INTRODUCING NEW SMALL FORMAT AERIAL CAMERA DEVELOPMENTS
BY TRACK AIR AND LEAD AIR (DRAFT)

Track’Air has recognized the need for a professional small format digital GIS mapping camera system. Large and even medium format metric cameras are highly scientific instruments that are simply not within the means of all aerial operators. But a market is now emerging for the fast delivery of aerial imagery that does not need to meet traditional mapping accuracy requirements. Many GIS applications only require up to date high resolution images that allow the users to carry out tasks for which full mapping accuracy is simply not necessary. Manually georeferenced aerial photographs are often quite sufficient for such applications.

Track Air has therefore decided to develop and market a line of small format data acquisition products that will meet the need of GIS aerial operators for professional and reliable equipment. Traditionally many aerial operators and professional photographers rely on makeshift systems for their daily work. This is because conventional aerial photographic equipment is too expensive, too heavy and too large for small airplanes. Building on several years of experience with the Midas oblique camera system, Track Air will create a small format photographic system adapted to light aircraft, affordable, reliable, and which will rapidly become accepted by the GIS professionals as an appropriate source of imagery.

Our equipment is developed and tested on our own Cessna 182 which is fitted with two 10 inch camera holes side by side, a full 19 inch hole and a side opening in the cargo door for oblique views. This airplane is being entirely automated, including auto pilot control by the flight management so it is possible to fly hand free a complete aerial survey project while keeping the eyes out of the cockpit to insure the safety of everyone…
HERE IS WHAT WE HAVE TO OFFER:

Calibration
In collaboration with the USGS, Track Air will demonstrate that DSLR cameras such as the Canon EOS 1DS can be properly calibrated and used on small mapping jobs with satisfactory accuracy and good repeatability. A calibration facility will be established at our office on the Kissimmee airport near Orlando, Florida. A surveyed Bore-sight area is already available and our light aircraft Cessna 182 can be used to verify the accuracy of any calibrations. In short, starting 2010 Track Air should be able to deliver calibrated Canon EOS 1DS fitted with a specially designed exoskeleton that insures the rigidity of the lens with the camera body. Our cameras will be delivered with Zeiss lenses permanently focused to infinity.

Canon EOS 1Ds Mk3 small format camera
Currently, our preference goes to the digital reflex Canon EOS 1Ds Mk3 small format cameras. This camera produces a spectacular 21 Mega pixel image that we enhance by using Zeiss lenses. The 1Ds camera is a very dependable camera; hardly any failures have been reported during years of operation with the hundreds of cameras used by the Midas systems. Some of these cameras have logged more than a million pictures and their shutter (supposedly the weakest point) is still working fine.

The Mk3 can be calibrated and its geometry remains satisfactorily stable with time. At a relatively low cost, approximately US$ 8,000 per unit at the time this is written, this camera has proven to be a true aerial camera perfectly suited for the job. In addition, thanks to the exceptional SDK (Software Development Kit) provided by Canon, this camera can be completely remote controlled by a computer, allowing the users to change any settings on the fly without touching the camera.
**Vertical camera mount**
For quality photography a proper mount is indispensable to compensate the drift, to allow leveling in all directions and to suppress all vibrations and shocks. Track Air has designed a special mount for small format airborne applications that allows the user to easily change his camera configuration. The mount can be controlled manually or it can be partly to fully automated (drift, pitch, full leveling, etc). It allows any combination of cameras, single or dual vertical DSLR camera side by side, one vertical and one oblique, 3 cameras facing forward, backward and vertical, 5 cameras (MIDAS system)
Virtually indestructible, it is built to be field reparable. By combining a unique pneumatic suspension with sufficient heaviness, it is virtually vibration free.
Oblique camera mount

Following the same concept as the vertical mount, our oblique mount allows various degrees of automation, from manual to full automated control. The drift can be compensated to insure that the oblique view is exactly facing the target as planned and the camera angle can be varied in flight as required. The mount can installed in from of hole in the fuselage, door, cargo door, etc.
**Pilot display**
Optionally Track Air will deliver a display that can be conveniently installed on the yoke mount in front of the pilot.

**Complete small format data acquisition system**
For those who need to get immediately into production and start generating revenues from the first day of flight, Track Air will also offer turn-key solutions. This hardware can be installed in your survey aircraft by our engineers and we can provide training at your facility. Or you can also fly your airplane directly to our Orlando Kissimmee airport office for installation and training. This system will take care of all aspects of the mission, navigation, camera control, photos saving and management, drift control, levelling, etc. and will allow safe single pilot operation.

**Affordable prices**
All the above equipment will be manufactured with utmost care and quality but we will make sure that our prices remains within the financial potential of your type of business. Our keyword will be **affordability**. Of course such equipment comes at a price, but we guarantee that every component will pay for itself in record time, by opening new business opportunities and maximizing your efficiency on the ground and in the air.