

ANALYSIS OF WEATHER CONDITIONS



Objectives of this unit

- ◆ Recognize the influence of changes in temperature and humidity on flight operations.
- ◆ Be aware of factors not visible to the human eye but that have adverse effects on the UAV.
- ◆ Identify aids for the recognition of meteorological conditions and their forecasting.
- ◆ Learn about technical and regulatory limitations with respect to meteorology.

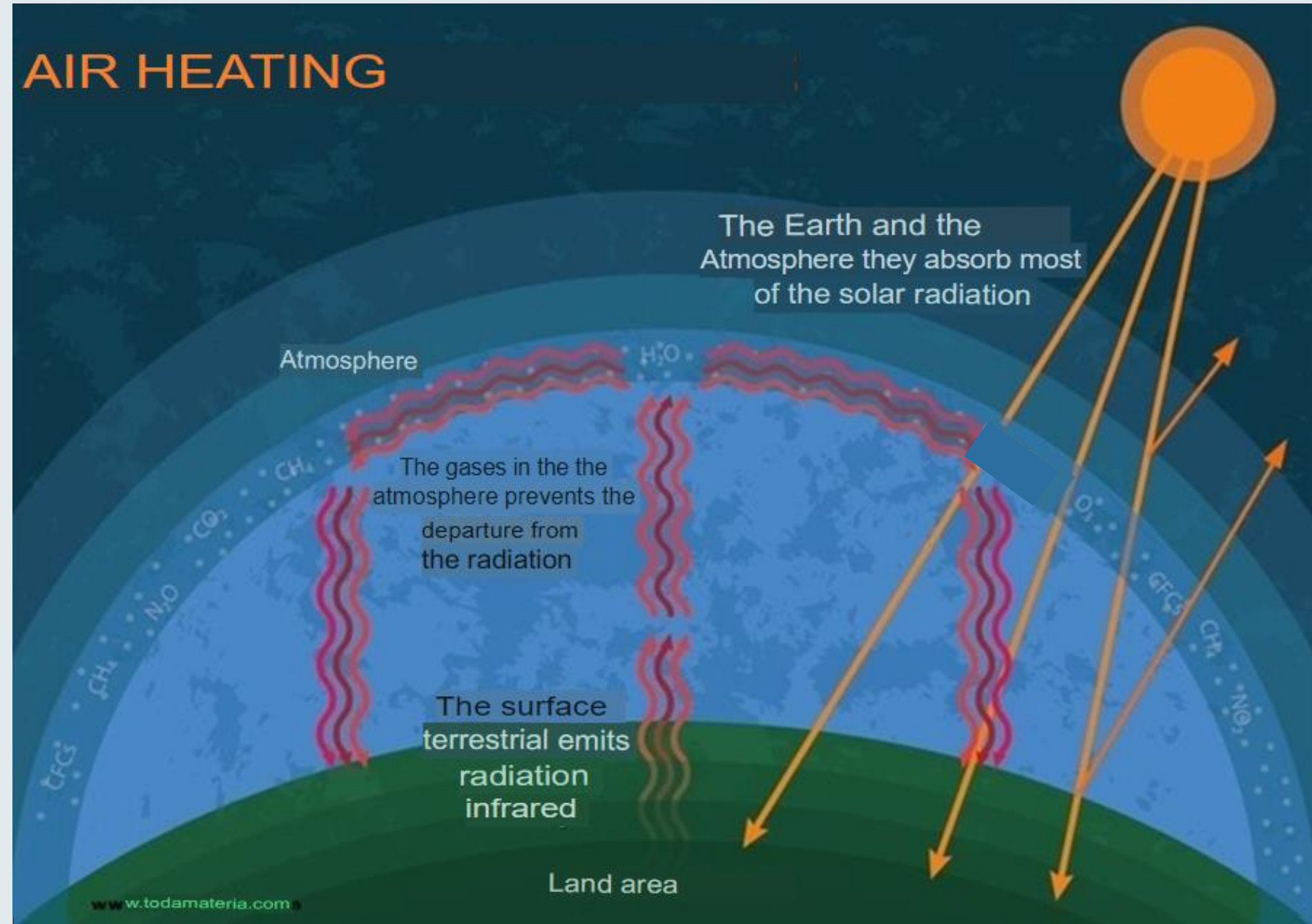
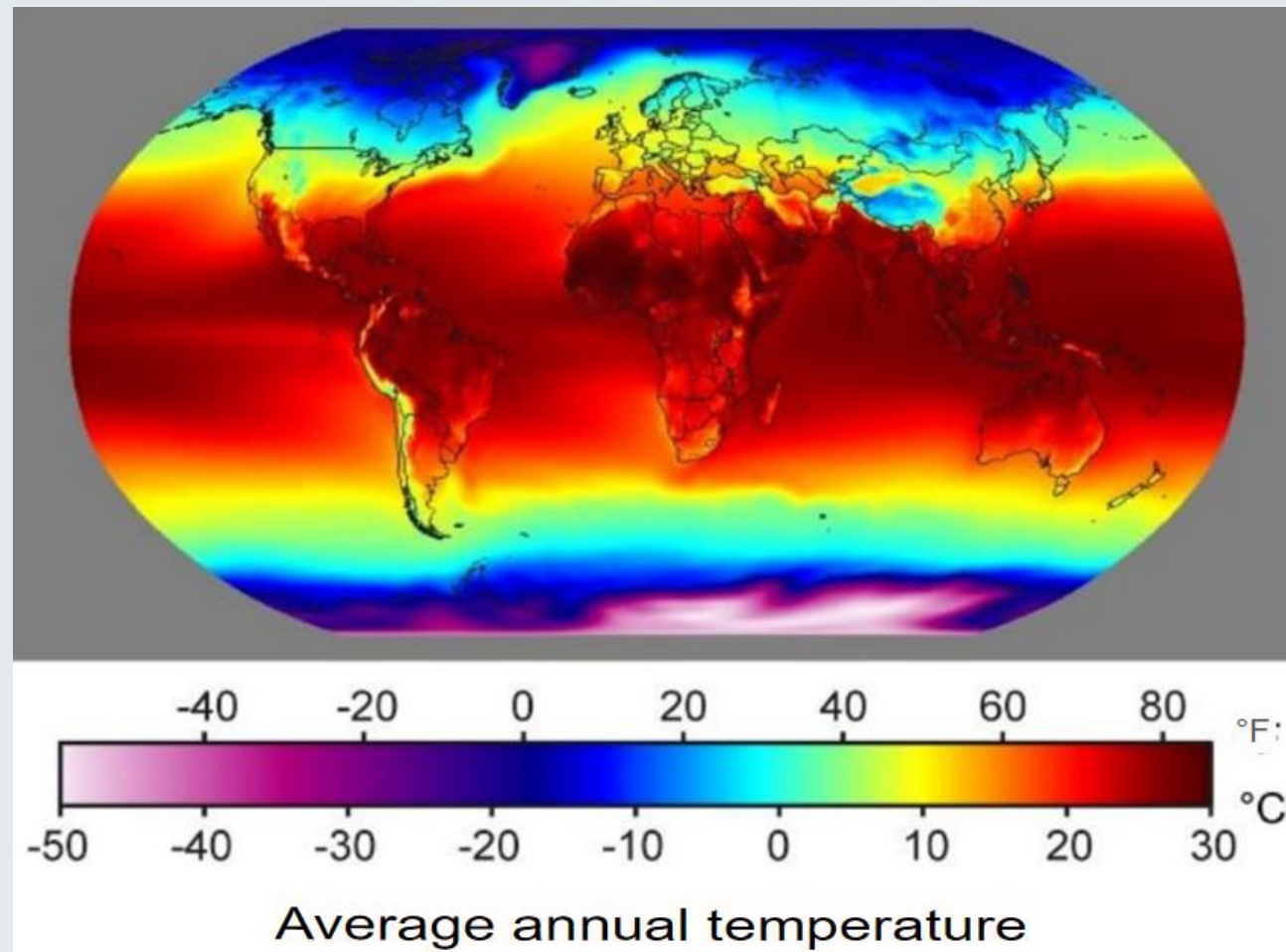
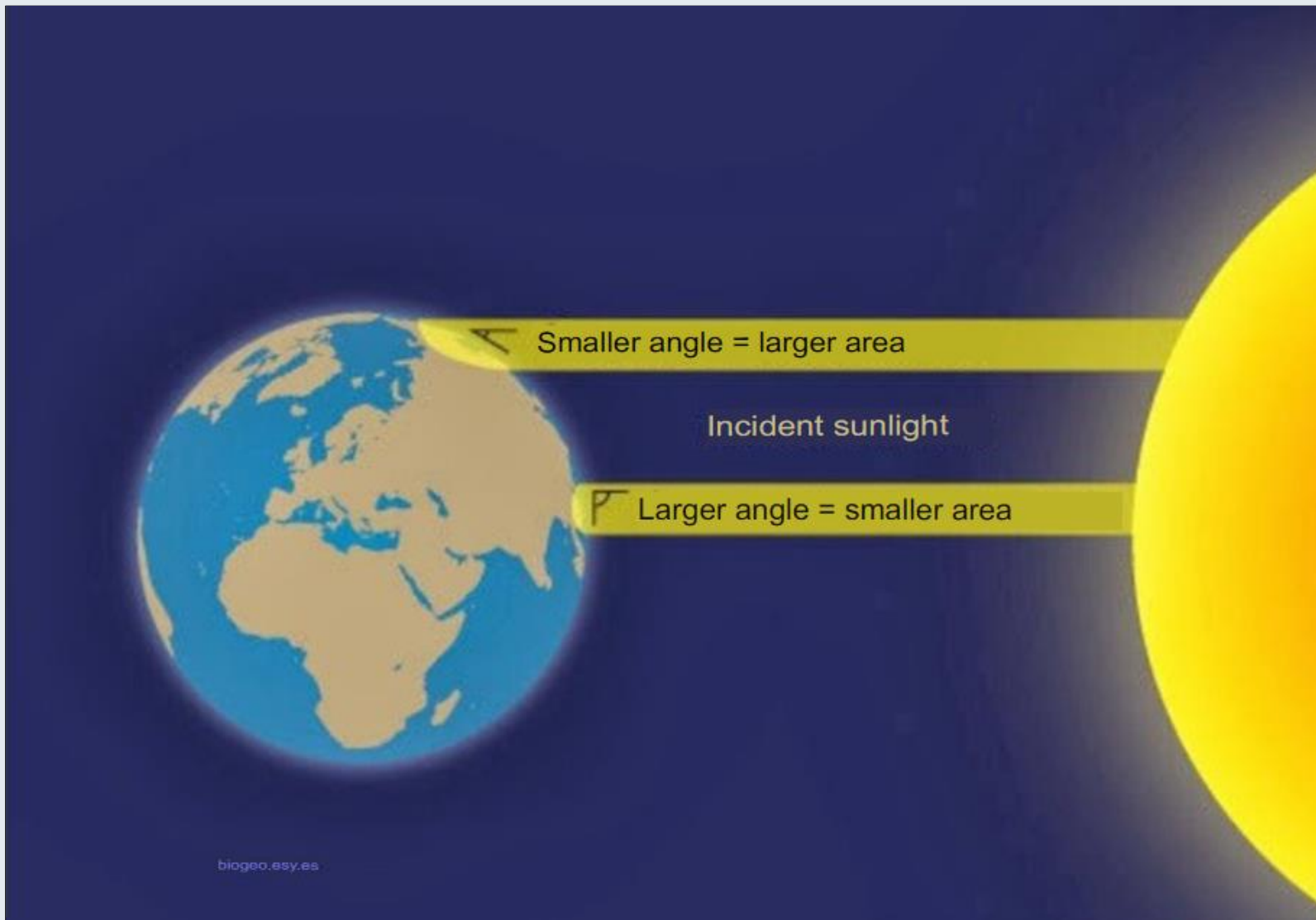
Introduction

The purpose of this class will be for the student to understand that as the UAV moves within a fluid, an air mass, and this is dynamic and often unpredictable, obtaining meteorological information, understanding it and its conscious analysis will reduce the risks in UAV operations to the minimum possible.

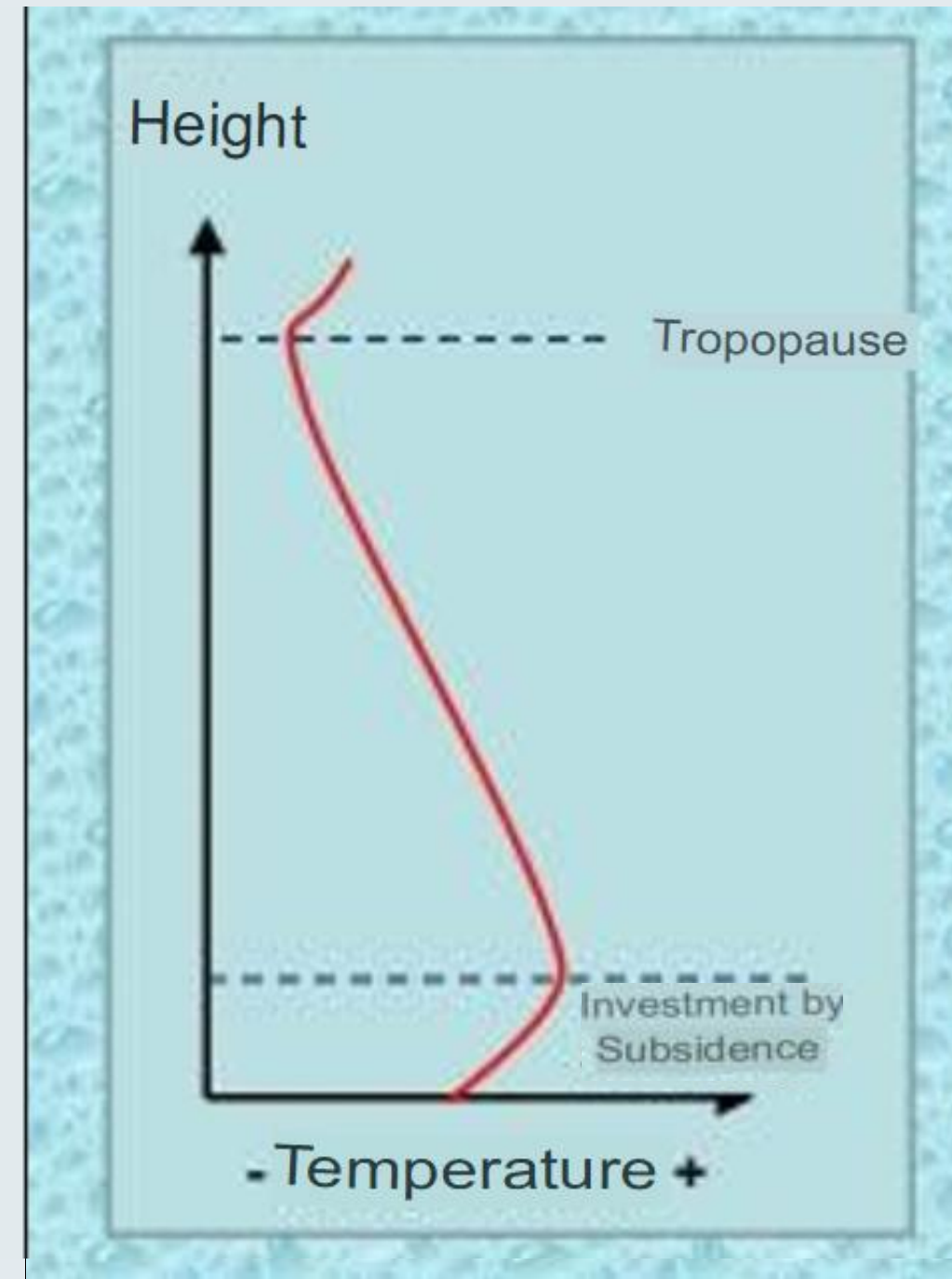
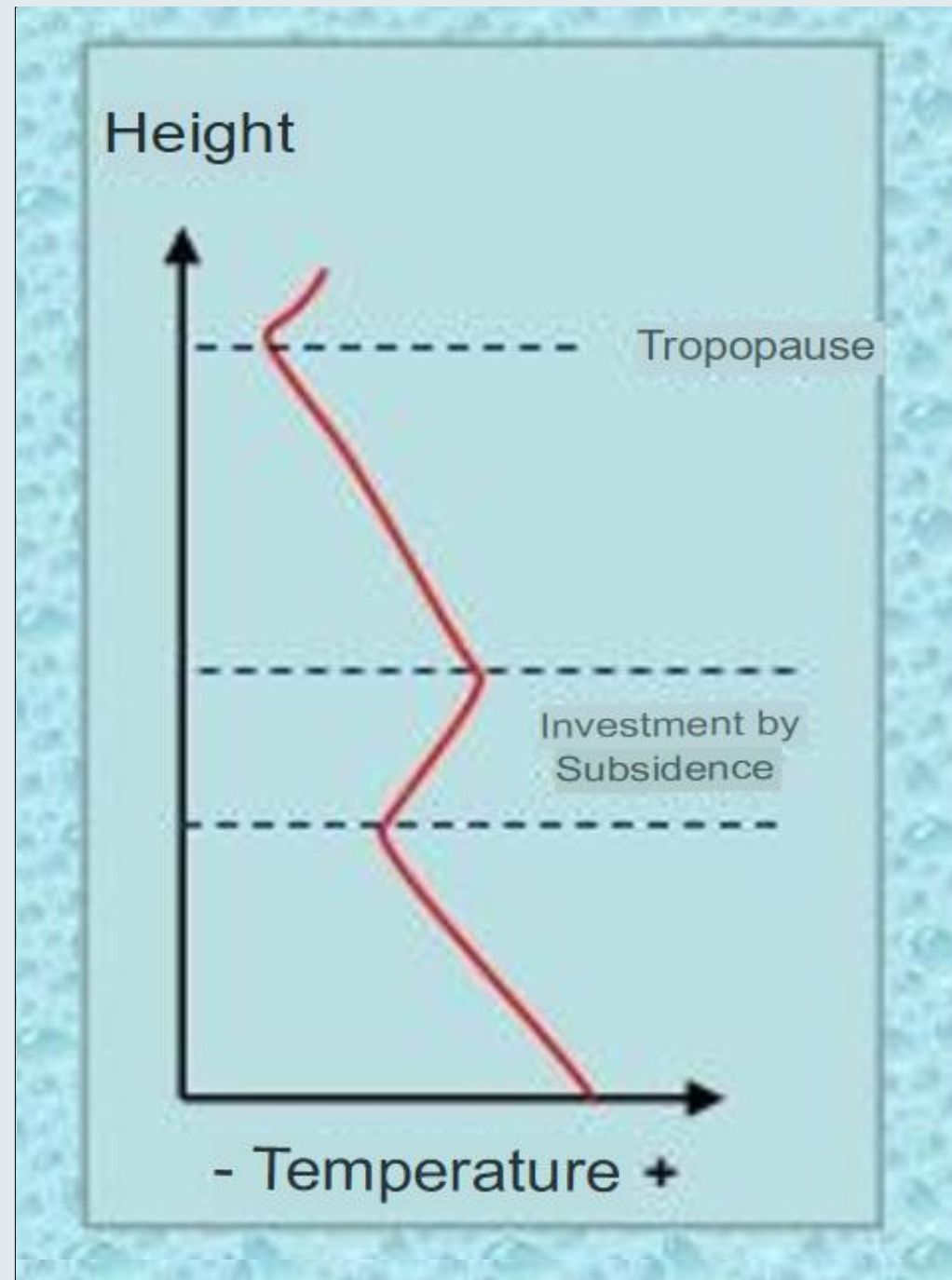
The topics to be discussed will be explained in the most practical and useful way possible. Some will not have such a deep development, because the main thing will be to understand the effect they produce on the UAV and its operation, rather than to know in a detailed and theoretical way its formation.

Likewise, work will be done on specific meteorological occurrences in the operation of a UAV.

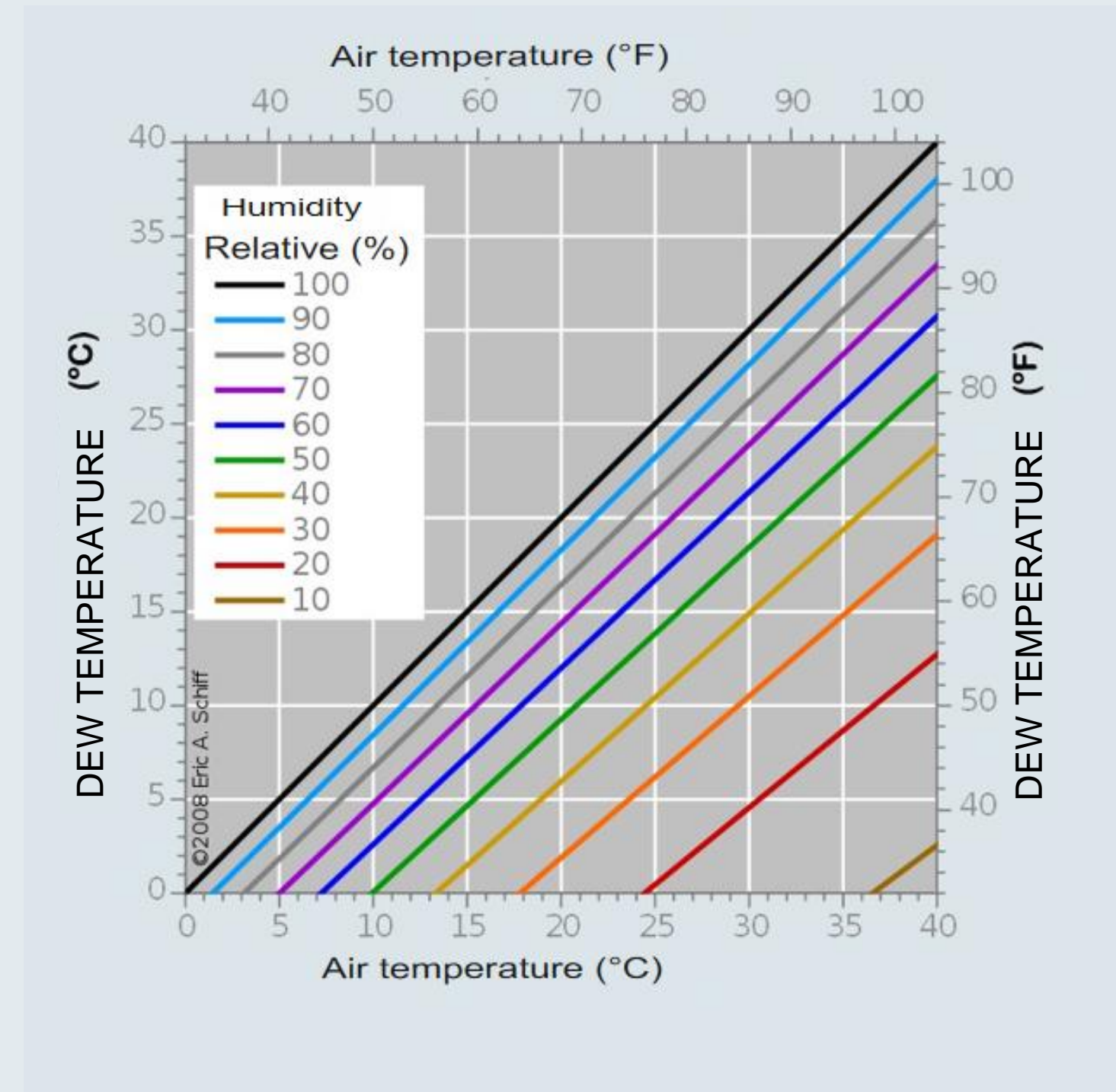
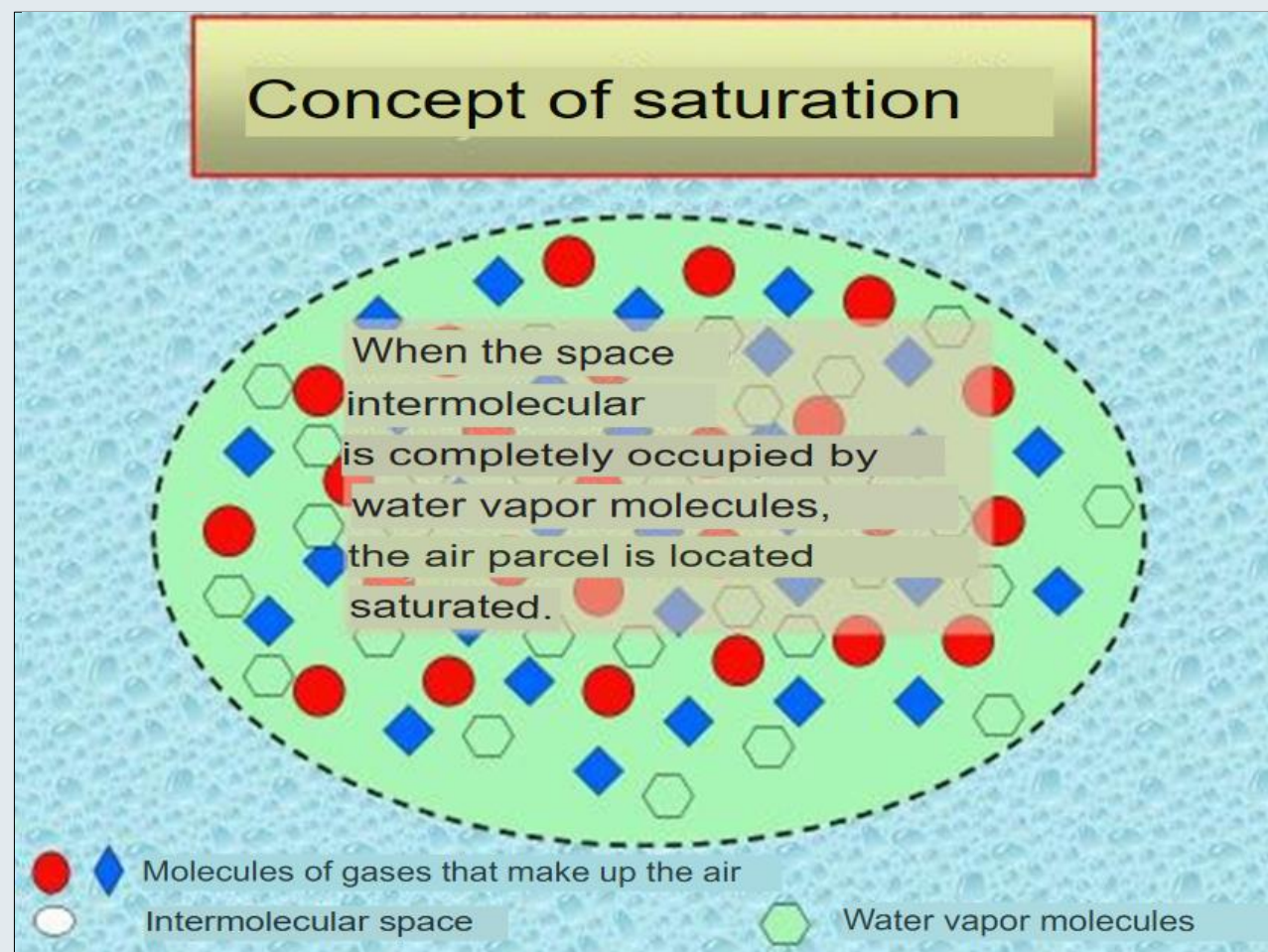
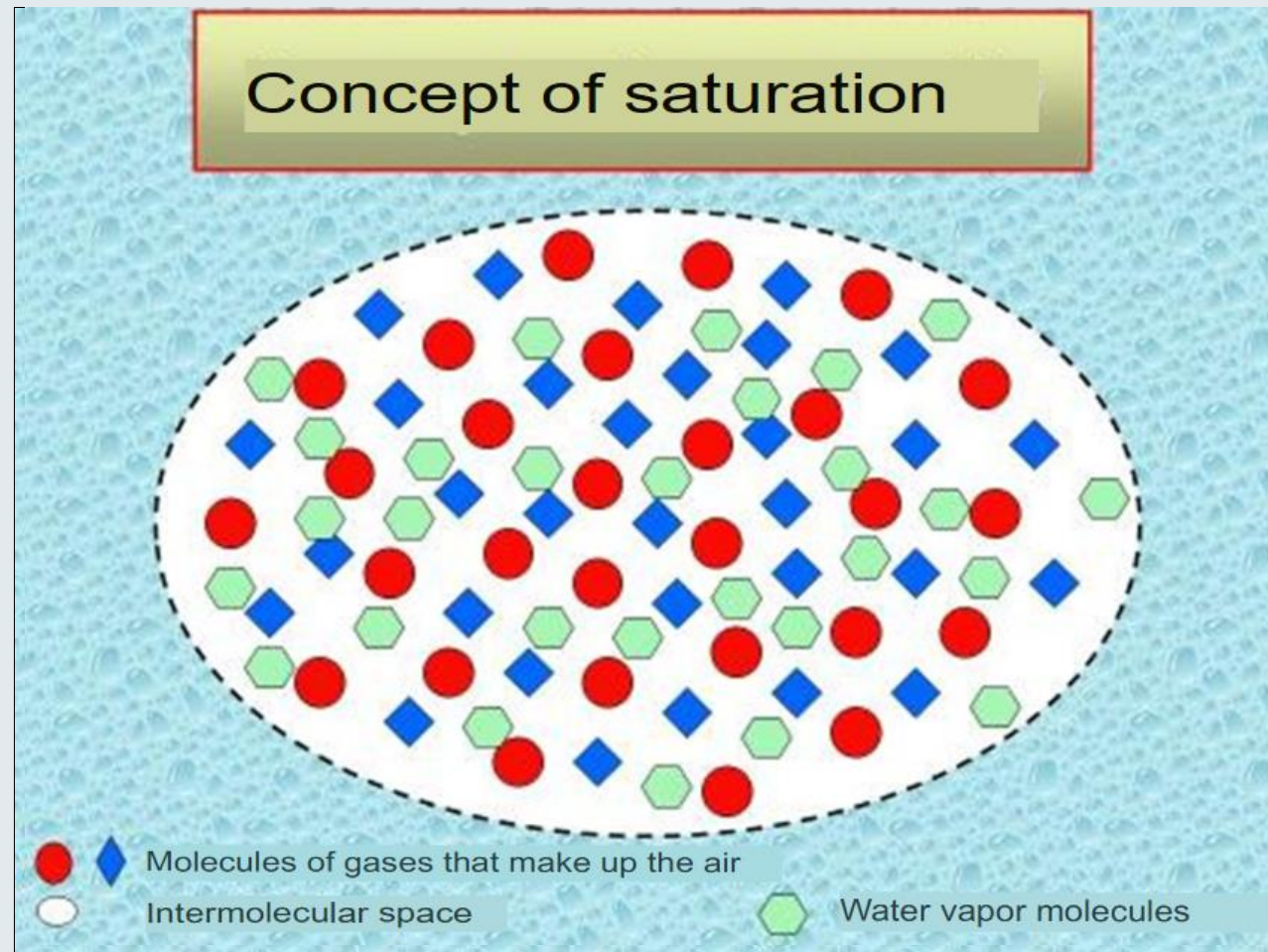
Temperature



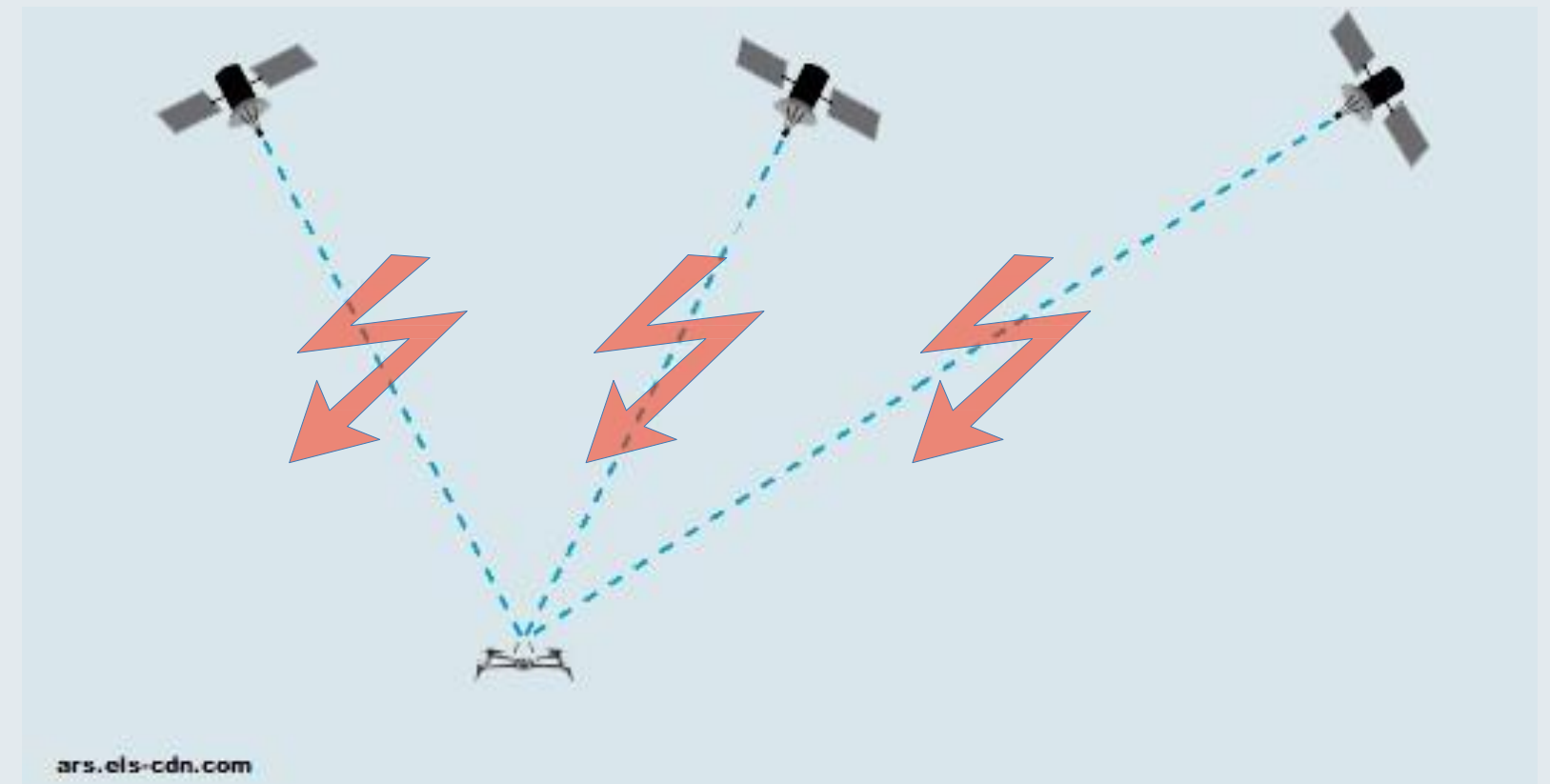
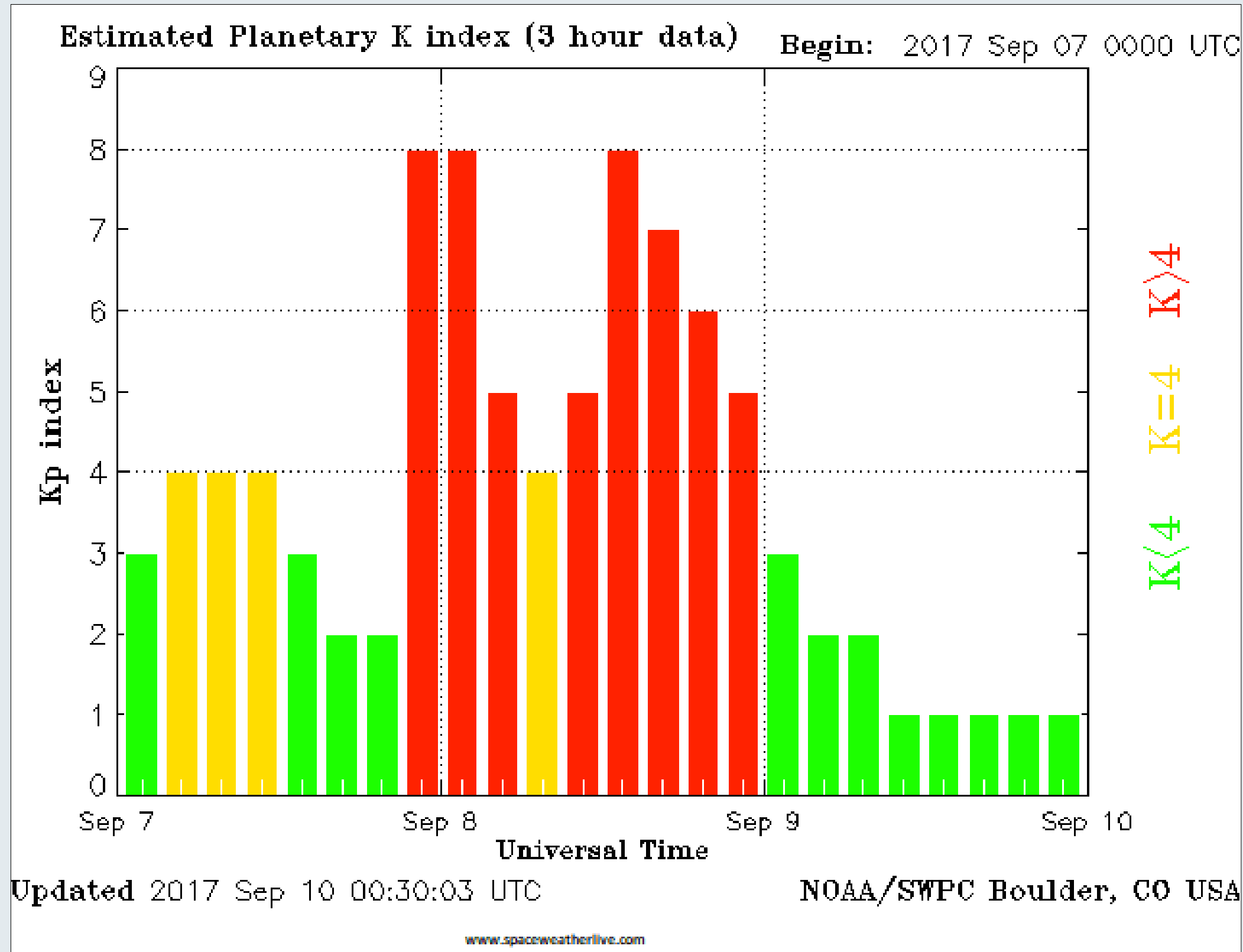
Temperature



Humidity



Kp Index



Conditions

Last update: a few seconds ago

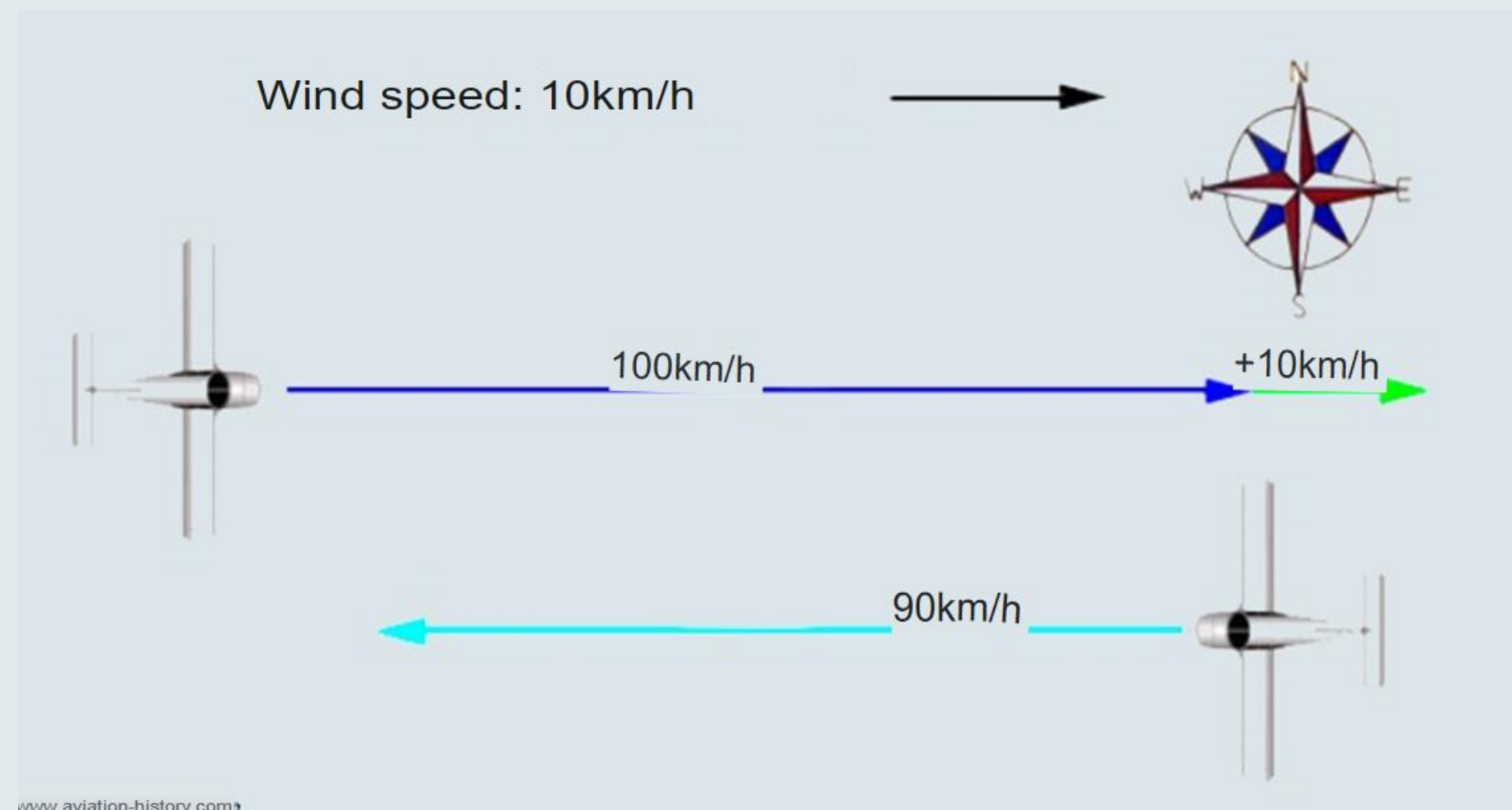
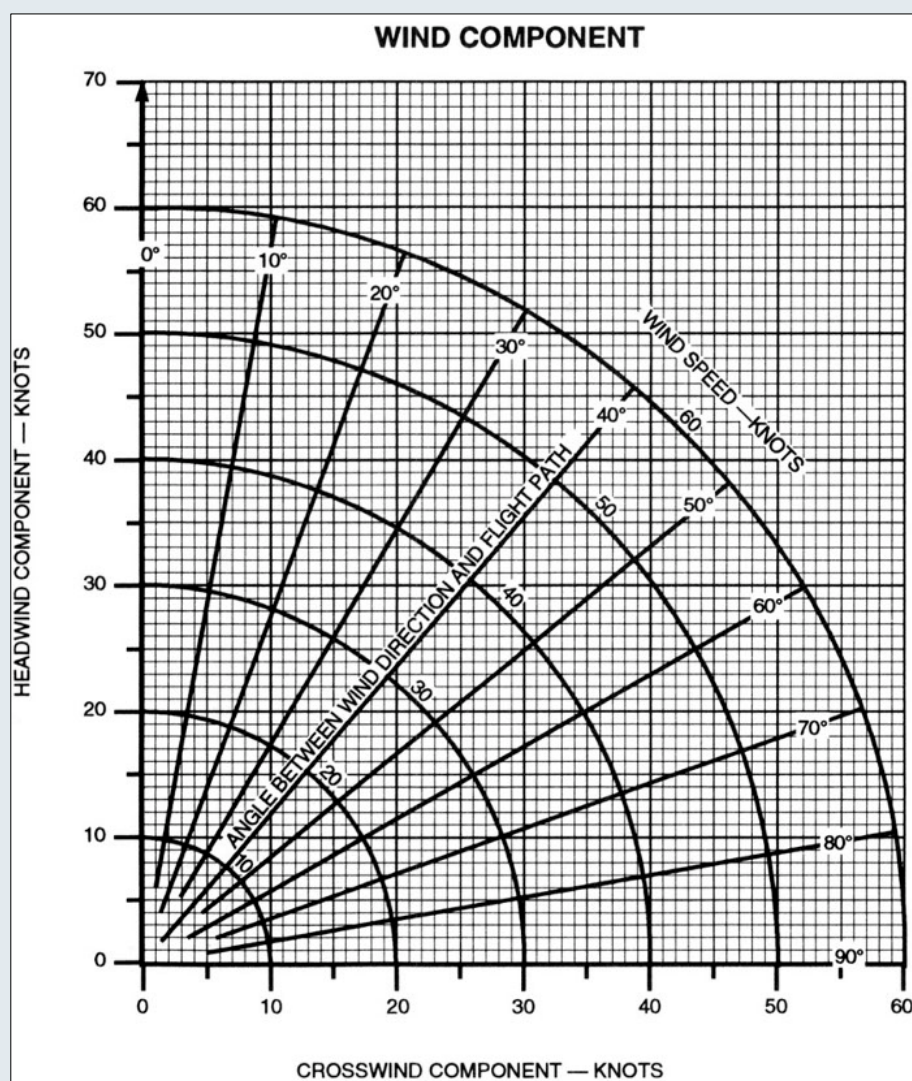
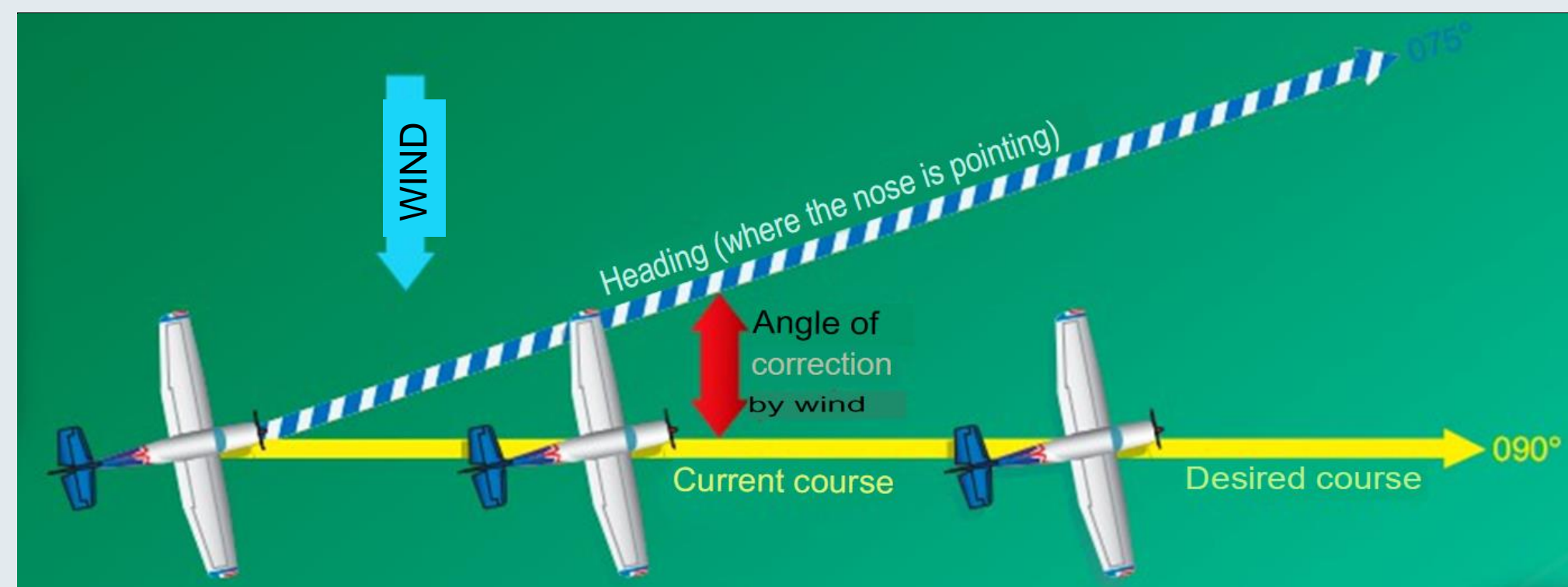
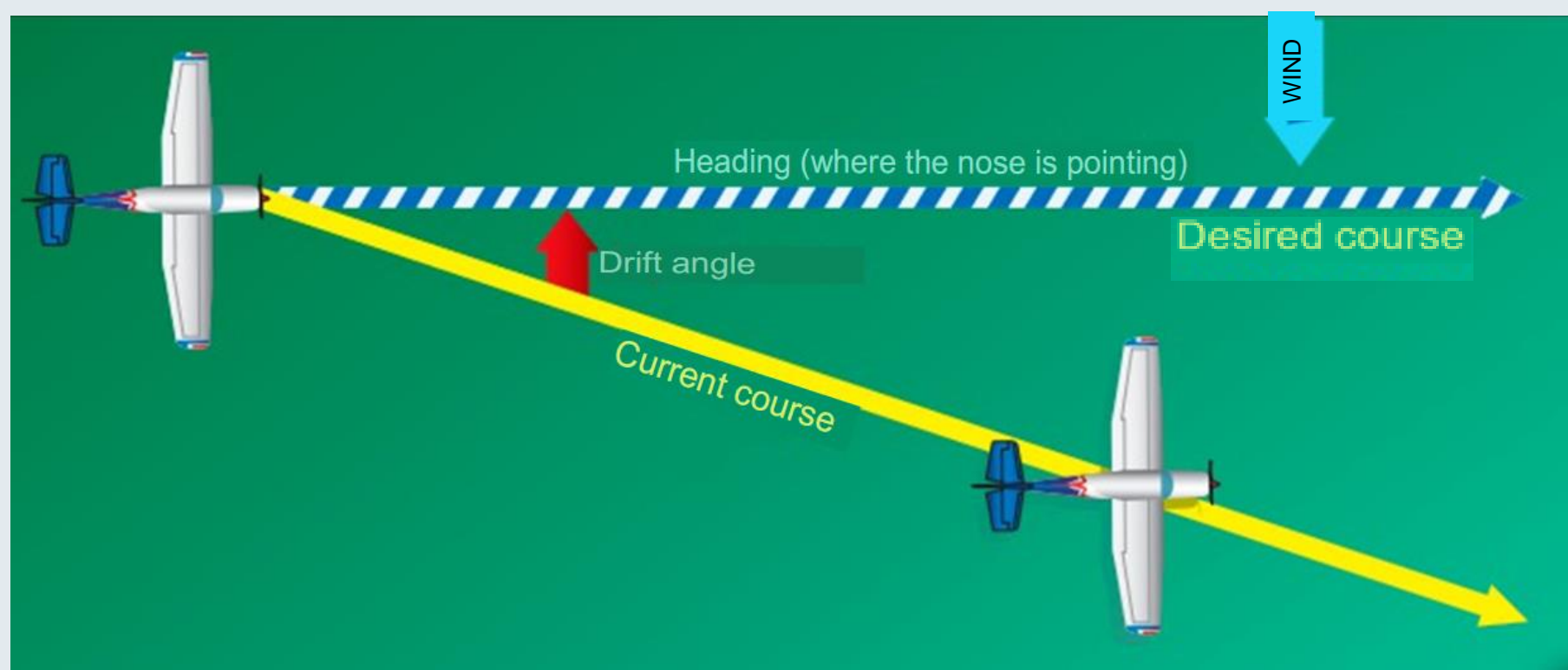
Good To Fly

Weather ☁	Sunrise 06:30	Sunset 16:48
Wind 4 mph	Wind Dir. ↑	Wind Chill 19°C
Precip Prob 0%	Cloud Cover 94%	Visibility 5 miles
Visible Sats 16	Kp 2	Sats Locked 13.8

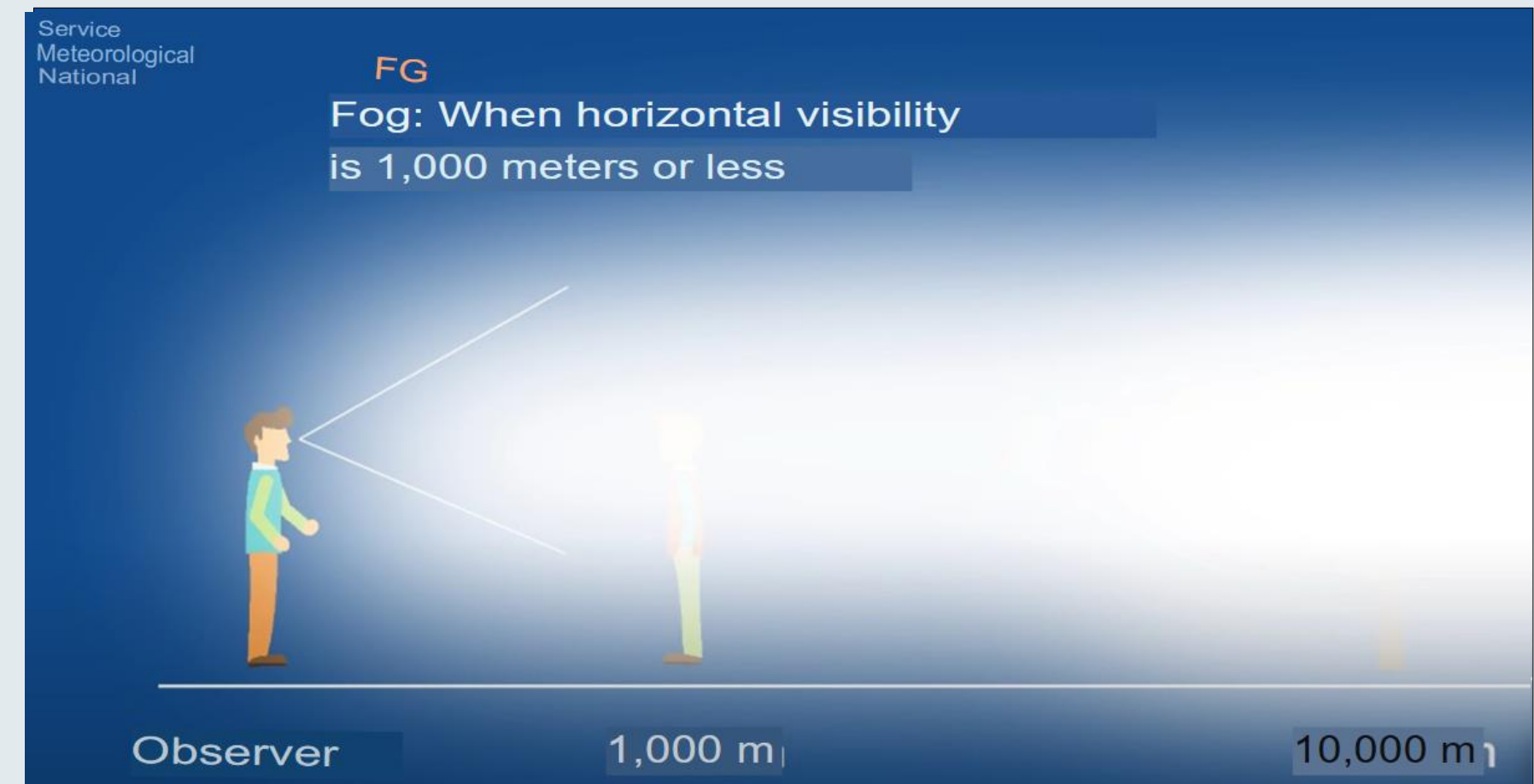
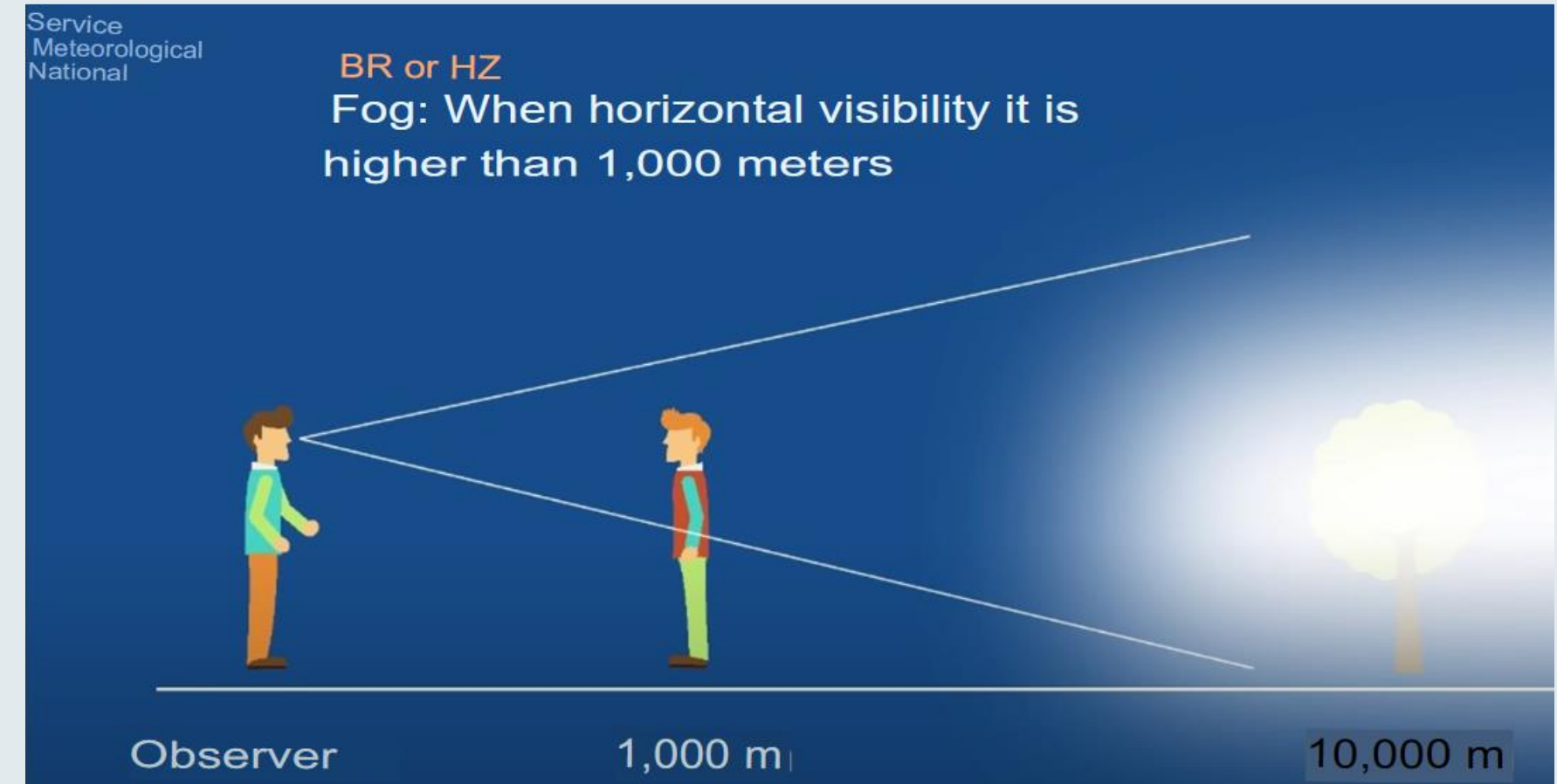
No TFRs or NPZs nearby

Conditions Forecast Map Setup Help

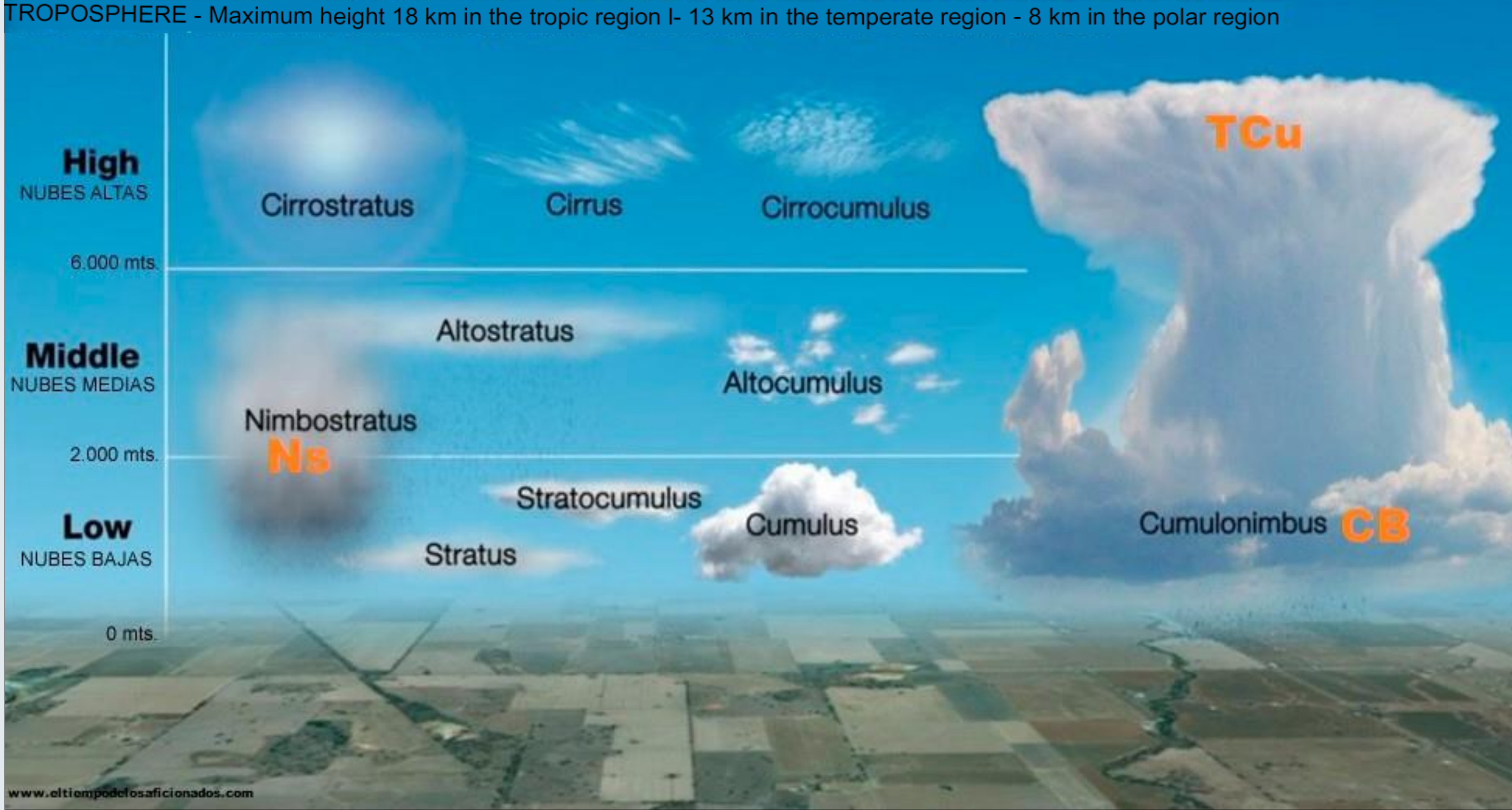
Wind



Visibility and Clouds



Visibility and Clouds



Aeronautical weather reports

➤ Useful Websites / Applications:

- <https://www.ogimet.com/> → To obtain METAR, TAF, satellite and radar images, forecasts, etc.
- en.allmetsat.com → For decoding METAR and TAF messages.
- Avia Weather → Application to obtain raw or decoded airport weather information.
- UAV Forecast → Application to obtain weather conditions, especially for the Kp index.

➤ Types of reports:

• METAR:

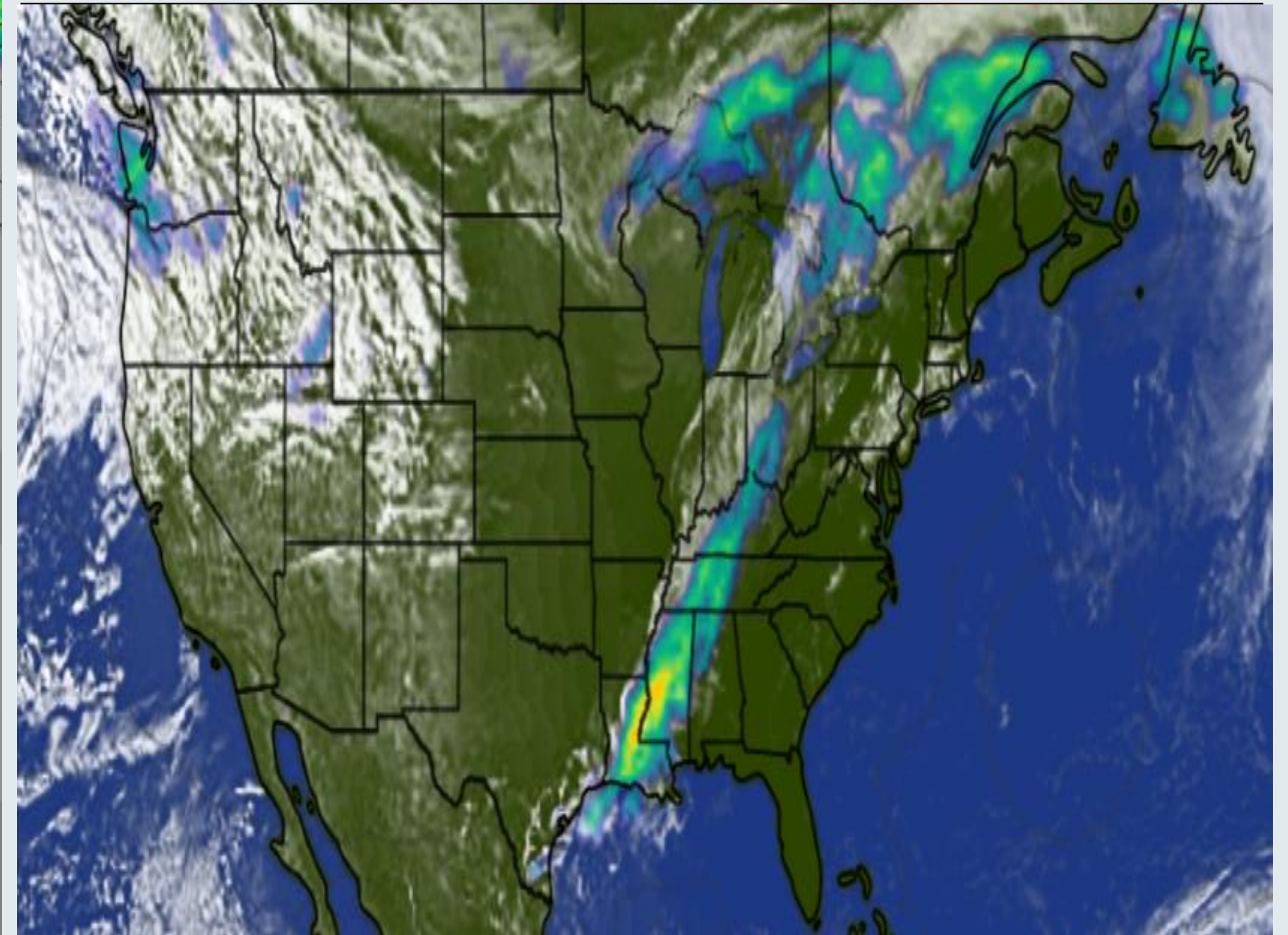
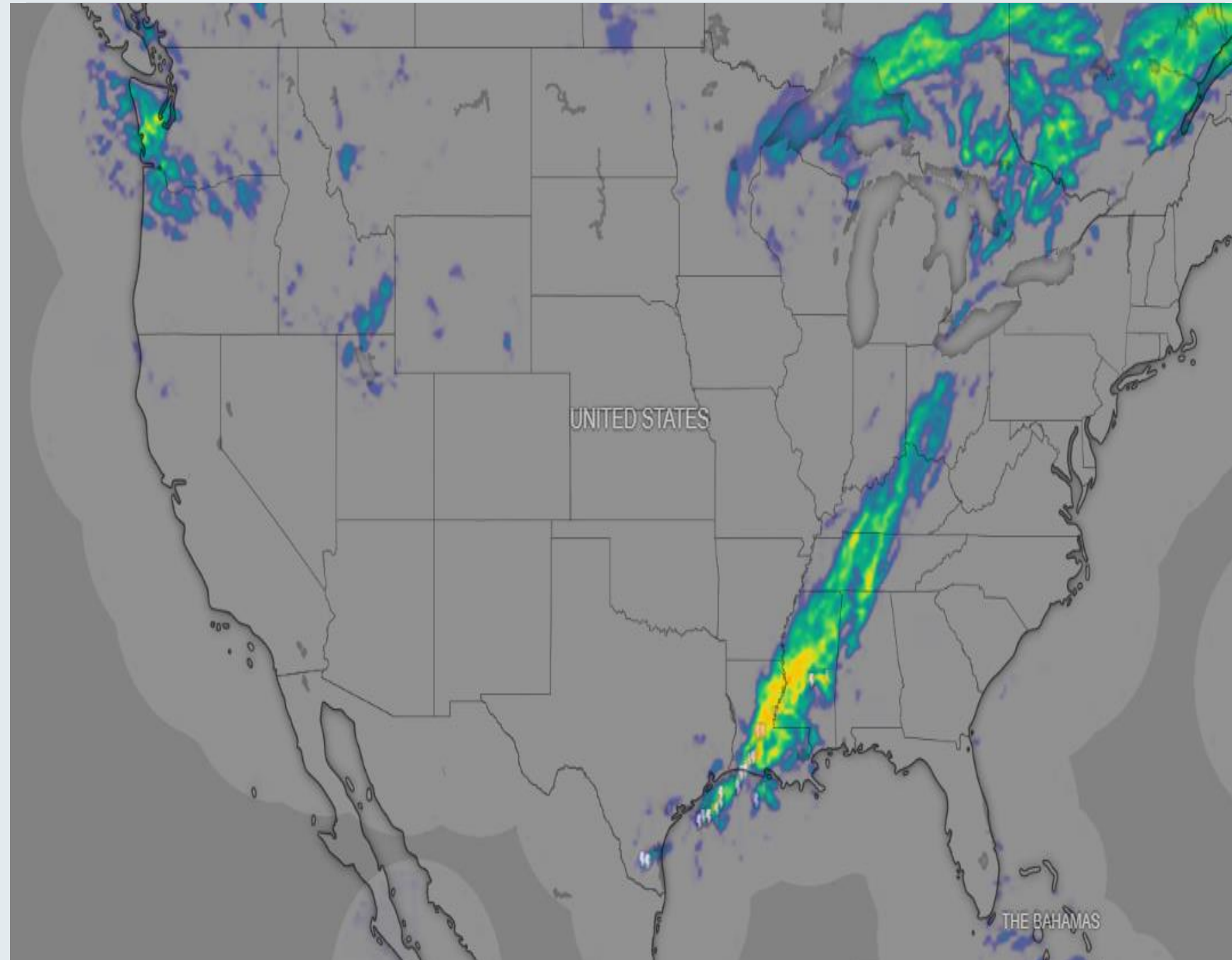
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• TAF:

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08012G20KT P6SM VCSH SCT020 BKN050 FM011500 08015G25KT  
P6SM VCSH SCT030 BKN060=
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Aeronautical weather reports

➤ Types of weather images:



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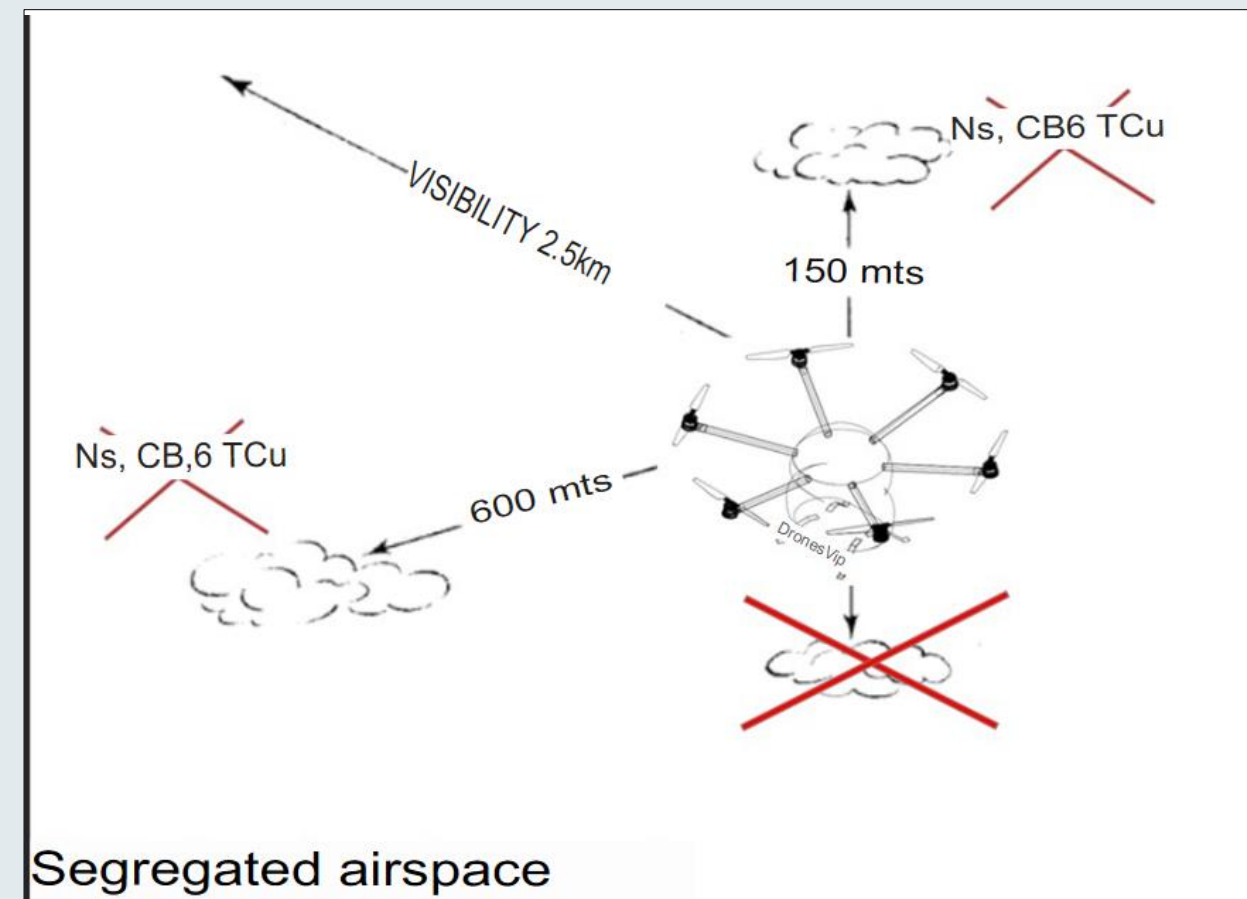
Limitations: UAV Technical and Regulatory

Technical limitations of the UAV and regulatory limitations.

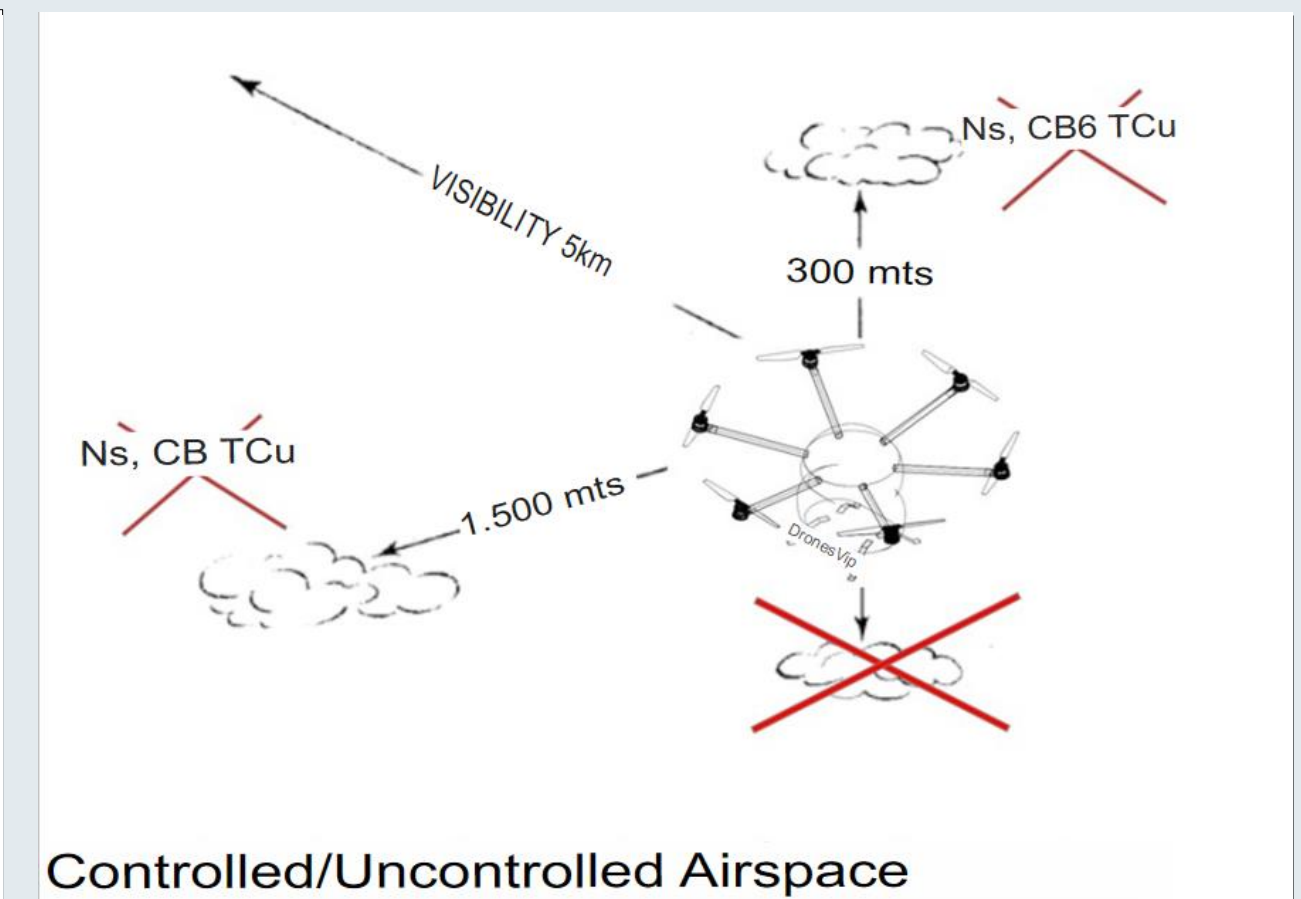
All UAV operations shall be carried out in visual meteorological conditions (VMCs) that allow safe operation.

MATRICE 600 PRO User Manual

CMOS	Sony EXMOR 1/2.3"
Lens	20 mm (35 mm format equivalent), f/2.8, focus at ∞ 9 elements in 9 groups Anti-distortion
Still Photography Modes	Single shot Burst mode: 3/5/7 frames Auto Exposure Bracketing (AEB): 3/5 frames at ±0.7EV Timed shot
Video Recording Modes	UHD (4K): 4096x2160p 24/25, 3840x2160p 24/25/30 FHD: 1920x1080p 24/25/30/48/50/60 HD: 1280x720p 24/25/30/48/50/60
Video Storage Bitrate	60 Mbps
Supported File Formats	FAT32/exFAT Image: JPEG, DNG Video: MP4/MOV (MPEG-4 AVC/H.264)
Supported SD Cards	Micro SD Max capacity: 64 GB; Class 10 or UHS-1 rating required
Operating Temperature	-10° to 40 °C



Segregated airspace



Controlled/Uncontrolled Airspace

Analysis

➤ Always, be honest with yourself, don't try to exceed the limits of the UAV, those of the regulations or your own.

Prior to the day of operation:

- ✓ Check the weather forecast for the days of operation.
- ✓ Check the radar and satellite images.
- ✓ Check the TAF.

On the day of the operation:

- ✓ Check the weather forecast for that day.
 - ✓ Re-check the images of the NMS and TAF.
 - ✓ Check the AEROMET and/or METAR of the operating area.
 - ✓ Write down information relevant to the flight:
 - Wind, temperature, dew point, visibility,
 - types of clouds, atmospheric pressure,
 - and any other parameter you think is important.
 - ✓ Comunicarse con la estación meteorológica más cercana.
- Once in flight, we must verify that the information collected on the ground corresponds to the current information in flight. In addition, we must monitor the behavior of the weather: wind, visibility, clouds, etc. Any shift in values below the operational or regulatory limits must be sufficient reason to abort the operation.



THANKS

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