

# When arrogance costs lives

## On the potential of Russian hypersonic weapons

by Ralph Bosshard,\* Switzerland



Ralph Bosshard. (Photo nachdenkenseiten.de)

Following his official statement on hypersonic weapons, Russian President Vladimir Putin was seen as a braggart and it is in line with the current mainstream to portray the Russian army as an inefficient bunch equipped with old junk. Reports on the effective use of the latest Russian weapons technology simply do not fit

into this concept. However, a change from the common clichés is inevitable, not least in Europe's own security interests.

Five years ago, on 1 March 2018, *Putin* announced in his address to the nation the commissioning of hypersonic weapons by the Russian army.<sup>1</sup> At the time, there was talk of a new intercontinental ballistic missile, a hypersonic atmospheric glider, a sea target missile (anti-ship missile) and an air-launched ballistic missile. This announcement was dismissed in the West as bragging and fantasy.<sup>2</sup> Even after the first deployment of such a weapon in the Ukraine war, Western commentators took pains to downplay its impact, as it did not fit at all into the common cliché of the supposedly inefficient, cumbersome and outdated Russian army.<sup>3</sup>

According to an article by the military editor of the Russian tabloid *Komsomolskaya Pravda*, *Viktor Baranets*,<sup>4</sup> on 9 March this year a hypersonic missile of the type "Kinzhal" hit the former command bunker of the Transcarpathian Military



Cracked ceiling of a Soviet Union bunker. (Symbolic image)<sup>26</sup>

District of the Soviet Army near Lviv, which is – or rather was – now used by the Ukrainian army.<sup>5</sup>

At the time of the missile attack, up to 200 officers of NATO and the Ukrainian army are said to have been in the bunker, which is 100 or even 130 metres underground. According to *Komsomolskaya Pravda*, none of the officers were able to leave alive, and according to *Voennoe Obozrenie*, only 40, while the bodies of 160 NATO officers remained there.<sup>6</sup>

### All made up?

In the Western press, the report received little attention and was immediately dismissed as Russian propaganda. And it fitted the current pattern to ignore it. For instance, the so-called fact check at "Snopes" is rather weak and essentially relies on the credibility of the media involved without going into the content of the article. If there is nothing to criticise about the content, then at least it is possible to discredit the spokesperson, they might have thought at "Snopes". Its "fact check" is probably as much a product of the information war as *Baranets'* article itself.<sup>7</sup>

Everything fictitious? Experience shows that in the information war, pure untruth is rarely spread. Rather, events are concealed, played down or exaggerated as needed. Truths are combined with half-truths and linked to well-known stereotypes. When it comes to such a sensitive topic as an attack on a leading institution of national importance, official agencies will hold back in their reporting.

The assessment of the damage done by a strike, called *Battle Damage Assessment* in techni-

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cal language, is an integral part of the command-and-control process. The victim of a successful attack will only confirm the obvious information because he does not in any way want to make it easier for his opponent to decide whether or not to attack the target a second time. Consequently, it is worth asking whether such an event could occur at all; whether the range, precision and effect of the weapon used are sufficient to cause the reported casualties and damage.

### Reliable hit after a 700 km flight

The *Kh-47 Kinzhal* (Russian for dagger) ballistic missile is the newest weapon in the arsenal of the *Russian Air and Space Forces* (VKS). It is launched from a fighter aircraft and approaches its target at an altitude of 20 km at up to ten times the speed of sound, i.e. almost 12,000 km/h. The *Kinzhal* is carried by a carrier. The *Kinzhal* is carried by *Tupolev-22M3M* bombers, *MiG-31M* and *Sukhoi-34* fighters, and later perhaps the *Sukhoi-57* stealth fighter.<sup>8</sup>

The fact is that on 9 March the Russian VKS fired six *Kinzhal* missiles, all of which reached their targets.<sup>9</sup> This indicates a change in tactics by the Russians: Previously, they fired dozens of older-type missiles to overwhelm Ukrainian air defences. Now they are apparently relying on a type of missile that cannot be shot down and achieves much higher penetration rates than Western "bunker busters" purely through its kinetic energy.

Various figures have circulated in the past about the range of the *Kinzhal*. Official Russian figures of 2,000 km were questioned; Western analysts reduced them to between 500 and 1,000 km.<sup>10</sup> Lviv is in the far west of Ukraine,

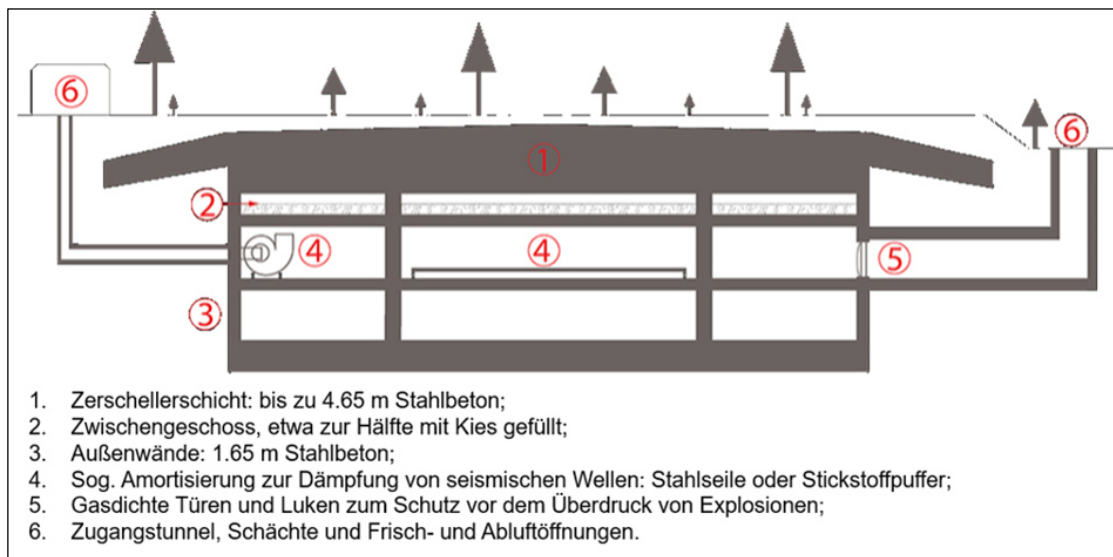
about 700 km from the nearest territory under Russian control. Belarusian territory would be considerably closer, but there is currently no indication that the attack was carried out from Belarusian airspace. Consequently, one can safely assume a range of at least 700 km.

If the *Kinzhal* is as accurate as the *Kalibr* missiles and cruise missiles, with which it probably has certain components in common, then dispersion circles (Circular error probable [CEP]) of 10 m are quite possible. In concrete terms, this means that 50% of the missiles hit within a circle of 20 m diameter around the target. Thus, a hit with a *Kinzhal* missile on the surface of an underground facility, which may well be 50 m by 50 m, can be considered almost certain.<sup>11</sup> According to the article by Viktor Baranets, however, two *Kinzhal* missiles were used. Moscow obviously wanted to play it safe.

### Russian Bunker Cracker

Protection concepts for hardened structures of high importance are usually a closely guarded secret, all the more worthy of protection because the location of such structures can hardly be kept secret. The construction sites can be detected by reconnaissance satellites and the local population usually knows of their existence, even if their function and degree of protection remain unknown. Today we know the command bunkers of the government of the former GDR and the *National People's Army* NVA very well, such as object 17/5001, the alternative command post of the *National Defence Council of the GDR* in Prennden near Berlin.<sup>12</sup>

It can be assumed that the protective measures of such installations were standardized in



Object 17/5001 (Source: [untergrund-brandenburg.de](http://untergrund-brandenburg.de),<sup>13</sup> Edited by the author)

the *Warsaw Treaty Organization*. The staff of a military district of the Soviet Army was an operational-strategic command authority. Consequently, the degree of protection of their command facility may have been comparable to that of the command bunker of the GDR and NVA command. It can therefore be assumed that the top protective layer of the bunker, the so-called shattering layer of reinforced concrete, reached a thickness of 4.5 to 5 meters. Today's US bunker buster weapons are said to penetrate 7 m of reinforced concrete.<sup>14</sup>

However, the *Kinzhal* reaches much higher speeds on final approach than Western bunker busters and is built from specially resistant metal alloys. Thus, it can easily penetrate the reinforced concrete ceiling of a Soviet-type command bunker. Additional layers of gravel and sand underneath the crusher layer primarily serve to evenly distribute the shock wave of impacts in the crusher layer and probably offer little resistance to a *Kinzhal*.

Allegedly, the destroyed command bunker was 100 to 130 m deep in the ground. We know from the battles for the "Azovstal" steel complex in Mariupol and the "Azom" non-ferrous metal foundry in Bakhmut/Artemovsk, which was captured by the fighters of the "Wagner Group" in March, that protective structures of five to six storeys deep in the ground are by no means unusual.<sup>15</sup> But if the command facility in Lviv was built into a mountain, as is the case with many Swiss facilities, then depths of 100 m and more are quite possible. In this case, *Komsomolskaya Pravda* would simply have concealed the fact that the *Kinzhal* hit at a location that was less deep below the ground.

### **NATO officers among the victims?**

In principle, there are major differences between the staff organization in the Soviet and Russian armed forces and that of NATO. A brigade staff according to NATO ordinance can easily consist of 90 officers, and staffs at the operational level, such as those of *Joint Force Commands* Brunssum and Naples, of a few hundred.<sup>16</sup>

In contrast, Russian staffs are considerably smaller: the staff of a Russian army comprises about as many officers as a NATO brigade staff. The command-and-control facility at Lviv may have been built for a staff of 100 to 200 men, namely for the staff itself and the necessary support staff such as computer scientists, radio

operators, secretaries and others. Without extensive conversions, which are naturally difficult to realize in massively built underground bunkers, the command bunker could hardly have accommodated 400 officers, as has been claimed. Accordingly, the casualty figures must be corrected downwards.

Lviv is the location of the Ukrainian army's peacekeeping training centre, which is likely to have been converted into a general training centre in view of the current situation. NATO's operational commands maintain so-called mobile training teams, which also provide training at the location of partner nations, especially in the areas of staff work.<sup>17</sup> The *Mobile Training Team of Joint Force Command Brunssum* would be responsible for training Ukrainian officers in Ukraine itself.<sup>18</sup>

Lviv is also a suitable location for a liaison staff between the Ukrainian army and NATO. Such liaison staffs can quickly consist of a few dozen officers, non-commissioned officers and enlisted men, especially if a permanent presence is to be ensured in shift operations. But such a liaison staff is certainly not 160 men strong, nor is a mobile training team. The death of such a large number of NATO officers as in the present case would also hardly be kept secret.

The Lviv location has the advantage that the NATO personnel deployed there can be accommodated in neighbouring, secure Poland. This approach was already practised in January 2022, when US embassy staff had to be moved from Kiev to western Ukraine. The presence of NATO officers in Lviv might have been noticed by the local population. For this reason, the deployment of NATO officers to a barracks in the city of Lviv would have been rather awkward, even for intelligence reasons. The choice of an outside, underground facility was certainly sensible. Whether Russian satellites were really photographing the numerous cars parked in front of the facility is not certain. It is possible, however, that the presence of Western officers did not go unnoticed by the Russians' electronic reconnaissance. The handling of mobile phones is sometimes somewhat careless on the Western side as well. Most plausible, however, is that the so-called agency reconnaissance, i.e. spies on the ground, informed the Russians about the operations in the command and control centre. No matter how the Russians found out from the

NATO officers in Lviv: The incident shows that Ukraine is not in a position to guarantee the safety of its NATO allies' personnel.

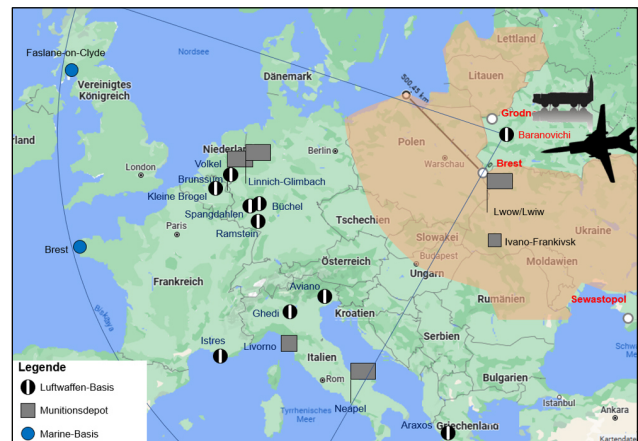
### Conclusion

The story by Viktor Baranets in "Komsomolskaya Pravda" may not be completely out of the air. The most plausible assumption is that two Russian *Kinzhal* missiles hit a command-and-control facility of the Ukrainian army, killing a large number of officers, including those from NATO countries. This story serves the Kremlin's narrative that Russia is in a defensive struggle against NATO as a whole. But Baranets did not have to invent a story about a command bunker with NATO officers to show this, because the West confirms this narrative itself every day with its arms deliveries to Ukraine.

Irrespective of the question of whether the attack with the *Kinzhal* missiles was as effective as claimed, the Russians sent NATO a number of essential messages: Contrary to the prophecies of doom that the *Kinzhal* is not operational at all and that if it is, it is only available in very small numbers, the Russians have demonstrated with their six missiles that the *Kinzhal* exists, that it is effective and that it cannot be intercepted by air defences.<sup>19</sup> Apparently, Russia can also afford to use six of them against targets whose destruction does not necessarily require the use of a *Kinzhal*.

If the *Kinzhal* could destroy a command bunker near Lviv and earlier an ammunition depot in the Ivano-Frankivsk area,<sup>20</sup> it can do the same with the ammunition depots at air force bases in Germany, Belgium, the Netherlands, Italy and Turkey, where *B-61-12* nuclear bombs are stored as part of nuclear sharing. The same applies to other potential nuclear weapons storage sites such as Ramstein, Spangdahlen, Aviano and Camp Darby near Livorno,<sup>21</sup> as well as NATO command bunkers in Brunssum, Naples, Linnich-Glimbach and others. The French nuclear force bases at Istres and near Brest, as well as the British submarine base at Faslane-on-Clyde in Scotland, may also be within range. If the *Kinzhal* can indeed be equipped with a thermonuclear warhead that detonates an aerosol of fuel and air and creates a tremendous blast wave, then even well-protected facilities are at risk.<sup>22</sup>

Now Russia only has to show that the *Kinzhal* can really fly 2,000 km as claimed. To do this, a



Map: Range of the *Kinzhal* missile and the *Iskander* cruise missile from Belarus. (Source: Google, additions by author)

Russian bomber must fire a missile at a target 2,000 km away within the range of a NATO radar.<sup>23</sup> If Russia's warnings continue not to be taken seriously in the West, such a test firing will probably happen soon.

### Message to the West

The deployments of *Kinzhal* missiles in Ukraine so far have been a signal from Russia to the USA and NATO and are possibly already one of the reasons why the West is not taking more forceful action against Russia. And they are intended to persuade the West to hold talks with Russia on strategic weapons, which the Ukraine war has so far prevented.

The *Kinzhal* is probably one of the instruments of non-nuclear strategic deterrence that was discussed years ago in the Russian general staff.<sup>24</sup> Fundamentally, Washington, London, Brussels and elsewhere will have to think about how to react when strategically important facilities are taken out by non-nuclear weapons. After all, according to current doctrine, Western states reserve the right to use nuclear weapons even if no nuclear weapons have been used against them.<sup>25</sup>

The West would be well advised to assume the unfavourable case of the *Kinzhal* hitting at a distance of 2,000 km and being able to destroy objects that until now could only be threatened by nuclear weapons. Moreover, it will be an act of prudence to assume that the sea target missile "Tsirkon", the atmospheric glider "Avangard" and the intercontinental (ballistic) missile "Sarmat" can also work or at least be made to work. And in general, the West should abandon the idea that it is technologically superior to all others in the field of armament. It is time to turn

away from the overconfidence and arrogance that cost lives in Lviv.

Source: <https://globalbridge.ch/wenn-ueberheblichkeit-menschenleben-kostet>, 22 April 2023

(Translation "Swiss Standpoint")

- <sup>1</sup> See "Speech to the nation; Putin presents Russia's new invulnerable nuclear weapons", in *Frankfurter Allgemeine Zeitung*, 03.01.2018, online at <https://www.faz.net/aktuell/politik/ausland/putin-praesentiert-bei-rede-an-nation-russlands-neue-waffen-15473300.html> and Bruno Knellwolf: Putin and his superweapons: How hypersonic missiles work at *Watson*, 03.22.2022, online at <https://www.watson.ch/international/russland/244885906-putin-und-seine-superwaffen-so-funktionieren-hyperschallraketen>.
- <sup>2</sup> See Julian Hans: Putin boasts of superweapons, at *Tages-Anzeiger*, 03.01.2018, online at <https://www.tagesanzeiger.ch/putin-prahlt-mit-superwaffen-730863817281>. "Just before the election, Russia's President Vladimir Putin is rhetorically arming himself and threatening with invincible nuclear weapons."
- <sup>3</sup> Typical of this is the article by Volker Pabst: Moscow points to its "wonder weapons", in *Neue Zürcher Zeitung*, 03.20.2022, online at <https://www.nzz.ch/international/russlands-wunderwaffe-erster-kampfeinsatz-von-hyperschall-rakete-ld.1675519?reduced=true>, reduced preview. "Russia claims to have used hypersonic missiles in combat environments for the first time ever. The effect of the novel weapons is likely to be mainly propaganda."
- <sup>4</sup> According to the portal "Putin's List", he is a Russian propagandist. See "Baranets Viktor Nikolaevich", *ibid*, online at <https://www.spisok-putina.org/en/personas/baranets/>.
- <sup>5</sup> Russian spelling Lvov, German Lemberg. For the Trans- or Pri-Karpathian military district see «Прикарпатский военный округ», at *Akademik.ru*, online at <https://dic.academic.ru/dic.nsf/ruwiki/266431> and *ucoz.ru*, online at [https://voinanet.ucoz.ru/index/vooruzhjonnye\\_sily\\_ukrainy\\_prodolzhenie\\_7/0-13994](https://voinanet.ucoz.ru/index/vooruzhjonnye_sily_ukrainy_prodolzhenie_7/0-13994).
- <sup>6</sup> See Виктор Баранец: «Катастрофа сил НАТО на Украине»: Россия одним ударом «Кинжала» по секретному бункеру отодвинула контрнаступление ВСУ, bei *Komsomolskaya Pravda*, 04.15.2022, online at <https://www.kp.ru/daily/27490.5/4748875/>, German translation by Andreas Mylaeus on *Seniora.org* at <https://seniora.org/politik-wirtschaft/die-nato-verursacht-eine-katastrophe-in-der-ukraine-russland-schlaegt-die-gegen-offensive-der-afu-mit-einem-kinschal-schlag-auf-einen-geheimbunker-zurueck>. Vcf. "NATO silent on its disaster near Lviv in Ukraine", at *Global Bridge*, 18.04.2023, online at <https://globalbridge.ch/die-nato-schweigt-zu-ihrer-katastrophe-bei-lwiw-in-der-ukraine/>. The *Komsomolskaya Pravda*, the former organ of the youth organisation of the Communist Party of the Soviet Union is now a tabloid of dubious credibility. Cf. «В бункере на Украине остались тела 160 офицеров НАТО после удара Кинжалом», *Lenta.ru*, 04.16.2023, online at <https://lenta.ru/news/2023/04/16/nato/>; «Российские военные уничтожили командный пункт НАТО и ВСУ вблизи Львова», bei *Lenta.ru*, 04.15.2023, online unter <https://lenta.ru/news/2023/04/15/natovsu/>; «В бункере под Львовом после удара «Кинжала» остались тела 160 офицеров НАТО» bei *Regnum.ru*, 04.16.2023, online at <https://regnum.ru/news/society/3798556.html>; Михаил Родионов: «Впервые так много погибших». «Кинжал» уничтожил штаб НАТО на Украине; *Pronews*: Центр связи ВСУ с офицерами НАТО уничтожен при ударе «Кинжала» на Украине, 03.30.2023, online at <https://www.gazeta.ru/army/2023/03/30/16481875.shtml> and «Греческое издание утверждает, что российская гиперзвуковая ракета «Кинжал» поразила подземный командный бункер НАТО на Украине», bei *Военное обозрение* *Новости*, 03.30.2023, online at <https://topwar.ru/213973-grechskoe-izdanie-rossijskij-kinzhal-porazil-podzemnyj-komandnyj-bunker-nato-na-ukraine.html>. The article on the online portal *Pronews*, which is said to be close to the Greek Ministry of Defence, can be found at <https://www.pronews.gr/amyta-asfaleia/enoples-sygkroyseis/ektakto-tromaktiko-ktypima-se-120-metra-vathos-merosiko-yper-yperixitiko-vlima-kinzhal-sto-kentro-dioikisistou-nato-stin-oukrania/>, in Greek.
- <sup>7</sup> See Alex Kasprak: *Did Russian Forces Strike a 'NATO Command Center' in Lviv, Ukraine?*, 04.03.2023, online at <https://www.snopes.com/fact-check/nato-command-center-strike/>. The same applies to «Top 5 Fake News. Depleted uranium armor-piercing rounds are a highly radioactive», by the Belarusian Investigative Center, ANTI-FAKE / FACTCHECK, 04.05.2023, online at <https://investigatebel.org/en/fakenews/fejki-nedeli-nato-schitaet-cto-obednennyj-uran-eto-ochen-radioaktivnoe-oruzhie>.
- <sup>8</sup> See «Tu-160 BLACKJACK (TUPOLEV)» on *Global Security.org*, online at <https://www.globalsecurity.org/wmd/world/russia/tu-160.htm>, «Tu-22M BACKFIRE (TUPOLEV)» by *FAS*, online at <https://nuke.fas.org/guide/russia/bomber/tu-22m.htm>, Marco Friedrich: The Monster by Mikojan, Mikojan-Gurewitsch MiG-31, NATO-Code *Foxhound*, at *airpower.at*, online at [http://www.airpower.at/news07/0429\\_mig-31/index.html](http://www.airpower.at/news07/0429_mig-31/index.html).
- <sup>9</sup> See Lorenzo Tondo: *Russia launches six hypersonic missiles in massive barrage against Ukraine*, by *The Guardian*, 03.09.2023, online at <https://www.theguardian.com/world/2023/mar/09/ukraine-war-missile-strikes-attacks-hit-kyiv-power-out-odesa-kharkiv>.
- <sup>10</sup> See «Kh-47M2 Kinzhal, Air-launched ballistic missile», by *Military.com*, online at [http://www.military-today.com/missiles/kh\\_47m2\\_kinzhal.htm](http://www.military-today.com/missiles/kh_47m2_kinzhal.htm), and Jill Hruby: *Russia's New Nuclear Weapon Delivery Systems, an Open-Source Technical Review*, by *Nuclear Threat Initiative*, November 2019, S. 19f, online at [https://media.nti.org/documents/NTI-Hruby\\_FINAL.PDF](https://media.nti.org/documents/NTI-Hruby_FINAL.PDF), as well as «Kh-47M2 Kinzhal», by *CSIS Missile Defense Project*, 03.19.2022, online at <https://missilethreat.csis.org/missile/kinzhal/>. Vgl. Алексей Леонков: Гиперзвуковой бросок «Кинжала»: конкуренты еще – в «пеленках», by *Zvezda Weekly*, 05.23.2018, online at <https://zvezdaweb.ru/news/20185211547-L3aOs.html>, in Russian.
- <sup>11</sup> The "Castle Gate" of the Brunssum JFC near Linnich-Glimbach, which is used as a crisis and alternative location, is approximately 50 x 50 m in size. Up to 500 people are to be able to live and work there. See "Military Sites in the Aachen Region, Speech by KAKB-AC for the Arms Control Commission (11.06.02)", at *Users.cuci.nl*, online unter [https://web.archive.org/web/20151026043205/http://users.cuci.nl/bergstr6/Rede\\_021104\\_Militaerstandorte\\_AC.html](https://web.archive.org/web/20151026043205/http://users.cuci.nl/bergstr6/Rede_021104_Militaerstandorte_AC.html).
- <sup>12</sup> For comparison, see object 17/5001, the alternative command post of the National Defence Council of the

GDR, at [untergrund-brandenburg.de](https://www.untergrund-brandenburg.de), online at [https://www.untergrund-brandenburg.de/Sub\\_Sites/Komplex\\_5000/Objekt\\_17\\_5001\\_bei\\_Prenden/Objekt\\_17\\_5001\\_bei\\_Prenden.php#Inhalt-10](https://www.untergrund-brandenburg.de/Sub_Sites/Komplex_5000/Objekt_17_5001_bei_Prenden/Objekt_17_5001_bei_Prenden.php#Inhalt-10). For the protection of the buildings of the NVA or the government of the GDR, see "Protection classes of protective structures" at [https://www.untergrund-brandenburg.de/Sub\\_Sites/Information/Schutzklassen/Schutzklassen.php](https://www.untergrund-brandenburg.de/Sub_Sites/Information/Schutzklassen/Schutzklassen.php).

<sup>13</sup> Ibid.

<sup>14</sup> Until now, it was assumed that the most effective US bunker busters, the BLU-122, penetrate 6 to 7 m of reinforced concrete. The latest weapon, the GBU-57 Massive Ordnance Penetrator, was developed specifically for use against Iranian nuclear facilities, but is said to penetrate 19 m of them. See «США испытали сверхмощнуюпротивобункерную авиабомбу», at Interfax, 09.17.2019, in Russian. Somewhat more cautious with technical data are Mark Thompson: Key Point: Bunker-Busters Come In Both Small and Large Sizes, at *Battleland*, 03.09.2021, online at <https://nation.time.com/2012/03/09/key-point-bunker-busters-come-in-both-small-and-large-sizes/>, «Air Force Now Has the MOP», by *Defensetech*, 11.15.2011, online at <http://defensetech.org/2011/11/15/air-force-now-has-the-mop/>, Tony Capaccio: *30,000-Pound Bunker Buster Bomb Now Ready*, by *Bloomberg*, 11.14.2011, online at <https://www.bloomberg.com/news/articles/2011-11-14/30-000-pound-bunker-buster-bomb-now-ready?leadSource=verify%20wall> and John Reed: *USAF Getting More Penetrating Power*, bei *DoD Buzz Online, Defense and Acquisition Journal*, 08.04.2011, online at <https://web.archive.org/web/20110413164651/http://www.dodbuzz.com/2011/04/08/usaf-getting-more-penetrating-power/>.

<sup>15</sup> See Подземные бункеры и защита от бомб: Где находится «артёмовская «Азовсталь» и что о ней известно, by *Life.ru*, 03.14.2023, online at <https://life.ru/p/1564781>, in Russian. The siege of the Azovstal plant lasted almost three months: from the second half of March until May 2022, that of the Azom non-ferrous metal foundry (Артёмовский завод обработки металлов, auch Tsvetmet genannt) on the other hand, only a good week.

<sup>16</sup> NATO's *International Military Staff*, for example, comprises 500 people; see the NATO homepage, 04.03.2023, online at [https://www.nato.int/cps/en/nato-hq/topics\\_64557.htm](https://www.nato.int/cps/en/nato-hq/topics_64557.htm),

<sup>17</sup> See «The Allied Joint Force Command Naples Joint Mobile Training Team (JMTT) engaged with the Royal Moroccan Armed Forces as part of their mission», on the Homepage of JFC Naples, 11.25.2022, online at <https://jfcnaples.nato.int/newsroom/news/2022/allied-joint-force-command-naples-joint-mobile-training-team-jmtt-engaged-with-the-royal-moroccan-armed-forces> und «JFCNP J9 Military Partnership Branch Conducts NATO Evaluation of Tunisian Helicopter Squadron», 09.15.2022, online at <https://jfcnaples.nato.int/newsroom/news/2022/jfcnp-j9-military-partnership-branch-conducts-nato-evaluation-of-tunisian-helicopter-squadron>.

<sup>18</sup> Joint Force Command Brunssum led the NATO operations in Afghanistan and today leads the NATO RESPONSE FORCE (NRF), see the homepage of the JFC Brunssum, online at <https://jfcbs.nato.int/page5725819/nato-response-force-nrf-fact-sheet>, as well as the Enhanced Forward Presence, see <https://shape.nato.int/efp>.

<sup>19</sup> See Ralph Bosshard: The Russian air war campaign against Ukraine, at *bkoStrat*, 11.20.2022, online at <https://bkostrat.ch/2022/11/20/russische-luftkriegskampagne-gegen-ukraine/>.

<sup>20</sup> See «Russia claims first use of hypersonic Kinzhal missile in Ukraine», by *BBC News*, 03.19.2022, online at <https://www.bbc.com/news/world-europe-60806151>.

<sup>21</sup> See Christian Müller: US weapons transfer site Camp Darby in Italy speeds up, at *InfoSperber*, 09.16.2018, online at <https://www.infosperber.ch/politik/welt/us-waffen-umschlagplatz-camp-darby-in-italien-wird-schneller/>. Cf. «What Do You Know About the U.S. Base Camp Darby?», by *US Citizens for Peace and Justice, Rome, Italy*, online at <http://www.peaceandjustice.it/camp-darby.php>.

<sup>22</sup> See «Iskander / SS-26», by *Federation of American Scientists*, 01.10.2013, online at <https://nuke.fas.org/guide/russia/theater/ss-26.htm>.

<sup>23</sup> The range of the AWACS E3 radar is given as 400 to 500 km. See "A look at the borderland: With a NATO reconnaissance aircraft in the air" on the homepage of the German Bundeswehr, online at [https://www.bundeswehr.de/de/organisation/luftwaffe/aktuelles/ein-blick-ins-grenzland-mit-einem-nato-aufklaerer-in-der-luft-5502908#:~:text=Der%20Blick%20reicht%20weit&text=Das%20Radar%20dreht%20sich%20dabei,zirka%20400%20Kilometer\)%20erkennen%20kann](https://www.bundeswehr.de/de/organisation/luftwaffe/aktuelles/ein-blick-ins-grenzland-mit-einem-nato-aufklaerer-in-der-luft-5502908#:~:text=Der%20Blick%20reicht%20weit&text=Das%20Radar%20dreht%20sich%20dabei,zirka%20400%20Kilometer)%20erkennen%20kann).

<sup>24</sup> The author himself witnessed such discussions at the General Staff in Moscow in 2013 and 2014.

<sup>25</sup> See *Sir Michael Fallon's answer to Caroline Lucas MP's question of 09.05.2017* on the UK Parliament's website: *Nuclear Weapons, Question for Ministry of Defence, UIN 8502*, tabled on 5 September 2017, online at <https://questions-statements.parliament.uk/written-questions/detail/2017-09-05/8502#> und Rob Merrick: «Theresa May would fire UK's nuclear weapons as a 'first strike', says Defence Secretary Michael Fallon», bei *The Independent*, 04.24.2017, online at <https://web.archive.org/web/20170425031826/http://www.independent.co.uk/news/uk/politics/theresa-may-nuclear-weapons-first-strike-michael-fallon-general-election-jeremy-corbyn-trident-a7698621.html>. VDefence Minister Michael Fallon declared at the time «...the Prime Minister was prepared to launch Trident in 'the most extreme circumstances», even if Britain itself was not under nuclear attack.»

<sup>26</sup> Cover picture, *bernsaelz*, *bunker-gbac59ceea\_1920*, online at <https://pixabay.com/photos/bunker-lost-places-bomb-impact-1640067/>