MetService

New Meteorological Manuals for PPL, CPL and ATPL Pilots Coming Soon

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New Meteorology Manuals for Pilots Coming Soon...

METEOROLOGY FOR

PPL PILOTS

(Edition 2)

by Greg Reeve

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5th September 2018

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PPL Meteorology Completed and due for Publication – 4 weeks

§8.2 Decode Domestic Meteorological Reports and Forecasts

8.2.2 **Demonstrate how to access aviation meteorological information for New Zealand through the MetFlight internet web-site.**

8.2.4 **In plain language, decode the information contained in the following forecasts and reports:**

- (a) GRAFOR;
- (b) TAF;
- (c) TREND;
- (d) METAR;
- (e) SPECI;
- (f) METAR AUTO;
- (g) GNZSIGWX;
- (h) ATIS;
- (i) AWIB;
- (j) BWR;
- (k) Pilot Reports;
- (l) AAW;
- (m) GSM

8.2.2 Demonstrate how to access aviation meteorological information for New Zealand through the MetFlight internet web-site.

Access to the MetFlight GA internet-based web-site is free to all recreational pilots operating at or below 10,000ft, under VFR or IFR rules (please note, this web-site is only to be used for non-commercial purposes). To access MetFlight, log on to:

URL: http://metflight.metra.co.nz

Username: your licence number

Password: the initial grant date of your licence in the form d/mm/yyyy

The above instructions will work for most pilots, however there are a few variations, and these are explained by clicking on the 'Help' button once you have entered the login page of the MetFlight GA web-site.

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8.8.8 Explain the effect of solar and terrestrial radiation on the daily temperature range.

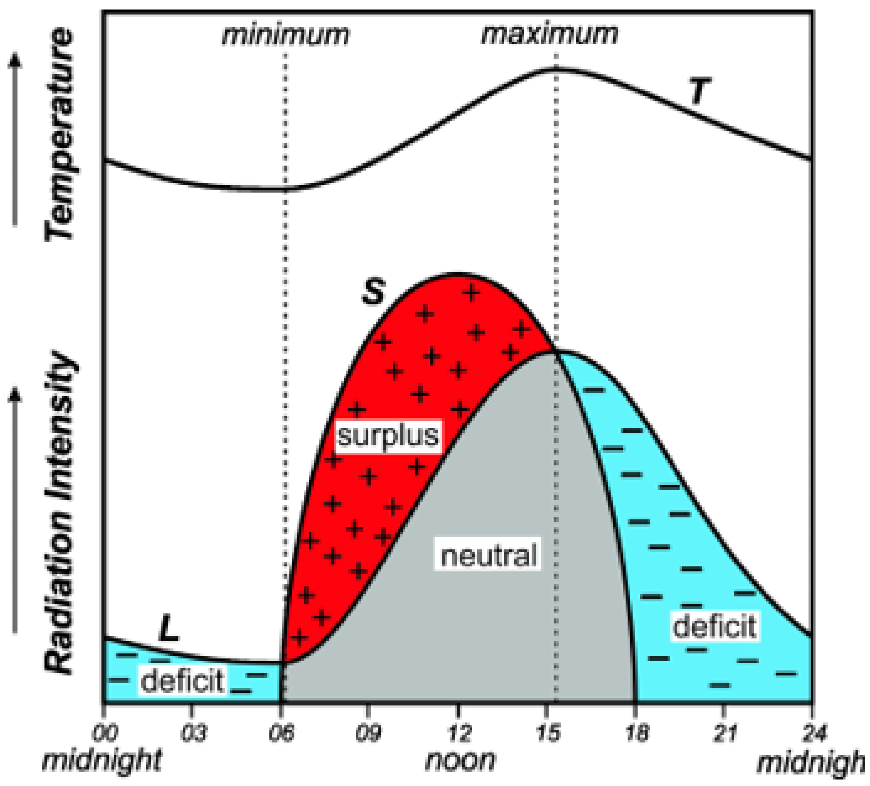

Fig. 28 *Incoming Short-wave radiation (S), Outgoing Long-wave radiation (L), and Temperature (T) near the ground during the Diurnal Cycle.*

The rate at which long-wave terrestrial radiation is emitted from the earth depends on the amount of incoming solar radiation heating it. Thus, there is a complex feedback mechanism operating. Incoming short-wave solar radiation is weak when the sun first rises, but the earth has been losing heat to space through terrestrial radiation all night, so that the minimum temperature occurs just after dawn.

Solar radiation increases with the sun's elevation. As the ground warms, the rate of loss by long-wave radiation also increases.

After midday, the short-wave intensity starts to decrease whilst long-wave radiation is still increasing. The two rates become equal about three hours after midday on land, so this is the time of maximum temperature.

High Quality Colour Diagrams

8.10.12 Explain how surface pressure rises when air is added to the vertical column above the ground, and vice versa.

In 8.10.2 we established that atmospheric pressure is the total weight of the column of air above the point where the pressure is being measured. It therefore makes sense that if a process within the atmosphere adds air into the vertical column above the ground, the pressure exerted at the bottom of the column will increase. Imagine a measuring cylinder (the left-hand cylinder in figure 30) partially filled with a fluid. If conditions within the atmosphere combine to cause more fluid to be added to this vertical column (the right-hand example), the tropopause height rises, the weight of air in the column increases, and therefore, the surface pressure rises.

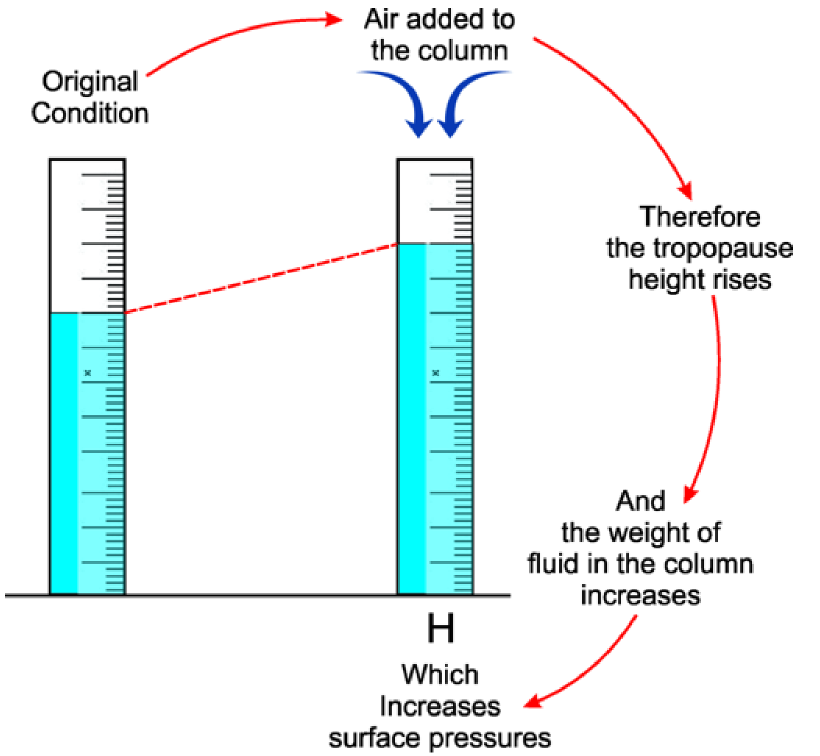

Fig. 30 *A Rise in Surface Pressure Resulting from Air being added to the Vertical Column.*

Clearly Explained Processes – Easily Understood by English 2nd Language Students.

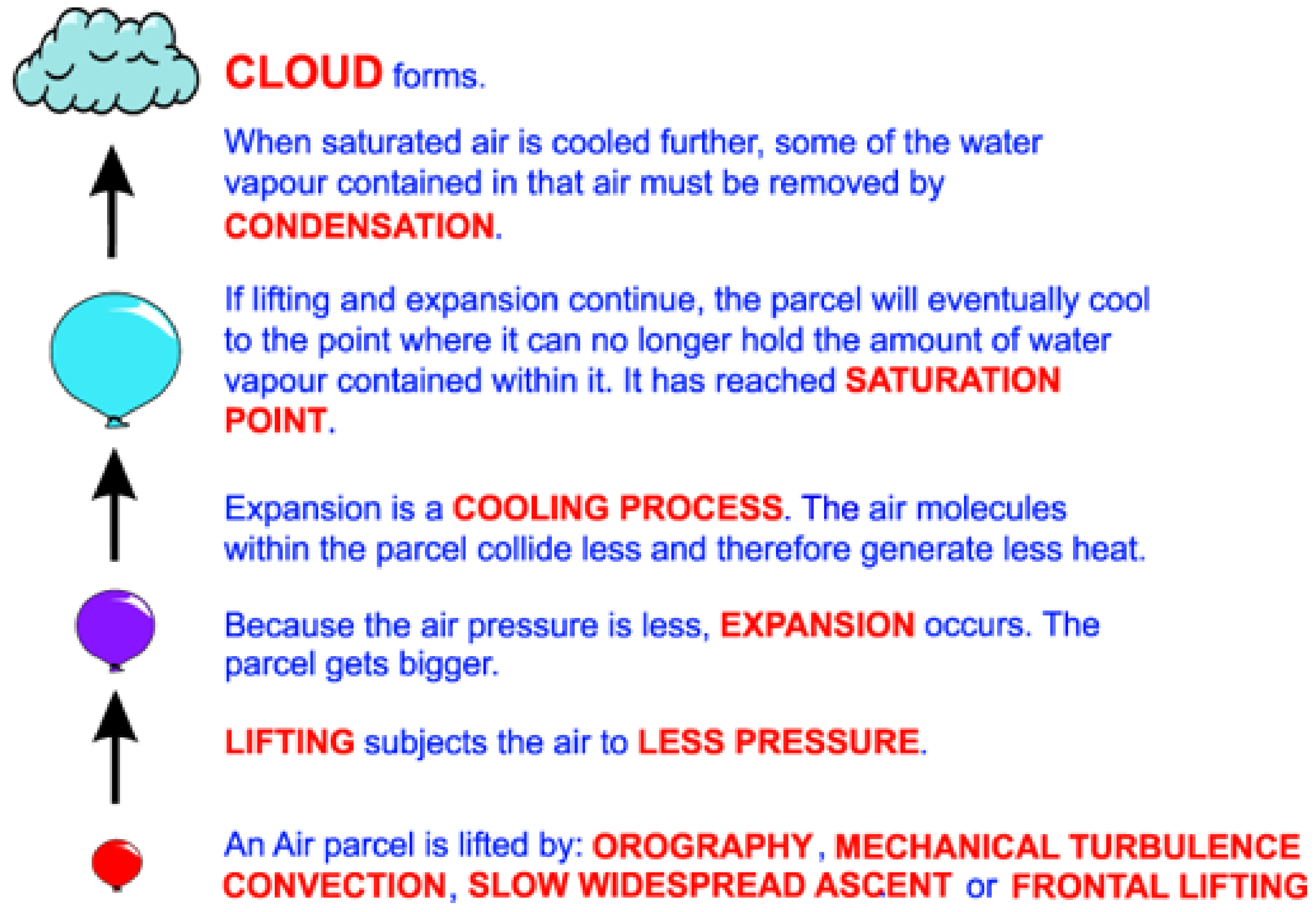

Fig. 63 *The Cloud Formation process.*
(In the real atmosphere, the physical balloon is non-existent, and the air is invisible.)

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High Quality Colour Photographs

8.32.10 Explain the associated dangers of rotor zones to aircraft operations.

X

Fig. 77 ***Stacked Lenticular Wave Cloud (above), with Ragged Rotor Cloud in the Upper-right foreground.***

The image above was taken in Patagonia, Argentina (© Linde Waidhofer – Western Eye Photography). Similar cloudscapes are often observed about and east of the ranges in the South Island, and occasionally east of the North Island ranges in very strong west-northwest flows.

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...and more

When thinking about how an aircraft will be affected by wave motions, we need to consider the size of the aircraft and its speed of travel. This is because severe turbulence is experienced when the wavelength and amplitude align with the aircraft's movement through the air. Figure 81 demonstrates how a light aircraft and a heavy aircraft may experience completely opposite extremes of turbulence at different wavelengths.

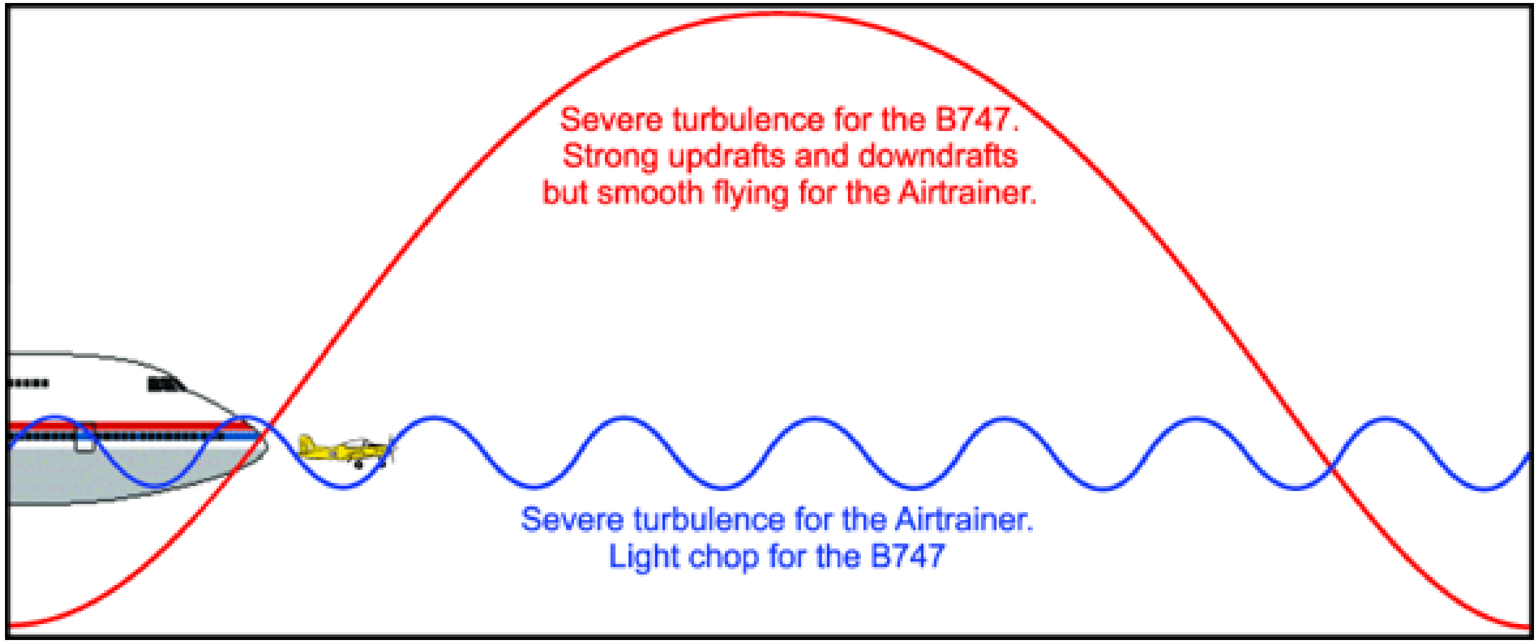

Fig. 81 ***Wavelengths in relation to Aircraft Size and Speed.***

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...and more

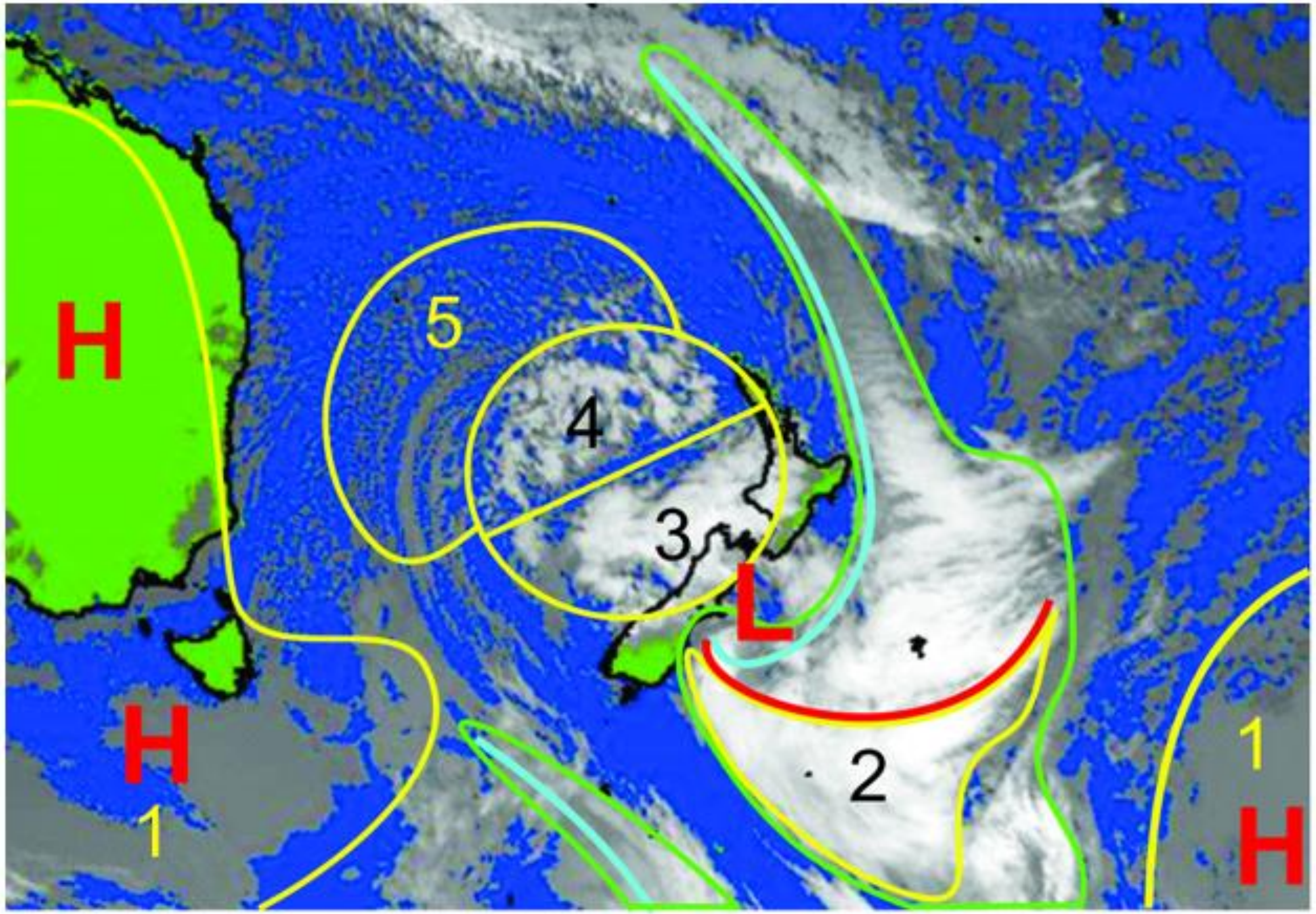

Fig. 89 *Identifying Cloud Signatures on an Infra-Red Satellite Image.*
(refer to figure 87)

Met for CPL Pilots – ¾ Complete. To be Published by End 2018

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Met for ATPL Pilots. Planned to be Complete by Mid-2019.

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THANK YOU