

MT VisionAir X Heli

Synthetic Vision–The Next Step

It is no small claim that Moving Terrain is staking with their statement that synthetic vision was yesterday. They base this claim on their introduction of MT VisionAir X Heli that incorporates MT Relief [pronounce: reliëf] Dynamics.



Image generated with MT Relief Dynamics



Actual photo from same position

Modern moving map systems are installed in almost every cockpit. They have been and are being developed and improved continuously which eventually led to the combination of flight and navigation information with synthetic vision, the artificially generated landscape on a cockpit display. And now the next step?

MT Relief Dynamics stands for:

- a three dimensional terrain relief combined with original aviation charts and
- a via GPS continuously updated 3D chart from the cockpit perspective.

The 3D display shows the amount of development effort and engineering art that went into this system: The landscape image is finely structured and of high resolution, shows natural colors, and the aviation charts' data round off the harmonious overall impression.

Relief Dynamics is only one aspect of VisionAir X. Another aim of the design was to create a compact, light-weight and energy saving alternative to Moving Terrain's VisionAir III, that would of course be able to use all existing MT MFD modules and chart systems. The small size and minimal weight (555 g) are coupled with computing power capable of managing the demands of Relief Dynamics and 3D graphics.

Additional specifications

- Parallel battery system (exchange of batteries possible during operation)
- High-resolution, high-contrast and bright display
- Touch screen and keys on display frame
- Integrated SiRF IV GPS/antenna module
- 3G high-speed data communication



- C-FAST/SATA-based internal storage, update via USB
- Easy Mount adapter for instrument panel
- Size: 158 x 125 x 30 mm

TAWS and Obstacles

The modules MT TAWS and Obstacle Warning are of special interest for helicopters operating mostly at low heights.

The Terrain Awareness and Warning System (TAWS) uses terrain data of the latest high-resolution satellite scan and depicts a digital terrain model with resolutions of 1 m in height and 50 m in lateral directions. Color codes are red, yellow and green. The flight path is constantly compared with the terrain model, and when the helicopter approaches terrain either during descent or in low-level flight, these intuitive color codes will warn the pilot of ground proximity. The values of when to activate a warning can be set individually.

One of the growing helicopter operations is offshore windpark maintenance. In the German Bight seventeen of these windparks have been approved. Up to eighty "windmills" will be placed in many of these parks, and not only is that a large number, the windmills themselves are not small either. Take for instance one of the North Sea Alpha Ventus windpark: the rotor hub is at 85 m, the rotor diameter is 116 m, and the resulting height of the whole system is 143 m. It is easy to imagine the obstacle backdrop of such a windpark, which affects not only shipping but also helicopter traffic.

Particularly for offshore helicopter missions a completely new product will be launched in the intermediate future: Offshore-Visio3D. Provided with the correct geographical and technical data it will depict these obstacles not only in 3D, but depending on the helicopter's relative position the moving rotor disc will be shown in either green, yellow or red. In addition to the alert function during approaches, Offshore-Visio3D for helicopter flight provides guidance during taxi on the windmill level.

Moving Terrain CEO Stefan Unzicker explains, "We managed with a lot of mathematics and actual flight testing to bring a simple, three dimensional and dynamic image into the cockpit. MT's VisionAir X Heli is a state-of-the-art navigation system that can in combination with MT TAWS and obstacle display—and in the future with Visio3D especially in offshore operations—increase flight safety."

Wulf Bertinetti