

Full Circle

By reporting severe icing every time you encounter it, you are giving other pilots critical safety information, and improving the safety of every flight you personally make in the future. The benefits of making a Pilot Report come back to you, full circle.

Severe icing occurs when the rate of accumulation is so high that ice-protection equipment cannot control the hazard. Icing can cause aircraft to roll or pitch uncontrollably, stall at much higher speeds and lower angles of attack, or be unable to maintain altitude.

No aircraft is certificated to fly in severe icing. If you encounter it, climb or descend by at least 3000 feet to remove the aircraft from this dangerous phenomenon.

It is important to make a Pilot Report (PIREP) about severe icing to an ATS unit – even if you know someone else has already reported it, or if a SIGMET has already been issued. MetService

Aviation Forecast Manager, Dr Matthew Ruglys, says icing and turbulence reports form a vital part of the forecast process.

“There may be a temptation not to report a phenomenon if there is already a SIGMET in force, but then forecasters would be deprived of a valuable check on the accuracy of their forecasts. The logged reports are also used in case studies and workshops for forecaster training.”

Severe icing requires three things: high moisture content, significant upward motion, and temperatures falling between approximately -5 and -18 degrees C. MetService forecasters use a range

of tools to identify potential areas of severe icing. Satellite and radar imagery show areas of vertical motion and large amounts of liquid water. Radiosonde soundings give a vertical profile of

Photo courtesy of Rob Neil and Vincent Aviation



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Pilot Reports

A PIREP is an abbreviated special air report (AIREP Special) and should be made whenever the following hazardous meteorological conditions are encountered: severe icing, severe turbulence, severe mountain wave, thunderstorms with or without hail, heavy dust/sandstorms, volcanic eruption, pre-eruption volcanic activity, or volcanic ash cloud.

Your PIREP allows current SIGMETs to be updated and new ones issued. Future forecasts are more accurate.

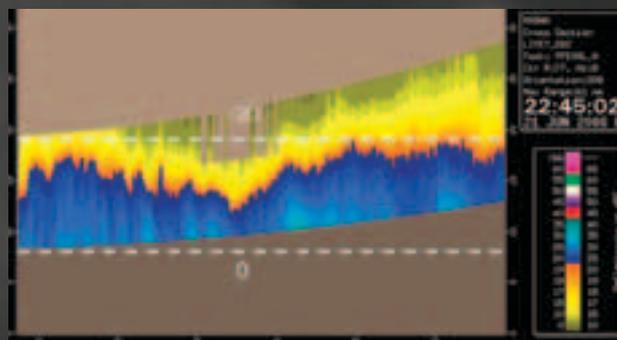
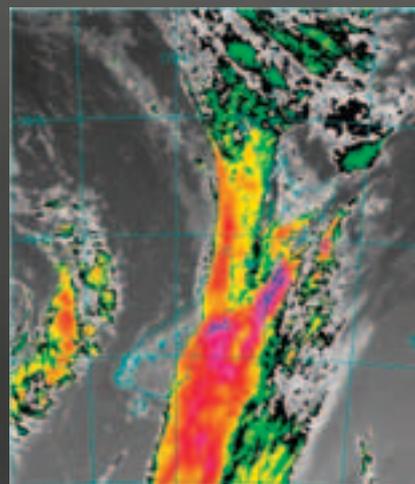


temperature and moisture content in the atmosphere, and numerical weather prediction models can show where vertical motion and supercooled liquid water will be in the future. Reports of actual severe icing add another string to the forecaster's bow, and increase the accuracy of future forecasting.

Another very important reason to report severe icing is that it will help other pilots know if it is safe (and legal) to fly in that area. Your PIREP may trigger a SIGMET to be issued for

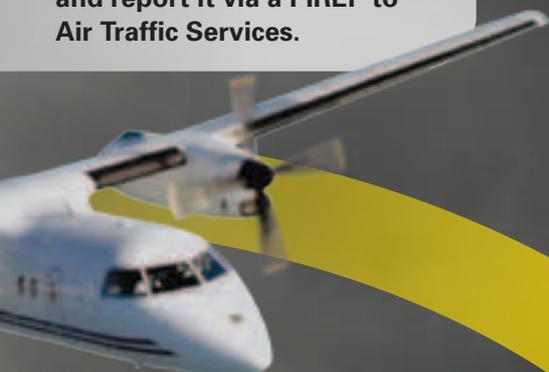
reported severe icing. Rule 91.421 *Operating in Icing Conditions* says that you cannot fly an aircraft into known or forecast icing conditions unless the aircraft is certificated with ice protection equipment for those conditions (and no aircraft is certificated for severe icing conditions).

If severe icing is forecast anywhere along your intended route at your intended altitude, and an aircraft has made a PIREP confirming the presence of severe icing – you cannot go. Remember that if severe icing has been forecast, but there have been no PIREPs to confirm whether it actually exists, you still cannot go unless you receive first-hand information that the forecast is incorrect (rule 91.421(c)). ■



The satellite image (top) and radar cross-section (bottom) show conditions conducive to severe icing.

You encounter severe icing and report it via a PIREP to Air Traffic Services.



A PIREP should include;

- » aircraft identification,
- » aircraft position,
- » time of report,
- » flight level or altitude, and
- » what is being experienced or observed.



Photo: David Baird Photography

Air Traffic Services pass your PIREP on to MetService and any other aircraft likely to be affected.