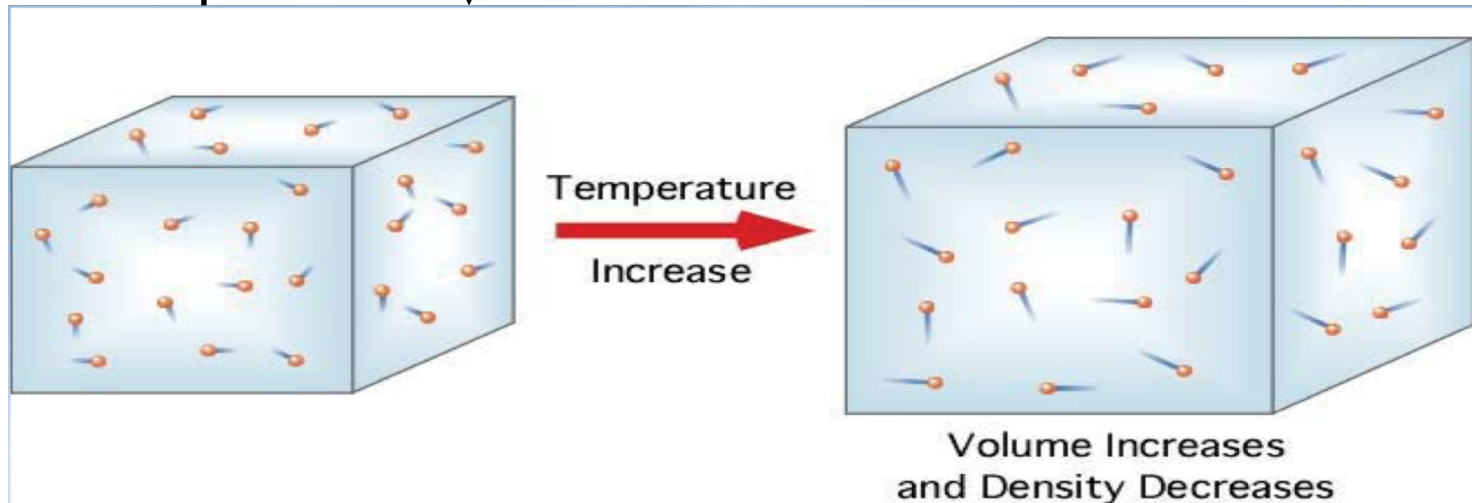
**(i) Pressure x Volume = constant x Temperature,**

thus, as Temperature  $\uparrow$ , either pressure or volume  $\uparrow$

**(ii) Another form: Pressure = Density x Temp x constant**

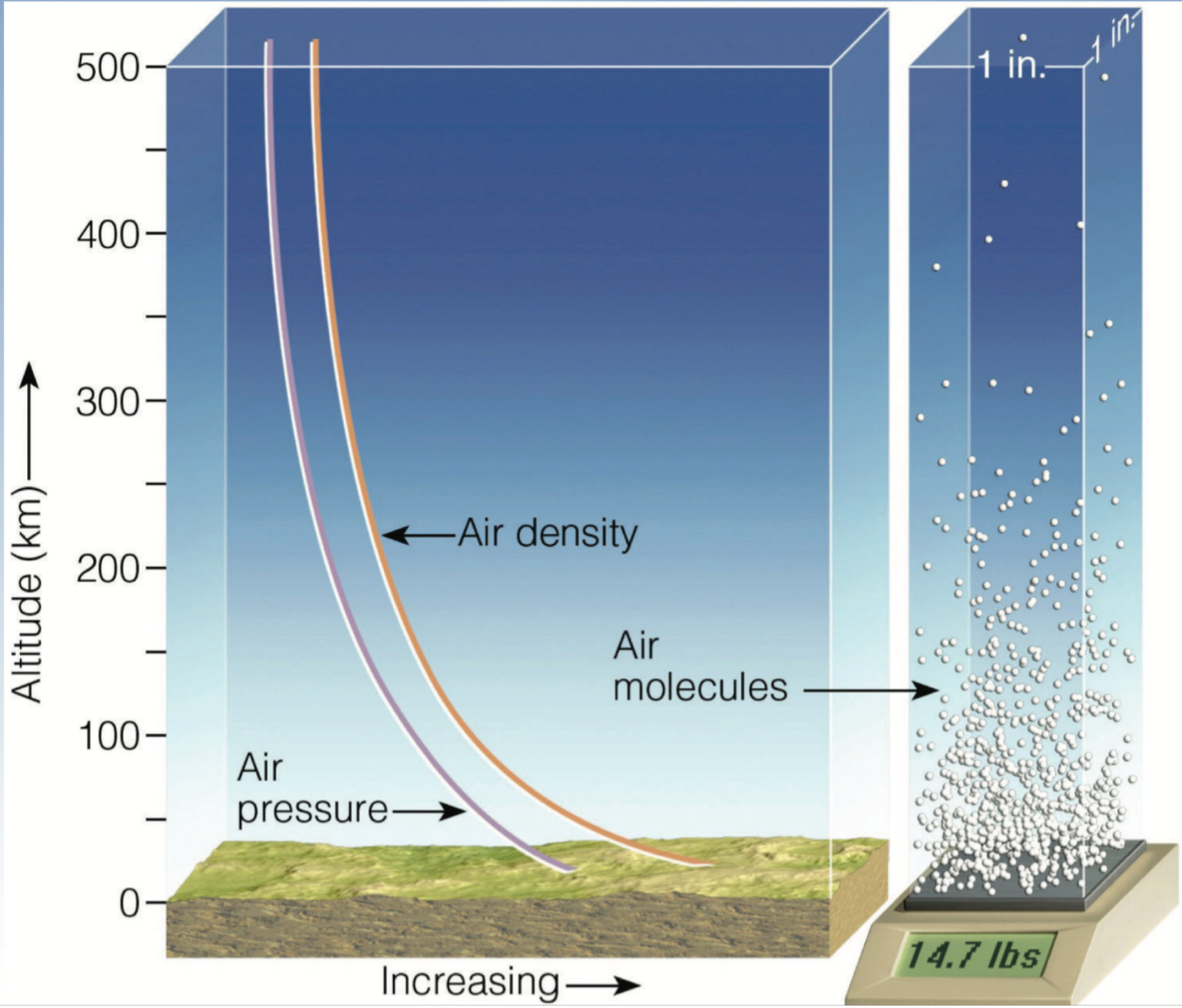
thus, **Density = Pressure / (Temperature x constant)**

As Temperature  $\uparrow$ , Density  $\downarrow$





# Understanding Pressure



# Group Project#1: Oxford-style Debate

- Secret Ballot of the audience (votes revealed after debate)
- Introduction
  - 1<sup>st</sup> supporting speaker (PRO) – 2.5 mins.
  - 1<sup>st</sup> opposing speaker (CON) – 2.5 mins.
- Sub-Topic A
  - 2<sup>nd</sup> supporting speaker (PRO) – 2.5 mins.
  - 2<sup>nd</sup> opposing speaker (CON) – 2.5 mins.
- Q&A (decided on by TA through a coin flip) one team asks the other team a question – 3 minutes to respond
- Sub-Topic B
  - 3<sup>rd</sup> supporting Speaker (PRO) – 2.5 mins
  - 3<sup>rd</sup> opposing Speaker (CON) – 2.5 mins
- Q&A – other team asks a question and the team that asked the first question has 3 minutes to respond
- Sub-Topic C
  - 4<sup>th</sup> supporting speaker (PRO) – 2.5 mins.
  - 4<sup>th</sup> opposing speaker (CON) – 2.5 mins.
  - Q&A – 3 minutes
- Conclusion
  - 5<sup>th</sup> supporting speaker (PRO) – 2.5 mins.
  - 5<sup>th</sup> opposing speaker (CON) – 2.5 mins.
- Open discussion – (at least 5 minutes)  
Audience is encouraged to ask questions
- Final Secret Vote of the audience

# Project#1: Possible Debate Topics

**Topic 1: Assume climate change occurring on Earth is NOT due to human activity.**

**Reason A:** Climate change is due to a naturally-occurring physical process such as volcanic activity, shifts in Earth's orbit, varying Sun output, changes in Earth's albedo, etc. Choose one and argue how it could be the only major reason for climate change.

**Reason B:** Climate change is due to a naturally-occurring physical process such as volcanic activity, shifts in Earth's orbit, varying Sun output, changes in Earth's albedo, etc. Choose one and argue how it could be the only major reason for climate change.

**Topic 2: Should there be criminal penalties for forecasters who incorrectly forecast the weather?**

PRO: There should be criminal penalties for forecasters who incorrectly forecast the weather.

CON: There should not be criminal penalties for forecasters who incorrectly forecast the weather.

**Topic 3: Assume Geoengineering can solve climate/weather problems (carbon sequestration, cloud seeding, etc).**

PRO: Geoengineering should be used to force the atmosphere to behave in a way humans prefer.

CON: Geoengineering the atmosphere should be banned, similarly in the way chemical and nuclear weapons are banned.

**Topic 4: Should the federal government continue to launch and support weather satellites or should this be privatized?**

PRO: The federal government should continue to launch and support weather satellites.

CON: The federal government should not continue to launch and support weather satellites.

**Topic 5: Assume extreme weather events seem more prevalent in modern times.**

PRO: Events of extreme weather are now occurring more frequently and this is a sign of global climate change.

CON: Extreme weather of frequency comparable to today has always existed. We are in an era where we can record and monitor it better, so we are aware of more events



# Project#1: Submission Documents

1) **Annotated Bibliography** from each group **containing all sources** used by each group member **in MLA format**

- *10+ citations per team*

- *2+ citations per member*

2) **Prepared Statement** from each group member outlining **what they are going to say** and **should include citations**

3) **Individual write-up** – describing what their group’s project is about, **key discussion points**, and their **personal contribution**

4) Two **peer evaluations** (*half-way and final*) via ELMS

5) One **group draft** (mid-way through Project#1) submitted via ELMS

# Project#1: Important Dates

- Before Presentations

- 2-20

- ½ way Peer Evaluations due (submission via ELMS)
    - Group draft due

- Presentations

- 3-6 (1<sup>st</sup> Debate)

- All groups should be prepared; annotated bibliography, prepared statement by each team member must be turned in

- 3-13 (2<sup>nd</sup> Debate)

- 3-27 (3<sup>rd</sup> Debate)

- Individual Write-ups due
    - Final Peer Reviews Due

# Project#1: Group Contract Form

- Once you have decided your debate topic and side (PRO/CON), please fill out the group contract form that I distributed.
- State which team member will be responsible for completing what portion of the project
- Team Meetings: Decide on a platform to meet (for e.g., Thursday 6pm @ McKeldin Library for 30 minutes, or say, via Google Docs)
- Turn in your Group Contract form at the end-of-class today.** I will return this form to each team next Wednesday for you to list WHEN each team meeting occurred (date and time), WHO was present, and WHERE the meeting occurred.

Thank  
you



Questions ?

Email me: [agnivs@umd.edu](mailto:agnivs@umd.edu)