



**TAWS/EGPWS Misunderstandings**

Congratulations to everyone involved with the recent approach and landing accident reduction (ALAR) workshops.

The risk of controlled flight into terrain (CFIT) remains high; data indicate a continuing threat from many CFIT near misses. There appear to be many misunderstandings about terrain awareness and warning system/Enhanced Ground Proximity Warning System (TAWS/EGPWS); pilots often retain inappropriate biases about nuisance warnings which are totally unfounded. Honeywell reports over 30 EGPWS saves. However, from my research the number is probably over 100; many flight operational quality assurance/flight data monitoring (FOQA/FDM) providers are “writing off” EGPWS warnings as faults without justification. In my experience, every EGPWS warning is valid until proven otherwise.

There are still vast gaps in crews’ knowledge about EGPWS capability, the availability of software updates, database currency and the activation of the obstacle mode (already present in all EGPWS). The latter mode has proven its worth in one “save,” a very-near miss involving a high-rise building.

The underlying factors in the EGPWS events are essentially the same as those identified in Flight Safety Foundation ALAR studies. Whereas fitting TAWS

was and still is the main safety action, the operational emphasis needs to be refocused. Briefings are still important, but they do not necessarily identify chart errors or procedural misunderstandings. Use of an altitude versus range chart for all approaches will aid error detection — note the importance of checking altitude before range.

In most TAWS events, the crews did not identify the errors: both crewmembers suffered the same error at the same time, so there was no cross-monitoring. Monitoring can be improved with good standard operating procedures (SOPs). Altimeter-setting error is one critical issue (it also affects vertical navigation, or VNAV), so there need to be independent paths in obtaining and setting the pressure datum before cross-checking.

The main SOP item is where a pull-up procedure uses a conditional check — “if visual, if ground clearance has been established.” This may not preclude errors — that is, errors of mis-set altimeter or visual illusion — that led to the warning in the first instance, enabling the crew to believe that they are safe. Thus, these conditional checks give the crew an incorrect and dangerous “opt out” of the pull-up procedure, or a reason to conclude that a nuisance warning has occurred, and could strengthen their false perception of an erroneous altimeter/visual scene. Four of 12 events that I studied had one or

more of these issues as a factor.

None of the incidents that I reviewed were reported, and only a few have been subsequently investigated — an issue of safety culture?

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*Editor’s note: See the continuing series in Aviation Safety World, beginning in the July 2006 issue, on approach-and-landing incidents that might have ended in CFIT if TAWS had not provided timely warnings. This month’s incident discussion is on page 40.*

*Aviation Safety World encourages comments from readers, and will assume that letters and e-mails are meant for publication unless otherwise stated. Correspondence is subject to editing for length and clarity.*

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