THE FACTORS OF ENEMY DESTRUCTION FIRE IN THE SINGLE INFORMATION SPACE DURING COMBAT OPERATIONS

Telman MIKAYILOV*, Azad BAYRAMOV**
*Ministry of Defense, Azerbaijan Republic
**Armed Forces War College, Azerbaijan Republic

Abstract: *During military operations in the single information space of various combat power and military units the capacity, context and succession of the tasks determine changes in form, method and rules of enemy destruction fire. In the paper, these changes are shown and in consideration of these the analysis of main destruction fire factors has been carried out. Taking into account of contactless combat activity in the single information space the recommendations for enemy group's fire destructions have been offered.*

Key words: destruction fire, contactless combat activity, single information space, effectivity assessment, high-precision fire attack

1. INTRODUCTION

In modern operations (combat activities) the various power and means determine the forms, methods and contents of enemy fire destruction (EFD) when the common nature of military confrontation is changed, EFD effectivity is increased, the amount and succession of combined units task are changed. First off all, the expansion of combat activities space can be ascribe to these factors.

In this case, in the same time the comprehensive impact possibility is created in aerospace, in land and navy, in information space, in total depth and various directions of its area of battle order. In these condition, in the battle area and based on the increasing combat power and large information advantage of the troops' units to another operation directions, by using of information-computer network (networked operations) in interconnect information-control space, the conception of combat activities execution is provided for implementation.

This process can be implemented in total combat space by interconnecting of

reconnaissance, control systems and fire destruction means in information-computer networks. In network interconnecting processes, the character and content of activities define various impacts methods on the enemy including fire destruction in operation and tactical depth.

The new method of operation activity changes a content and character of defense activities, increases much their maneuver and activity of retaliatory and preemptive attack. The requirements of operations (combat activities) implementation in integrated information space give possibilities to determine new factors of fire destruction to enemy military unit.

2. THE NEW FACTORS OF FIRE DESTRUCTIONS

As a result of the increasing effectiveness of fire destruction means the operation implementation duration is decreased and in the same time the task implementation duration is decreased, too. Far exact and often repeated fire striking to enemy objects the operation implementation under the new requirements is characterized by continuous impact. In this time, the far fire strikes factor is more importance. Not the numerous losses, but break down of enemy opposition possibilities, morale for counteraction and losses restoration are the goal of such far fire strikes. During operation implementation, in the wide area the troop's activities, the coordination of actions possibilities of mutual activity and deep fire destruction support must be strong connected [5].

In modern military operations for realization of combat activities goals the significance of the usual general formations is relatively decreased. In this case, the significance of Air Forces, Naval Forces, Military-Space Forces and Electronic Warfare Forces using high-precision weapons (HPW) and weapons based on the new physical principles is became more important. The "Operation" term remains its main form of force operations, however, in the same time, at present it has new kinds: space, anti-missile, information-psychological, electronic-fire, robotized etc.

In accordance with investigations, in the beginning and during battle operations based on the qualitative indicators the following progress of combat capabilities calculation and possible changes are expected.

Here, it is provided for increasing significance of HPW and weapons based on the new physical principles, robotized systems and smart tools, the creation of efficiency assessment criteria for all fire destroy means and facilitation of commander's decision making [6]. There is an increasing factor of high-precision fire strike to enemy's vulnerable point in mass battle activities, of search of the results attainment methods at using of the minimum forces, of destroy of the enemy's functional systems and its combat capability decreasing in the modern military operations.

The application of the single system creates a possibility of increasing of the mobility and the level of mutual activities of Armed Forces' various types and means. This system is provided by possibility to implement of mutual dynamic planning and based on the permanently updatable data about battle conditions for commanders and Staff to operate of all control levels. In this planning after decision making of strike deliver a blow and give orders to specific fire means strike, in case of revealing of the new aims (targets) the weapons promptly and over again to take aim is taken into account.

For example, the commands via wireless channels for aims fire-destruction are carried out for air-to-surface missiles delivery the tactical bomber, for sea-based guided-missile ship or for theatre-of-war missiles launcher. In this time, as a result of such activities the classic frames between the strategical, operational-strategical and tactical systems are obliterated. Here, the success of battle activities is depended on qualitative and timely implementation of combat tasks, on targets identification and coordinates precise determination, also, on moving characteristics (for mobile targets).

Lately, in high technology area obtained results determine some smart systems and weapon's samples making which can destroy with high effectiveness the opposite grouped enemy's objects and combat systems on spread of whole battlefront during real time. In the single information space In the single information space in framework (by using of united information and control infrastructure) of realization of the new conception of battle activities, the development of perspective automated control and radio communication systems, and the factor of integration into Armed

Forces single information and control system has created. For example, at present, the information reconnaissance systems of advanced countries Armed Forces have provided an application of the limited number of high-precision weapons in one military operation.

In some military experts' judgment, the creation of horizontally and vertically integrated information system of high-precision weapons, also the new reconnaissance systems and means inclusion in weapons, the preparation of reconnaissance information can provide the mass application of high-precision weapons in various military activities areas. Also, it can provided by the parallel dynamic planning at all control levels (tactical levels) of high-precision weapons application during real time.

As it is seen from analysis of combat activities of the NATO United Armed Forces that the Staff of this alliance determines a succession of enemy fire destruction in dependence of the types of applied in operation fire destruction means. Before the high-precision weapons appearance in usually war operations the main method of enemy destruction was a successive destruction of opposite groups. But, after troops arm with new generation of high-precision and far-ranging weapons the factor of enemy destruction method at the same time at whole front has been formed. In military experts' judgment, it is necessary to take into account the saliences of enemy destruction factor in enemy operation formation at the same time at the whole front, in the preparation and implementation of any operation (tactical activity).

In military experts' judgment in the developed countries, the beginning of battle activities will accompanied by powerful missile-air strike and radio blocking-out. In this time, the state and military manage breaking down, the combat potential decreasing, the fire destruction to enemy's groups and logistical support breaking down are gave consideration. These tasks are implemented by air attack. During the USA and NATO mutual Forces military activities in 1993, 1998 and 2003 in Iraq, in 1999 in Yugoslavia, the anti-terror operation in 2002-2010 in Afghanistan, during the Russian Armed Forces peace coercion operation in 2008 in Georgia it was carried out [5].

In the beginning of battle activities the air attack is carried out with purpose of to get an advantage in air, to destroy enemy combat potential and to provide the favorable conditions for land troops. The main method of Rocket and Air Forces application in operations is a mass missile-air attack. The NATO military Air Forces application experiences show that preconceived plan of the first mass missile-air strike provides the most powerful attack. In this time, its caring out is prepared more carefully, the exactly interactions of all used forces and means are organized. The main goal of the first missile-air strike is destruction of enemy's rocket complex and of air attack defense groups, to break down of military air control system. For implementation of this task 70-80 % of all aviation resources is used.

In dependences on location and time, force and means the coordinate first mass rocket-air strike is usually divided on three echelons: Unmanned Aerial Vehicles (cruise missiles) strike, air defense destruction strike and one or two air strike. In military experts' judgment, the duration of the first mass strike can be from two until seven hours. The main goal of this is the maximum destruction of State and military control organs and aviation and anti-aircraft rocket groups, a weakening of retaliatory strike possibilities. It is carried out by cruise missiles and main forces of aviation echelon including more battle worthy, trained and technique well provided units and formations. The first mass rocket artillery strike is prepared in advance. In this time its preparation is implemented more carefully.

In the first mass strike, as a rule, there have been used the maximum number of battle aviation, tactical operation missile complexes, battle helicopters, electronic warfare sets at various deployment. Here, the factor of strike means large-scale involvement and echelonment is seen. In NATO military experts' judgment, in the first mass strike in battle activities area or in strategical direction it is necessary to use up to 90% of all aircrafts in aviation's group. For the next strikes up to 80% of remaining aircrafts can be used (Alekseev).

It seems from calculations that 70-80% of all aircrafts in the air-attacking group and up to 60% of operational tactical rockets' complexes are participated in the first mass strike [2]. The duration of organization and preparation of

the next mass strike is 3-6 hours or more.

At analyzing of the various models of air-ground operations, the next factors have been revealed:

- the operations are carried out in wide and deep front;
- the air components are more used in operations;
- the various methods of strike are planned for successful results of operation;
- the fire destruction concentrates the forces and means in planned strikes direction.

In the time interval between rocket-air strikes, the struggle for an advantage in air grows weak, the active reconnaissance and the regular combat activities are carried out. The important factor of the regular combat activities is time limitation. These activities can be carried out in any time of day and any weather conditions. After air attack, the fire destruction to enemy is carried out by land forces groups in accordance with attack plan. For the benefit of land forces groups combat task implementation the fire preparation and support are planned as fire destruction types.

In military experts' judgment, the direct fire support of troop's activities is carried out by strikes using of high-precision weapons, guided aviation bombs and shellfire [7]. The meteorological conditions, smoke generation and aerosol's camouflage impact on the application accuracy of aviation means with self-guided optoelectronic head. The fire destruction on the areal targets group, including armored, is carried out by application of both guided and non-guided cluster bombs.

For destruction of stronger guarded objects or mopping-up of mined area it is necessary to apply forced guided aviation bombs. Such method of objects (targets) fire destruction creates a factor of application of the high-precision fire destruction weapons. It seems from experiments, the 80% of aviation fire destruction means are the high-precision weapons.

For the purpose of reinforcement of application effectiveness and intensity of the far range high-precision weapons, the active investigations are carried out for development of the infrastructure of information-reconnaissance data. In accordance with new demands the system must provide next:

- in real-time by using of the various types based all

reconnaissance data means the targets searching, revealing, recognition, and selection and location determination;
- during strikes planning the targets optimal distribution and development of target vision data;
- development, making and delivery of the individual tasks for fire destruction means;
- assessment of the strikes results.

The improvement of existent recognition and reconnaissance system, the deeper development of reconnaissance data, the increasing of speed and possibility of the operations calculations means reduce the targets revealing time. These efforts gave possibilities to NATO Forces in Iraq operations in 1991, in dependence of destruction means, to reduce the duration of 7 days between decision making time and rocket strike until 12÷30 minutes in 2003 (in Iraq operations) [8].

At present, the military experts investigate the conception of fire tasks dynamic planning by using of high-precision weapons. The one of distinctive feature of this conception is the possibility of high-precision weapons over again to take aim when revealing of the new critical targets during fire destruction or flight [10]. It should take into account that a number of military experts classify investigations of developments of the information-reconnaissance infrastructure and info ware of high-precision strike means by next:

I-st – creation of high precision digital geoinformation data of objects and terrain. There are next main technological tasks in this area:
- the hyperspectral photo-graphing (in the range from ultraviolet till infrared, $f > 100$ nm);
- in a forest terrain the objects dislocated under the plant cover by using of radiolocation station in the same time in meter and decimeter wavelength range the wide-gap radiolocation photographing;
- in centimetric radiolocation waves contributing the recognition of targets in accordance of their vibration characteristics, the capacity increasing of Doppler filtering carrier.

II-nd – the various reconnaissance systems packaging arrangement on the single board bearer for the purpose of independent aiming, stationary and

mobile target designation providing in real time.

III-rd– the target designation by creation of force field by using 2÷4 new generation aviation radiolocation stations and the collective high-precision radiolocation searching of the land moving targets.

IV-th – the increase of positioning accuracy (in military mode – 3÷10 m, in differential mode - 0,2÷0,5 m) (Joint Publication, 2002) and of noise-immunity of the space radio navigation system.

V-th –the formation of network of land reconnaissance transmission systems in depth of enemy terrain for the purpose of targets designation providing of the determination of targets positioning accuracy for reconnaissance means.

3. REALIZATION OF THE NEW CONCEPTION OF COMBAT ACTIVITIES EXECUTION

In the single information space, in the framework of realization of the new conception of battle activities (by using of jointed information-control infrastructure) in a number of periods the development of perspective automated control and communication systems, including the integration into the single information-control infrastructure in Armed Forces the activities are carried out.

The realization of this program comes to agreement the various elements of the troops control system with the single multilevel hierarchy system. It provides automated operative renewal of users' data base and helps to receive necessary information about any battle activities in any time. The realization of the new program increases the level of automation of the decision making process and the level of unauthorized actions prevention [3].

On the whole, in military experts' opinion, the application of this program will promote of possible changes in execution of battle activities. By using of usual weapons these activities are next:

- high mobility and rate of execution of the combat task, a broad choice possibility based on the renewal detailed information about enemy, various types of the destruction means and its executed tasks;
- a broad realization of reconnaissance-strike

conception of arming systems during selected striking based on the target designation in the single information space of all priority targets and in real time received data about high-precision destruction means and combat ammunition;

- realization of the coordinate planning principles for the fire tasks of far range rocket complex possessing of the possibility of again aiming when revealing of the new important targets or for the high-precision destruction means, also, mainly the target designation data correction during flight;
- realization of the combat application principles by means of terrain observation or in more than 100 km width range the continuously patrol flights for destruction of the land command post and for revealing and tracking of mobile and small size targets (it is more important than Unmanned Aerial Vehicle - UAV).

Take into account above considered factors, by application of only usual weapons the next combat activities' forms can be implemented in the single information space:

- the attacking groups operations (strike blows) by application of high-precision weapons the more important military and political (military-industrial) or time-critical targets in whole enemy area;
- the reconnaissance-strike operations by application of special-purpose forces and, in the same time, taken into account of high-precision rocket-bomb strike blows.

The factors of operation breadth increase, of execution in whole battle space in the same time, of increase of the operations rate and continuity, of increase of the scope fire tasks, of change of the destructed objects structures and character determine an increase of the common part of necessary in real time to destroy mobile and armored objects. The basis of such activities is a conception of "advance in revealing and destruction". In this case, it is possible to take the lead, keeping and using, also to win out in fire and information superiority and to keep it.

4. CONCLUSION

The developed idea about transition from usual operations to the network-centralized operations

demands further improvement or revision of a battle application of the enemy troop's destruction forces and means. It is supposed that the future combat operations will antisymmetric. That is:

1. In the future combat activities in the same time of efforts concentration in selected directions, the activation on the whole struggle front is supposed.

2. The increase of fire tasks scope by side of commander and Staff for the sake of interests of fire supply of troops activities demand an enemy troops and objects one-time-only compressed fire impact.

3. In modern conditions, by involvement of forces and means in much volume the mass fire strike blows demand a transition to high effective and high precision fire means providing in short time a fire supply in antisymmetric activities.

REFERENCES

[1]. Alekseev A. *The analysis of USA aviation combat application during "Drastic power" operation*. http://www.airwar.ru.

[2]. Bityushkin S., Dulnev P. *"Shock and trembling" operation. Analysis of mistakes // Military review*, 2013, №11, pp. 30-33.

[3]. Grachev I.A. *The construction principles of the special mathematical providing and software of troops' automatic control system* // Voennaya Misl. Moscow, 2002. № 2, pp.12-19.

[4]. *Joint Publication 3-09 Joint Fire Support.* Department of the Army, Washington, DC, 2002.

[5]. Mikayılov T.N., Bayramov A.A., Valehov S.A. *The analysis of fire destruction during military operations in lately local and regional wars* // National Security and Military Sciences. 2015, vol. 1, №1, pp. 52-57.

[6]. Mikayılov T.N., Bayramov A.A., Valehov S.A. *In modern operations fire destruction features* // National Security and Military Sciences. 2016, vol. 2, №1, pp. 92-97.

[7]. Valetski O.V. *Experience of NATO "air" war against Yugoslavia in 1999.* http://www.warandpeace.ru.

[8]. Vasilev G. USA *Armed Forces "Desert storm" operation* // Foreign military review, 1991, №1, pp. 5-11.

[9]. Vipasnyak V.I., Tixanichev O.V., Bazunov S.R., Rubtsov K.V. *Information-analytical system of enemy fire destruction planning.* http://poleznayamodel.ru.