

Effect of wind

I'm sure you have heard me say at some point that any aircraft does not know that there is a wind when it is airborne. When flying **model aircraft from the ground**, however, the **perception** is quite different. The model appears to be "taken or blown about by the wind". It does feel turbulence (changes in wind speed and vertical air currents), but in fact it is quite happy as long as the tail is behind the nose and it has enough power and airspeed to keep flying.

Wind is a mass of air moving over the surface of the Earth in a definite direction. When the wind is blowing from the north at 15 kilometres per hour, it simply means that air is moving southward over the Earth's surface at the rate of 15 kilometres in one hour. Any object in this moving mass of air, balloon, glider, airship or aeroplane will also be carried southward at the same rate. Of course, all these aircraft except the balloon also have forward speed so that the actual position is a result of these two factors.

So far as the aeroplane's flight through the air is concerned, it makes no difference whether the mass of air through which the aeroplane is flying is moving or is stationary. In reference to the ground, however, an aeroplane or model would appear to fly faster with a tailwind or slower with a headwind, or to drift right or left with a crosswind.

It is a good idea to let your model fly "in trim" to any given point and not compensate for the wind with rudder for instance. Any rudder will produce adverse yaw and thus drag that might slow the model at a critical time. Instead, allow extra room for any turn downwind. Allow the model to crab in a cross wind to maintain a track to a given point.

There are three main situations where models come to grief when flying in wind:

1. Slowing down (reducing airspeed) on the downwind leg of a circuit because the model appears to be moving too quickly. When you make the turn to base leg and use a little elevator to keep the nose up, the angle of attack increases enough to produce a stall.
2. When you have a crosswind blowing towards you, the point where you turn to base leg should be further out than normal. If you do not add this extra distance for the turn to final approach, you could end up in a square corner, i.e. having to use excessive bank to avoid overshooting the runway. This could result in the same situation as in # 1 except that now you will need even more elevator and you are closer to the ground.
3. When landing in a crosswind, you must lower the wing into wind when you apply rudder to align the model with the centre line. If you do not, the model will drift sideways and you might come to grief in the flight line fence or the high grass on the other side. That will happen in 5 seconds if the wind is 11 kph or 3 metres per second (not too bad) and you started your float over the centre of the runway. Easily done if you are carrying a bit more airspeed for turbulence. The same thing will happen if you haven't applied rudder, but the model is parallel to the runway centre line.