Warner Springs East-Wind Operations

The lack of close-in emergency landing locations to the east due to rocks, trees, and hills and the possibility of downdrafts/sink means that east-wind operations include a downwind takeoff to the west, while landings are performed upwind to the east.

Differences

Several challenges are involved in the downwind takeoff / upwind landing configuration: Controllability, stopping distance, emergency field usability, shallow climb angle, and opposite direction traffic.

The first challenge is controllability during the initial takeoff. As the takeoff starts there will be no forward airflow over the control surfaces until at a substantial enough ground speed to produce it. During this time, the only functional controls are the tow release and wheel brake.

The second challenge is presented by the higher *ground* speed required to achieve flight. In the event of an early release, the downwind takeoff direction means that the remaining runway will be used quickly. The energy required to stop is a function of the glider's mass and *square* of the velocity (i.e., ground speed), therefore requiring a disproportionately longer stopping distance than the typical upwind abandoned takeoff.

The third challenge is similar but relates to the use of the field west of the airport. This field will be usable for much less time and from a much lower altitude than with a headwind takeoff due to the shallower climb angle and higher ground speed, requiring more stopping distance. In addition, landing in a rough field at a higher speed could be a more violent experience.

The fourth challenge is that making a return to the airport after a straight-out departure may be difficult or impossible (into a headwind, from low and far out). If the takeoff were to be continued straight out like the normal west-wind operation, the climb flight path will be significantly shallower than standard and may likely be shallower than the best-case return flight path.

Mitigations

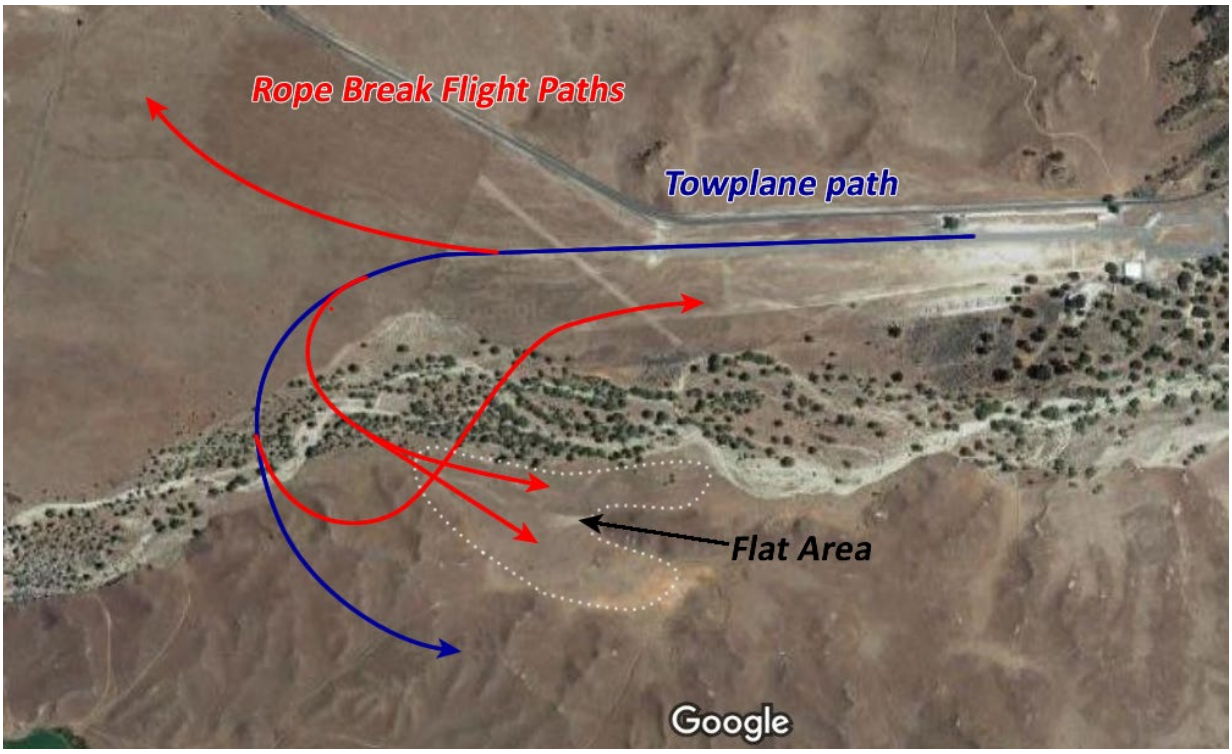
To address these challenges several steps are taken.

To reduce the likelihood of rope-break incidents a stronger tow rope is used, referred to as "east-wind rope." During hookup inspect the condition of the rope carefully, ensure the east wind rope is in use, and don't hesitate to request a worn hookup-end be cut off and retied or the rope be replaced entirely.

A wing runner should be used whenever possible. This helps reduce wing dragging and the directional control issues that takeoff. The wing runner will have to run faster and longer than the usual few steps needed for normal upwind takeoffs. Ensure your wing runner is aware and qualified.

Once airborne, the towplane will begin a left turn once it has a positive climb, which is usually below 100 feet AGL. The option to land in the field straight out quickly disappears during this turn. From about 100 feet AGL sufficient altitude exists for a 90º turn and for a few seconds this 90º turn can put the glider in a small flat area (among other hills) to the southwest of the airport. More on the flat area shortly.

As the turn progresses and altitude increases a return to the airport becomes the logical choice as a 180º turn is not needed, and sufficient altitude exists to make it back to the airport where an upwind landing can be accomplished.



The Flat Area

The flat area offers two landing directions: one facing east, and one facing southeast. This allows you to minimize the crosswind on landing. Each slopes slightly downhill on the eastern end.

The usable landing distance for each is about 1500 feet. The area is generally flat (though not completely) and it is definitely not smooth. Animal holes, unevenness, and some obstacles exist. Therefore, it is essential that your ability to land and stop the glider exactly where you intend to is solid. The off-field technique of using a low-energy landing and stopping quickly is important. It is one reason we always spot land at low energy.

Looking Northwest

Landings

During east-wind takeoffs to the west, landings are accomplished to the east using standard left traffic. Everyone involved must be aware of the potential converging path of takeoff and landing traffic and the fact that from the takeoff point of view, approaching aircraft will be found ahead and to the right, instead of behind and to the left. Landing aircraft will be crossing the path of aircraft taking off. Do not initiate a takeoff until landing aircraft no longer represent any potential conflict.

Aircraft landing to the east should recognize that the correct aiming point is much farther down the runway than on a typical west-wind day. Using the west end of the paved runway as a guide when approaching will result in a long walk back to parking. When landing on runway 8, the distance from the windsock near the towplane parking spot to the east end of the takeoff triangle is about the same distance as from the dirt-path displaced threshold to takeoff triangle when landing on runway 26 (about 600 feet).

Qualifications

The East-wind operation is an advanced maneuver. East wind takeoffs require training by a Sky Sailing instructor, a logbook sign off, and sign off on the pilot's Sky Sailing qualifications sheet. Solo students should not expect that this will be granted unless significant experience has been gained, emergency handling and spot landings are excellent and even then-only with light East winds.

Final Note

As always, arrive back over the airport with sufficient altitude since winds often shift during the day. If you are downwind for 26 and realize the winds have shifted, you don't have time to change runways. Instead, continue for 26 but expect to land long. *Do not* make low-altitude turns. You have plenty of runway to land long.