

Weather Watchers

CMSESMC Presentation
Hiller Aviation Museum
8 February 2014

Hiller Aviation Museum

- Located in San Carlos, California
- Extensive Collection With 50 Unique and Historic Aircraft
- Education Programs for School Field Trips



Gallery Tours

- Aerodynamics
- California Aviation History
- Dream of Flight
- Young Aviators



Hands-On Programs

- Elementary
- Middle School
- Flight Sim Zone



Elementary Programs



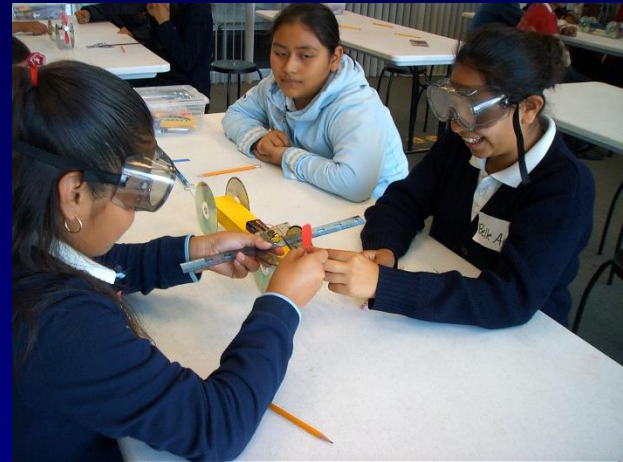
- Amazing Aircraft
 - Airplane Parts
 - Glider Construction
 - Glider Flights



- Eye on the Sky
 - Water Cycle
 - Cloud Identification

Middle School Programs

- Flight Simulation
 - Basic Sim Lab
 - Flight Planning
- Forces of Flight
 - Lift
 - Thrust
 - Drag
- Skyways
 - ATC Simulation
 - Flight Planning



Flight Sim Zone Programs

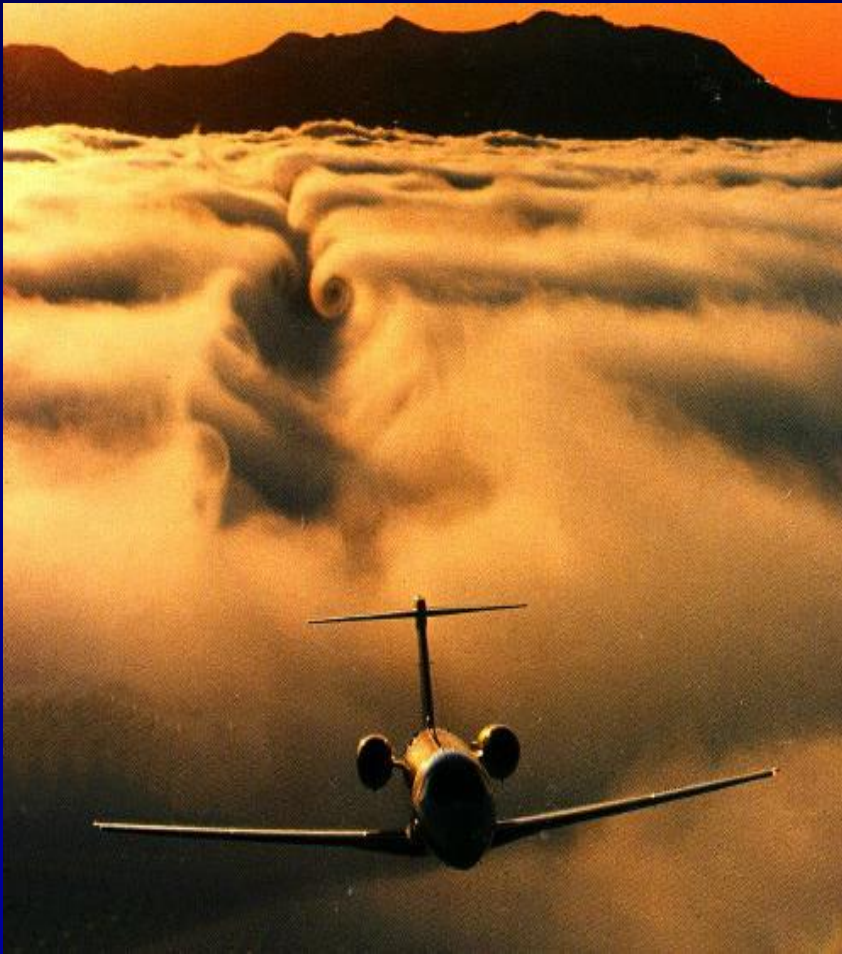


Meteorology

- Study of Earth's Atmosphere
- Weather Observation
- Weather Forecasting



Weather and Aviation

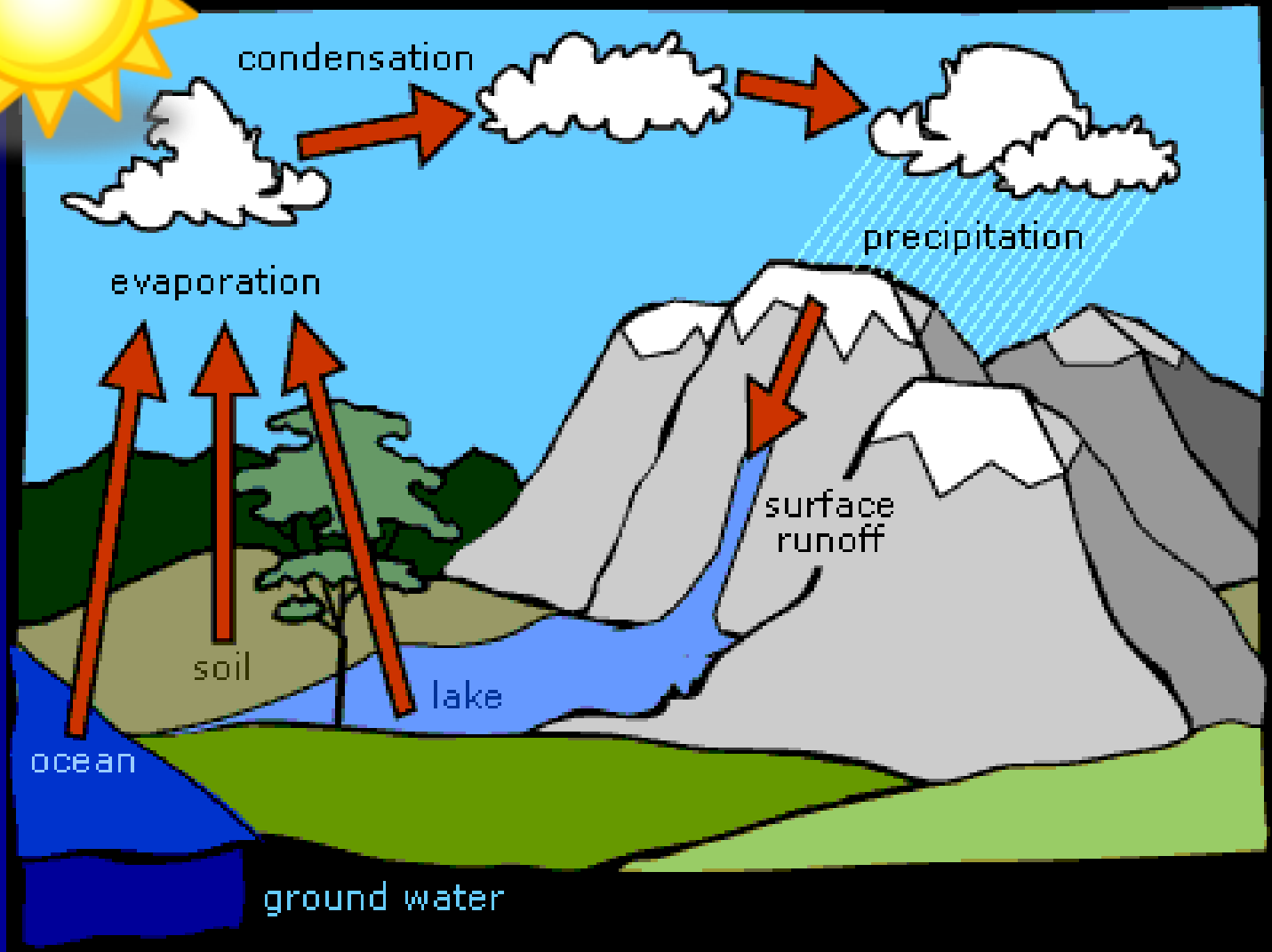


- Affects all Flight Operations
- Familiarity With Weather Required by Regulation
- Determines Runway Usage and Flight Rules
- Contributes to 70% of Delays and 25% of Accidents

Clouds and the Water Cycle



The Water Cycle



Cloud Types

- Low Clouds
- Middle Clouds
- High Clouds
- Vertically Developed Clouds



Low Clouds

- Stratus: Come In Layers
- Surface to 6,000'
- Stable Air
- May Require IFR Flight
- Nimbostratus: Rain-bearing Stratus



Middle Clouds



- Alto Clouds
- 6,000' to 12,000'
- Often in Scattered Layers
- Signal Fair Flying Weather

High Clouds

- Cirrus Clouds
- Above 12,000'
- Water Droplets Frozen to Form Ice Crystals
- Blown by High Altitude Winds



Vertically Developed Clouds



- Cumulus Clouds
- Grow Upwards
- Release Energy Through Condensation
- Clear But Bumpy Skies

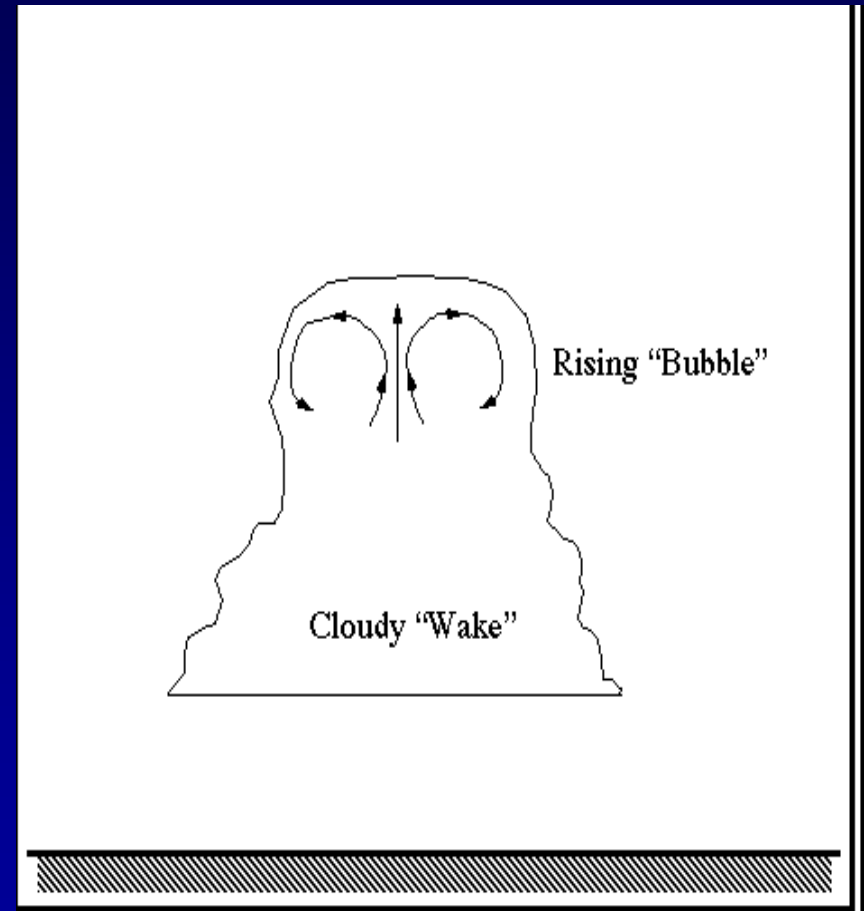
Thunderstorms (CBs)

Bringers of Dangerous Weather

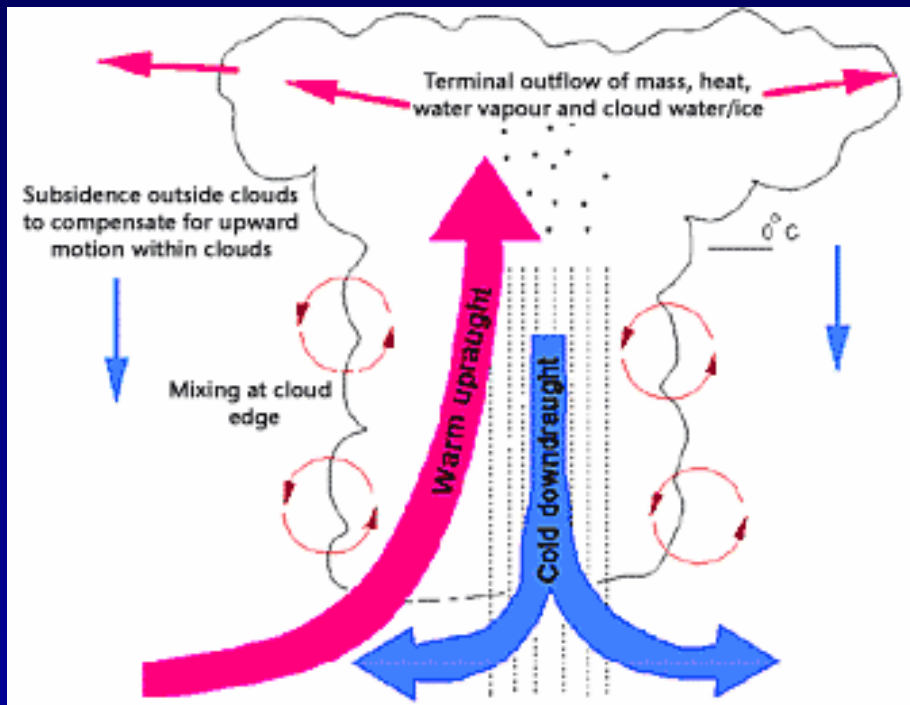


Thunderstorm Formation

- Warm Air Rises
- Cooler Temperatures Aloft
- Heat Released as Water Vapor Condenses
- Cloud Stays Warm— Keeps Rising!



Thunderstorm Features



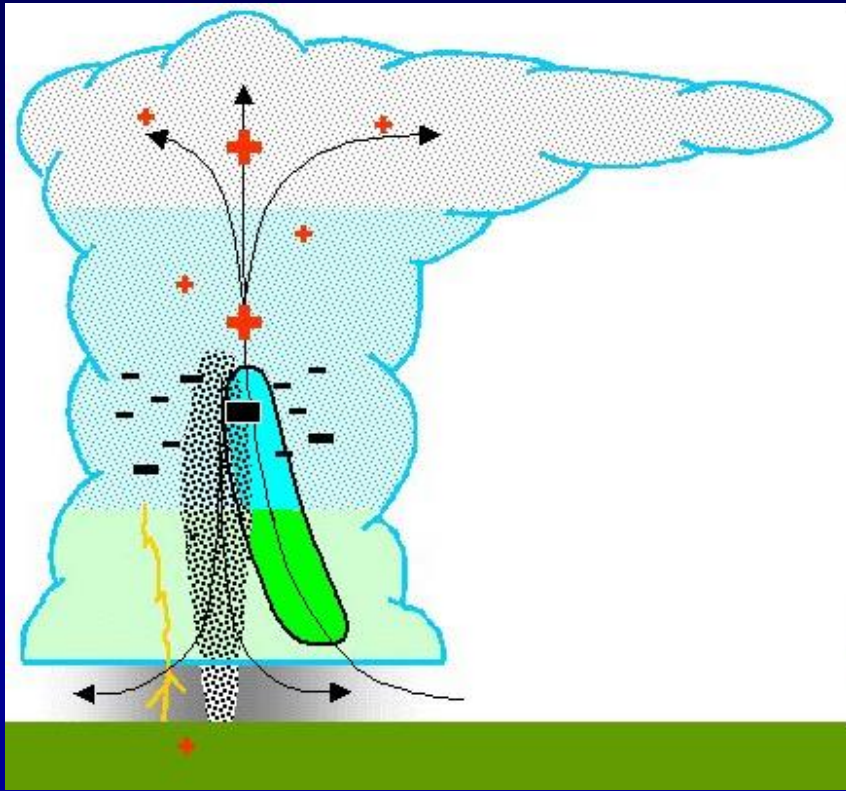
- Strong Up/Down Drafts
- Rapid Vertical Development
- Heavy Precipitation
- Icing
- Lightning
- Tornadoes

Lightning

- Caused by Static Build Up
- Leaps Towards Tall Conductors

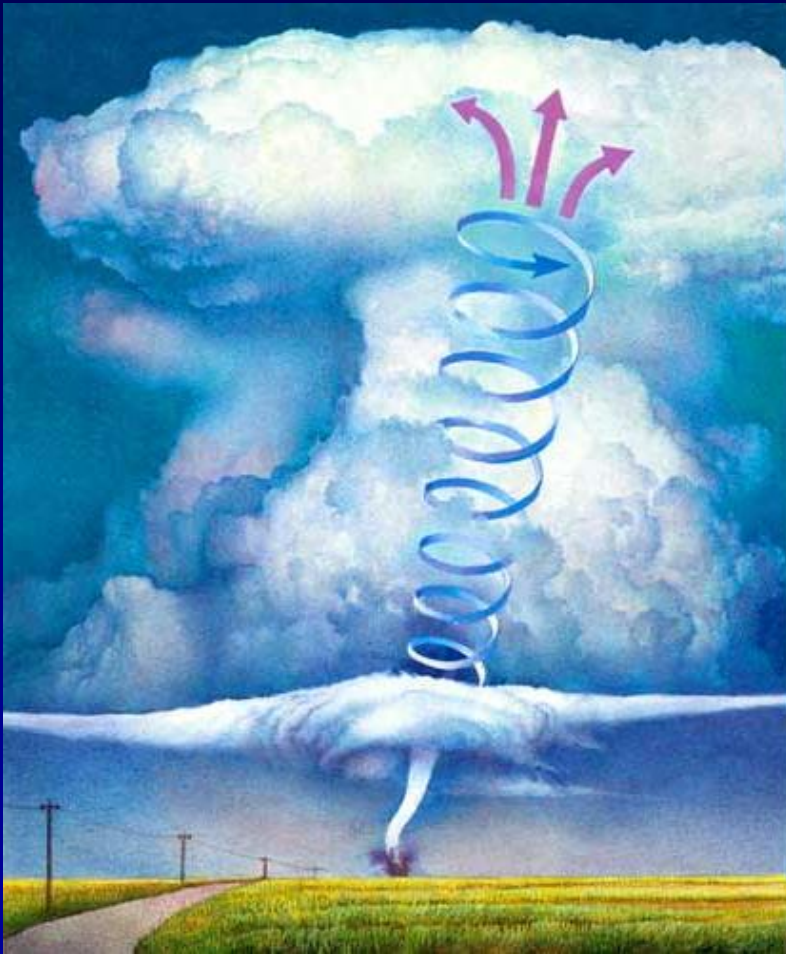


Static Charge and Lightning



- Friction from Up/Down Drafts Separates Charge
- Like Charges Accumulate in Ground
- Discharge Occurs When Charge Accumulates

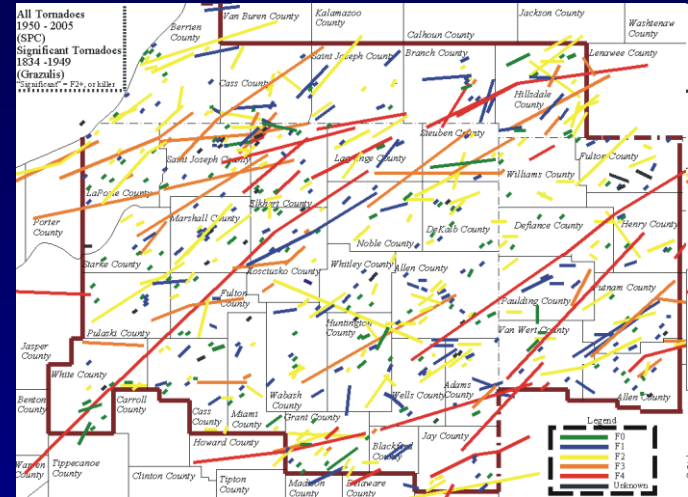
Tornadoes



- Possible Only In Powerful Thunderstorm
- Observed in only 3% of Thunderstorms
- Rapid, Rotating Updraft Reaches Surface

Tornado Features

- Rated With Enhanced Fujita Scale
 - EF0– Under 100 mph
 - EF5– Over 200 mph
- Track SW-NE
- Footprint Diameter Up to 1 Mile
- Track Length Up to Several Hundred Miles



Tornado Safety

- Be Aware of Convective Weather Forecast
 - Convective Sigmet
 - Severe CB Watches
- Monitor Local Warnings
 - NWS Tornado Warning
 - Tornado Sirens
 - Radio Signals
- Seek Shelter
 - Avoid Ridges
 - Find Low Areas
 - Underground/Reinforced Structures



Thank You!