

Accurately Predicting AE Opportunities. - Plane Plotter, the secret weapon.

Background

There has been much discussion about the theory of Aircraft Enhancement (AE), and this info is now collected in one place at: <http://www.vk3hz.net/ae.htm>

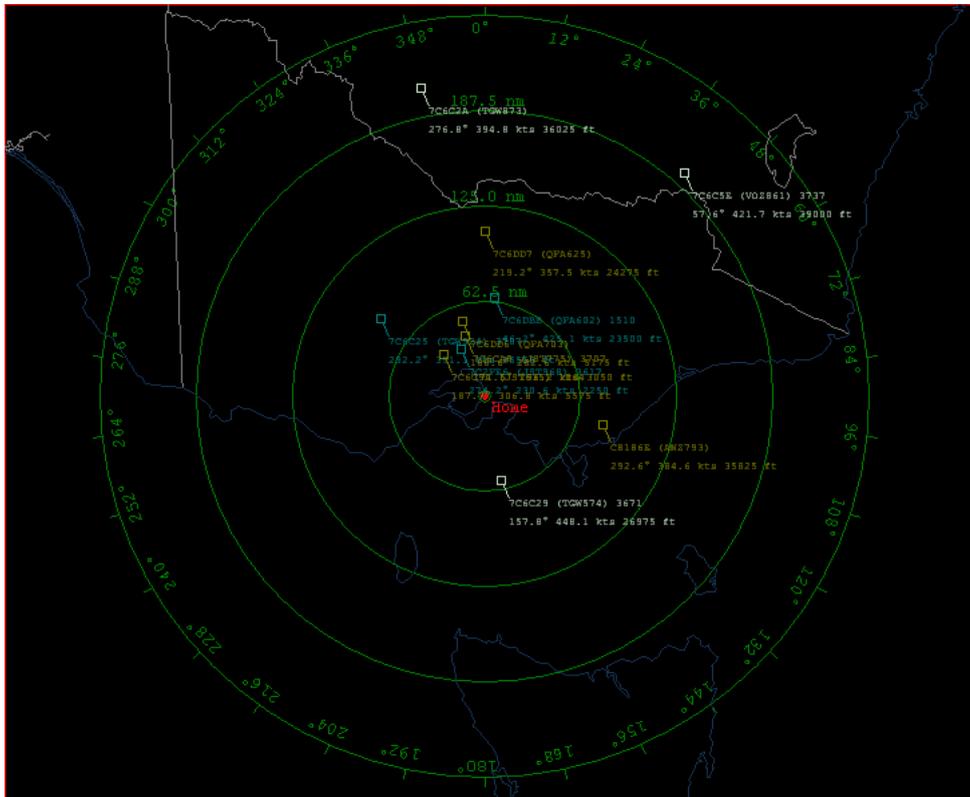
This info is worth reviewing for anyone wishing to make the most of AE, as it helps to understand the theory behind this interesting phenomenon.

AE has been practiced in Australia for over 25 years, particularly on the busy Brisbane to Sydney and Sydney to Melbourne flight paths. Regular participants have developed approximate understandings of when regular flights would be in the right place. However the inevitable disruptions to daily flights meant these predictions were an inaccurate science.

ADS-b Receivers

In the last few years, the advent of new telemetry on modern aircraft and open access to receivers for this telemetry has meant the ability to track aircraft has become available to the amateur, **in real time.**

The most common practice has been the use of ADS-b receivers. These receivers decode a signal of 1090MHz, transmitted from an aircraft fitted with an ADS-b transponder. This transponder sends information including GPS position, height, direction, speed, aircraft identification and can include Flight Number (ie QFA94), aircraft type and route. This information is then displayed on the computer screen via included software called Basestation, and looks like a radar screen.



However, these receivers cost around \$900 and are only useful as far as your own horizon. You can optimise this with a high gain antenna and masthead preamp.

However, around 400 km from your station is the useable maximum. Also, the transponders are not yet mandatory on all aircraft; in fact at this stage only aircraft that fly over 39,000ft are required to have them fitted before 2012. That being said, there is a need for a spread of stations across Australia to set up receivers and decode the information. Such a spread would provide continuous coverage as planes move over less densely populated parts of Australia. It is only with such a network of receivers sharing to the Internet will we have the most complete picture

PlanePlotter.

<http://www.coaa.co.uk/planeplotter.htm>

“PlanePlotter (PP) is a program for Windows that provides a radar-like display of aircraft positions. The position information can come from a range of sources, both local to the PC and via the Internet. (Note that the software must be registered, and a small fee paid, for the Internet sharing to work). The Internet source is a consolidation of individual sources from users of PP who may have, for example, a Kinetics SBS-1 ADS-B Receiver permanently online.

PP comes out of the UK and there is an active user group in that area. Australia also has a significant group of users with Internet-sharing sources in Perth, Adelaide, Melbourne, Sydney, Brisbane, FNQ and Hobart. Sources in other areas (e.g. Canberra) come and go.” (VK3HZ David Smith)

So this software, at minimal cost, allows you to harvest the info that others are collecting around Australia. You no longer have the limitation of horizon, and more importantly **you do not need a receiver!** You can now watch the movements of commercial aircraft, and watch them move along the flight paths. However, as with all things, there are often limitations. The maps associated with PP are very coarse, and accurate plotting of aircraft position on these maps is difficult. Never fear, however, as Radio Site Display solves this problem.

Radio Site Display.

The Radio Site Display is a tool designed to work on Google Earth by VK3HZ David Smith and VK3ZJP John Parker. It shows an aerial view of the Earth with overlays providing the locations of amateur radio beacons, amateur stations, Field Day sites and other information. The view is customized for each user, centered on the user's own location.

PP includes a facility to allow it to display onto Google Earth. By combining PP and RSD (on GE) we can see the aircraft position in relation to the path between two selected amateur radio stations.

It is when the aircraft position is at or near the midpoint on this path that AE openings have the greatest prospect to occur.

For a full explanation of enabling Radio Site Display and overlaying PP info, please refer to:

http://www.vk3hz.net/radiosites/PP_and_RSD.html

Conclusion.

I have collected this information together from my own experience and a wide range of sources. My aim is to provide others with a guide on how to accurately predict the time of AE opportunities by showing how it is relatively simple and inexpensive to get real time information on the exact location of commercial aircraft here in

Australia. I acknowledge the work done before by others and particularly David Smith VK3HZ, whom I have borrowed from quite extensively throughout this explanation. I hope it encourages more of you to experiment with, and have success with AE.

VK3KH
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