JET STREAM

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I. JET STREAM

A. Location of the Jet Stream (General)

1. Systems usually don't tilt much with altitude above 500 mbs at higher latitudes, So it is usually safe to assume that the core of the 500 max wind is roughly below the core of the main jet.

2. The 500 mb position of the jet stream is usually located in the -15 to -20 C isotherm ribbon with the most frequent occurrence near the -15 C isotherm.

3. The width of the jet will be approximately equal to the width of the 500 mb zone having the maximum concentration of isotherms.

4. The polar front usually intersects the 500 mb surface along the -25 C isotherm.

5. Diverging contours downstream usually cause to the jet to deflect toward greater heights. (i.e. higher pressure at the same altitude.)

6. Converging contours downstream tend to turn the jet toward lower heights.

7. With a northward migrating (zonal) jet stream:
   a. Cut-of lows usually dissipate as the jet migrates northward.
   b. Few troughs extend into the low latitudes.
   c. The jet stream is usually weak and disorganized.
   d. As the jet reaches the upper-mid latitudes and sub-arctic regions,
      1) The amplitude of the long waves increase rapidly and,
      2) The long waves often retrograde.

B. Location of the Jet From Satellite Pictures

1. The "slot" in the back edge of a front will often point the direction of flow of the jet, and also the usually movement of the system.

2. Cloud patterns to look for in satellite pictures that often give jet stream location.
   a. Lines of cirrus in bands.
   b. Patches of cirrocumulus. (Occasionally Altocumulus Castellantus.
   c. Lenticular clouds in waves.
   d. Mountain wave clouds.
      1) Wave clouds are often associated with lower level jets. Associated cloud streets are perpendicular to the direction of the jet.

3. The jet location is often given by a sharp contrast in cloud type with the more unstable clouds to the north of the jet.

4. Sharp edges of clouds (except fog and stratus) usually identify the jet. The jet is most often to the north of that sharp 'edge.'

C. Relationship Between the Jet and Fronts and Lows.

1. The jet will be to the south of the low associated with an occluded front.

2. The jet crosses the front at the "triple point." (The point of intersection of the cold, warm and occluded fronts.)

3. The jet will usually be to the north of an unoccluded (cyclonic) wave.

4. The jet will usually be perpendicular to an occlusion.

5. In a series of lows of a cyclonic family, each low will have an associated jet maximum.

6. Each wave associated with westerly flow aloft will have an associated isotach maximum.

7. When a transient, cold, polar high stagnates and begins to warm, the jet usually changes markedly. (As the thermal contrast in the southwest is destroyed and the warm air advection moves northward, the original jet streams dissipates and a new jet forms to the north.

8. The jet will roughly parallel the isobars around the southern periphery of a cold, slow moving surface low.

9. The jet will roughly parallel the isobars around the northern periphery of a warm, slow moving surface high.

NOTE: The last two statements are very useful when dealing with the longer range progs on a limited number of display screens.

By combining all of the rules given above, the usefulness of each chart or satellite picture is enhanced considerably. Furthermore, the ability to glean the most information from a single chart is more important now as the limited number of charts that may be displayed on computer screens at a single time.