



Photo by Alex Aldott

Thermal Soaring—Southwest Style

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In recent years Southwest Texas has become a popular gathering place for soaring enthusiasts on both a national and international basis. The two focal points of this activity are Ector County Airport, Odessa, Texas and Presidio County Airport, Marfa, Texas. (See Figure 1) Soaring pilots in this area have one of two flight plans in mind. A pilot may wish to fly in the local area, or he may wish to journey cross-country, landing several hundred miles from his home base. Since the ideal weather pattern differs for each type of flight plan, we will discuss them separately.

LOCAL AREA SOARING

Most summer days in Southwest Texas are favorable for local soaring. A pilot is able to find all the lift necessary to remain aloft for several hours. Why? The answer lies in the combination of many factors—strong solar radiation, terrain features, unstable lapse-rate, cloud cover and type, and low-level synoptic features.

Strong Solar Radiation

As we have heard so frequently, "the sun is the

primary source of all energy". Therefore, the sun must be the initial source of energy to keep a sailplane aloft. Solar radiation, as such, is useless to the glider pilot. However, solar radiation is absorbed by the earth raising its surface temperature. In turn heat is conducted to the adjacent air which rises from the surface to give energy in a usable form for the glider pilot. Thus the amount of solar radiation absorbed by the earth is one of the most important factors. The weather bureau at Midland measures a daily average of 620 langley's of incoming solar radiation during June, July and August. This is about seventy percent greater than the average over the Northern Hemisphere for the same period.

Terrain Features

The terrain is composed of a light sandy soil with a minimum of foliage and no trees. It is ideal for strong surface heating. This is reflected by the average maximum summer temperature of 94 degrees F. Although this temperature is not exceptionally high it is significant, since the average elevation around Midland and Odessa is near 3,000 feet above sea level (ASL). The terrain around Odessa is generally flat with only slight undulations. Marfa is slightly cooler and lies on a mesa