Crossing Cook Strait

Ohau Point

Crossing Cook Strait can be a daunting undertaking for some pilots. By careful planning, and by maintaining situational awareness during the flight, the crossing can be a most enjoyable and spectacular experience. This article should assist VFR pilots to predict the most suitable weather conditions for crossing the Strait, to examine the most appropriate route to follow, and to consider actions during a possible emergency situation.

Weather Information

Obtaining accurate weather information for Cook Strait can be difficult, because forecasts and reports available from the Airways Corporation web site (www.ifis.airways.co.nz) are specifically for Wellington and Woodbourne. Often the actual weather at these two locations is quite different from the weather in the Strait. Some inferences can be made, however, by examining the strength and direction of the upper level winds provided by these forecasts, and by examination of current weather charts and briefings from MetService.

Northwest Conditions

Pre-frontal weather conditions in strengthening northwesterly and westerly winds over 25 knots can provide very turbulent conditions over the area identified in red in Figure 1. It is recommended that pilots avoid low-level flight in the lee sections of this area and fly above ridge height to avoid turbulence. Generally, this means that the flight across the Strait should be above 3500 feet. Pilots crossing the Strait (north or southbound) should fly as high as possible (request a clearance above 2500 feet from Wellington Control on 122.3 MHz) and track on a course between Ohau Point and White Bluffs.

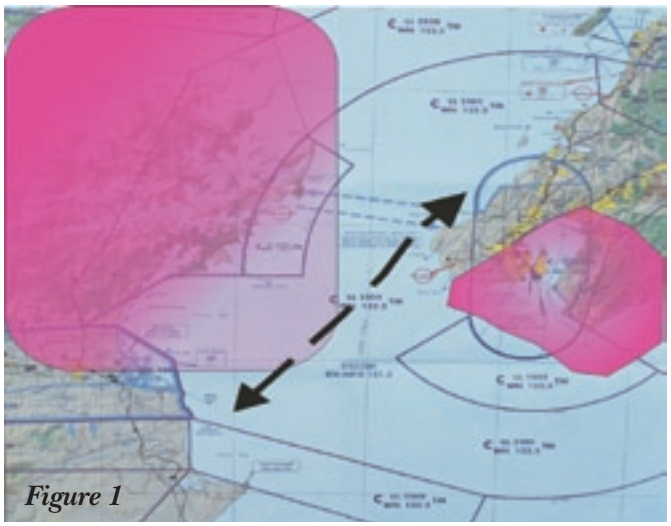

Figure 1

Area of turbulence, if the aircraft is flown below the ridge heights. Shading indicates severity of turbulence, from severe (dark shade) to light (light shade)

◄ – ► Recommended route to travel across Cook Strait

Northerly Conditions

In weather conditions with moist northerly airflows, typically associated with the approach of warm or occluded fronts, the northern and eastern sections of the Strait will usually have low-lying stratus and the entire area will be covered by nimbostratus cloud. VFR flight in these conditions is not advisable as cloud bases are generally low and visibility associated with nimbostratus cloud can be below five km. Such conditions can prevail for several days if the front is slow moving.

Pilots attempting to cross the Strait from south to north should be aware that they would likely encounter lowering cloud bases and reducing visibility. (Refer to Figure 2). There is a high risk of being caught mid-strait with neither island in sight, which makes navigating extremely precarious. Always maintain a visual reference with at least one island. It is dangerous to proceed in the 'hope' of seeing the other side of the Strait if you cannot see the island you have just come from.

If in doubt, turn back early and contact Wellington Control if confirmation of position and heading is required.

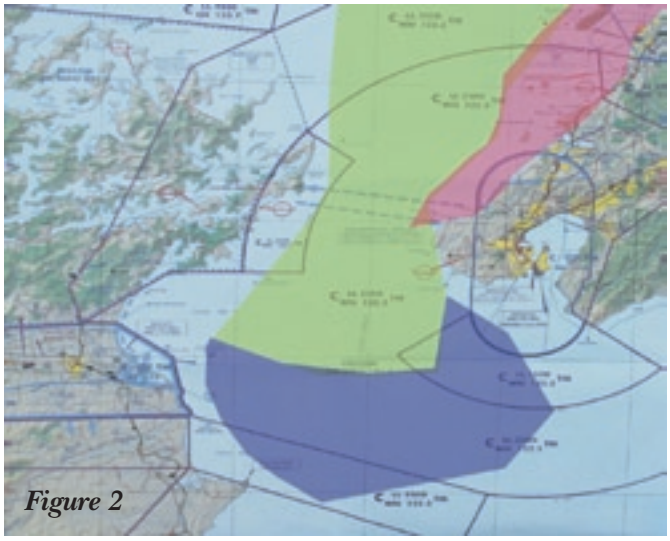

Figure 2

Cloud Base height

Below 500 feet

500 feet to 1000 feet

1500 feet and above

Southeasterly Conditions

Moist easterly, southeasterly and southerly airflows (except for abating southerlies behind a cold front) provide the worst weather conditions in the Cook Strait area. Figure 3 shows the cloud base heights to be expected in southeasterly wind conditions. In conditions of easterly wind, the cloud base will be below 500 feet throughout many areas of the Strait, possibly with sea-fog in very moist flows and visibility less than five km. Consequently, VFR flight in these conditions is usually not possible. Pilots caught in such conditions should request assistance from Wellington Control. When these conditions are forecast, pilots intending to transit north should divert to Omaka, and those intending to transit south should divert to Paraparaumu.

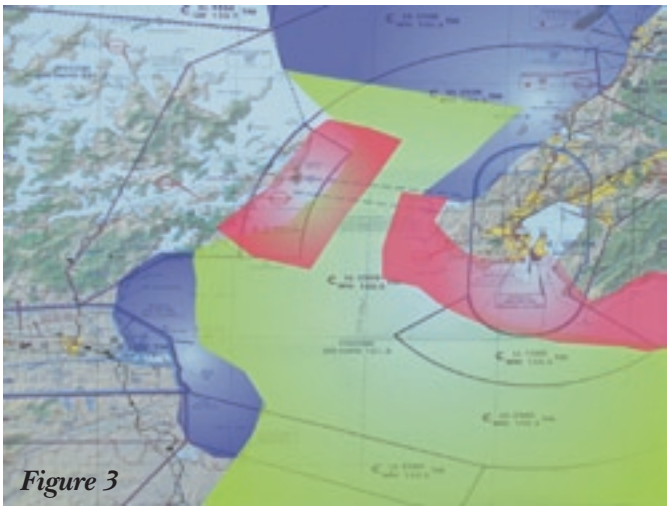

Figure 3

Cloud Base height

- Below 500 feet
- 500 feet to 1000 feet
- 1500 feet and above

In conditions of strong easterly flow the Cloudy Bay section can have cloud bases below 500 feet

The Best Crossing Conditions

Crossing the Strait in dry air with light winds is most preferable. Typically this occurs during anticyclonic conditions and after a southerly change when the winds trend to below 20 knots. Be very aware, however, of the 'decaying' anticyclone which has been dominating for four days or more, because stratus can develop as the air-mass gradually moistens over the sea.

Flight after the passage of a cold front in southwesterly conditions can also be suitable. When a strong southwesterly airflow associated with a low pressure system exists however, cumulonimbus showers and turbulence can provide unpleasant crossing conditions. Weather factors to watch for in the METARs, which indicate good conditions for crossing the Strait, are falling dew points, rising QNH and decreasing wind strength.

In addition to Wellington and daytime Woodbourne reports from **www.ifis.airways.co.nz** pilots can obtain reports for Paraparaumu, Brothers Islands, night-time Woodbourne, Ngawi and Cape Campbell – from MetFlight, a new service from MetService (contact **ray.thorpe@metservice.com**). This service provides an animation of radar and satellite imagery covering Cook Strait, which shows the passage of cloud and precipitation moving through the area; and an area forecast called "Straits". This gives forecast winds at 1000, 3000, 5000, 7000 and 10,000 feet, temperatures from 5000 to 10,000 feet, freezing level, visibility, cloud type/base/top, and significant weather for the next 12 hours. Essentially it is similar to a GAWX but is focused on Cook Strait.

Local Knowledge

It is good airmanship to talk to a local operator. Their knowledge of local weather patterns and conditions can be invaluable when planning a flight in the Cook Strait area.

Should I Ask for Controlled VFR?

To a large degree, the weather will dictate which route to follow across the Strait. The best advice, however, is to cross Cook Strait at the shortest point and at as great a height as possible. The shortest crossing distance (13 NM) is between Ohau Point and The Brothers Islands or Arapawa Island. Pilots can cross the Strait beneath the Control Area (below 2500 feet maintaining a listening watch on Christchurch Information 121.3 MHz), or they can contact Wellington Control and request Controlled VFR at a higher altitude. IFR traffic considerations could mean that the route offered may not be the most direct. When operating Controlled VFR, remember that if you need to change altitude or heading, an amended clearance is required.

Controlled VFR often reduces pilot workload. The controller can, if necessary, provide information on the most appropriate headings, groundspeeds, and on the location of other aircraft in the area. In most situations Wellington Control will clear your aircraft into the Control Area. At certain times of the day, however, a clearance may not be possible, particularly early morning and late afternoon, when IFR arrivals and departures are at their maximum. Another advantage of requesting Controlled VFR is that ATC is aware of your position at all times.

The Brothers Islands

Engine Failures

Crossing the Strait at a higher altitude provides more time to handle an emergency situation. It is recommended that pilots of single-engine aircraft fly above 6000 feet, if possible, to assure gliding range to a shoreline when crossing via the shortest route. Observe the wind direction and strength on the sea surface and listen to the Wellington ATIS for the 2000-foot wind – this will assist in deciding which side of the Strait to glide towards in the event of an engine failure.

Typically, northwesterly winds prevail. In these conditions pilots should consider attempting to glide towards Ohau Point – the tailwind will increase gliding distance.

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Additionally, rescue assistance is closer at hand on the Wellington side of Cook Strait.

If an engine failure does occur, set the aircraft up for the best glide speed, make an early MAYDAY call, and squawk 7700. Making an early distress call will assist Wellington Control to find your location and ultimately will reduce the time taken for search and rescue personnel to locate you. Brief your passengers on the situation. During the last 500 feet, orientate the aircraft parallel with the swell line and slow the aircraft to the minimum airspeed prior to touchdown without allowing a full stall to develop. Try to land on the upwind side of the crest of the swell in a tail-low attitude.

It is recommended that all pilots view the *Marine Survival* video, and read "The Most Useless Things" article in the September/October 2003 *Vector*.

Rununder Point

Emergency Equipment

A range of emergency equipment may be carried, from lifejackets through to liferafts and survival suits. At the very least, pilots should ensure passengers wear lifejackets, as it can take a considerable amount of time to don them in an emergency. Passengers should be briefed as to the actions to be taken in the event of an emergency.

In addition to the passenger brief required under Civil Aviation Rule Part 91.211, passengers should be advised to remove footwear and to inflate their lifejacket **after** they have vacated the aircraft. Passengers should be encouraged to retain clothing as it will reduce heat loss in the water. See "Don't Judge a Jacket by its Cover" (*Vector* 1997 Issue 5).

Use of Nav Aids

Pilots who are suitably qualified to use DME and VOR can select Tory VOR/DME (114.6 MHz) located on Arapawa Island. This can assist in determining which shoreline is closest in the event of an emergency. It can also make navigation easier, as position reports can be made by reference to a distance along a radial from the VOR station.

Mana Island

VFR pilots are increasingly using GPS as it becomes more accurate and affordable. GPS, when used correctly, can give a continuous update of groundspeed, time and distance. This is only useful when flight in a straight line can be achieved. In conditions of fluctuating weather a pilot must be prepared to alter course as necessary to maintain VFR. There is a tendency for some VFR pilots using GPS, to continue flying in marginal conditions. GPS should **not** be used to help a pilot to fly VFR in IFR conditions. It should only be used as a **secondary** aid to navigation. Never go anywhere with GPS that you would not go without it!

Summary

The height and route at which aircraft can cross the Strait will be dictated by the weather conditions on the day, and may depend on a clearance from Wellington Control. If flight cannot be made above 2500 feet, it is important that the shortest route be flown to minimise the gliding distance required in the event of an engine failure.

Crossing Cook Strait should be an enjoyable experience for pilots and passengers alike. If it's not, then it is likely due to stress caused by poor weather conditions, by turbulence due to poor route selection in the prevailing conditions, or because appropriate safety equipment is not being carried.

Pilots are encouraged to study weather information carefully, plan a suitable route that minimises time spent over water, and ensure that passengers are adequately briefed on emergency equipment and procedures and that they are wearing serviceable lifejackets. ■

This article was contributed by Gareth Clare. Gareth is a B-category instructor with the Kapiti Aero Club.