Essay on 00z skew-t

Health & Medicine, Stress

Analyzing T-Skew Diagrams Covering Environmental Outlook of Tucson on 8 July 17, 2015

Q. 8

a)

Two air balloons equipped with climatic instruments are launched from the rooftop of Arizona ENR Building, Tucson. The balloons are usually filled with Helium or hydrogen. The airborne instruments collect data about air pressure, temperature and dew-point. The balloons are equipped with devices commonly known as radiosondes. The balloons with special infrastructure are launched on 0000 and 1200 UTC. The timeframes correspond with Tucson’s local times of 5: 00 AM and 5: 00 PM respectively.

b)

The Skew-T diagram pertaining to relevant information on 8th July, 2015 is a snapshot that corresponds to 5: 00 AM local time because there is a temperature inversion in the initial portion of the graph. This condition could occur due to presence of clearer sky just before sunrise. The data collected on the subsequent day depicts information about the climate that prevailed in the evening due to lack of temperature inversion.

c)

The weather experts have concluded that temperature and air pressure tend to coincide when there is presence of cloudiness in the atmosphere, and the difference between the corresponding values drops, as the potential of rain increases. However, in the given cases, 12Z T-Skew diagram had a little bit of cloudiness at 4500 meters.

d)

The Tropopause region is a space that covers the area from ground level to approximately 10470 meters in height. The pressure of the air tends to experience halting effect upon reaching Tropopause’s ultimate height, and the abovementioned figure becomes constant at 250 mb. The air pressure also has a tendency to decrease with an increase in height.

12Z T-Skew

9)

The circular close high was reached at 4600 meter because dew point temperature and conventional one became almost coincident. The wind flow was towards West. The graph at 5 AM came near to each other at 500 meters, but the cloudiness was not severe, and therefore, they created a circular close low. The direction of wind turned towards South to contemplate the change.

10)

500 mb maps are deemed to be the most useful approach developed in the field meteorology because the technique measures the difference between temperatures of various locations. The researchers receive help from the method in plotting changes in world temperature against several types of timeframes.

11)

The 500 mb heights in January and June have an increasing pattern because the movement from initial month of the year to a middle one causes the flow of air to decrease. The presence of vapors in the air decreases as well, so the atmosphere gets cleaned up, sending balloons to higher heights against same air pressure.

12)

a) and b)

The average temperature of Tucson is going to rise, as we will move from January to June because the rotation routine of the Earth would bring us closer to the sun whereas, the environment would become clean from vapors, and therefore, the sun rays would reach the surface of the planet intensively.

13)

14)

The air density is a concept that takes presence of vapor in the atmosphere into account during a person moves up the ladder of altitude. The air pressure changes significantly for the initial 3000 meters because the presence of vapor makes the air heavy, but, as a climber moves up, the corruptive force of humidity drops due to less space in air to accommodate much water.

15)

The bag of potatoes would implode because of lessening air pressure that would cause the same amount of air to carry less weight, so the volume of air would drop. That would send the package towards experiencing squeeze, and therefore, the bag may implode due to increase in height.

16

The bottle would explode because the same air in the bottle would carry more weight on the way down, and therefore, the air pressure within the holding structure would tear it apart.

17)

The winds have a tendency to move from higher pressure areas to lower burdened one, but the space does not have any presence of atmosphere, so there is no chance that the air surrounding the world would move away. However, it keeps swirling around the globe in the abovementioned pattern.

18)

a)

Both of the containers would have different pressures because they behave in divergent ways. The water moves downwards by nature while, the air has a natural tendency to swirl upwards. The water’s container would have maximum fluid pressure at the bottom, and the air would create notable level of pressure in the upper section of its space.

b)

The air pressure tends to drop disproportionately, as a reaction to increase in height. The air pressure will drop by 66. 67 points due increase of 1000 meters in height. We have to cut the figure into half because the corresponding increase is 500 meters. In this way, we will find less pressure of air in the middle of the container than that present at the bottom of the structure.