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Two Czechoslovakian Army Officers Privatise Operations

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Summary: A short overview on the development of an airborne photogrammetric survey in Czechoslovakia is given along with the history of the first private aerial survey company within Czech Republic.

Zusammenfassung: *Zwei Tschechoslowakische Armee-Offiziere gründen eine private Bildflug-Firma.* Es wird ein kurzer Abriss der Entwicklung des photogrammetrischen Bildfluges in der Tschechoslowakei sowie des Aufbaues der ersten privaten Bildflugfirma in der Tschechischen Republik gegeben.

1 Aerial Survey in Czechoslovakia in the 20th Century

During previous years aerial photography of the Czechoslovakian territory for the national economy was provided by the ARMY FOTOLET. The main priority for military operations was to secure the photography. The Army formation was established in the nineteen thirties and after several organisational changes was located in Hradec Králové. For aerial survey applications, photogrammetric versions of different type's of aircraft were used, e.g. Siebel *SI-2* (Fig. 1), *Heinkel 111* (Fig. 2), Ilyushin *IL-14* (Fig. 3), Antonow *AN-30* (Fig. 4) and Let *L-410 FG* (Fig. 5) were operated.

When we joined the formation it was operating seven *L-410 FGs* and two *IL-14 FGs*. As camera equipment Carl Zeiss Jena *MRB* cameras and two Wild *RC10s* were used.

The images were mainly taken on black and white material with laboratory treatment of negatives and copies being performed on machines of Czechoslovakian production. The photography was planned for the entire year in advance and it was very difficult to add additional missions.

Fig. 1: Siebel *SI-2* survey aircraft, in operations with FOTOLET 1945–1957.

Fig. 2: Heinkel He-111 survey aircraft, in operations with FOTOLET 1950–1957.

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Fig. 3: Ilyushin *IL-14* survey aircraft, in operations with FOTOLET 1967–1994.

Fig. 4: FOTOLET Antonow *AN-30* survey aircraft in service since 1988, painted for OPEN SKIES operations. Mission planning and guidance is done by IGIs *WWMP* and *CCNS4*.

Fig. 5: Let *L-410 FG* survey aircraft, in operations with FOTOLET since 1985. Mission planning and guidance is done by IGIs WWMP and CCNS4.

About 30 000 images were taken per annum and were carried out by a five man crew consisting of two pilots, navigator, technician and radio operator. The navigator was responsible for the aerial survey mission which he carried out from his position located in the transparent nose. He navigated the pilot along the flight line which was a highly skilled and unreliable operation. Some of the navigators were real masters and were even able to fly large scale photography as well as large forest areas (no ground detail) in Slovakia with perfect results.

Exposure time was determined according to an exposure table and personal experience of the navigator. During 1988 an innovation of technique took place. *LMK* and *MSK4* cameras from Carl Zeiss Jena were purchased that were equipped with forward motion compensation, exposure meter and interchangeable lens cones. These cameras decreased dependability on manual exposure settings and taking aerial photographs during marginal weather conditions. After the revolution in 1989 the situation with purchasing new equipment got significantly better.

Therefore machines for colour and infrared processing, Durst horizontal enlargers, Barbieri density meter could all be introduced along with chemical and sensitometric quality control within the workplace.

In the early nineties an *LMK 2000* with gyro stabilised mount *SM 2000* and a *CCNS4* navigation system were also purchased. The changes in the army during this period enabled us to buy „Western technology" and there was no problem with funding.

The *CCNS4* system was operated in one Let aircraft and viewed as competition for the navigator at first also experienced navigators doubted its worth. It is ironic that the most experienced navigators started to use it in the Let *410 FG*, where by means of an autopilot guided the aircraft on the flight line from the transparent nose. Another great occurrence that year was that all mission's scheduled for the year were cancelled and FOTOLET could take orders for aerial survey operations any time. In a relaxed political atmosphere it was possible to abolish flight restriction on military aircraft. Scanning and processing of infra red materials had been started as well.

There were some changes after 1993 which did not benefit the aerial survey ope-

rators as a lot of experienced pilots and navigators left, the army and some equipment was handed over to Slovakia due to the separation of the country. The formation was supposed to be relocated to Pardubice and linked together with two other military formations. Military assignments started to conflict with aerial survey operations conducted by civil organisations. At that time large privatisation of national concerns were being finalised and we were also considering the possibility of privatising FOTOLET. It ended as only an idea and cost counting exercise, which we find funny in hindsight.

Fig. 7: Piper *Turbo Aztec* survey aircraft, long range version, of Argus Geo System.

2 Going Private

In 1994 our wish to privatise operations became stronger, resulting in a co-operation to set up the first private aerial survey company. A Turbo Cessna *C-206* survey aircraft (Fig. 6) with *CCNS4* and Carl Zeiss Jena *LMK 15* was leased. We left the army together with two other colleagues and established the company *Argus Geo Systém*.

One of our colleagues was the former chief navigator who was placed in charge of mission planning and airborne operations, the other, the former chief of the laboratory, became responsible for our film developing. At the beginning everything was done in one room at the airport. This is the place were we had to deal with our customers, loading film into magazines, planning the missions, archiving the images etc. One year later we have moved to a rented office in the city of Hradec Králové. Step by step we have equipped our laboratory with black and white/colour, and colour reversal film developing machines. As time progressed we have been able to take over the Zeiss camera and the Cessna aircraft. We have continued equipping our laboratory with an Scanatron electronic copier and developing machine for colour copies and slides.

Fig. 6: Cessna *206* survey aircraft, Argus Geo System.

We have also extended our flight abilities with the purchase of a Piper *Turbo Aztec* (Fig. 7) and Zeiss *LMK 2000* with *SM 2000* gyro stabilised mount.

In the field of navigation a second *CCNS* system was purchased and both of the aircraft were equipped with differential GPS 12-channel L1/L2 receivers of the type *Z-FLY* from IGI for airborne kinematic operations. After introducing an *AEROcontrol* system in 2002, we have started to provide exterior orientation elements for our customers. Now we are finishing construction of a new company building, where we will start working by mid year.

Among our main customers are cadastral offices, open cast mining companies, Ministry of Agriculture, private photogrammetric companies and the Slovak Army.

As a final statement we can say that the transformation of two socialist officers into capitalist businessman was not easy. We had to learn a lot and without our expert colleagues it would have been almost impossible to start the business.

We had been educated and trained that the state was responsible for medical care, work, housing etc. Now we had to organise and plan this part of our live's as well. We think, we got it!

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