

MIKLÓS ZRÍNYI NATIONAL DEFENSE UNIVERSITY
BUDAPEST

**AIRSPACE SOVEREIGNTY AND SURVEILLANCE DURING
TRANSITION TO CRISIS MANAGEMENT**

BY

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THESIS BOOKLET

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The Thesis Defined as a Scientific Issue

The need for airspace control (ASC) as a part of airspace surveillance became very clear as the scale of the conflict widened, and the war became one of attrition versus manufacturing output, more and more aircraft filled the skies and military power came of age. In military terms airspace control is a service provided to increase operational effectiveness, by promoting the safe efficient and flexible use of airspace.

Airspace control is provided in order to permit greater flexibility of operations, while authority to approve, disapprove or deny combat operations is vested only in the operational commander.

Due too the wide ranging role of air power during several conflicts and growing up the role of participation civilian aircraft or general air traffic in conflicts we need a different kind airspace control during times of crisis and war than the normal air traffic control as we know in peace time.

The following factors justify the necessity and actuality of the thesis

1. Crisis management operations – among them several nearby the Hungarian Airspace (Budapest Flight Informational Region) – showed a lot of changes in air defence meaning.
2. Crisis management in airspace as operation other than war showed the importance of transitional period too, especially sovereignty airspace of a country.
3. The State of a country may offer its airspace for using to increase effect crisis management and execution joint operations.
4. Increasing utilisation of the airspace means growing up its use for transport and for other activities too, so the air traffic management both international and national levels is very important.
5. Assessment operations during crisis management is unknown, or not published, or acquainted in laws, and other rules.

The purposes of the research

1. Summarise characteristic airspace surveillance and airspace control and their connections with the operations of air defence system in peace time.
2. Analyse and show characteristics for support the airspace control and air policing system during peace time operations in the Hungarian Air Space.
3. Analyse and show role and importance of airspace control as a process and activities of organisations at several levels.
4. Examine effects of airspace control changes to support operations during crisis management.
5. Analyse changes during last few years in support of airspace control in air traffic management.

6. Examine to increase effectiveness airspace surveillance during transition period from peace time operations to crisis management in the Hungarian Airspace.

The research methods applied

In achieving the research purposes I applied the general and specific methods of research. Among the general research methods, I used **interviews, observation, induction and critical adaptation, and the skills from education and task execution**. Among the law enforcement special methods, I applied the methods of **analysis and evaluation of the application, and command and control during operations other than war**.

Description of thesis research

By way of **introduction** was characterised the essence of transitional period from peace time to crisis management. In area of responsibility a military commander will be authorised for airspace control and the joint operations are supported by activities in neighbouring flight informational regions (FIR).

First part begins with a historical view about the development connections air traffic management (ATM) and air defence system in Hungary during Cold War especially civil and military air traffic services (ATS) working independence each other at the same FIR. There is showed the nowadays knew approach in ATM to support airspace control (ASC) as a prevention of injury rules for airspace utilisation. ATM organised and harmonised at international and national levels air traffic arrangement is limited by laws and other regulations.

Air traffic is managed by several organisations among them there are civil and military authorities and air traffic services, their activities support execution of airspace control. Air traffic management include air traffic flow management (AFTM), airspace management (ASM) and air traffic control (ATC). Air traffic flow management is a safety separation in place (horizontally and vertically) and in time among aircraft. Separation of aircraft is possible in several controlled or uncontrolled zones, areas which are exactly decided parts of flight informational regions (FIR). Aircraft movement in zones is under control of air traffic services they are responsible for safety of movement at several levels meaning differences controlled or uncontrolled parts of airspace.

From start to finish in every moment of aircraft movement is controlled, meaning their identification is executed. Identification of aircraft used five possible methods and three of them means their control. Identification is supported by surface or airborne radar called it *identification friend or foe* (IFF), *Flight Plan* filed by the pilot or airline company. *Origin* or *behaviour* of the aircraft before and during its movement becomes clear or if there is need to *interrogate by air defence fighters*. Experts or airspace managers members of

several air traffic services make these information with two different ways of airspace control.

Positive control relies on the electronic identification and direction of aircraft by an authorised civil or military agency.

Procedural control relies on a combination of previously agreed and promulgated orders and procedures.

As usual the two methods of airspace control must be complementary each other and in general could demand a mixture of two methods.

Summarise first part there was said:

1. Airspace control is directed to establish competence of aircraft in utilisation of airspace.
2. Execution of airspace control is supported by civil and military authorities and air traffic services.
3. Airspace control in general could demand a mixture of two methods.
4. It is directed to prevent injury rules for use of airspace.
5. Air policing is an activity after injury rules of airspace utilisation by air defence fighter.
6. The most important elements in airspace surveillance are airspace control and air policing capability.
7. Airspace surveillance is vital to ensure integrity of airspace.
8. Sovereignty of airspace contains regulation of its use and procedures against intruder threatened its integrity.
9. In integrity of airspace prevention is the most important so its priority is fundamental.
10. This approach among in air defence operations shows a big difference between nowadays and a cold war meaning.

The second part is about the role and place of airspace control in an area of responsibility (AOR) during joint operation. Its execution in airspace control area supported by an authority, the commander of joint task forces to assume overall responsibility. Activities in airspace control area prioritised in Air Control Centre (ACC) and Air Operation Co-ordination Centre (AOCC), in the last one makes the Airspace Control Plan (ACP). ACP is fundamental for making Airspace Control (ACO) and Weapon Control Orders (WCO) approved by ACA.

In airspace control area there is military airspace management divided area of responsibility airspace for several zones and areas tactical commanders several levels and forward air controllers are responsible for ASC.

Summarise second part there was said:

1. During crisis management ACA and his subordinate commanders divide responsibility command and control.
2. In AOR methods of air traffic management and airspace management are used for support of ASC.
3. ACA's activity is supported by an airspace management cell in ACC and its activity is vital for effectiveness of joint operations.
4. Air Traffic Services (ATS), commanders at tactical level are responsible in several zones, areas of AOR.
5. Utilisation of areas, zones approved, disapproved or denied by ACA in Airspace Control Order.
6. ACC is the workplace of ACA.
7. Airspace Control Order makes in ACC.
8. Execution of ASC is planned in AOCC and is approved in ACC.

The third part is about changes air traffic management during peace time in flight informational regions surrounding AOR to increase effectiveness joint operations in it. There is showed that the transition period is constant in FIR 's during operations.

Firstly there analysed reasons of the development and levels of crises situations and any of them not far from the Hungarian Airspace after the end of Cold War. Among these crisis two was very important for activities of Hungarian Air Forces, concerned activities of the air defence system.

In this part I worked out the NATMC document analysed crisis management in the European Airspace and about its conclusion for the near future activities. From these conclusions I tried to find out ways and methods for Hungarian Air Force procedures. My scientific experiments are supported by several illustrations and summarised in my conclusions and suggestions too.

Conclusions

ASC is fundamental in air defence system operations taking place in them first of all tactical aviation and radar surveillance.

In general could demand a mixture of two ASC methods.

Flights both in controlled and uncontrolled areas and zones undertake importance ASC.

Both crisis management in the airspace and air traffic management in Europe claimed integration of civil and military air traffic management and NATO Air Command and Control systems.

During transitional period in crisis management area of responsibility border for ASC doesn't change but changes methods of IFF.

Suggestions for support of ASC in the Hungarian Airspace

1. Among air traffic services of ACC, ATC and FIC build up and continuous operate communication system.
2. Flight rules for military training and in other circumstances in TSA 's work out with help of Navigational Act to help for execution ASC.
3. Build up communication capability between Flight Informational Service (FIS) unit in Flight Informational Centre and airports (TIZ/ATZ), and Airspace Control Centre ASC service unit.

THE NEW SCIENTIFIC RESULTS OF MY THESIS RESEARCH

1. Adaptation of airspace surveillance system working fundamentally determined international norms.
2. Adaptation of air traffic management methods during joint operations in support of ASC.
3. My suggestions for organisational structure of future ACC of Air Force Commander supporting execution ASC in the Hungarian Airspace.

PUBLICATIONS

Scientific articles

- 1./ Air Policing during crise management in Bosnia-Hercegovina / "Légtérrendészet ellátása katonai repülőgépekkel" című cikk, megjelent a Hadtudomány folyóirat VII. évfolyam 1997/3 számában, ISSN, 1215-4121

2./ Role and place AirForce operational centres several tactical levels in ASC and Air Policing / „A légi hadműveletek vezetési központjainak szerepe a légtérellenőrzésben és a légtérrendészeti feladatok ellátásában.” Című cikk, megjelent a Magyar Szárnyak évkönyv 2000. évi kiadásában, ISSN 1416-6577, 135. oldal.

3./ Airspace Surveillance and its connections with AirForce operations / „A légtérfelügyelet ellátása és kapcsolata a légi hadműveletek végrehajtásával” című cikk, megjelent a ZMNE Repülőintézet, Repüléstudományi Közlemények, XII. évfolyam, 31. Szám, 2000, ISSN 1417-0604, 65-75. Oldal.

4./ Airspace surveillance and sovereignty of airspace in peace time and during crisis management / „A légtérfelügyelet megvalósításának sajátosságai különböző időszakokban, a szuverenitás tükrében”, című cikk, megjelent a Repüléstudományi Közlemények, XIV. évfolyam 34. szám, 2002. Kiadó ZMNE Repülőtiszti Intézet Szolnok, ISSN 1417-0604, 45. oldal.

Contributions to a discussion during scientific conference

1./ "Role and place of air force in the Hungarian Home Defence System" Előadás, Hamburg, Vezetési Akadémia, 1996. szeptember.
Megtalálható: Zrínyi Miklós Nemzetvédelmi Egyetem Kutató könyvtár. Nytsz: 585 /2236/Tk.

2./ Principles of Air Defence operations in NATO / "A légtér védelmével kapcsolatos NATO nézetek és elvek." Hozzászólás, az MH Repülőcsapatok országunk védelmére történő felkészítésének jelene-jövője címmel 1996. május 24-én a ZMNE-n megtartott konferencián.

Kiadásra került a Hadtudományi Tájékoztató 1997/4-es számában, kiadta a HVK Hadművelési Főcsoportfőnökség Tudományos Munkaszervezési osztály, felelős kiadó: Dr. Benke Gyula ezredes.

Essays for scientific competitions

1./ Development tactics and possibilities of Air Force, after the Cold War / "A légierő szerepváltozásai", az MHTT által kiírt szerződéses pályázat.
Benyújtási határidő: 1997. október 15-én. Társszerző: Dr. Seres György nyá. mérnök-alezredes, a hadtudomány doktora, tudományos vezető.

2./ Effect of NATO membership for Hungarian connections with neighbors in view point help them in joining / "A Magyar NATO tagság és annak hatása a

szomszédos országokkal való kapcsolatainkra. Együttműködési lehetőségek a bővítés első köréből kimaradó országokkal, különös tekintettel azok integrációs törekvéseinek segítésére."

A Magyar Országgyűlés elnöke által kiírt pályázat, elbírálva 1998. Decemberében.

Study aids

1./ Logistic and operational support at Hungarian AD system / "A Magyar Honvédség légvédelmi csapatai harctevékenységeinek mindenoldalú biztosítása." Tansegédlet, a ZMKA képzésben résztvevő hallgatók részére, 1992, Nytsz: 28/472

2./ Workshop of deputy commanders at tactical level in Hungarian Air Defence system / "A légvédelmi parancsnokság fegyvernemi főnökségeinek feladatai, munkarendjük a harctevékenység megtervezése és megszervezése során." Tansegédlet, a repülőfőnökség tevékenységére vonatkozóan, a ZMKA képzésben résztvevő hallgatók részére, társszerzők Veres Sándor és Lengyel István alezredek urak, 1992, Nytsz: 28 /499

3./ Characteristics of tactical trainings in air defence troops of Hungary / "A Magyar Honvédség harckiképzésének rendje. A harckiképzés sajátosságai a Magyar Honvédség légvédelmi csapatainál." Tansegédlet, a ZMKA képzésben résztvevő hallgatók részére, 1992, Nytsz: 28/473

4./ Workshop of Deputy Flight Commanders in Hungarian Air Defence system / Módszertani útmutató a 830-as számú hadműveleti feladat "A repülő-főnök jelentése" című 4. sz. foglalkozásához a ZMKA képzésben résztvevő hallgatók részére, 1993, Nytsz: 821 /23

5./ Rapid and Quick reaction forces of Hungarian Air Defence Forces / "A Magyar Honvédség Légvédelmi csapatainak készülségi szolgálata." Tansegédlet, a ZMKA képzésben résztvevő hallgatók részére, 1992, Nytsz: 27/429

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1973 Taszár, MN 4563 vadászrepülő-ezred: vadászirányító-megfigyelő
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1984 Budapest Zrínyi Miklós Katonai Akadémia Nyelvi előkészítő tanfolyam: hallgató
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