



Department of the Interior

Lessons Learned



No. DOI LL 10-01

Date: May 14, 2010

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Subject: Inadvertent Instrument Meteorological Conditions (IMC)

Area of Concern: All Aviation Activities

Distribution: All Aviation Users

Discussion: On March 20, 2010 a Bell 206 took off from an offshore platform enroute to the Camarillo, California airport just 20 miles away. The weather at the time of departure was hampered with limited visibility around the platform due to thick patches of fog and the typical high humidity marine environment commonly referred to as the "milk bowl". The pilot departed under Visual Flight Rules (VFR) heading west and initiated a climb to 300' feet AGL/AWL (Above Ground Level / Above Water Level).



During the climb, the pilot started a right turn towards the destination and inadvertently entered instrument meteorological conditions (IMC). As a result, the pilot lost all visual references and aircraft began to descend. The passenger (sitting in the front seat) saw the ocean below and felt they were going to impact the water. The aircraft descended to approximately 200' AGL before recovery procedures were (successfully) initiated.

The pilot regained control by shifting his attention to the primary flight instruments and initiating appropriate inadvertent IMC recovery procedures (control, climb, course, communicate). During the recovery climb, they reentered intermittent IMC conditions at 300' AGL, but regained VMC conditions at 400' AGL. Flight conditions at 500' AGL were clear with 10 miles visibility. The remaining portion of the flight to the airport was uneventful.

Inadvertent IMC encounters are some of the most demanding, disorienting, and dangerous conditions a pilot can experience. These encounters result in the highest percentage of death from helicopter accidents.

When weather conditions make visual contact with the ground difficult or impossible, continued flight can only be conducted safely by changing your primary reference to the flight instruments, whether the IMC encounter is entered deliberately or inadvertently. Attempts to re-establish the visual flight environment often results in dire consequences.

The first line of defense against inadvertent IMC for any pilot is to take all necessary steps to avoid the situation. Thorough pre-mission weather planning is the most important step. This is part of what many in the industry refer to as “weatherproofing” your mission. A pilot should also strongly consider empowering passengers to voice concerns. The CRM portion of your preflight briefing can include instruction on the manner in which you’d like them to be assertive among other CRM related issues.

Another important defense against inadvertent IMC is recognizing the substantial risk associated with continued VFR flight in to IMC conditions and making the difficult but potentially life saving decision to divert to a location with more suitable weather conditions. The pressures and desires (whether internal or external) to proceed to your destination can be very powerful, especially if you’re close to your destination.

A pilot’s immediate actions after encountering inadvertent IMC will determine the outcome of the entire event. Pilots who possess a plan of action prior to encountering it are more likely to experience a successful outcome than those who are less trained and proficient in the recognition and recovery procedures. Most flight training programs teach the four “Cs”: Control, Climb, Course, and Communicate.

Control: Fly the aircraft. Refocus your scan inside the cockpit to the primary flight instruments – airspeed, altitude, and attitude. Spatial disorientation (i.e. vertigo) can occur at the onset of inadvertent IMC. Suddenly entering a cloud or fog can create an illusion of pitching up. If not realized, a pilot may mistakenly initiate a descent by reducing pitch (lowering the nose).

Climb: As soon as the aircraft is under control by reference to the instruments, a controlled climb should be initiated. Inadvertent IMC encounters often occur at low altitudes where rising terrain poses a serious threat. The pilot should initiate a controlled climb to an altitude that will provide obstruction clearance in the area of operation. Always review Maximum Elevation Figures (MEF)s on VFR charts and Off Route Obstruction Clearance Altitudes (OROCA)s on IFR charts prior to your departure.

Course: After the aircraft is in a controlled climb, the pilot can elect to turn to a new course if known obstacles are ahead and/or divert to a different location with better known or forecast weather conditions.

Communicate: After the pilot has control of the aircraft, initiated a climb, and on course, he should communicate with ATC and state his intentions while requesting any assistance desired.

Careful preflight planning will allow you to focus your attention on maintaining control of the aircraft and reduce the distraction of formulating a plan in the midst of a dangerous and demanding situation. Pilots and crewmembers must be prepared to deal with such inadvertent IMC encounters whenever they occur in a reliably disciplined and practiced manner.

What's your plan?

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