Laboratory of Analytical

Surface and level map analysis pressure in the upper atmosphere

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Analysis of the pressure levels maps for the upper layers

***Drawing of contours*:**

They are lines that connect points or stations of the same height at approximately sea level, and we will notice that the height at a certain pressure level varies from place to place. The lines of equal height are proportional to lines of equal pressure on any map. For example, if the line of elevation is higher, the isobaric line decreases, and thus the decrease appears from the height. The maps of the higher pressure levels are analyzed successively from lower to higher surfaces because pressure changes gradually and regularly with altitude.

The contour lines are drawn with a black pencil as continuous and continuous lines on the map of the upper layers of the atmosphere with pressure periods that change according to altitudes or levels. Usually, lines of equal height are drawn parallel to the wind vectors, and that the large values of the voltage heights should be on the right of the contour line and the small values on the left in the northern hemisphere and vice versa in the southern hemisphere. The intensity of the contour lines increases with the intensity of the wind, and on the contour maps, the center of the lower voltage elevation point is symbolized by the letter (L), while the letter (H) symbolizes the area of the highest potential elevation.

pressure surface constant:

1- There is a constant value of the pressure at a constant height for every point on the surface of the earth, and this value is 1013hPa at sea level (Z=0) in the middle latitudes or the semi-tropical regions and in the southern hemisphere or the northern hemisphere alike, and accordingly it is said that the pressure is high if it increases It is lower than this value at sea level, or it is said to be lower if it is less than this value at sea level.

2- At higher levels, pressure decreases with rise at the same time. Pressure is affected by temperature, as the pressure decreases slowly gradually with the rise in the column of warm air of low density and decreases rapidly with the rise in the column of cold air of high density.

3- Temperatures are distributed unevenly around the globe, meaning that there are hot regions such as the tropics, cold regions such as the polar regions, and relatively temperate regions, as in the middle shows, so there will also be a discrepancy in the variation in pressure values with altitude from one region to another.

4- The process of measuring pressure at higher levels will need either to stabilize the pressure and make the height the variable as is currently adopted in the maps of the higher levels, or vice versa, to stabilize the height and make the pressure the variable.

Pressure level map analysis 850hpa

The purpose of the experiment: Analysis of the hPa850 pressure level map by drawing isoheight and isotherm lines, It gives an indication of the strength of the surface pressure system through the presence of extended pressure centers for these systems at the level of 850hPa.

The theoretical part : The elevation of this level ranges between 1310m and 1590m throughout the year with an average climate of 1500m. The pressure level maps of 850 hPa are important for determining the areas of the hot air and cold air at the bottom of the troposphere, the areas of thermal gradient, and thus determining the areas of fronts that are difficult to determine on the surface. The center of the depression or high was surrounded by many contour lines indicating the strength of the system, but if the center was surrounded by one contour line, this means that the system is weak, and the presence of more than one center of the high or low means that there is a major high that dominates the region and these centers represent secondary centers within the main system, The hPa850 level map analysis is useful for domestic aviation and other matters relating to altitudes close to 1500 m above sea level.

The practical part:

1- Take a comprehensive view of all parts of the map and identify the high and low centers of the voltage heights and mark them with the letter H and L, respectively.

2- Draw lines of equal height, starting from the centers above, and fixing the values of heights on them, following the basic rules of map analysis.

3- The intervals are between each line of my effort height and the last 30 m, drawn in the form of continuous lines with a pencil. The values may start with the number 500 clean 1 to the left of the number to become 1500 as well as for the rest of the values, if they increased or decreased, then we apply the period, that is, we increase or subtract 30 m. We define the centers of pressure systems by placing The letter H in the center of the high, which represents the highest value of the voltage rise, and we put the letter L in the center of the low, which represents the lowest value of the voltage rise.

Discussion:

1- **Determine the highest and lowest voltage values?**
2- **Locate the high and low altitudes and compare them with the previously analyzed surface map.**
3- **Determine where cold and hot regions may be, and discuss this.**