

## Cooper Aerial Survey's Precise Photo Positioning

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**Keywords:** aerial survey, mission planning, mission execution, CCNS, WWMP

**Summary:** From the view of an aerial survey company the precision and reliability of the CCNS4 guidance and management system are explained.

**Zusammenfassung:** Die Präzisions-Photo-Positionierung der Firma Cooper Aerial Survey. Am Beispiel eines Bildflugprojektes wird die Präzision und Zuverlässigkeit des CCNS4 Flugführungs- und Management-Systems aus Anwendersicht dargestellt.

IGIs Computer Controlled Navigation System (*CCNS4*) and World Wide Mission Planning software (*WWMP*) have revolutionised aerial photography.



Two Cooper Aerial Survey *Commander* aircraft

An example of a simple mission for our company was to fly thousands of oil and gas installations throughout the Middle East. This required a customer specified single photo precisely positioned on each installation to within 1 metre. Project planning was carried out in the UK using *WWMP*. Local co-ordinate modules for *WWMP* were supplied by IGI and maps were supplied by the customer. Such varied inputs into the project, gave much opportunity for errors. However using the *WWMP*'s quality control functions, the accuracy of the planning could be checked before mobilisation.

Whilst airborne the high resolution monitors of the *CCNS4* allowed precise positioning of the platform during the data acquisition phase. For the pilot, the ability to see a range of useful information on the monitor eased the workload in the cockpit. This was of huge importance during operations in high density traffic areas where the *Time* and *Distance to End of Line* functions were critical to both pilot and air traffic controller.

Another very useful function was the ability to route direct to the start of the line over hundreds of miles of desert saving both time and valuable sun angle. Using *Zoom In* and *Zoom Out*, the lines could be flown to the required accuracy on a repeatable basis.

After each flight, the simple down-loading (post flight process) was achieved on a laptop computer, thus enabling the crew to observe, post flight, their progress on the project and check photo centre positions. The whole project was completed over a one month period with the software and hardware being 100% reliable throughout.

Due to the nature of the countries involved, the whole survey had to be completed before the films could be processed and checked. This placed a great deal of importance on the correct positioning of each

photo as the aircraft and crew had already returned to the UK by the time the films were processed. All positions checked out correctly, to the satisfaction of the customer.

In our opinion the product is excellent, and thus is used in all six of our aerial survey aircraft, including the two UK Ordnance Survey aircraft.

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